From Information to Action: Exploring Health Information Use Among Older Adults with Diabetes in Canada

Xiaoqian Zhang

School of Information Studies

McGill University

Montreal, Quebec, Canada

Winter 2025

A thesis submitted to McGill University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

To my parents, for their unconditional love and support. They will always have my deepest love.

To my grandparents and my cat, may they rest in peace. Their memory will always stay with me.

Acknowledgments

When I started writing this acknowledgment, I once again realized how quickly time flies (and yes, I say this a lot—especially at the end of every study phase, haha). I know it's a cliché to say, but I'm still going to say it because it's *my* thesis, so bite me! :) Anyway, it's time to reflect and say goodbye to this incredible journey. I'm flooded with so many memories that I don't even know where to begin. Writing this thesis has been so much more than just conducting research; it's been a journey of growth for me—both as a researcher and as an ordinary human being.

To start, I am profoundly grateful to my supervisor, Dr. Joan C. Bartlett, who has always believed in me and encouraged me every step of the way. I began my PhD journey in 2020, right as the pandemic struck, which forced me to take courses online. It was a surreal and challenging time—adjusting to the Canadian course style while being in China with a 12/13-hour time difference. Yet, Dr. Bartlett was incredibly supportive and helpful throughout. I will always cherish our weekly meetings, during which she shared so much about the School of Information Studies (SIS), McGill, and Canada. Those conversations made me feel deeply connected to McGill, even though I wasn't physically on campus.

Dr. Bartlett has been a true source of inspiration for me in academia. She gave me the academic freedom to explore my interests while providing insightful and practical guidance whenever I needed it. She encouraged and supported me to attend conferences such as the annual meetings of the Association for Information Science and Technology (ASIS&T), the Canadian Health Libraries Association conference (CHLA), and the Information Seeking in Context (ISIC) Conference. These experiences helped me develop my presentation skills and build connections with scholars worldwide. Whether it was scholarships, travel awards, or job applications, Dr.

Bartlett was always there to offer her genuine support. Her belief in me has made everything possible.

For me, Dr. Bartlett is not just an academic supervisor—she is a mentor for life. She genuinely cares about her students, always standing in our shoes and thinking about what's best for us. She understood my struggles as an international student and consistently made me feel valued and supported. I was deeply touched when I received her message asking if everything was okay the moment I arrived in Canada on January 4th, 2021. It was freezing outside, but her warmth and care made me feel at home.

I am incredibly grateful to have had Dr. Bartlett by my side throughout my PhD journey. I honestly would not be here without her.

I would like to extend my heartfelt thanks to my supervisory committee, Dr. Rebekah Willson and Dr. Karyn Moffatt, for their unwavering support throughout my PhD journey. Their valuable suggestions during my comprehensive exam, thesis proposal, and final thesis writing have been instrumental in shaping my work. Their encouragement during our yearly progress report meetings gave me the confidence to keep moving forward. Dr. Rebekah Willson's expertise in information behaviour and practices, combined with Dr. Karyn Moffatt's insightful advice on older adults, has greatly enriched my research.

I am also deeply grateful to the professors and staff at SIS. A special thanks goes to Dr. Ilja Frissen and Dr. Gracen Brilmyer for their contributions to the Skillset Development series workshops during my time as Chair of the ASIS&T McGill Chapter. I am particularly thankful to Dr. Bartlett, Dr. Willson, and Dr. Gracen for writing recommendation letters and supporting my faculty position applications. Your support means the world to me—thank you so much!

Beyond SIS, I have been fortunate to receive guidance and inspiration from outstanding researchers. My deepest thanks to Prof. Elena Maceviciute from the University of Borås, Lithuania, for mentoring me during the ISIC 2022 doctoral workshop. Her insightful feedback on my thesis proposal not only improved my work but also led to my receiving the inaugural Ross Todd Award for Inspirational Information Behaviour Research by a Doctoral Student at the ISIC Conference. I also wish to thank Dr. Devon Greyson from the University of British Columbia, Canada, for their valuable suggestions on data analysis and triangulation at the ASIS&T annual meeting. Lastly, I want to express my gratitude to Prof. Feng Yang from Sichuan University, China, for his kind guidance and mentorship as I navigate my academic career.

My PhD journey would not have been possible without the incredible support I received from so many people and organizations. This work was financially supported by the China Scholarship Council (CSC) and The Fonds de Recherche du Québec - Société et Culture (FRQSC). Without their funding, it would have been impossible for me to continue my PhD studies, and I am deeply grateful for their support.

I also want to extend my thanks to the organizations that helped with participant recruitment, including the Chinese Family Service of Greater Montreal, the McGill Diabetes Technologies Lab, the McGill Continued Learning Program, and Diabetes Quebec. Most importantly, my heartfelt gratitude goes to all the participants who generously shared their experiences, thoughts, and insights with me. Talking with them and listening to their stories was an unforgettable experience, and their contributions made this research possible.

Finally, there are so many friends I wish to thank. I am incredibly grateful to Jiamin (Carrie) Dai, Muhe Yang, and Peymon Montazeri for their firm support throughout my PhD journey. They shared their valuable experiences as PhD students at SIS and were by my side during every key milestone: comprehensive exams, thesis proposal, ethics approval, data collection, data analysis, and thesis writing. I also want to thank Yi Wan for her amazing support, both academically and in daily life, especially for assisting with the reflexive collaboration process for this thesis. I deeply appreciate the countless meetings and discussions we had on weekends; her time and help meant so much to me.

I am also thankful to my PhD cohorts—Kartikay Chadha, Richmond Yeboah, and Owen Stewart-Robertson—for their companionship and support. Our dinners and shared experiences brought so much colour to this journey. A special thank-you goes to Aaron Bowen-Ziecheck, Morgannis Graham, Claire Pienaar, Michael Iro, Bénédicte D'Anjou, Melissa Moreau, Emma Garlock, and Alexander Slack from our research group, who provided invaluable feedback on my posters and presentations.

Of course, I want to express my gratitude to my parents, my brother's family, and my dearest friends (Caijiao Nan, Tong Pan, Shuai Cui, Huan Zhai, Yue Wu, Chengwen Rao, Shan Zhao, Yongchen Zhang, Jingyun Huang, Zhencheng Gong, Yu Xiang, Xinye Zhu, Lidan Zhang, Hao Jiao, Yuxuan Wang, Yanfei Gong, Jiaxin Wang, Xiaoyun Zhang, Chen Chen, Yuxuan Tang, Xiawei Shi, Jiaqi Ma, Yuming Niu, and so on—plus everyone I've already mentioned!). I hope I'm not forgetting anyone (haha)! Thank you for your emotional support and encouragement. I feel so lucky to have you all in my life. We've created so many cherished memories together.

I also want to thank my cat, Mimi, who is incredibly adorable and has been a constant source of comfort and light during dark times. I love her so much!!!

And finally (I promise this is the end of my long ramble), I want to thank myself for never giving up. You did a great job, and I'm so proud of you!

Abstract

This thesis explores how older adults with diabetes in Canada seek and use health information, factors related to their behaviour, and potential changes that occurred during the COVID-19 pandemic. The motivation for this research is based on three key considerations: (1) Information use is a crucial yet underexplored aspect of information behaviour, essential for enhancing practical applications. (2) With the global population of older adults growing in size and diversity, a comprehensive understanding of their health information behaviour is imperative. (2) The COVID-19 pandemic has profoundly impacted various aspects of daily life, necessitating an examination of how health information behaviour has evolved and what implications these changes may have in the post-pandemic era.

This thesis employed a qualitative approach. A total of 23 participants, all older adults with type 2 diabetes living in Canada, were recruited through a combination of purposive, convenience, and snowball sampling strategies. The majority of participants were originally from China, and their interviews were conducted in Mandarin. Data were collected through semi-structured interviews and analyzed using thematic analysis.

This thesis identified five themes related to the health information behaviour of older adults with diabetes, including 1) the strategic navigation of health information ecosystems, 2) reflexive engagement with health knowledge and practices, 3) the construct of personal health identities, 4) the management of health within socially and culturally complex landscapes, and 5) evolving health information behaviour: adaptation during and after the pandemic. Specifically, participants had diverse health needs and relied on various information sources. After obtaining health information, they actively used it to manage their health by applying it to their daily routine, integrating it with prior knowledge, evaluating its credibility, and sharing it with others.

Personal, social, and cultural factors, such as personal beliefs, social networks, and language barriers, influenced their information behaviour. While some participants did not experience significant changes in their health information behaviour during the COVID-19 pandemic, most reported adopting different ways of seeking and using health information. This underscores the need for adaptable communication strategies and equitable access to health information during health crises.

This thesis addresses gaps in the literature by conceptualizing information use as a multifaceted process involving physical, cognitive, individual, and social behaviour. Additionally, it highlights the role of emotions, life attitudes, autonomy, and embodied information in shaping health information behaviour. Practically, this research underscores the need for personalized, adaptable, and actionable information, tools for organizing health data, and equitable access to multilingual telehealth services. It advocates for targeted education programs, experiential learning initiatives, and peer-led interventions to empower older adults in managing their health. It also emphasizes the importance of creating open and empathetic environments that foster patient empowerment and social support.

Résumé

Cette thèse explore l'utilisation de l'information en santé par les adultes âgés atteints de diabète, les facteurs influençant leur comportement informationnel et les changements potentiels survenus pendant la pandémie de COVID-19. Cette recherche repose sur trois considérations clés : (1) L'utilisation de l'information est un aspect essentiel mais sous-exploré du comportement informationnel, crucial pour améliorer les applications pratiques. (2) Avec la croissance et la diversification de la population mondiale des aînés, une compréhension approfondie de leur comportement informationnel en matière de santé est impérative. (3) La pandémie de COVID-19 a profondément affecté divers aspects de la vie quotidienne, nécessitant une analyse de l'évolution du comportement informationnel en santé et de ses implications dans l'ère post-pandémique.

Cette thèse adopte une approche qualitative. Un total de 23 participants, tous des aînés atteints de diabète de type 2 vivant au Canada, ont été recrutés au moyen d'un échantillonnage raisonné, de convenance et en boule de neige. La majorité des participants étaient originaires de Chine, et leurs entrevues ont été menées en mandarin. Les données ont été recueillies par le biais d'entrevues semi-structurées et analysées à l'aide d'une analyse thématique.

Cinq thèmes clés ont été identifiés concernant le comportement informationnel en santé des adultes âgés atteints de diabète : 1) la navigation stratégique dans les écosystèmes informationnels en santé, 2) l'engagement réflexif avec les connaissances et pratiques en santé, 3) la construction d'identités personnelles en matière de santé, 4) la gestion de la santé dans des contextes sociaux et culturels complexes, et 5) l'évolution du comportement informationnel en santé : adaptation pendant et après la pandémie. Les participants avaient des besoins variés en matière de santé et s'appuyaient sur diverses sources d'information. Après avoir obtenu des informations en santé, ils les utilisaient activement pour gérer leur santé en les intégrant à leur routine quotidienne, en les combinant à leurs connaissances antérieures, en évaluant leur crédibilité et en les partageant avec d'autres. Des facteurs personnels, sociaux et culturels, tels que les croyances individuelles, les réseaux sociaux et les barrières linguistiques, ont influencé leur comportement informationnel. Si certains participants n'ont pas constaté de changements majeurs dans leur comportement informationnel pendant la pandémie, la plupart ont adopté de nouvelles stratégies pour rechercher et utiliser l'information en santé. Ces résultats soulignent la nécessité de stratégies de communication adaptables et d'un accès équitable à l'information en santé en temps de crise.

Cette thèse comble des lacunes dans la littérature en conceptualisant l'utilisation de l'information comme un processus multifacette impliquant des dimensions physiques, cognitives, individuelles et sociales. Elle met également en lumière le rôle des émotions, des attitudes face à la vie, de l'autonomie et de l'information incarnée dans la formation des comportements informationnels en santé. D'un point de vue pratique, cette recherche souligne le besoin d'une information personnalisée, adaptable et exploitable, d'outils pour organiser les données de santé et d'un accès équitable aux services de télésanté multilingues. Elle préconise des programmes éducatifs ciblés, des initiatives d'apprentissage expérientiel et des interventions menées par les pairs pour autonomiser les adultes âgés dans la gestion de leur santé. Enfin, elle insiste sur l'importance de créer des environnements ouverts et empathiques favorisant l'autonomisation des patients et le soutien social.

Contribution to original knowledge

This thesis is an original work. All chapters of it are the work of Xiaoqian Zhang. This thesis contributes valuable research evidence to the field of information behaviour. Existing research has focused on how people seek health information; little attention has been paid to what people do after finding the information they need. This thesis addresses this gap by providing empirical evidence to deepen the understanding of information use. By specifying it, this thesis enriches the body of research and offers directions for future investigations. This thesis also has practical contributions. Older adults are a growing population, and diabetes is a big challenge in this group. Managing diabetes can be particularly challenging due to age-related issues like reduced mobility, cognitive decline, and sometimes social isolation. It is important to design tailored interventions to this group. This thesis provides practical guidance to enhance the well-being of older adults with diabetes based on its findings.

Contribution of Authors

Xiaoqian (Zoey) Zhang, the author, is the sole researcher of this dissertation and was responsible for all the work.

Table of Contents

List of Tables and Figures

List of Abbreviations

ASK: Anomalous States of Knowledge

CDC: Centers for Disease Control and Prevention

WHO: World Health Organization

EIP: Everyday Information Practice

ELIS: Everyday Life Information Seeking

CIT: Critical Incident Technique

Chapter 1: Introduction

1.1 Background

The 21st century is witnessing a profound demographic transformation as societies around the globe grapple with the realities of aging populations. Advances in healthcare and living standards have enabled people to live longer and healthier, fundamentally altering the structure of communities and the demands on healthcare systems. According to the World Health Organization (WHO), the global population aged 60 years and older reached one billion in 2019, a figure expected to rise to 1.4 billion by 2030 and 2.1 billion by 2050 (WHO, n.d.). This significant demographic shift brings both opportunities and challenges to the world.

Health information plays a crucial role in addressing age-related challenges (Magsamen-Conrad et al., 2019). As societies focus on extending life expectancy, there is increasing emphasis on improving the "health span"—the period of life spent in good health. However, despite advancements in healthcare, evidence suggests that today's older adults do not necessarily enjoy better health than previous generations (WHO, 2017). Chronic conditions, such as diabetes, are increasingly common among older adults, requiring effective self-management and informed decision-making to maintain quality of life. Successfully managing these conditions depends on the ability to access, understand, and apply health information, which has significant potential to empower individuals by reducing health risks and supporting self-management (Magsamen-Conrad et al., 2019; Song et al., 2019).

Actions have been taken to create age-friendly environments that promote the well-being of older adults. At the international level, the United Nations declared 2021–2030 as the Decade of Healthy Aging, a global initiative aimed at enhancing the lives of older people, their families, and their communities (WHO, 2021). At the national level, policy responses have included expanding assisted living options and fostering the development of age-friendly communities in regions such as North America, Australia, and New Zealand (UN, 2020). At the municipal level, cities across Canada have been actively implementing initiatives to create supportive environments for older adults. For instance, Sherbrooke, Quebec, an early participant in the WHO's Global Age-Friendly Cities Project, continues to adopt policies and programs designed to improve the quality of life for older residents (Government of Canada, 2024). These efforts reflect a growing commitment to ensuring that older adults can lead active and fulfilling lives.

At the same time, expectations around aging and healthcare are evolving. Older adults are increasingly encouraged to actively participate in healthcare decisions and manage their own health (Huisman et al., 2020). This shift aligns with broader trends in healthcare, placing greater responsibility on individuals to take charge of their health (Matas & Bronstein, 2018). However, the diversity within the older adult population poses challenges for healthcare systems. While some older adults face significant health challenges, many remain actively engaged in work, volunteering, and caregiving roles. This diversity underscores the importance of tailoring healthcare policies and practices to meet the varying needs of older adults.

As population aging continues, societies must address the growing pressures on healthcare systems. Protecting the rights of older adults and ensuring healthcare services are equipped to meet their needs are critical steps toward supporting healthy aging. Understanding how older adults, particularly those managing chronic conditions such as diabetes, access and use health information is vital for developing effective interventions. These efforts will not only improve the health and well-being of older adults but also contribute to building more resilient healthcare systems in an era of rapid demographic change.

1.2 Problem Statement

1.2.1 Health and Information Use

This research falls within the field of information behaviour, which can be defined as "those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information" (Wilson, 1999, p.249). The field is structured around three core elements: information needs, information seeking, and information use. However, despite its importance, information use is often overlooked in favour of the other two elements, with much of the existing research focusing on information needs and seeking behaviour (Liang et al., 2017; Savolainen, 2009). Specifically, while many studies have examined how individuals identify and search for health information, there is a significant gap in understanding what people do with this information once they acquire it (Given et al., 2023; Wilson, 2020; 2022).

This gap is particularly concerning given that the effective use of health information can significantly impact health outcomes and quality of life. Providing health information alone is not enough—healthcare providers must also understand how individuals seek and use that information in their daily lives (Okolo et al., 2024; Pian et al., 2024). By focusing on information use, this thesis addresses a crucial but underexplored area of health information behaviour, revealing the specific actions that individuals take after obtaining health information. Studying this aspect also has substantial practical implications. A deeper understanding of information use can guide the development of more effective health communication strategies, refine healthcare practices, and improve health information systems.

1.2.2 Older Adults with Diabetes

Diabetes is a significant public health challenge in Canada, affecting millions of individuals and placing a substantial burden on the healthcare system. Approximately 4 million Canadians, or 10% of the population, have been diagnosed with diabetes, with many more living undiagnosed or in a prediabetic state (Diabetes Canada, 2024a). For individuals, the condition can lead to severe complications, including heart disease, stroke, and kidney failure, significantly affecting quality of life. At a societal level, diabetes imposes an immense economic burden, costing the Canadian healthcare system 50 million dollars a day (Diabetes Canada, 2024b). These figures highlight the urgent need for effective prevention and management strategies to mitigate the health and economic consequences of diabetes in Canada.

Older adults are disproportionately affected by diabetes, particularly by type 2 diabetes, which is more prevalent in this age group. Nearly one in five seniors aged 60 to 79 lives with diabetes, presenting unique challenges for effective management (Statistics Canada, 2023a). Older adults in this thesis are defined as individuals aged 65 and above, aligning with common practice in health information behaviour research (see Section 3.3.1 Inclusion Criteria for details). As older adults often face multiple chronic conditions, managing diabetes becomes increasingly complex. Furthermore, age-related factors such as declining physical mobility, cognitive changes, and social isolation can hinder self-management efforts. These challenges highlight the importance of tailored interventions that address the specific needs of older adults with type 2 diabetes, ensuring they receive the support necessary to maintain their health and quality of life.

In academia, much research on diabetes-related health information has focused on examining how patients seek such information from diverse sources, either active or passive (Broekhuis et al., 2022; Kalantzi et al., 2015; Mengiste et al., 2021). Online health communities and social media platforms have become important sources of health information for individuals with diabetes (Kong et al., 2021; Ma et al., 2024). However, concerns remain regarding the quality and reliability of information shared on these platforms. For instance, Kong et al. (2021) evaluated the quality of diabetes-related videos on TikTok and found that, while the overall quality was generally acceptable, it varied significantly depending on the source. Videos produced by nonprofit organizations demonstrated the highest information quality, whereas those created by for-profit entities were rated the lowest. However, these discussions were aiming at the general population, a significant gap remains in understanding how older adults with diabetes seek and use health information. This thesis addresses this critical gap, offering a nuanced perspective on health information behaviour among older adults with diabetes. The findings contribute to future research, policies, and practices aimed at enhancing the health and well-being of this population. This research also provides practical insights to inform the design of health communication strategies, improve diabetes management programs, and optimize health services tailored to older adults.

1.2.3 COVID-19 Pandemic and Behaviour Change

The health information behaviour of older adults with diabetes presents a practical challenge that has been further complicated by the COVID-19 pandemic. The pandemic, which was declared a global health emergency by the WHO in early 2020, significantly disrupted daily life, healthcare access, and information-seeking practices worldwide. In Canada, public health measures such as lockdowns, social distancing, and restrictions on in-person healthcare visits remained in place for extended periods, particularly in 2020 and 2021, before gradually being lifted in 2022. These measures altered how individuals accessed health information, with an increased reliance on digital resources and virtual healthcare services.

Older adults, particularly those with chronic conditions such as diabetes, faced unique barriers in navigating these changes. Many experienced heightened isolation, loneliness, and marginalization during this period (Lebrasseur et al., 2021). Furthermore, as digital platforms became a primary means of accessing health information and maintaining social connections, many older adults struggled with the technological skills required to effectively use online health resources (Moore & Hancock, 2020; Paimre et al., 2023). Their health information-seeking behaviours shifted in response to evolving circumstances (Lund & Ma, 2021). Existing research on older adults' health information behaviour may not adequately reflect these pandemic-induced changes. As a result, there is a critical need for updated research to guide practitioners in adapting health services and communication strategies to this shifting landscape. This research will contribute valuable evidence to understanding information behaviour in the context of a health crisis, offering insights into how such behaviour evolves under unprecedented conditions such as a global pandemic.

In May 2023, WHO declared that COVID-19 was no longer a global public health emergency, marking a shift into the post-pandemic era. However, while the immediate crisis has subsided, its effects on health information behaviour may persist. Research is needed to examine whether and how the pandemic has led to lasting changes in how older adults seek, evaluate, and use health information. Given that information behaviour is dynamic and context-dependent—shaped by evolving social environments and individual circumstances (Savolainen, 2005; 2006)—it is essential to assess whether pandemic-related disruptions have resulted in enduring shifts. This research, therefore, investigates not only the immediate disruptions caused by the pandemic but also whether these changes have persisted beyond the acute crisis. By exploring how older adults have adapted their health information behaviours in the post-pandemic era, this study contributes valuable insights into the long-term implications of a global health crisis on information practices.

1.3 Research Goal and Questions

The overall goal of this thesis is to understand how older adults with diabetes in Canada use health information and to explore the potential long-term changes in their health information behaviour resulting from the COVID-19 pandemic. Specifically, this thesis investigates the following three research questions (RQs):

RQ1: How do older adults with diabetes in Canada seek and use health information, particularly regarding their actions after finding the information they were looking for?

RQ2: What factors relate to how older adults with diabetes in Canada seek and use health information?

RQ3: How did the health information behaviour of older adults with diabetes in Canada change during the COVID-19 pandemic, and to what extent are these changes likely to persist in the future?

1.4 Chapter Outlines

This thesis investigates health information behaviour and its related challenges through qualitative interviews with 23 older adults with diabetes in Canada. Most participants were immigrants from China, which was largely a result of participants recruitment (details of the recruitment process and potential limitations caused by it can be found in Section 3.3.3

Recruitment and Sampling and Section 5.3.1 Reflection and Limitations). The study finds that participants adopt various strategies to address their diverse health information needs. Once they receive information, they apply it to personal health management and decision-making, integrate new knowledge with existing beliefs, evaluate its credibility, and share it with others. Factors, such as personal emotions, life attitudes, and struggles for autonomy play a central role in their engagement with health information, with some participants actively seeking knowledge while others avoid it. Cultural and systemic barriers, such as language, health literacy, financial constraints, and ageism, further influence their ability to seek and apply health information. The study also uncovers how the COVID-19 pandemic both disrupted and, in some cases, reinforced existing information behaviours, highlighting the complexity of information engagement during health crises.

This research makes significant theoretical, empirical, and practical contributions to health information behaviour scholarship. It advances information behaviour theories by refining the concept of information use, emphasizing its physical, cognitive, and social dimensions, and highlighting the influence of emotions, life attitudes, and autonomy struggles on health information seeking and use. The study also provides novel insights into resilience in information-seeking during health crises, challenging the assumption that crises always disrupt information habits. Practically, it underscores the need for personalized, culturally sensitive, and actionable health information, advocating for peer-led interventions, improved telehealth services, and enhanced support networks. By bridging theory and practice, this research strengthens our understanding of health information behaviour and informs the development of more inclusive, patient-centred healthcare strategies for older adults with diabetes.

The remaining chapters of this thesis are structured as follows:

Chapter 2 reviews related literature on information behaviour/practices, health information behaviour, the COVID-19 pandemic, chronic disease management, and older adults.

Chapter 3 presents research methods, including the specific data collection and analysis methods used in this thesis. It also addresses the researcher's reflexivity and the study's trustworthiness.

Chapter 4 presents and discusses five themes identified through this research: 1) the strategic navigation of health information ecosystems, 2) reflexive engagement with health knowledge and practices, 3) the construct of personal health identities, 4) the management of health within socially and culturally complex landscapes, and 5) evolving health information behaviour: adaptation during and after the pandemic.

Chapter 5 concludes this thesis by highlighting research contributions, acknowledging limitations, and suggesting directions for future research.

Appendices A-H provide supplementary materials, including 1) recruitment flyer, 2) list of contacted organizations, institutions, and clubs, 3) permission letter, 4) interview guide, 5) codebook, 6) ethics certificates, 7) online interview consent form, and 8) in-person interview consent form.

Chapter 2: Literature Review

2.1 Chapter Introduction

This chapter consists of eight sections. Sections 2.2 and 2.3 establish the broader context of this thesis by reviewing research on information behaviour/practices and health information behaviour. The subsequent sections explore the literature in more specific contexts: Section 2.4 reviews the literature on health information behaviour during the COVID-19 pandemic, Section 2.5 focuses on the health information behaviour of individuals with chronic diseases, and Section 2.6 examines research on the health information behaviour of older adults. After reviewing existing studies, Section 2.7 introduces and explains the theoretical framework of this thesis. Finally, Section 2.8 provides a summary of the chapter.

2.2 Information Behaviour and Practices

As mentioned in Chapter 1, information behaviour encompasses "those activities a person may engage in when identifying their own needs for information, seeking that information by any means, and using or transferring it" (Wilson, 1999, p.249). Spanning more than half a century, research in this field has evolved significantly, broadening its scope to embrace increasingly complex views of information, diverse populations, and varied contexts.

Information practice is a relatively recent development in information behaviour studies, and considerable debate exists regarding the distinction between these two concepts (Kitzie et al., 2023). Information practice can be defined as "a set of socially and culturally established ways to identify, seek, use, and share the information available in various sources such as television, newspapers, and the Internet" (Savolainen, 2008, p. 2). While closely related to information behaviour, the two concepts emphasize different aspects of information-related activity:

information behaviour focuses on the actions individuals take with information (i.e., what people do), whereas information practice highlights the contexts that shape and influence these actions (i.e., how and why actions are embedded in social and cultural environments) (Kitzie et al., 2023; Savolainen, 2007). This thesis regards information behaviour as the overarching concept, integrating research on information practice into its design, development, and discussion.

Researchers on information behaviour/practices have moved beyond a monolithic approach and now recognize the distinct components that constitute information behaviour (Wilson, 2022). These core elements—information needs, information seeking, and information use—are central to understanding the intricate processes that drive human interaction with information. The following sections review the literature associated with each of these key elements.

2.2.1 Information Needs

Information needs are traditionally conceptualized as the initial phase of an individual's information behaviour, catalyzing engagement with information-seeking processes (Sarkar et al., 2020). These needs influence the selection of information sources (Lu & Yuan, 2011), explain why individuals pursue information (Savolainen, 2022), and shape the perceived usefulness of information by moderating the effect of its quality (Zha et al., 2016). Furthermore, understanding information needs is fundamental to designing and improving information storage and retrieval systems (Frants & Brush, 1988).

The study of information needs has been significantly shaped by Taylor's (1968) foundational work, which identifies four progressive levels: *visceral needs* (internal, unarticulated needs), *conscious needs* (realized but vaguely defined needs), *formalized needs* (explicitly stated needs), and *compromised needs* (actual queries presented to an information system). This classification highlights the dynamic nature of information needs, which evolve in form, specificity, and criteria as new information becomes available (Taylor, 2015). Similarly, Belkin's Anomalous States of Knowledge (ASK) model provides another conceptual lens for understanding information needs. According to Belkin (1980), users recognize a gap or inadequacy in their knowledge and engage in information-seeking behaviour to resolve this anomaly. The ASK model posits that the interaction with information systems reflects users' efforts to address a knowledge deficit rather than articulate what they already know (Belkin, 2005).

Context has emerged as a critical factor in shaping information needs. Wilson's (1981) model situates information needs within broader social and personal contexts, framing them as one component in the pursuit of satisfying fundamental human needs. Wilson (1981, 1999) emphasizes the interplay of personal factors (physiological, affective, and cognitive needs), roles (e.g., work-related responsibilities), and environmental influences (e.g., socio-cultural and economic settings) in driving information-seeking behaviour. This model underscores that information needs are not isolated phenomena but are deeply embedded within the individual's situational and social circumstances.

Despite its importance, research on information needs faces notable challenges due to its inherently complex and subjective nature. Information needs are often elusive, difficult to articulate, and challenging to define or measure empirically (Li et al., 2023; Sarkar et al., 2020). For decades, the theoretical foundations of information needs have remained underdeveloped, with researchers struggling to fully conceptualize how these needs arise and evolve (Afzal, 2017; Moshfeghi & Pollick, 2019). This gap highlights the need for more robust theoretical models and innovative methodologies to better understand and address the intricate dynamics of information needs.

2.2.2 Information Seeking

Information-seeking behaviour is the most extensively discussed concept in the history of information behaviour research, often overshadowing related concepts such as information needs and information use. In many instances, scholars have used the term "information behaviour" narrowly to refer specifically to "information-seeking behaviour" (e.g., Montesi, 2023; Paimre et al., 2023; Sullivan & Shaw, 2023). However, as individuals may also choose not to seek information, this thesis adopts the broader term "information behaviour," emphasizing that information-seeking is a subset of information behaviour rather than synonymous with it.

Information-seeking is cyclical, beginning with problem recognition and continuing until a satisfactory resolution is achieved (Marchionini, 1995). However, it rarely follows a linear trajectory. Bates (1989) characterized it as a "berry-picking" process, where individuals gather fragments of information from various sources, refining their queries and updating their understanding as they go. This iterative and evolving nature of information-seeking reflects real-world complexities, where each new piece of information reshapes the direction and scope of the search.

Beyond its mechanical aspects, information-seeking is deeply influenced by cognitive, emotional, and social factors. Kuhlthau (1988) emphasized the psychological dimensions of the process, showing that individuals often experience fluctuating levels of uncertainty, confusion, and confidence. On the other hand, Zhu and Liao (2020) explored the information-seeking behaviour of ethnic minorities in China, highlighting the role of social and cultural factors. Their study revealed that participants were influenced by strong emotional attachments, cultural self-confidence, and familial values. However, these behaviours were also constrained by social norms and “small world” worldviews, which led many participants to distrust information from external sources. Similar conclusions can be found in research on the information behaviour of immigrants, whose engagement with information is closely tied to sociocultural information norms and the degree of social inclusion they have experienced (Ndumu, 2020; Suh & Hsieh, 2019). These findings underscore the importance of adopting a multidimensional approach to studying information-seeking behaviour. Effective analysis requires a comprehensive understanding of individual, social, and cultural factors that shape not only how people seek information but also the broader contexts within which these behaviours occur. By integrating these perspectives, researchers can better account for the complex and dynamic nature of information-seeking.

Information-seeking behaviour encompasses both intentional searching and incidental discovery of information (i.e., information encountering) (Erdelez & Makri, 2020;; Lee et al., 2022; Liu et al., 2022; Wilson, 2020)For instance, a study of pregnant women in Pretoria, South Africa, identified various forms of information-seeking, such as active seeking (purposeful searching in known sources), non-directed monitoring (incidental encounters without a specific goal), and passive or accidental information acquisition (Akanbi & Fourie, 2021). Similarly, among Persian-speaking minorities in Finland, information-seeking often occurred passively through community events and health promotional programs (Ahmadinia et al., 2022). These examples illustrate the diverse and dynamic nature of information-seeking behaviour across different contexts and populations.

Apart from information encountering, information avoidance is another concept that describes non-active aspects of information behaviour. Information avoidance is a broader phenomenon rather than merely the opposite of information seeking (Hick et al., 2025). It could be regarded as "practices that moderate interaction with information by (1) reducing the intensity (amount and/or flow) across multiple levels of granularity; (2) restricting engagement with or control over information, whether actively, passively, or receptively, and/or (3) excluding information based on relevance, quality, and timeliness criteria." (Hick et al., 2025, p.339).

Information avoidance often occurs when individuals seek to manage information overload, emotional distress, or the potential for adverse outcomes (Harviainen & Hamari, 2015; Link, 2021; Song et al., 2021; Soroya et al., 2021). However, it can also arise from complex situational factors. For example, Chatman's research on janitors, single mothers, and older adults revealed that marginalized populations often adhere to social norms that define what is considered relevant, leading them to avoid seeking information from outsiders (Chatman, 1996). Despite these patterns, information avoidance is not purely passive; it is often an active decision influenced by contextual and social factors (Godbold, 2006; Ndumu, 2020; Zhu & Liao, 2020;). When individuals perceive that they cannot independently address their challenges (Chatman, 1991), they may choose to avoid information, effectively ignoring the gap between their understanding of the world and their lived experiences (Godbold, 2006). In such cases, information avoidance can be understood as a strategy for managing uncertainty (Huisman et al., 2020; Sairanen & Savolainen, 2010).

2.2.3 Information Use

Information use is a central but often underexplored element of information behaviour. While much attention has been devoted to understanding information needs and seeking, the concept of how individuals use the information they acquire has received comparatively less scrutiny. The following paragraphs explore different perspectives on information use, demonstrating its complexity and significance.

Early studies on information use focused predominantly on the selection and utilization of information sources. In the 1960s, information use was often discussed within the framework of user studies, particularly in the context of how scientists and engineers utilized different channels (e.g., journals, books, technical reports) to meet their professional needs (Herner & Herner, 1967; Paisley, 1968). These studies emphasized that the selection of information sources was integral to information use, but they provided limited insight into how individuals process or apply the information they obtained.

The advent of the digital age significantly expanded the scope of information use research, particularly in relation to the role of external environments in shaping information use. For example, Taylor's (1986) concept of information use environments highlighted how external factors—such as organizational structures, user roles, and information systems—shape the flow of information and influence how it is used. Taylor's work underscored that information is not used in a vacuum but is embedded in social, organizational, and technological environments that affect both the selection of information and its application. His research suggests that understanding users' information needs is essential for improving the design of information systems to support better use.

More recent studies have shifted towards a constructivist approach to information use, viewing it as a dynamic process in which individuals interpret, assemble, and apply information to create meaning and solve problems (Choo et al., 2006; Cole, 2012; Savolainen, 2009). In this view, information use can be divided into physical and mental actions. The physical actions might involve making notes and generating essays, while the mental acts refer to the integration, comparison, and construction of new information with existing knowledge (e.g., changing opinions and making decisions) (Adekoya, 2021; Liang et al., 2017; Liu & Li, 2021). The physical and mental acts are not separate; they interweave with each other. The construction and reconstruction of knowledge happen in and through physical actions.

Furthermore, information use extends beyond individual construction to encompass social dimensions (Sapa, 2022). Information-sharing behaviour, for instance, reflects how individuals use information to influence others in their social networks. Savolainen (2009) notes that information use is inherently social when individuals transmit acquired information to support collective decision-making or community well-being. This is particularly relevant in healthcare contexts, where patients may share health-related information with caregivers or peers to promote healthier practices within their social circles (Wolf & Veinot, 2015).

Despite these developments, information use remains understudied compared to the more widely researched elements of information needs and seeking. Few models have been developed to specifically address information use as an independent construct, distinct from other elements of information behaviour. Information use is not just the final stage of the information-seeking process. It can trigger new information needs or reshape subsequent information-seeking behaviour (Savolainen, 2009), and therefore, should be viewed as a continuous, evolving process that both reflects and influences the broader dynamics of information behaviour.

2.2.4 Synthesis and Research Gaps in Information Behaviour

Research on information needs has provided valuable conceptual models, such as Taylor's (1968) levels of needs and Belkin's (1980) ASK model, which all highlight the evolving nature of information needs and their role in bridging knowledge gaps. Wilson's (1981, 1999) work has further emphasized the broader social, cognitive, and environmental influences shaping these needs. However, despite decades of study, information needs remain difficult to define, measure, and empirically analyze due to their subjective and often unarticulated nature. Less is known about how individuals express their needs, how needs change over time, or how individuals navigate situations where needs remain unresolved. Future research should explore these dimensions to develop more robust theoretical and methodological frameworks.

Research on information seeking has been extensive, often positioning it as the central focus of information behaviour studies. Classic models, such as Bates' (1989) berry-picking framework and Kuhlthau's (1988) information search process, illustrate the iterative and evolving nature of seeking behaviour. Additionally, studies on marginalized populations (e.g., Chatman, 1996) emphasize the impact of social norms, emotional influences, and cultural factors on decision-making. However, the dominance of active-seeking models has led to limited research on non-seeking behaviour, such as information avoidance, disengagement, or passivity (Hicks et al., 2025). While emerging work recognizes avoidance as a complex behaviour rather than a simple lack of seeking, further investigation is needed to understand the conditions under which individuals actively or passively avoid information and how these behaviours intersect with trust, uncertainty, and risk perception.

Compared to needs and seeking, information use remains relatively underexplored as an independent concept. Early studies on use focused primarily on source selection (Herner & Herner, 1967; Paisley, 1968), while later models (e.g., Taylor, 1986) emphasized the role of context and social environments in shaping how information is processed, interpreted, and applied. More recent research has conceptualized information use as an active meaning-making process involving both cognitive and physical actions. However, major gaps remain in understanding what exactly information use is, how information use evolves over time, how it influences future information needs, and how it differs across sociocultural contexts.

2.3 Health Information Behaviour

Health information behaviour, more accurately referred to as health-related information behaviour, encompasses "how people seek, obtain, evaluate, categorize, and use relevant health-related information to perform desired health behaviours" (Ek, 2015, p.736). It has become an expanding area within information behaviour research, covering a diverse range of populations, such as university students, immigrants, women, young people, people who inject drugs, and LGBTQ+ individuals (Ahmadinia, 2023; Akanbi & Fourie, 2021; Hirvonen, 2022; Katavić et al., 2020; Kim et al., 2020; Li et al., 2023; Oliphant et al., 2022; Sullivan & Shaw, 2023; Yi et al., 2021).

Health information needs arise from existing health concerns or a desire for general health knowledge. For example, Känsäkoski et al. (2021) identified two broad categories of health information needs among young people: a narrow, disease-focused view (i.e., health as the absence of illness) and a more holistic perspective (i.e., health-encompassing physical, mental, and social well-being). These differing views shape individuals' preferences for information sources and their evaluation of source credibility. However, people often struggle to articulate their health information needs due to their ambiguous and evolving nature (Belkin, 2005; Li et al., 2023). Individuals may find it challenging to express their needs clearly as they rely on their existing knowledge to formulate queries or assess their satisfaction (Taylor, 1968). This underscores the complex nature of health information needs.

Health information-seeking is typically driven by an unmet need and continues until the individual feels their need is satisfied (Akanbi & Fourie, 2021). People use various sources—including traditional media, online platforms, and interpersonal networks—to find relevant information (Hirvonen, 2022; Jia et al., 2022). The choice of source depends on factors such as the seriousness of the health issue. For example, healthcare professionals are often consulted for serious health concerns, while the Internet is used more frequently for less severe or more private topics (Akanbi & Fourie, 2021; Chi et al., 2020). In some cases, individuals seek help from others to obtain health information due to physical constraints (Zhang & Liu, 2023).

While health information needs are common, they do not always translate into active information-seeking behaviour. Health information avoidance often arises in response to specific barriers, including negative emotional states, perceived practical or social challenges, and privacy-related apprehensions. For example, Katavić et al. (2020) observed a gap between curiosity and action in their study of college students: While participants expressed strong interest in learning about sexually transmitted infections, their actual information-seeking was limited. The authors attributed this avoidance to fears about confronting potential health risks, suggesting that anxiety over one's current health status can deter proactive engagement. Similarly, Ahmadinia (2023) explored health information behaviour among immigrant populations and found that they cited challenges such as language disparities, conflicts with cultural or religious norms, and concerns about data privacy as key deterrents to accessing health resources. These studies underscore that avoidance is not merely a passive omission, but a deliberate response shaped by intersecting emotional, practical, and sociocultural factors. By highlighting how avoidance emerges even in populations with high motivation, the literature emphasizes the complex interplay between individuals' needs and contextual barriers.

Once information is obtained, individuals often verify its credibility through various strategies. Oliphant et al. (2022) found that women use their own expertise and experiential knowledge to assess health information, even when it comes from healthcare professionals. In Southeast Asia, consumers verify online health information by checking its source and cross-referencing it with family members, friends, and healthcare providers (Lindau et al., 2022; Inthiran, 2021). These findings emphasize the importance of trust and validation in health information use, especially in an era of prevalent misinformation.

The use of health information can lead to both positive and negative outcomes. On the positive side, individuals may gain knowledge, improve their health management, alleviate anxiety, and adopt healthier behaviour (Zhang & Liu, 2023). However, negative outcomes can also occur, such as self-diagnosis or self-medication, which can result from misinterpreting or misapplying the information (Konca et al., 2022). This highlights the need for critical evaluation of the information's quality and relevance to avoid potential harm.

Health information behaviour is closely linked to various forms of literacy, particularly health literacy. Health literacy refers to the extent to which individuals can obtain, process, understand, and communicate health-related information needed to make informed decisions (Lee et al., 2021). It enables individuals to navigate available treatment options and critically evaluate information from a wide range of sources (Ellis et al., 2012). For older adults, adequate health literacy contributes to a better understanding of the ageing process, fosters a positive attitude toward ageing, and supports participation in health education activities through both online and offline channels (Tao et al., 2024). Conversely, limited health literacy is associated with reduced engagement in health information-seeking, especially through digital means (Ellis et al., 2012; Lee et al., 2021). It may also lead to information avoidance, limiting individuals' understanding of health risks and reducing adherence to health promotion guidelines during public health emergencies (Chen et al., 2022). Furthermore, low health literacy can negatively affect behaviours essential to developing self-management skills, which are central to the effective treatment of chronic conditions such as diabetes (Mackey et al., 2016). In summary, research on health information behaviour has highlighted the complexity of how individuals seek, verify, and use health-related information. Studies reveal a wide range of health information needs, showing that individuals employ various strategies to address these needs, often depending on factors such as the severity of their health condition. The verification of information—critical for health decision-making—has been explored, identifying both positive and negative outcomes. However, despite these insights, there remains a significant gap in understanding the exact actions people take with the information they receive, such as how they apply it to their health routines or share it with others. As the field of health information behaviour continues to evolve, it is essential to delve deeper into these nuances. Understanding the specific ways individuals engage with health information—how they process, implement, and adapt this information in their daily lives—will be crucial for designing more effective health communication strategies and supporting informed, proactive health management. This growing body of knowledge has the potential to enhance public health outcomes, empowering individuals to make better-informed decisions about their well-being in an increasingly information-saturated environment.

2.4 Health Information Behaviour During the COVID-19 Pandemic

The COVID-19 pandemic has significantly reshaped how individuals manage their health, particularly in terms of health information behaviour. Many aspects of daily life shifted from in-person to remote, prompting changes in how people search for, access, and use health information. This section critically reviews the literature on health information behaviour during the pandemic, focusing on three key areas: changing health information needs, changing health information seeking, and challenges of using health information. By examining these areas, we can understand the challenges and shifts in behaviour that emerged during the pandemic.

2.4.1 Changing Health Information Needs

The COVID-19 pandemic fundamentally reshaped health information needs, as individuals' needs evolved in response to their social roles (e.g., family caregiver, healthcare worker) and dynamic environmental pressures, including rapidly changing public health guidelines and societal uncertainty. This interplay between personal responsibilities and external triggers created distinct, role-dependent information priorities. For instance, healthcare professionals—facing clinical and institutional demands—prioritized granular, actionable data on viral etiology, diagnostic criteria, and evidence-based treatment protocols to guide patient care (Madukwe & Osonwa, 2021; Oyovwe-Tinuoye & Ferdinand, 2020). In contrast, patients and the general public focused on pragmatic, individualized guidance, seeking clarity on pandemic-related health risks, disruptions to daily routines, and access to testing or care (Horrell et al., 2021).

Notably, the pandemic marked a departure from pre-pandemic health information patterns. Prior to COVID-19, information needs were predominantly reactive, spurred by immediate personal health events such as new diagnoses or symptoms (Ke et al., 2021). The pandemic, however, generated a collective urgency: individuals sought information not only to manage personal health but also to fulfill civic responsibilities, such as mitigating community transmission. This dual focus—balancing self-protection with public safety—intensified the demand for real-time updates about emerging variants, vaccination efficacy, and shifting lockdown policies (Ke et al., 2021).

These findings underscore that health information needs during the pandemic were shaped by a tension between role-specific obligations (e.g., clinicians as knowledge gatekeepers, parents as family protectors) and broader societal pressures to adapt to an unstable, evolving public health landscape. Despite these findings, summarizing research evidence on health information needs is challenging overall, as most existing studies focus more on health information seeking rather than health information needs.

2.4.2 Changing Health Information Seeking

Health information-seeking behaviour during the pandemic was highly contextual and exhibited distinct patterns. There was a marked increase in the frequency of information-seeking activities. For example, De Gani et al. (2022) found that individuals in the German-speaking part of Switzerland sought health information more frequently than they had before the outbreak. This increase in information-seeking was a direct response to the rapidly evolving health crisis.

Individuals were more likely to seek information on digital platforms due to the quarantine policies and greater reliance on virtual services during the pandemic (Aslan et al., 2024).

Besides, trustworthy sources, such as government agencies and health organizations, became primary outlets for information. Chinese college students, for instance, turned to government-sponsored media due to its perceived reliability (Shi et al., 2021). Similarly, public announcements from health authorities such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) spurred heightened information-seeking behaviour, as seen in Kuwait, where citizens actively sought guidance on precautionary measures (Aldousari & Al-Sejari, 2021).

Information-seeking has also evolved over time. In the initial stages of the pandemic, individuals were more likely to actively seek information as they grappled with the uncertainty and unfamiliarity of the virus. However, as the pandemic progressed, many shifted to more passive forms of browsing, leading to a decline in active search behaviour (Bao & Ke, 2023). This shift may reflect growing familiarity with pandemic-related information and a saturation of readily available knowledge.

Emotional factors played a crucial role in shaping health information-seeking behaviour during the pandemic. Increased COVID-19 cases heightened individuals' perception of health risks and fueled negative emotions such as fear and anxiety, which, in turn, led to more frequent information-seeking (Alwreikat et al., 2021; Beaudoin et al., 2021). However, excessive exposure to negative and uncertain information could also lead to information avoidance, as individuals seek to preserve their mental well-being (Shi et al., 2021; Soroya et al., 2021). For some, the overwhelming nature of COVID-19 news resulted in a deliberate reduction in information-seeking activities in favour of maintaining a positive mindset (Beaudoin et al., 2021).

2.4.3 Challenges of Using Health Information

The use of health information during the pandemic posed significant challenges. While individuals sought health information to make informed decisions, enhance their knowledge, and address their immediate health concerns (Oyovwe-Tinuoye & Ferdinand, 2020; Pan et al., 2020), the sheer volume of available information often led to information overload. Citizens in countries such as Austria, Germany, and Switzerland reported feeling overwhelmed by the constant influx of COVID-19-related information (Dreisiebner et al., 2022). This overload made it difficult for individuals to process and use the information effectively.

The challenge of discerning reliable information was compounded by the spread of misinformation and disinformation. The rapidly changing scientific landscape, coupled with the proliferation of unverified claims on social media, further complicated the process of using health information (Granderath et al., 2021; Pine et al., 2021). Inaccurate or contradictory information made it harder for individuals to trust the data they encountered, leading to reduced confidence in health recommendations and, consequently, diminished usage of the information (Shehata, 2021). Without assurance of accuracy, individuals were hesitant to act on the information they received, which ultimately affected their ability to make informed health decisions.

2.4.4 Synthesis and Research Gaps

Research on health information behaviour during the COVID-19 pandemic reveals significant changes in the way individuals seek, assess, and use health information. The pandemic heightened information needs, driven by personal roles and environmental factors, while also prompting more frequent and emotionally charged information-seeking activities.

However, the abundance of information and the rise of misinformation created barriers to effective use. While these studies provide valuable insights into how health information behaviour evolved during the pandemic, there is still a need for further research on how these behavioural changes will persist and what long-term implications they may have for public health.

2.5 Health Information Behaviour in Chronic Disease Contexts

Chronic diseases, including heart disease, cancer, and diabetes, are long-term conditions requiring continuous medical care and self-management (CDC, 2022). As of 2021, 45% of Canadians were living with at least one major chronic disease (Statistics Canada, 2023b). Due to the extended and complex nature of these conditions, individuals with chronic illnesses exhibit distinct health information behaviour compared to other populations. Research on these behaviours primarily focuses on information needs, source selection, and interactive processes, each of which presents unique challenges and gaps in understanding.

2.5.1 Health Information Behaviour of People with Chronic Diseases

Individuals with chronic diseases consistently express a strong need for health information, which enables self-management, informed decision-making, and confidence in handling their conditions (Ayers & Kronenfeld, 2007; Dean et al., 2017; Kaziunas et al., 2013; Litchman et al., 2018; Smith & Master, 2023). However, managing the quality and quantity of information presents a major challenge. While receiving health information can initially reduce uncertainty, excessive or conflicting information may cause anxiety and cognitive overload (Deng et al., 2023). This suggests that the balance between information sufficiency and overload remains underexplored, raising questions about how individuals regulate their information intake to support, rather than hinder, self-management.

One distinctive characteristic of individuals living with chronic illness is that their health information needs often evolve over the course of long-term disease management. Gille et al. (2021) found that people with chronic conditions tend to become more interested in health information as the illness progresses. At the time of diagnosis, many individuals struggle to engage with health and illness information due to the emotional impact of the diagnosis and the immediate demands of managing a health crisis. However, as the initial shock subsides and hope for a return to normalcy emerges, patients begin to show a greater and more active interest in health information (Gille et al., 2021). In the context of diabetes, individuals with a longer history of the condition often come to view their experiential knowledge as more relevant to their daily management than the generalized scientific knowledge provided by healthcare professionals (Anderson & Bury, 2024).

Beyond patients, caregivers of individuals with chronic diseases also experience significant, yet often unmet, informational needs. Patients and their families may require more information than what is currently provided or recommended by healthcare professionals (van der Smissen et al., 2021). Studies on dementia caregivers indicate that available resources frequently lack accessibility, clarity, and practical guidance, making it difficult for caregivers to navigate their roles effectively (Sbaffi & Hargreaves, 2022). Furthermore, caregivers require emotional support, yet healthcare providers rarely address this need (Hargreaves et al., 2023). While some research acknowledges these gaps, more work is needed to explore how caregivers independently seek, interpret, and apply health information, as well as how they balance their own well-being alongside their caregiving responsibilities.

People with chronic diseases use multiple sources to access health information, including healthcare providers, personal networks, and digital platforms (Trace et al., 2023; Stvilia et al., 2021). However, source selection is shaped by a complex interplay of personal, interpersonal, and societal factors. For example, ovarian cancer patients' genetic testing decisions are influenced by individual preferences, family input, and public health messaging (Trace et al., 2023). Similarly, individuals with HIV/AIDS consult government health centers, primary care physicians, and online networks, yet they frequently navigate concerns related to privacy, stigma, and trust in institutional sources (Stvilia et al., 2021). Despite growing reliance on digital health platforms and social media, limited research examines how individuals assess the credibility of online health information and navigate misinformation—a crucial gap in the context of chronic disease management.

Healthcare professionals remain the primary sources of health information, but patients often turn to alternative sources due to time constraints, stigma, or the need for emotional support (Bazrafshani et al., 2022; Chen, 2021). Online communities offer a stigma-resistance environment where individuals with conditions such as HIV/AIDS and fibromyalgia share experiences and gain peer support (Litchman et al., 2018). However, while online platforms provide valuable engagement opportunities, their long-term impact on health behaviour and decision-making remains unclear, particularly in how they complement or contradict medical advice.

Health information behaviour among individuals with chronic diseases is not solely an individual process but is often collaborative and dynamic. Patients frequently engage in information-sharing behaviour with caregivers, family members, and peers, influencing collective or conflicting decision-making (Brown & Veinot, 2021; Lekic et al., 2020). These interactions involve negotiating power dynamics, emotional support, and the filtering of relevant information (Berget & MacFarlane, 2020; Brown & Veinot, 2021). For instance, ovarian cancer patients share genetic testing information with family members both to promote health awareness and to encourage preventive action (Trace et al., 2023). Similarly, people with chronic illnesses often engage in information-sharing motivated by both self-interest and altruism (Litchman et al., 2018; Stvilia et al., 2021). While information-sharing fosters collective decision-making and emotional support, little is known about its risks, unintended effects, and influence on health behaviour over time. Research evidence is lacking on other ways of using health information in the context of chronic disease management.

In summary, research on health information behaviour in chronic disease contexts highlights key aspects such as information needs, source selection, and interactive dynamics. While existing studies have provided valuable insights, there remain significant gaps in understanding the unmet emotional needs of both patients and caregivers and the nuanced ways in which health information is used. Future research should further explore how individuals navigate emotional and cognitive barriers to information-seeking, as well as the role of evolving digital platforms in supporting long-term chronic disease management. Addressing these areas will offer a more comprehensive understanding of how to optimize health information support for people living with chronic diseases.

2.5.2 Health Information Behaviour of People with Diabetes

People with diabetes have unique information needs, as the diagnosis is often unexpected and usually confirmed after a prolonged period of experiencing various symptoms (Costa & Camargo-Plazas, 2023). Two key concepts have been introduced to highlight this uniqueness:

implicit needs and *incognizance*. Whetstone (2013) examined information needs by looking at the types of materials participants kept and used (e.g., receipts, handouts, books, and self-care brochures) and identified tangential and implicit needs. Although participants seemed to focus on nutrition, as indicated by the number of recipes and cookbooks they collected, these items often served to meet underlying psycho-social needs. For instance, they helped individuals gain a sense of control over their diabetes management or adjust fit into social situations. These implicit psycho-social needs should be considered when developing diabetes education. Incognizance, while related to implicit needs, is a distinct concept. It refers to a persistent unawareness of an information need, either because the individual did not encounter relevant information or encountered it but failed to recognize its personal relevance at the time (St. Jean, 2017). This lack of awareness can have serious consequences. When there is a gap between the moment information is most needed and when it is actually provided, recognized as relevant, and acted upon, the result can be the development of severe diabetes-related complications. These include neuropathy, vision impairment, kidney disease, stroke, and diabetic coma (St. Jean, 2017).

Health information-seeking behaviour among people with diabetes is nonlinear, involving both active searching and passive receipt of information (Kuske et al., 2017; Longo et al., 2010). For example, a diary study of individuals with type 2 diabetes in Scotland identified three types of information-seeking behaviour: active seeking, passive encountering, and avoidance. Among these, passive encountering was observed more frequently than the other two (Broekhuis et al., 2022). One interesting finding from previous studies on information-seeking behaviour is that older adults with diabetes often disclose various contextual details (such as socio-economic status) when seeking health information in online health communities (Ma et al., 2024). The disclosure of demographic and situational information has been found to enhance the receipt of informational support, resulting in a greater number of supportive responses. In contrast, disclosing cognitive or emotional details does not appear to significantly affect the amount of informational support received (Ma et al., 2024).

The information sources people with diabetes access include healthcare providers, social networks, the internet, the body, and more (Costa & Camargo-Plazas, 2023; Ma et al., 2024; St. Jean et al., 2018). Among these sources, the frequently used sources were authoritative sources such as doctors/nurses and pamphlets/leaflets from hospitals/clinics (Zhang et al., 2019). One notable finding here is that people with diabetes also seek information from their own bodies (Suorsa, 2024; Williams et al., 2024). They learn through bodily awareness, self-monitoring of symptoms, and the use of diagnostic tests, as well as by observing others' bodies and listening to their experiences (St. Jean et al., 2018). This process often involves a pattern of trial and error, in which individuals engage in certain behaviours and monitor their bodies for symptoms in response.

The health information behaviour of people with diabetes is influenced by a range of physical factors (such as current and future physical health and accessibility), social factors (including the experiences of others and social support), affective factors (such as anxiety, uncertainty, fear, depression, and anger), and cognitive factors (such as awareness and health literacy) (Kim & Chang, 2016; Longo et al., 2010; St. Jean, 2012; 2017). In addition to these influences, time plays a significant role in shaping how individuals interact with health information. The ability to recognise and use health information develops over time as individuals gain experience managing diabetes. This process involves a series of individualized phases shaped by personal, social, and contextual elements, including developmental age (St. Jean, 2012; Paterson & Thorne, 2000). The development of self-management skills occurs through sequential stages that reflect evolving self-awareness, problem-solving capacities, and perceptions of control (Price, 1993). As individuals navigate their condition, they construct personal strategies based on lived experience and their own assessments of what works best (Price, 1993).

Overall, there is limited research on the health information behaviour of individuals with diabetes (Kuske et al., 2017). Existing studies have primarily focused on information-seeking behaviours and the sources people with diabetes use (e.g., Broekhuis et al., 2022; Ma et al., 2024; Zhang et al., 2019), leaving a gap in understanding how they actually use the information they obtain. In addition, most previous studies did not apply age restrictions to their participants, instead focusing on the general population with diabetes (e.g., Costa & Camargo-Plazas, 2023; Longo et al., 2010; St. Jean, 2012; 2017; St. Jean et al., 2018). Given that diabetes poses a significant threat to the health of older adults and this group has increasingly attracted scholarly attention (Ma et al., 2024), more research is needed to understand the specific health information behaviours of older adults with diabetes.

2.6 Health Information Behaviour of Older Adults

As the global population continues to age, the demand for healthcare services is rising. Older adults face a wide range of health-related challenges, making it essential to understand their health information behaviour. This section reviews the literature on older adults' health information needs, seeking behaviour, and information use, highlighting key factors that shape these activities.

2.6.1 Older Adults' Health Information Needs

Older adults have complex and varied health information needs that encompass a wide range of topics. These include health policies, insurance, medical research, healthcare services, specific conditions (such as cancer, Alzheimer's, and high cholesterol), medication dosages, alternative treatments, and medical products. They also seek information on nutritional diets, exercise regimens, and prescriptions (Agyemang-Duah et al., 2020; Chung et al., 2011; El-Attar et al., 2005; Hoffman-Goetz et al., 2009; Huisman et al., 2020; Magsamen-Conrad et al., 2019; Malone et al., 2017; McMillan et al., 2008; Theis et al., 2018; Wu & Li, 2016; Ying et al., 2019).

Research shows that older adults' need for health information is more pronounced than that of other demographic groups. This group not only encounters a broader range of health-related challenges but also seeks healthcare services more frequently (Czaja et al., 2009; Turner et al., 2018). Older adults pose an increasing number of health inquiries (Dieterle & Becker, 2011), driven by their higher exposure to health conditions and the complexities of managing chronic diseases.

These health information needs are not static; they evolve as older adults' health statuses change (Wu & Li, 2016). For instance, those with chronic conditions or deteriorating physical health often demonstrate a greater need for specific health information (Berkowsky & Czaja, 2018). Additionally, educational attainment influences the type and depth of information sought—older adults with lower levels of education have been shown to exhibit greater information needs, particularly regarding basic healthcare, compared to those with higher education levels (Theis et al., 2019).

The circumstances in which older adults require health information are diverse. Often, health information needs arise in response to health issues or when seeking to maintain a high quality of life (Manafo & Wong, 2012; Yates et al., 2012). Interestingly, the need for health information is not solely driven by health crises; it can also stem from social interactions and the desire to stay connected with others. For example, during the COVID-19 pandemic, older adults sought pandemic-related information to stay informed and maintain social interactions, as health updates became a central topic of daily communication (Lund & Ma, 2021). In addition, perceived gaps in knowledge prompt older adults to seek information. However, when they feel sufficiently informed—perhaps due to past experiences—they may demonstrate less of a need for certain types of health information, such as common illnesses (Agyemang-Duah et al., 2020; Alpay et al., 2004). This underscores the importance of understanding that the health information needs of older adults are contextually dependent and shaped by individual circumstances, experiences, and social environments.

2.6.2 Older Adults' Health Information Seeking

Various factors, from healthcare interactions to social circumstances, shape older adults' health information-seeking behaviour. This subsection delves into the factors that drive active and passive information seeking and the sources of information used by older adults.

Older adults often engage in health information seeking following consultations with healthcare professionals (Enwald et al. 2017; Jensen et al., 2017; Kvikne & Berget, 2022). This behaviour is typically aimed at verifying or supplementing information provided by doctors or nurses (Medlock et al., 2015). For instance, older adults may turn to online communities or forums to cross-check or validate professional advice (Donelle & Hoffman-Goetz, 2009). However, not all information-seeking is initiated by direct healthcare interactions. Passive exposure to health information—through media, social interactions, or other incidental means—

can spark active information-seeking, particularly when the information is perceived as useful or intriguing (Choi, 2019).

The sources older adults use for health information are diverse and context dependent. They often rely on a blend of traditional and modern sources, including healthcare professionals, public libraries, print media, social networks, and digital media (Chaudhuri et al., 2013; Goodall et al., 2014; Medlock et al., 2015; Shi & Luo, 2020; Weber et al., 2020). While healthcare professionals remain a primary source (Stehr et al., 2021), technological advancements have provided older adults with alternative options, particularly when other sources are unavailable or difficult to access (Choi, 2019; Colosimo & Badia, 2021; Pang et al., 2020; Huang et al., 2012; Känsäkoski et al., 2021). For example, (1) wearable digital health technologies can enhance care by making behavioural and physiological patterns in daily life visible to both patients and healthcare providers (Ginsburg et al., 2024); (2) smart home health technologies can promote independence, improve well-being, and facilitate communication among older adults (Tian et al., 2024); and (3) large language model-powered systems have strong potential to bridge the gap between older adults' expectations of healthcare providers and the realities they face. These systems can follow pre-set protocols to deliver explanations and respond to patient needs when providers are not immediately available, helping to improve responsiveness and support triage efforts (Yang et al., 2024). However, older adults with limited support networks and low digital literacy often report negative experiences with these digital services and may be reluctant to use them (Aslan et al., 2024)

Interestingly, older adults' information-seeking is not always for their own benefit. Many seek health information for family members and friends, particularly when these individuals require care or support. This proxy information-seeking behaviour is particularly common among older adults with limited digital literacy, who often rely on family members to assist with online searches (Paimre et al., 2023; Webster & Ryan, 2023). At the same time, older adults play an active role in helping those around them by seeking relevant health information on their behalf. This shared information-seeking behaviour underscores the interconnectedness between older adults' health needs and those of their close social networks (Turner et al., 2018). However, when seeking information for others, older adults are less likely to use the Internet and may instead rely on traditional sources or interpersonal channels (Tian & Robinson, 2008).

The rise of digital technologies has opened new avenues for older adults to seek health information. For some, the convenience of accessing health information online—through websites, search engines, or mobile apps—makes the Internet an appealing resource (Song et al., 2019). Research by Chang and Im (2014) highlights that the Internet can be particularly useful for physically frail older adults, allowing them to access information without needing to visit community health services. Despite this, significant challenges remain. Some older adults struggle with digital literacy, finding it difficult to convert their health concerns into effective search queries (Feufel & Stahl, 2012). Their reliance on basic search suggestions and hesitance to refine search terms further hampers their ability to navigate online resources (Wu & Li, 2016). This leads to frustration and a sense of being overwhelmed by the vast amount of available information, compounded by skepticism about the credibility of online health sources (Malone et al., 2017).

Various factors, including geographic location, gender, and literacy levels, influence the behaviour of older adults in seeking health information.

- **Location:** Regional differences impact how older adults access and use online health information. For instance, research has found that older adults in China are less likely to visit specialized health websites compared to their American counterparts, preferring to use general web search engines for health information (Wu & Li, 2016).

- **Gender:** Gender influences health information-seeking patterns, though these dynamics vary across contexts. Eriksson-Backa et al. (2018) found that older Finnish women reported more active health information-seeking behaviour compared to older men. Their study linked this tendency to stronger self-perceived health literacy—the ability to access, evaluate, and use health information—and a greater belief in one's capacity to influence personal health outcomes. Conversely, a German study revealed a contrasting trend in online environments: older men were more likely than women to use the internet for health-related information (Weber et al., 2020). They attributed this phenomenon to the higher internet use of men in general.
- **Health Literacy:** Health literacy is a crucial factor influencing how older adults seek and engage with health information. Those with higher health literacy are generally more proactive in seeking information and are better equipped to navigate multiple sources effectively (Eriksson-Backa et al., 2018; Kim & Utz, 2018). Additionally, individuals with greater health literacy are less likely to engage in repetitive searches across multiple platforms, as they tend to feel more confident in the information they gather (Adekoya, 2021; Yamashita et al., 2020).

In summary, older adults' health information-seeking behaviour is multifaceted and shaped by personal, social, and contextual factors. Understanding these influences is critical for designing health communication strategies that support older adults in navigating the complex information landscape, particularly as digital resources become more integral to their information-seeking processes.

2.6.3 Older Adults' Health Information Use

Once older adults have sought and obtained health information, the way they organize, verify, share, and apply this information becomes crucial to their healthcare decisions and well-being. This section explores how older adults process health information, the challenges they face in using it, their methods of verifying its accuracy, and the role of health information sharing in their communities.

Older adults employ various strategies to organize and prioritize the health information they acquire. According to Clarke et al. (2005), these strategies differ widely, with some older adults organizing information based on personal relevance or the degree to which it addresses their immediate health concerns (Luger et al., 2014). Yates et al. (2012) further identify additional criteria used by older Australians when organizing health information, including the credibility of the source, its level of interactivity, and its ability to address specific health needs. Despite these strategies, older adults often encounter difficulties in organizing information. Studies show that some older adults (e.g., baby boomers) in the United States can be easily distracted by irrelevant content, which complicates their ability to filter and process the information they find online (Tennant et al., 2015).

After gathering health information, older adults have been found to engage in a validation process to ensure its accuracy. This is particularly important when the information comes from healthcare providers or online sources. For example, Yates et al. (2012) report that some older adults rely on their past experiences to evaluate the advice given by healthcare professionals. This experiential knowledge allows them to assess whether the information aligns with their understanding of their condition. In contrast, others seek validation through external sources.

Donelle and Hoffman-Goetz (2009) found that older adults often cross-reference advice from healthcare providers with information found in online communities. Similarly, older adults may evaluate online health information by comparing it to their symptoms (Luger et al., 2014) or by consulting their physicians to assess its reliability (Matas & Bronstein, 2018). This back-and-forth validation process highlights the importance of trustworthy sources and expert confirmation in older adults' health decision-making.

Health information sharing plays a significant role in the lives of older adults, fostering connections and creating a sense of support within their social networks. Older adults share health information both intentionally and unintentionally. Intentional sharing often involves seeking or offering advice from individuals with similar health conditions (Choi, 2019), while unintentional sharing occurs when health topics arise naturally in everyday conversations (Huisman et al., 2020). These exchanges allow older adults to learn from others' experiences and gain emotional and informational support. However, the frequency of health information sharing tends to decline with age. Theis et al. (2019) note that as older adults age, they are less likely to share health-related information with family and friends. This decline can be attributed to several factors, including concerns over privacy, communication barriers, and limitations in digital literacy. Health information is often considered private, and older adults may be cautious about disclosing it unless they trust the individuals they are sharing it with (Huisman et al., 2020). In addition, many older adults prefer face-to-face communication over digital channels due to a lack of access to or familiarity with online platforms (Huisman et al., 2020).

The use of health information has significant implications for older adults' health outcomes, influencing their decision-making, patient-provider relationships, and overall well-being. Access to accurate and timely health information has been shown to improve health outcomes, enhance patient satisfaction, and strengthen patient-provider interactions (Czaja et al., 2009). Magsamen-Conrad et al. (2019) highlight that health information, especially online resources, is integral to managing family health and making informed healthcare choices. However, the impact of health information is not always positive. Matas and Bronstein (2018) report that for some older adults, accessing detailed information about health issues can lead to increased anxiety and worry. This suggests that while health information can empower older adults, it can also overwhelm them, particularly when they encounter complex medical information without sufficient guidance or support.

In conclusion, older adults' use of health information involves careful organization, validation, sharing, and application, significantly shaping their healthcare experiences. Understanding how older adults manage health information and their challenges can help improve health communication strategies, making information more accessible, trustworthy, and supportive of their unique health needs.

2.6.4 Synthesis and Research Gaps

The literature on older adults' health information behaviour reveals diverse needs, seeking patterns, and ways of using information. Older adults actively seek information related to healthcare policies, disease management, treatments, and lifestyle, but their needs evolve based on health status, education, and life circumstances. Their information-seeking is dynamic, influenced by healthcare interactions, social networks, and digital literacy, with many relying on family support or alternative sources when faced with technological barriers. Older adults often validate and share health information, though privacy concerns and communication limitations may hinder sharing as they age. Despite these discoveries, research has largely overlooked how chronic conditions (e.g., diabetes) further shape this behaviour and how events such as the COVID-19 pandemic might have shifted older adults' health information behaviour in lasting ways. There is also a lack of research on how they use health information, particularly regarding its practical application in daily life.

These gaps directly inform this thesis's focus on older adults with diabetes. By using a qualitative approach, this thesis will gain deeper insights into personal experiences, motivations, and the contextual challenges older adults face in managing diabetes-related information. It will contribute to the existing literature by addressing the gap in understanding information use in a chronic disease management context and the potential changes brought by major societal disruptions, such as COVID-19. It will also offer practical insights into how health services can better support older adults' evolving information needs.

2.7 Theoretical Framework

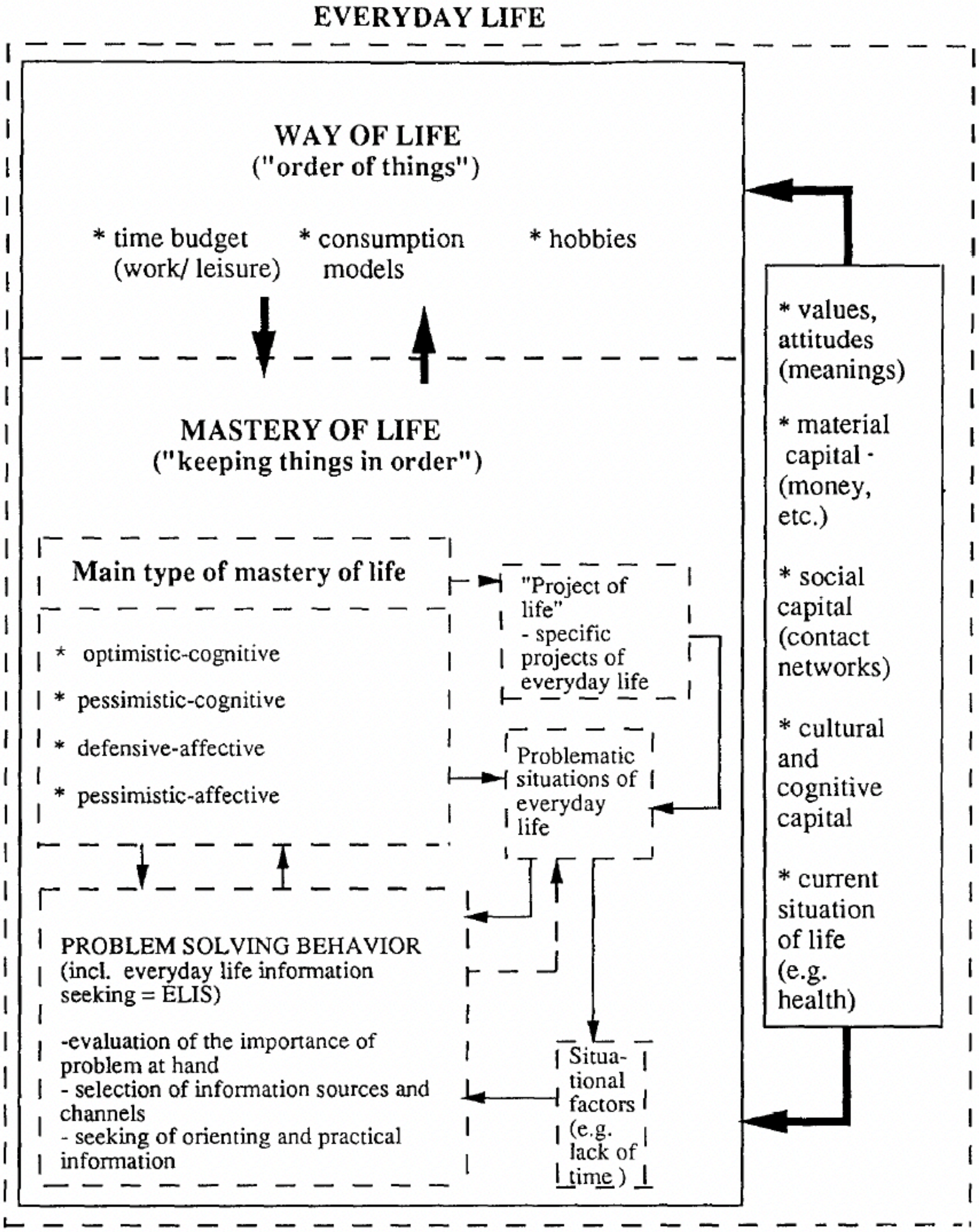
Reijo Savolainen's Expanded Model of Everyday Information Practice (EIP) was selected as the theoretical foundation for this thesis to strengthen its analytical depth and explanatory scope (Savolainen & Thomson, 2022). This thesis seeks to understand both the specific actions individuals take with received information and the underlying factors driving these actions. As mentioned earlier in this chapter, information behaviour in this thesis is regarded as an overarching concept that includes information practice. By incorporating an information practice framework, the research offers insight into the broader social and cultural influences shaping individuals' actions, providing a more holistic understanding of the research questions.

EIP was a development of the model of Everyday Life Information Seeking (ELIS). Noticing that information behaviour research tended to emphasize work-related action and neglected nonwork information seeking or citizen information seeking, the concept of ELIS was proposed by Savolainen. ELIS is defined as “the acquisition of various informational (both cognitive and expressive) elements which people employ to orient themselves in daily life or to solve problems not directly connected with the performance of occupational tasks” (Savolainen, 1995, p.266-267). Savolainen (1995) states that information seeking is a natural component of everyday practices, and everyday life information seeking should not only focus on the information sources available but should pay attention to the situational or contextual factors affecting information seeking.

ELIS is more sociological and less like a conventional flowchart than other models. In the ELIS model (Figure 1), everyday life information seeking is affected by *way of life* (i.e., order of things) and *mastery of life* (i.e., keeping things in order). *Way of life* provides criteria for using information sources and is operationalized by the structure of time budget, models of consumption of goods and services, and the nature of hobbies. *Mastery of life* describes the tendency to adopt a certain information-seeking strategy and has four types: optimistic-cognitive, pessimistic-cognitive, defensive-affective, and pessimistic-affective. *Way of life* and *mastery of life* determine each other and are both affected by values, attitudes, material capital, social capital, cultural and cognitive capital, and the current situation of life (Savolainen, 1995; 2005).

Figure 1

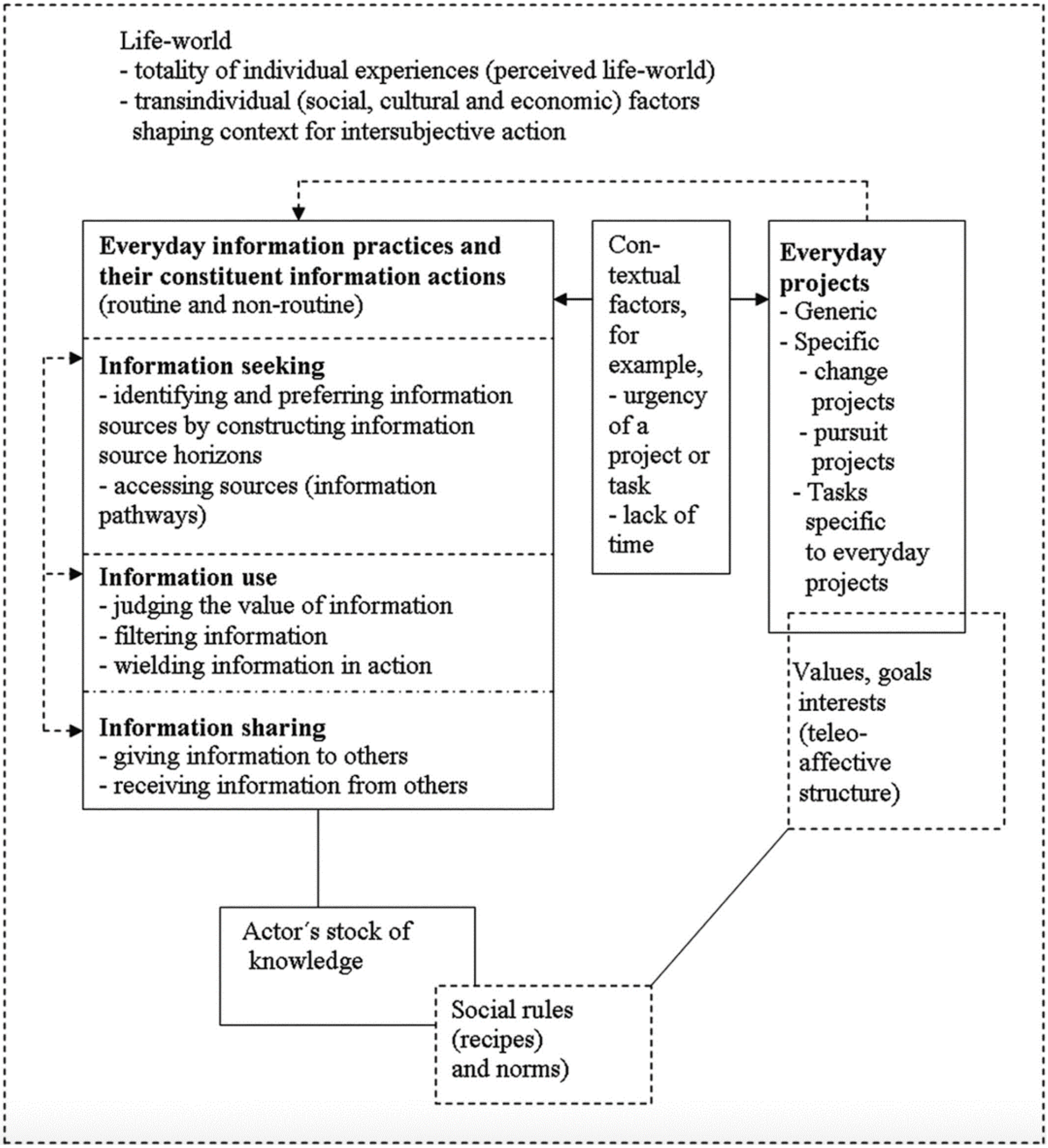
Savolainen's Model of Everyday Life Information Seeking (Savolainen, 1995, p.268)



In 2008, with his increased interest in the idea of social phenomenology, Savolainen proposed the EIP model (Figure 2). EIP expanded ELIS to encompass information use and sharing within the lifeworld framework, expanding our comprehension of everyday information behaviour. Different from ELIS, EIP encompasses information use and sharing. Specifically, in EIP, information seeking, using, and sharing are modes of everyday information practice. Information seeking is composed of actions such as identifying, preferring, and accessing sources. Information use includes judging the value of information as well as filtering and wielding it. Information sharing is constituted by giving information to others and receiving information from others. Besides, distancing from how *way of life* (i.e., order of things) and *mastery of life* (i.e., keeping things in order) affect everyday life information seeking in ELIS, the EIP model focuses on discussing information practice in the context of a lifeworld. This context refers to the general level of contextual factors (i.e., the totality of individual experiences and transindividual factors) and the specific contextual factors (e.g., the urgency of a project and lack of time).

Figure 2

Savolainen's Model of Everyday Information Practices (Savolainen, 2008, p.65)

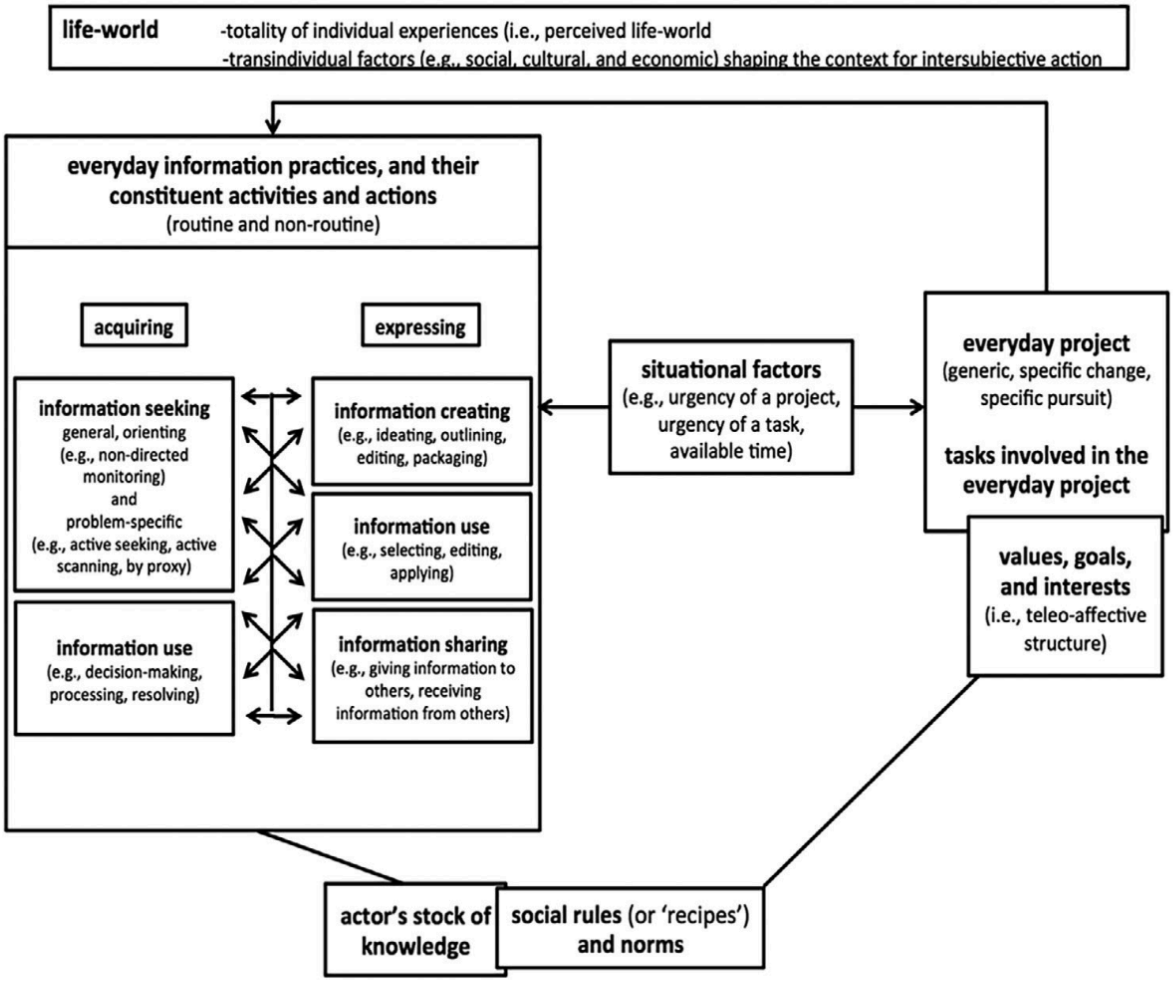


The EIP also delves into the correlation between information seeking, information use, and information sharing. Savolainen emphasized that it seems information seeking precedes information use and information use precedes information sharing from the schematic point of view, but these three actions are interdependent. They are accomplished in the context of the daily life world, which includes the totality of individual experiences and the transindividual factors shaping the context for intersubjective action (Savolainen, 2008). More specifically, they draw on the stock of knowledge for suggestions on how to progress in a typical situation, and they are directed by social rules.

The EIP model has evolved over time. In 2022, Savolainen enhanced the EIP model by integrating the element of *information creating* as an everyday information practice and examined it using conceptual analysis (Figure 3). This expanded model restructured the sub-components of everyday information practices into two distinct modes: acquiring and expressing information. The acquiring mode encompasses information seeking and use, while the expressing mode includes information creation, action-oriented use, and sharing.

Figure 3

The Expanded Model of Everyday Information Practices (Savolainen & Thomson, 2022, p.519)



Although the expanded model cannot be considered a "genuine theory" of everyday information practices, it demonstrates significant theoretical potential (Savolainen & Thomson, 2022). In this model, information use is addressed through two distinct modes: acquiring and expressing, encompassing activities such as decision-making, processing, resolving, selecting, editing, and applying information. Additionally, the model incorporates two forms of information sharing—giving information to others and receiving information from others. By refining and expanding the scope of the original EIP model, this framework provides greater specificity and depth in understanding information use.

Savolainen's expanded EIP model was selected as the theoretical framework to guide this thesis out of the following considerations. The EIP model was chosen because, unlike other models which were developed in the work or academic environments (e.g., Belkin's Anomalous States of Knowledge Model, Ellis's Model of Information Seeking Behaviour, and Kuhlthau's Information Search Process), the development of the EIP model was motivated by the need to elaborate on how people prefer and use information in nonwork/everyday contexts. Health information use is a typical nonwork activity and is embedded in older adults' everyday lives. The EIP model maintains that source preferences and patterns of information use are influenced by social structures and conditions. It, therefore, provides a holistic framework to study how social and psychological factors influence people's behaviour (Savolainen, 2008). It also contributes to understanding how health information use is shaped and changed in the context of the COVID-19 pandemic. For example, the social rules and norms may suggest what information sources are useful and what should be avoided in using information during the pandemic.

2.8 Chapter Summary

This chapter reviews the literature on broad topics (i.e., information behaviour/practices and health information behaviour) and specific topics (i.e., health information behaviour during the pandemic, health information behaviour of people with chronic diseases, and health information behaviour of older adults).

Three key elements of information behaviour are information needs, information seeking, and information use. Information needs are challenging to investigate due to their complex and often hard-to-articulate nature. Among these elements, information seeking has been the primary focus of information behaviour studies. Existing research has explored various types of information-seeking behaviour and the factors that influence it. In terms of information use, past studies have examined it from different perspectives; however, the focus has predominantly remained on information seeking. As a result, relatively little is known about information use itself.

Health information behaviour is an increasingly important topic within the field of information behaviour studies. Past studies have revealed that health information needs may stem from either existing health concerns or a desire to acquire general health knowledge. While health information seeking addresses these needs, it is important to notice that not all health information needs lead to active information seeking; alternative forms of seeking (e.g., information encountering) exist. Furthermore, health information use yields both positive and negative outcomes.

The studies on health information behaviour during the COVID-19 pandemic revealed that 1) the interaction of individuals, roles, and environments influenced people's health information needs; 2) health information seeking displayed characteristics such as heightened frequency, dependence on authoritative sources, ongoing changes, and emotional involvement; and 3) challenges arose in using health information during the pandemic due to issues such as information overload and false information.

Research on the health information behaviour of people with chronic diseases found that living with such conditions alters individuals' health information needs and how they seek to fulfill them. Individuals with chronic diseases' selection of information sources, whether they rely on professionals or online communities, is influenced by various factors, including individual, interpersonal, organizational, and social aspects. Information sharing emerges as one of the primary methods through which individuals with chronic diseases use health information.

Past research on the health information behaviour of older adults revealed that they have diverse and substantial health information needs. Studies on older adults' health information seeking revealed proxy behaviour between older adults and their social network, highlighting ongoing debates regarding Internet usage and the influence of factors such as location and gender. Existing research also illustrates the processes through which older adults select, verify, and share health information.

This chapter also presents Savolainen's expanded EIP model, which was chosen as the theoretical framework for guiding this thesis, given its focus on elucidating how individuals prefer and use information in nonwork or everyday contexts.

Despite the above research evidence, gaps in past studies leave several questions unanswered, inspiring the formulation of this thesis. First, as an independent and essential element of information behaviour, information use is understudied in academia. Existing models and frameworks primarily focus on the process of seeking information, with limited attention given to the actions people take with received information. Little evidence has been provided to understand the concept of information use. While existing studies on health information use have explained various methods people employ to verify health information, they have not fully explored other forms of health information use. Further work is needed to better understand the various ways health information is utilized.

Second, past studies have discussed the influencing factors of older adults' information-seeking behaviour, but few have investigated the reasons behind health information use. Besides, given that information behaviour is context-related (e.g., as mentioned earlier this chapter, health information behaviour becomes more interactive when related to chronic diseases and older adults), additional research is needed to better understand the complex factors influencing the health information behaviour of older adults with diabetes.

Finally, while existing studies have acknowledged the changes or challenges that the COVID-19 pandemic has brought to people's health information behaviour, few have reported on the changes in managing a chronic disease (such as diabetes) during a global health crisis. Further studies are also needed to explore the implications of the pandemic and understand potential health information behaviour in the post-pandemic era.

Chapter 3: Methods

3.1 Chapter Introduction

This chapter outlines research methods employed in this thesis and is divided into eight sections. Section 3.2 discusses the research design, detailing the chosen approach and its rationale. Subsequent sections present information on recruitment and are followed by detailed discussions on data collection and analysis. These sections also describe participant demographics, interview design, semi-structured interviews, and thematic analysis procedures. Verification and ethical considerations are addressed at the end of this chapter.

3.2 Research Design

This thesis employed a qualitative approach, "an approach for exploring and understanding the meaning that individuals or groups attach to a social or human problem" (Creswell & Creswell, 2018, p.4). The qualitative approach is an emergent research process that uses words and open-ended questions rather than numbers and closed questions. It aims to provide a holistic account of the research problem and emphasizes participants' perspectives. In qualitative research, scholars typically do not rely on pre-developed instruments from other researchers; instead, they gather and interpret data themselves.

A qualitative approach was chosen because it is exploratory and suitable when the research aims to explore or understand an understudied phenomenon or a new topic (Creswell & Creswell, 2018). This thesis aimed to explore how older adults with diabetes use health information. However, information use is an underdeveloped academic topic (Given, 2023; Wilson, 2020) with few existing theories or frameworks explaining it. Also, qualitative research allows a better comprehension of why, how, and under what circumstances different people make health-related decisions and actions (Green & Thorogood, 2018). It emphasizes the voice of older adults when describing their health information behaviour and can also provide rich and in-depth data (Agyemang-Duah et al., 2020; Goodall et al., 2014; Manafo & Wong, 2012; Tennant et al., 2015).

The philosophical worldview proposed in this thesis was constructivism, which believes individuals develop subjective, varied, and multiple meanings from their experiences and seek to understand the world where they live and work (Creswell & Creswell, 2018). Shaped by constructivism, this thesis recognized that 1) older adults' health information use was formed through their interaction with others and their social and historical settings; 2) the interview guide should be broad and general to rely as much as possible on older adults' views of their health information use behaviour; 3) my personal experiences and background could shape interpretation of data collected from older adults with diabetes.

Qualitative research is inherently interpretative, and researchers are encouraged to explicitly state their reflexivity (Creswell & Creswell, 2018). As a young female international student in Canada who does not have diabetes, I recognize that I am not an insider within the research population (i.e., older adults with diabetes in Canada), particularly in terms of experiencing later life. While I strive to maintain objectivity in this thesis, my background inevitably influences how I gather and interpret data. However, my academic and practical experiences have equipped me with the tools to critically engage with this research and minimize bias.

My previous roles as a research assistant on projects examining information behaviour and the health information divide have deepened my awareness, knowledge, and sensitivity to many of the challenges older adults face when seeking and using health information. Additionally, my personal experiences—such as living with my grandparents who have chronic illnesses—

alongside my volunteer work and academic training have strengthened my ability to approach this research with empathy and understanding. For example, assisting older adults in accessing and using resources at the Atwater Library and Computer Center (April 2022–December 2023), attending the Aging and Health Informatics Conference (2021), and serving as a reviewer for the journal *Work, Aging and Retirement* have allowed me to engage meaningfully with aging-related issues. While the age gap between researchers and participants remains a persistent challenge in this field, my commitment to this area of study has helped bridge this gap by fostering a deeper understanding of older adults' perspectives and experiences.

3.3 Participants

3.3.1 Inclusion Criteria

The inclusion criteria for participant recruitment were: (1) aged 65 and above, (2) diagnosed with type 2 diabetes, (3) residing in Canada, and (4) speak English or Mandarin. This population was selected to provide rich qualitative insights into health information use among older adults with diabetes. Rather than imposing rigid selection conditions, participants were recruited based on broad definitions to allow for a diverse range of experiences and perspectives.

The decision to define older adults as 65+ follows classifications commonly used by organizations, such as the World Health Organization (WHO) and Statistics Canada, in aging research and health policy. While aging is a complex and individualized process, establishing a consistent age criterion ensures comparability across studies on later-life experiences. This definition also aligned with previous research on health information behaviour among older adults (Chaitoff & Zheutlin, 2024; Edwald et al., 2017; Eriksson-Backa et al., 2018). Health information behaviour is age-sensitive; adults aged 65 and above often experience age-related health challenges, shifts in healthcare engagement, and evolving health information behaviour (Edwald et al., 2017), making them particularly relevant to this thesis's focus on health information use.

For type 2 diabetes, participants were included based on self-reported diagnosis without additional conditions related to disease duration or control status. This decision aligned with the study's qualitative approach, which aimed to explore what factors shape information use rather than predefining how they do so. By not restricting eligibility based on diabetes history or management status, the study captured a broader spectrum of lived experiences, allowing for a richer exploration of the various influences on health information behaviour.

Health information is deeply embedded in the daily lives of individuals with chronic diseases, shaping their interactions with healthcare providers, self-management practices, and decision-making (Wolf & Veinot, 2015). Diabetes, as a serious chronic condition, significantly impacts health-related quality of life and is associated with major complications such as stroke, cancer, and Alzheimer's disease (NIA, 2019). Type 2 diabetes, the most common form of the disease, is particularly influenced by lifestyle factors, necessitating ongoing health information engagement regarding diet, physical activity, and treatment management. Despite this, there is limited research on how older adults with diabetes seek and use health information (Kalantzi et al., 2015). Therefore, choosing this population holds both theoretical and practical significance.

The criterion of residing in Canada was established for practical and geographical considerations, as this study was conducted at McGill University in Canada. Healthcare systems and information environments vary across countries, and focusing on a single national context ensures a consistent understanding of participants' experiences within a shared healthcare system. The criterion of residing in Canada ensured that participants share a common healthcare environment, including access to the Canadian healthcare system and public health resources.

The decision to include English- and Mandarin-speaking participants was based on both practical and research considerations. Initially, recruitment focused on English-speaking participants; however, difficulties in enrollment made it challenging to secure a sufficient sample. When I reached out to community organizations serving Chinese individuals in Montreal, many older adults expressed interest in participating but did not speak English. Given my fluency in both English and Mandarin, I adjusted the inclusion criteria to better reflect the linguistic realities of the population willing to participate. As the researcher, my proficiency in both languages allowed for direct communication with participants without relying on interpreters, ensuring a more accurate understanding of their experiences, particularly regarding cultural factors that influence health information behaviour. This decision also strengthened the study's ability to examine how language barriers impact health information behaviour. Older adults who are not proficient in Canada's dominant languages often face unique challenges in accessing, processing, and acting on health information. By including Mandarin-speaking participants, the study acknowledges these barriers and contributes to discussions on equitable health communication, particularly for immigrant populations managing chronic conditions such as diabetes.

Apart from the four criteria mentioned above, I did not impose additional restrictions such as diabetes duration or control status. My aim was to capture a broad range of experiences and perspectives, which I felt was essential for reflecting the diversity in how older adults manage their health information.

3.3.2 Recruitment and Sampling

Participants were recruited through a combination of purposive, convenience, and snowball sampling strategies. Recruitment started in February 2023 and continued until data collection was completed in September 2023. A recruitment flyer (Appendix A) was created to facilitate recruitment. The flyer indicated the objectives of this thesis, the compensation, the recruitment criteria, and my contact information. Potential participants could contact me through email or phone. I then clarified the research background to the participants and answered their questions.

As an incentive, all participants received $25 in financial compensation. This proposed amount was not low enough to undermine the value of the participants' time, nor high enough to be the main reason for their participation. Compensation was provided in cash for in-person interviews and as an Amazon digital gift card for online interviews. A cheque was mailed to participants who did not use Amazon. The compensation was based on participation, not completion. Therefore, participants were still given the said compensation even if they did not answer all the questions.

The recruitment flyers were distributed in various ways. I first disseminated recruitment flyers on social media platforms (Facebook, Twitter, WeChat, and RedNote). Then, I emailed multiple organizations to see whether they could help distribute the recruitment information among their members (the complete list of these organizations can be found in Appendix B, and the letter for permission can be found in Appendix C). The responding organizations include those for diabetic patients (e.g., Diabetes Québec, Diabetes Canada, and Diabetes Research Center) and those for older adults (e.g., Senior Citizen's Forum of Montreal and Chinese Family Service of Greater Montreal). I also contacted faculty members associated with institutions such as the Montreal Diabetes Research Center, McGill Diabetes Technologies Lab, McGill

University Health Center, and McGill Community for Lifelong Learning. Some kindly agreed to display the recruitment flyers in their clinics and on bulletin boards. Finally, after each interview, I asked participants if they would share the recruitment flyers with their friends, family, and colleagues.

Among the above recruitment methods mentioned, sending emails to organizations proved to be the most effective approach, resulting in nearly half of the participants being recruited. While some participants were brought in through social media flyers, these flyers did not directly reach the older adults themselves. Instead, most of them were recommended by their children, who had encountered the flyers online. A limited number of participants were referred to the study by their friends, with some even sharing specific interview questions. Consequently, a couple of participants prepared their responses before the interview.

The appropriate sample size for qualitative studies is affected by research objectives, topics, and methods. Qualitative researchers should continue sampling until they have deep and rich data sets. One of the standard practices for qualitative research is to reach data saturation; that is, the data collection process stops when the interview no longer sparks new insights or reveals new properties. The notion of data saturation originates from grounded theory, with existing studies highlighting several practical challenges, such as time constraints, financial limitations, funding needs, and theoretical complexity in attaining data saturation (Green & Thorogood, 2018). There was a decrease in the emergence of innovative ideas around the 12th or 13th interview. Recognizing that this sample size lacked credibility for the users of a doctoral dissertation, the data collection process was extended. Subsequently, it became evident that innovative ideas did continue to arise, albeit reaching a saturation point after approximately 20 of the 23 interviews.

3.3.3 Demographics

A total of 23 participants were recruited. More specifically, the youngest participant was 68 years old, the oldest participant was 90, and the majority of participants (18 individuals) fell within the age range of 74 to 85. Gender was evenly split, with 12 participants identifying as male and 11 identifying as female. More than half of the participants had a bachelor's degree or higher, with one failing to provide their educational background. Sixteen participants had had diabetes for over ten years, with the longest one having had it for 41 years. As for current residence, 15 are in Montreal, five live in Ottawa, two live in Toronto, and one lives in Canmore.

Table 1 provides additional background information about these participants. Non-identified codes were used instead of pseudonyms to ensure confidentiality and protect participants' identities. Codes offer a higher level of anonymity, reduce cultural or linguistic bias, and are more practical for managing large datasets. Additionally, given the diverse backgrounds of the participants, creating pseudonyms that are culturally appropriate and respectful would be challenging.

Table 1

The Demographic Information of the Participants

ID	Gender	Age	Education	Diabetes history
P1	M	74	N/A	41 years
P2	M	70	Technical training	17 years
P3	M	69	Master's degree	27 years
P4	M	75	Bachelor's degree	7 or 8 years
P5	F	75	Technical training	5 or 6 years
P6	F	74	Technical training	7 years
P7	F	77	Bachelor's degree	20 years
P8	F	76	Bachelor's degree	Over 20 years
P9	F	74	Bachelor's degree	16 years
P10	F	82	Technical training	23 years
P11	F	81	Bachelor's degree	18 years
P12	F	90	Technical training	21 years
P13	M	69	PhD	13 years
P14	M	68	Bachelor's degree	5 or 6 years
P15	M	79	Master's degree	7 years
P16	M	83	Master's degree	30 years
P17	M	76	Bachelor's degree	Over 20 years
P18	M	77	Bachelor's degree	2 years
P19	F	78	Middle school	4 years
P20	F	80	No education	26 years
P21	M	85	Bachelor's degree	15 years
P22	M	74	High school	14 years
P23	F	79	Technical training	15 years

One thing that should be acknowledged here is that while this thesis is not specifically about the health information behaviour of immigrants, this context naturally emerged in the data. Although not initially planned, all participants in this research had an immigrate background, with three participants from India, Ukraine, and Europe (country unspecified), and the remaining twenty participants from China. As mentioned earlier in this chapter, participants were recruited through various community organizations and outreach efforts targeting older adults with diabetes. Initial recruitment attempts included contacting multiple health and social service organizations that serve older adults. However, response rates were low, and only a few organizations engaged in participant recruitment, leading to the recruitment of the first three participants. Later, when I contacted the Chinese Family Service of Greater Montreal, many older adults with diabetes expressed interest in participating but had difficulty communicating in English. As a result, I expanded the inclusion criteria to include individuals who speak Mandarin. While this was not an intentional recruitment criterion, it reflects the accessibility of certain networks over others in participant recruitment. The limitations of this demographic background of participants can be found in Section 5.3 Limitations and Future Research.

3.4 Data Collection Procedures

3.4.1 Interview Guide

A semi-structured interview guide with four main sections was created to facilitate the interviews (Appendix D). The primary questions in the guide were formulated based on the research objectives and questions (e.g., how and why older adults use health information and potential changes during the pandemic). Existing studies on health information behaviour were also reviewed to develop probing questions.

The first section guides older adults in reflecting on their health information needs and seeking, addressing RQ1: How do older adults with diabetes seek and use health information, particularly regarding the actions they take after finding the information they were looking for? People use health information to meet their health needs, such as disease prevention, diet control, and body shape, and they can only use the information once they obtain it (Shabi & Oyewusi, 2018). The main question asked in this section is, “Could you walk me through a specific time when you needed to find out something or learn something new about your diabetes?”

The second section aims to elicit various ways of using health information, also addressing RQ1. As mentioned in the literature review chapter, past studies uncovered that older adults use health information in several ways. Therefore, this section's central question was, "Can you describe what happened after you found the information you needed?" The probes included selecting or checking information, saving it for future use, changes in knowledge, decision-making, health management, and information sharing.

The next section of the interview guide aims to identify the factors related to health information behaviour, addressing RQ2: What factors relate to how older adults with diabetes in Canada seek and use health information? Therefore, the central question of this section is, "According to you, why did you do that?" Guided by Savolainen's expanded EIP model, older adults' health information use may be influenced by contextual factors, such as attitudes, thoughts, social networks, social environment, and current life situations. These factors were explored through follow-up questions if the participant has yet to mention them.

The last section focuses on changes during the pandemic and future implications, aiming to answer RQ3: How did the health information behaviour of older adults with diabetes in Canada change during the COVID-19 pandemic, and to what extent are these changes likely to persist in the future? The COVID-19 pandemic has altered nearly every aspect of human life, including how people use information (Noh, 2021). As the world enters the post-pandemic era, we need to address the changes brought about by the COVID-19 pandemic. The main questions of this section are, "Could you walk me through the changes in how you used information for your diabetes during the pandemic?" and "How would you describe these changes? Do you plan to continue this behaviour in the future, and why?"

The semi-structured interview guide prompts discussions while letting the interviewer explore particular responses further. It also gives participants more opportunities to express themselves fully. Due to the characteristics of qualitative research, the interview guide kept evolving as the data collection and analysis continued.

The Critical Incident Technique (CIT) was also integrated into the interview guide to assist the interview process. CIT has its roots in psychology and encourages participants to tell their stories by recalling an actual event (Flanagan, 1954). A critical incident can be described as one specific behaviour/action that positively or negatively impacts a phenomenon (Flanagan, 1954). CIT has been involved a lot since 1954. Rather than solely describing the incident, researchers focus more on what a person did, why they did it, and the outcome (Butterfield et al., 2005).

CIT was chosen because it can provide rich information by encouraging total recall and eliciting the details. CIT is a method of understanding human behaviour and "has particular advantages in the study of information behaviour as a method of illuminating the ways in which the context of information needs impacts on information behaviour, how participants feel, and in particular in identifying positive and negative behaviour in information seeking and use" (Marcella et al., 2013, p. 50). It was also widely used in healthcare and information behaviour research (Savolainen, 1995; Urquhart et al., 2003), illuminating how the context of information needs impacts how people seek and use information (Marcella et al., 2013).

In this thesis, CIT was a tool for eliciting answers about people's general behaviour, so this event did not have to be remarkable. At the beginning of the interviews, I encouraged participants to recall one specific event for which they used health information related to their diabetes. Then, I solicited participants' actions during that event, the factors related to their actions, and possible changes during the pandemic.

CIT relies on participants' memories, so it did not work for several participants who reported difficulty recalling specific events. In these cases, I first asked them about the information they needed or were interested in regarding their diabetes. Then, I posed broader questions, such as which sources they used to find that information and what steps they took after acquiring it. A few participants did recall a couple of events while answering these questions.

3.4.2 Interview Process

Data were collected through one-on-one interviews, which are helpful when participants cannot be directly observed (Creswell & Creswell, 2018). This thesis focuses on how older adults with diabetes use health information in their daily lives and during the pandemic. The interview method allows them to provide historical data rather than current events.

The interviews took place between March and September 2023, a period when COVID-19 restrictions had largely eased, but pandemic-related considerations still influenced participant preferences. Interviews were conducted either online via Zoom or in person in private rooms at McGill University libraries, depending on participant preference and accessibility. While in-person interviews were available, only one participant opted for this format, with the session lasting 67 minutes. The remaining participants preferred online interviews, which lasted between 30 and 60 minutes, with most averaging around 45 minutes. Although formal pandemic restrictions were no longer in effect, the availability of online interviews reflected the lasting impact of the pandemic on communication norms, particularly among older adults. The option to conduct interviews remotely may have increased accessibility and convenience for participants, influencing engagement with the study.

As detailed in the recruitment and sampling subsection, most participants were recruited by contacting organizations for older adults and diabetics in Canada. Nearly half of the participants were referred by the Chinese Family Service of Greater Montreal. Participants were given the option to conduct the interviews in either English or Mandarin. Most participants were native Mandarin speakers and preferred to communicate in their native language. The researcher, also a native Mandarin speaker, ensured effective communication and cultural sensitivity throughout the interview process.

Given that findings from data analysis can influence subsequent data collection, the process was iterative. Three rounds of data collection were conducted, with continuous movement between data collection and preliminary analysis. Initially, five participants were interviewed in March 2023, followed by a preliminary analysis of these transcripts in May 2023. The second round comprised 11 interviews conducted between May and August 2023 with concurrent analysis. Finally, a third round of seven interviews was conducted in September 2023. Data saturation was achieved during the last round, as no new information emerged from the final interviews, leading to the conclusion of the data collection process.

3.4.3 Pilot study

Conceptualizing and studying information use has long posed challenges (Dervin & Nilan, 1986). Compared to information needs and seeking, information use lacks well-established theories or frameworks, making it more difficult to design and conduct research in this area. A pilot study was therefore necessary to enhance the likelihood of success for this project. As mentioned earlier, three rounds of data collection were conducted, with the first round serving as the pilot study.

The pilot study took place in March 2023. I recruited five participants by emailing recruitment flyers to members of the McGill University Health Centre and the Chinese Family Service of Greater Montreal. The study included five older adults aged 69 to 75, four of whom were male and one female. Participants had varied educational backgrounds, including technical training, bachelor's and master's degrees, while one did not report their education. Their experience living with diabetes ranged from approximately 5 to 41 years. Detailed demographic information can be found in Table 1 (see 3.3.3 Demographics).

One interview was conducted in person, while the remaining four were conducted online via Zoom. The interviews lasted approximately 60 minutes and were audio recorded. Afterward, the recordings were transcribed using Otter.ai and Microsoft Word. The transcripts were then analyzed using Atlas.ti and interpreted through reflexive thematic analysis (see Section 3.5 Data Analysis).

This pilot study helped identify potential issues in the research design. It allowed me to evaluate the feasibility and practicality of the study and provided an opportunity to become familiar with the participants and their contexts. During the pilot phase, I encountered challenges related to participant recruitment and the interview guide. Specifically, I realized the difficulty of recruiting only English-speaking participants in Montreal, especially during a historically significant period (i.e., the COVID-19 pandemic). Many Chinese older adults in Canada expressed interest in participating but noted language barriers, so I expanded the inclusion criteria to accommodate non-English speakers. Additionally, interview guide was adjusted during the pilot study. For example, I recognized that simply providing a brief overview of the research at the start of the interview was insufficient, as some participants assumed this interview pertained solely to medical science. To address this, I briefly introduced the field of information science to ensure that participants had a foundational understanding of the disciplinary context. Another example involved a question regarding changes in information use during the pandemic ("Could you walk me through your changes in using information for your diabetes during the pandemic?"), which proved challenging to answer. In most cases, participants talked about general aspects of the COVID-19 pandemic, such as their views on curfews and wearing masks. Consequently, this question was refined to be more specific, such as "Did you still read newspapers during the pandemic?" and "During the pandemic, did you still follow the diet or exercise suggestions that you have always followed?

3.5 Data Analysis

Every interview was audio-recorded to create transcripts. The audio recordings were then transcribed into text using Otter.ai and the transcription feature of Microsoft Word. The transcription process focused on creating a detailed and complete record of the spoken words, preserving even partial words and stutters to ensure accuracy. All transcripts were proofread to ensure they accurately captured the interviews. Immediately after each interview, memos were written and proofread to outline critical findings and my reflections. These memos were subsequently utilized during the analysis and thesis writing phases.

For interviews conducted in Mandarin, I transcribed the conversations verbatim to preserve the authenticity and nuances of participants' expressions. However, the transcripts were coded using English to align with the language of this manuscript and facilitate communication with an international academic audience. As a fluent speaker of both Mandarin and English, I ensured the accurate interpretation of the original data throughout the coding process. Selected quotes were translated into English during the writing of this paper, with careful attention to maintaining the meaning and context of participants' responses. The original Chinese quotes were also provided to uphold transparency. This bilingual approach balances the integrity of the original data with the accessibility of the findings for a broader audience.

The interview transcripts were imported into Atlas.ti, a qualitative analysis software. Thematic analysis (Braun & Clarke, 2022) was employed to analyze these transcripts. Thematic analysis is commonly used in qualitative research and is recognized for its accessibility and flexibility. It systematically guides newcomers to qualitative research through coding and analyzing qualitative data and is adaptable to various research questions and data types (Braun & Clarke, 2012). Given my limited experience with qualitative research, the accessibility and flexibility of thematic analysis enable me to identify themes and patterns within the data inductively. This approach is particularly suited to the objectives of this thesis, which seeks to present the perspectives of older adults with diabetes and provide a detailed and comprehensive account of their health information use. Moreover, thematic analysis can generate valuable insights for policy and practice, enhancing older adults' well-being (Green & Thorogood, 2018).

Thematic analysis encompasses various methods, broadly categorized into three types: coding reliability approaches, reflexive approaches, and codebook approaches (Braun & Clarke, 2021). This thesis adopted the reflexive approach, highlighting the researcher's subjectivity as a valuable resource in the research process (Braun & Clarke, 2022). The coding process in the reflexive approach is inherently unstructured and subjective, with themes emerging from the codes and being conceptualized as meaningful, interpretive narratives (Braun & Clarke, 2021, 2022). The following specific procedures of reflexive thematic analysis were applied in this thesis.

Step 1: Familiarizing with the data

I read and reread all interview transcripts in-depth to understand the data. Specifically, while reading, I kept asking questions about how participants narrated their experiences using health information, the changes/implications in the context of the COVID-19 pandemic and how they made sense of their experiences. I also wrote down my thoughts about each interview and highlighted what was unique about each interview. For instance, Participant 1 has been diagnosed with diabetes for more than 40 years and shared his experience to educate others about diabetes-related information. Participant 9 reported that she experienced vomiting and diarrhea due to being overprescribed medication by her family doctor, leading her to believe the doctor was irresponsible. Participant 18 expressed his lack of social network and reluctance to share personal information.

Once I had finished reading all interview transcripts, I wrote memos on the entire data to reflect on the common patterns across the data. In the early rounds of reading, these memos resembled topic summaries detailing the various responses related to participants' information needs, sources, types of information seeking, ways of using information, influencing factors, and the impact of the pandemic. As I progressed through subsequent rounds of rereading, my notes became more focused on highlighting significant findings, particularly emphasizing shared insights across different cases, such as how participants critically evaluated the information they received in various contexts.

Step 2: Generating initial codes

At this stage, I rephrased relevant points from the transcript to generate initial codes. I employed descriptive and interpretive codes to capture the meaning of the text. For instance, the code "teach others" closely aligned with the participant's statement: *"A lot of patients would* *come in. So, I tell them how to use the new equipment.” (P1)* In contrast, the code “ageism” went beyond the participants’ words to interpret Participant 8’s underlying frustration with her family doctor, who always viewed her as old and expressed that it was fortunate she had lived this long given the condition of her body.

I did not have a pre-determined list of codes for my analysis; new codes were added as needed. Below are a few examples of coded transcript excerpts (Table 2). The coding process of this stage was iterative and repeated until no new codes were generated. The unit of coding was flexible, allowing it to be either a sentence or a paragraph.

Table 2

Examples of Coded Transcript Excerpts

Transcripts	Codes
"You know, 2020 was harder to arrange an appointment. But other than that, I can't really also. I had to speak to my doctor a couple of times. And I was only able to do it on the phone, at first for a while, which was kind of a problem for me, I prefer to see the doctor. But, you know, lately, I have seen my doctor a few times and no last year." (P4)	• Seeing doctors was difficult • Ways of communication
"What I didn't know about before was the fact that the drugs I was taking could have an effect on causing the DKA, that was rather exciting. But as you get, you end up with kidney failure, and my heart stopped twice during that when I was in the hospital. But so, I got a lot of information and like I say my wife wrote down everything so we could review. When you're in a hospital like that you have lots of blackout periods. I don't remember, so my wife made notes and then she would review them with me when I was more alert. Yeah. And they gave me lots of written material too." (P3)	• Information about medication • Save information • Feel surprised • Personal health condition • Family members • Printed materials • Add to knowledge
"医生，这个外国人不跟我讲什么，就说是 pressure High，所以这样子说。然后到底怎么样我也不知道。他就每天给我量血压测血糖。五天以后我就说，诶，我可以回去吧？以后就是要我锻炼身体。后来我出院以后，每个星期去锻炼。 [The doctor didn't tell me anything, he just said it was high pressure. That's what he said. I don't know what really happened. He checked my blood pressure and blood sugar every day. After five days, I said, eh, can I go back? He said yes and told me to work out. Well, after I was discharged from the hospital, I exercised every week.]" (P8)	• Information about other disease • Unmet needs • Healthcare professionals • Do physical exercise

During this phase, I generated and continually updated a list of codes, summarizing each code and its corresponding meaning. Additionally, I elaborated on a selection of extracted quotes to provide further context. By the end of this process, 156 codes were generated, with examples provided in Table 3.

Table 3

Sample Codes with Illustrative Data Extracts

Code	Explanation	Quotes
Carry on	Continue their life without making any changes	*"I just carry on. I just carried on. Nothing had changed or anything else I knew about. I mean, I have had it for a long time" (P3).*
Critical thinking	Rather than blindly adopting all conclusions they encounter; individuals should exercise their own judgment	*"我呢也不是不信任，我呢，要通过自己的头脑分析的。我是一个辨证唯物主义者，我一分为二的看问题的，医生怎么说的，这个书上怎么说的，我自己是怎么考虑的，不是他说就我就百分之百的相信的。[It's not that I don't trust it, I want to analyze it through my own mind. I am a dialectical materialist, and I approach issues by looking at them in a nuanced way. It's not just about what the doctor says or what is written in the books; I also consider my own thoughts. I don't believe something just because someone says it; I don't blindly accept it.]" (P2)* *"根据经验，因为我看这方面的文章比较多嘛，嗯，那就是肯定有不同的观点的，然后，我自己分析我觉得哪个更有道理。[Based on my experience, I have read a lot of articles in this area. There must be different opinions, so, I analyze which one I think is more reasonable.]" (P11)* *"我是查血糖，我查血糖以后呢我自己去对比分析这个情况，嗯，我不是很特别对某一个医生或者某一个药特别，认为呢它有多好，就是我要根据我自己的情况去调节这个。[After I checked my blood sugar, I compared and analyzed the situation myself. Well, I don't particularly believe in a certain doctor or a certain medicine. I just want to adjust this according to my own situation.]" (P13)*
To be heard	Opportunities to express oneself	*"但还是这个华人服务中心啊，社区里面，呃，给我们讲课啊，或者老师讲课啊，或者什么你可以提问题，你可以讲。这个还是更比较可以多讲一些，多讲一些，大家互相交流的更多一点。[But when listening to lectures at the Chinese Service Center or in the community, you can ask questions, and you can talk. This is better because everyone can communicate with each other more.]" (P23)*

Step 3: Generating initial themes

During this phase, the objective was to generate potential themes that capture various patterns of meaning within the dataset. I scrutinized all codes generated in the preceding step to pinpoint similarities and intersections. By grouping similar codes, candidate subthemes and themes were constructed. These themes/subthemes were presented in sufficient depth to convey the richness and complexity of the original data. For example, I observed codes clustering around social and contextual factors, which form one prominent theme: "Managing Health in a Socially and Culturally Complex Landscape." Further analysis revealed that these codes emphasized either shared identity and cultural influences (Subtheme 1: Shared Identity and Cultural Contexts), the ongoing struggle for patient empowerment and autonomy (Subtheme 2: Struggles for Empowerment and Autonomy in Healthcare), the critical importance of social support networks (Subtheme 3: The Role of Social Support and Relational Networks), or the pervasive challenges related to accessibility and availability (Subtheme 4: Accessibility and Availability Issues).

At this stage, I began considering how these themes interconnect to tell an overall story that addresses my research questions. I also created a miscellaneous theme to encompass codes that did not fit elsewhere, such as "Chinese medicine," "not following suggestions," and "carry on."

Step 4: Developing and reviewing potential themes

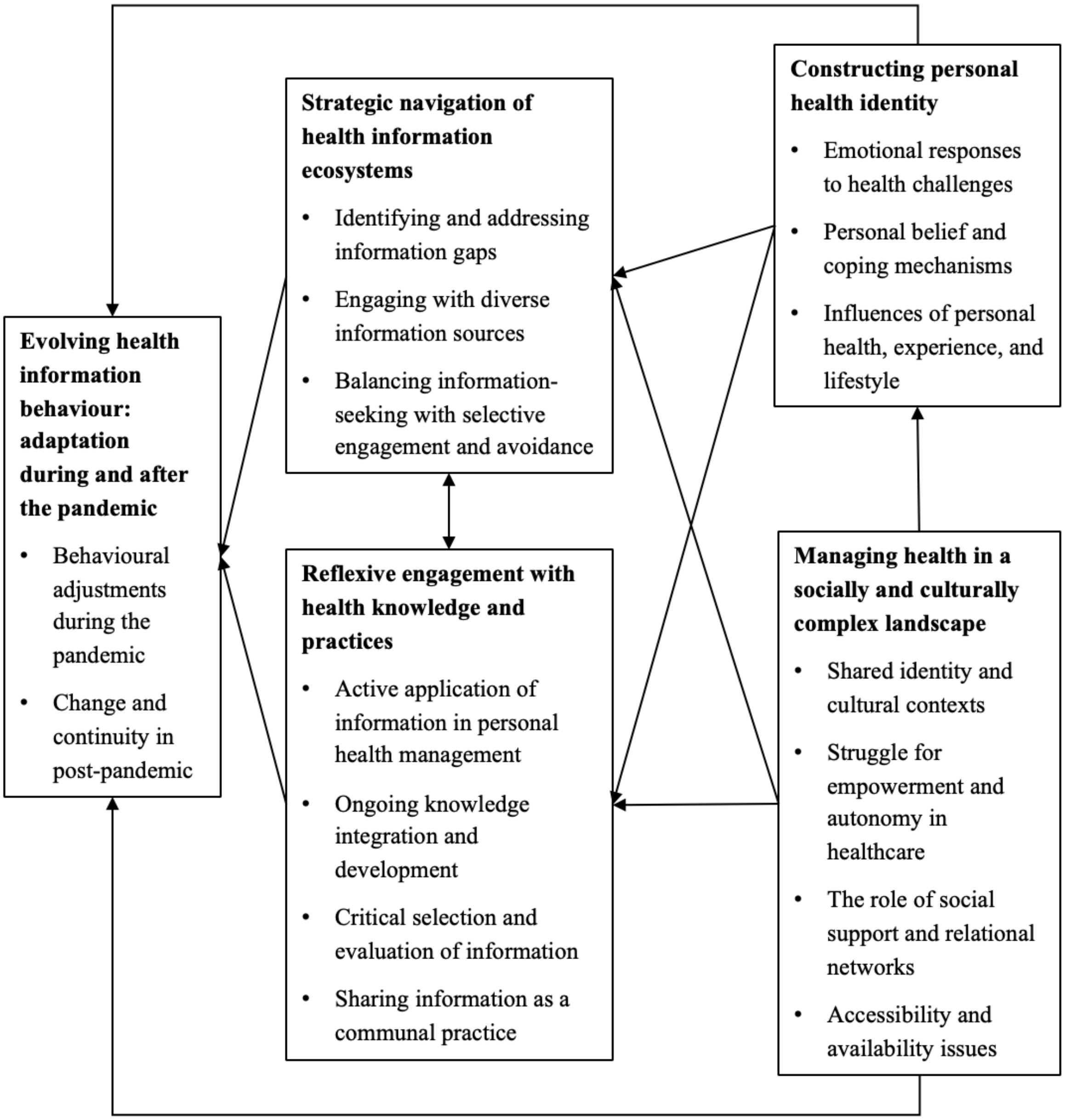
This phase served as a quality-checking process. I carefully reflected on and validated the meaning and boundaries of the candidate themes to ensure they accurately captured the relevant data. The requirement was that each theme should form a distinct and coherent set. For instance, the code "lobby government and manufacturers" were excluded from the theme "Active

Application of Information," as the remaining codes (e.g., taking medicine, adjusting diet, exercising, and making medical appointments) were explicitly related to applying the information in personal health management. Consequently, the theme was renamed "Active Application of Information in Personal Health Management" to ensure that the data within this theme was cohesively linked and meaningful.

During this stage, I comprehensively reviewed all interview transcripts to ensure that the identified themes accurately represented the entire dataset. Seven themes and 21 subthemes were initially generated, but many were underdeveloped and resembled topic summaries rather than fully formed themes. After multiple rounds of refinement and review, I finalized five themes and 15 subthemes. A thematic map was created to illustrate how these themes fit together and tell the overall story (Figure 4). At the centre of Figure 4 are two core themes—strategic navigation of health information ecosystems and reflexive engagement with health knowledge and practices—which together explain how participants seek and use health information. The two themes on the right—constructing personal health identity and managing health in a socially and culturally complex landscape—represent the personal and contextual factors that shape participants' health information behaviour. Positioned on the left, evolving health information behaviour: adaptation during and after the pandemic highlights a unique context in which these behaviours shifted (i.e., the COVID-19 pandemic) and explores how behaviours changed in response to external disruptions. The arrows indicate dynamic relationships among the themes, showing 1) how participants' strategies and engagements are shaped by personal identity and social or external contexts, 2) how personal identity is influenced by the broader cultural and social landscape, and 3) how all these elements were challenged or reinforced during the pandemic.

Figure 4

Thematic Map of Themes and Subthemes



Step 5: Defining and naming themes

Braun and Clarke (2006) state that a well-defined theme should have a singular focus, be related but not overlap with other themes, and directly address the research questions. The theme's name should also be informative, concise, and memorable. In this phase, I clearly articulated the uniqueness and specificity of each theme by summarizing its essence in a few sentences. Table 4 provides explanations of all themes, while detailed descriptions of themes, subthemes, and their corresponding codes can be found in Appendix E: Codebook.

Table 4

Themes Overview

Themes and subthemes	**Definitions**	**Relation to RQs**
Theme 1: Strategic navigation of health information ecosystems • Subtheme 1: Identifying and addressing information gaps • Subtheme 2: Engaging with diverse information sources • Subtheme 3: Balancing information seeking with selective engagement and avoidance	This theme encapsulates individuals deliberate and calculated approach to managing their engagement with health information. It reflects the diverse and often complex ecosystem of sources that individuals navigate to meet their specific health information needs. This theme acknowledges that while individuals actively seek out information to fill knowledge gaps, they also engage in selective information avoidance or passive encounters, balancing the need to stay informed with the challenges of information overload.	Addressing RQ1
Theme 2: Reflexive engagement with health knowledge and practices • Subtheme 1: Active application of information in personal health management • Subtheme 2: Ongoing knowledge integration and development • Subtheme 3: Critical selection and evaluation of information • Subtheme 4: Sharing information as a communal practice	This theme encapsulates the active, ongoing, and social nature of how individuals interact with health information. It reflects the dynamic process of applying information to manage health, continuously integrating and developing knowledge, critically evaluating information credibility, and sharing insights with others. Individuals are not just passive recipients of health information but actively engage in a reflexive process that involves learning, applying, evaluating, and sharing knowledge to enhance personal and communal health outcomes.	Addressing RQ1
Theme 3: Constructing personal health identity • Subtheme 1: Emotional responses to health challenges • Subtheme 2: Personal belief and coping mechanisms	This theme explores how individuals form and navigate their personal health identity by responding emotionally to health challenges, relying on deeply held beliefs and coping mechanisms, and drawing on their personal health history, experiences, and lifestyle choices. It emphasizes that health management is deeply personal, rooted in how	Addressing RQ2 in the personal context

• Subtheme 3: Influences of personal health, experience, and lifestyle	individuals see themselves and their relationship with their health. This theme is holistic, acknowledging that health identity is not just about physical well-being but also about the attitudes, emotions, and life experiences that inform how individuals manage their health.	
Theme 4: Managing health in a socially and culturally complex landscape • Subtheme 1: Shared identity and cultural contexts • Subtheme 2: Struggle for empowerment and autonomy in healthcare • Subtheme 3: The role of social support and relational networks • Subtheme 4: Accessibility and availability issues	This theme encapsulates the social and contextual factors influencing individuals' health. It highlights the role of shared identity and cultural influences, the ongoing struggle for patient empowerment and autonomy, the critical importance of social support networks, and the pervasive impact of accessibility and availability challenges. This theme underscores that health management is not just a personal endeavour but deeply embedded in social, cultural, and structural realities.	Addressing RQ2 in social and cultural contexts
Theme 5: Evolving health information behaviour: adaptation during and after the pandemic • Subtheme 1: Behavioural adjustments during the pandemic • Subtheme 2: Change and continuity in post-pandemic	This theme captures the dynamic process of how individuals adjusted their behaviour during the pandemic and how they are now transitioning to the post-pandemic period. It reflects how the pandemic led to significant behavioural changes, influencing daily routines, communication methods, and access to health services, and how individuals navigate the post-pandemic landscape by changing or continuing their health information behaviour	Addressing RQ3

Step 6: Producing the report

The final phase of thematic analysis involved writing a comprehensive description of the results. In qualitative studies, analysis and writing are interwoven from beginning to end. Therefore, I simultaneously conducted data analysis with data collection and the writing of findings. Specifically, I recorded informal notes immediately after each interview. For example, critical observations for Participant 17, a 76-year-old who has been diagnosed with diabetes for over 20 years, holds a bachelor's degree and has recently immigrated from China to Canada, included: 1) attending seminars for health information, 2) reduced opportunities for information seeking due to language barriers, 3) assessing information quality based on author reputation, 4) the influence of personal health on information seeking and use, and 5) sharing information driven by empathy.

In addition to interview notes, I also created memos and preliminary analysis reports after each round of data collection. These writings primarily focused on addressing the research questions. I also documented my reflections on the interview process and research limitations at this stage. For instance, I noted and acknowledged the potential loss of underlying meanings while translating participants' accounts.

Although reflexive thematic analysis involves six phases, these phases are "not a linear process of simply moving from one phase to the next" (Braun & Clarke, 2006, p. 86). Consequently, I moved back and forth between the dataset, codes, themes, and analysis. For instance, I reread the interview transcripts while generating and reviewing themes and drafting the reports. Another example would be revisiting and refining the themes while creating the codebook and again when drafting this thesis's results and discussion chapters.

3.6 Quality of Research

The quality of research is crucial for generating valuable and impactful findings that advance knowledge and guide practical actions. Qualitative studies must be conducted trustworthy to maintain research quality (Given, 2023). The trustworthiness of this thesis can be established through four critical criteria: credibility, dependability, confirmability, and transferability (Lincoln & Guba,1985), which have been widely applied in the context of qualitative health research (Forero et al., 2018). The following specific strategies were employed to ensure the quality of this thesis.

Credibility refers to the confidence in the truth of research findings. Techniques to establish credibility include prolonged engagement with participants, member-checking, reporting of negative cases, and peer debriefing (Given, 2023; Connelly, 2016; Forero et al., 2018; Lincoln & Guba, 1985). As previously discussed in this chapter, I possess the necessary knowledge and skills to understand older adults and their information behaviour. My prior experiences have helped me become familiar with my participants. Ensuring credibility involves accurately presenting the data. The results and discussion chapter provides extensive quotes to effectively convey the participants' voices and perspectives. The specific descriptions and research results were returned to participants for accuracy. To enhance the credibility of my research, member checking was also employed. After the interviews were transcribed and preliminary themes were developed, participants were invited to review and comment on the accuracy of the transcripts and the interpretations of their accounts. Although only a few participants agreed to do the check, this process ensured that participants' perspectives were represented faithfully. Negative cases, also known as disconfirming cases, were identified during the interviews and incorporated into the overall analysis to assess their significance and how they align with or differ from the main findings (referring to Section 5.3 Limitations and Future Research). Credibility was further enhanced by engaging with peers and other researchers. The codebook was discussed with researchers from McGill University, the University of British Columbia, and the University of South Carolina.

Dependability refers to the stability of data over time, and the purpose is "to ensure the findings of this qualitative inquiry are repeatable if the inquiry occurred within the same cohort of participants, coders and context" (Forero et al., 2018, p.3). This chapter provides a detailed description of the research methods and all supporting documents to establish dependability. A pilot study involving the first round of interviews was conducted to refine the approach. Additionally, an independent coder was involved to enrich the analytical process and generate deeper insights. Specifically, in summer 2023, a doctoral student from the School of Information Science at the University of South Carolina was involved, providing her with two randomly selected interview transcripts and the codebook. Several meetings were held between the two coders to discuss interpretations, compare coding choices, and collaboratively refine themes. Since subjectivity is central to reflexive thematic analysis, coding is not expected to be uniform across coders; instead, the process prioritizes interpretative engagement over coder agreement (Braun & Clarke, 2022). These meetings served as a collaborative interpretative exercise, fostering diverse perspectives and enhancing the depth of analysis rather than functioning as an objective reliability check.

Confirmability refers to the extent to which other researchers can replicate the findings. Strategies to establish confirmability include reflexivity and triangulation (Forero et al., 2018; Lincoln & Guba, 1985). My reflexivity was discussed earlier in this chapter. Throughout the research process, I maintained detailed notes of all decisions and analyses and regularly shared these with professors and peers during research group meetings at McGill University. Furthermore, the research proposal and preliminary analysis results of this thesis were presented at the doctoral workshop of the Information Seeking in Context conference in 2022 and the 86th Annual Meeting of the Association for Information Science and Technology in 2023, where I received feedback from researchers worldwide. To ensure the triangulation of the findings, data were also collected from diverse locations and cultural settings, and insights from other researchers were incorporated into the data interpretation.

Transferability refers to the extent to which findings can be applied to similar people or contexts, similar to the concept of generalization in quantitative research (Given, 2023; Connelly, 2016; Forero et al., 2018; Lincoln & Guba, 1985). To establish transferability, this chapter provided a rich and detailed description of the context, location, and participants, allowing readers to understand the research's setting and assess whether the findings are applicable in other situations. Additionally, data saturation was achieved, which enhances the likelihood that the findings can be applied or adapted to similar contexts. The sampling continued until data saturation was reached, meaning no new information emerged from the interviews. This saturation ensures that the research captures a comprehensive, stable, and in-depth understanding of the phenomenon, supporting the transferability of the findings.

3.7 Ethical Considerations

Ethical considerations were taken at different stages of this thesis to protect the participants' rights and welfare. Before conducting the research, ethical approval from the Research Ethics Board at McGill University was obtained (Appendix F).

Participants' consent was explicitly obtained during the data collection stage. For online interviews, I emailed the consent form (Appendix G) to participants before the interview using my McGill email address. Participants were instructed to complete the form and return it. Once the participants acknowledged receiving the consent form, signed it, and sent it back, the consent form was printed through McGill University's uPrint service, and the digital version was deleted immediately.

For in-person interviews, I gave the participants the consent form (Appendix H) before the interview. I ensured that the participant had sufficient time to read the form and had adequate opportunity to ask for clarification on any points of confusion. The consent form was the only place the participant's name appeared, and it has been stored securely in my office, separately from all other information.

Special precautions were taken to ensure the security of interview recordings, which may potentially contain identifiable information through the participant's voice and responses. The online interviews were locally recorded via Zoom. Video was not required for the interviews; therefore, the participants could turn off the video camera function. The in-person interviews were recorded using the Voice Memos app on my mobile phone. The recordings were transferred to my password-protected laptop immediately after the interview. Meanwhile, the recordings on my mobile phone were immediately deleted.

Recordings were used for transcription purposes only. As mentioned in earlier this chapter, direct identifiers were removed from the information throughout the transcription process and replaced with non-identified codes (e.g., P1, P2, and P3). No link was retained between a participant code and their data. These non-identified codes have been used everywhere, including research notes, data files (e.g., transcripts), data analysis, and dissemination of the findings. Any identified information has been removed from publications.

3.8 Chapter Summary

This chapter presents the details of the research design, data collection, and analysis procedures. This thesis employed a qualitative approach. Data was collected through semi-structured interviews and analyzed using reflexive thematic analysis. The participants were older adults with type 2 diabetes who lived in Canada. Moreover, personal reflexivity was reported in this chapter. I also presented measurements that I have taken to ensure the trustworthiness of this thesis and ethical considerations.

Chapter 4 Findings and Discussion

4.1 Chapter Introduction

This chapter comprehensively analyzes how older adults with diabetes engage with health information, the rationale behind their behaviour, and their experiences during a global health crisis. Five key themes emerged from the analysis: 1) the strategic navigation of health information ecosystems, 2) reflexive engagement with health knowledge and practices, 3) the construct of personal health identities, 4) the management of health within socially and culturally complex landscapes, and 5) health information behaviour adaptation during and after the pandemic. These interconnected themes depict the complex environment in which older adults with diabetes manage their condition through health information. The following sections will present these themes in detail and provide an in-depth discussion of the findings. The chapter will conclude with a summary, integrating the main points discussed.

4.2 Strategic Navigation of Health Information Ecosystems

This theme illustrates the deliberate approach individuals take to managing their engagement with health information, providing a foundation for understanding information use. It reflects the diverse and often complex ecosystem of sources individuals navigate to meet their specific health information needs (see Table 5 for a structured summary of information needs, information sources, and information-seeking behaviour). While individuals actively seek information to address knowledge gaps, they also engage in selective avoidance or encounter information passively. This theme highlights the balance between proactive information-seeking and the adaptive strategies individuals use to manage the vast and varied health information landscape.

Table 5

Summary of Information Needs, Information Sources, and Information-Seeking Behaviour

Category	Details
Information needs	Covid information
	Information about blood test
	Information about diabetes
	Information about diabetes associations
	Information about diet
	Information about doctors
	Information about exercise
	Information about medicine
	Information about other diseases
	Information about travel
Information sources[1]	Books
	Computer
	Family members
	Friends
	Government sources
	Health centers
	Health professionals
	iPad
	Journal articles
	Lectures
	Local community
	People with diabetes
	Phone
	Newspapers, brochures, etc.
	Radio
	Social media
	Tv
	Websites
	Blood sugar testing
Information-seeking behaviour	Active seeking
	Encountering
	Coming up in conversation
	Avoiding
	No seeking

---

[1] This list includes the sources participants mentioned for seeking health information. Some items may overlap, such as accessing social media through a computer, iPad, or phone.

4.2.1 Identifying and Addressing Information Gaps

This sub-theme captures the health information needs that drive individuals to seek out diverse sources. It covers broader health topics such as diet, exercise, and chronic conditions (e.g., diabetes), where individuals seek reliable information to fill gaps in their understanding and meet personal health needs. It also highlights the persistent unmet needs participants experienced.

Information about diabetes management

Most participants in this study expressed a need for information on various aspects of diabetes, such as causes, diagnosis, complications, symptoms, and treatment. Some were also concerned about staying updated on the latest diabetes research. As one participant (P7, F, 77, bachelor’s degree, living with diabetes for 20 years) explained, *“就尽量看看那个关于糖尿病的研究进展到什么地步了，然后我能够从中吸取什么经验教训，把自己的糖尿病控制好。[I just try to see how far research on diabetes has progressed and then figure out what lessons I can learn from it to manage my own diabetes better.]”*

Many participants described efforts to gather information on adjusting their diet, exercise, and medications. Most were interested in assessing the efficacy and potential side effects of their prescribed treatments. For example, P17 (M, 76, bachelor’s degree, diabetes for over 20 years) shared, *“我最关心的就是有什么办法能把糖尿病治好，哎，用什么药最好？ 到最后，我知道糖尿病治不好，我就没办法了，就是吃药吧，然后打听什么药有效。[What I care about the most is if there’s any way to cure diabetes, hmmm, what medication is the best? In the end, I realized diabetes can’t be cured, so there’s nothing I could do but just take the medicine, right? Then I just ask around to see which medication works better.]”* Similarly, P20 (80 years old, no education, diabetes for 26 years) considered changing her medication after a decade of use, but her doctor reassured her that her current prescription was globally recognized as the most effective, leading her to abandon the idea of switching.

Several participants adopted the practice of regularly monitoring their blood sugar levels to manage their diabetes, therefore, they regularly monitored their blood sugar levels and sought information on proper testing methods, timing, and interpreting results.

> *然后我就看了，但是我还不明白那个什么意思，然后我就就上网查，我说这个什么意思。在那个 Google 那里查一下这个指标说明什么，那个跟医生的解释一样。后来我就会查那个指标，就会看那个指标。 [I looked at it, but I didn't really understand what it meant, so I went online to check. I Googled it to see what the indicator meant, and it turned out the doctor's explanation was the same as what I found. After that, I learned how to check those indicators and understand what they mean.] (P6, F, 74, technical training, diabetes for 7 years)*

> *《我是大医生》那个糖尿病讲的非常详细，教你怎么测血糖，什么时候测，呃，还有吃东西那个。[That TV program 'I Am a Great Doctor' explained diabetes really thoroughly, like how to test blood sugar, when to test it, uh, and what to eat.] (P23, F, 79, technical training, diabetes for 15 years)*

Although some participants were generally attentive to any information related to diabetes, paying attention whenever relevant information came their way, others were less interested in it, feeling that they did not need new information.

> *我对糖尿病的了解到是挺多的了，好像我也不想再了解什么。我现在基本上不关注了，我已经听天由命了。知道它也去不了根儿啊。所以我只有跟它慢慢的，呃，跟它友好相处一起变老。[I feel like I already know a lot about diabetes, and, well, I don't really want to learn more… I pretty much don't pay attention to it anymore. I've accepted it as it is… You know it can't be cured anyway. So, I just have to, um, live with it and grow old with it peacefully.] (P9, F, 74, bachelor's degree, diabetes for 16 years)*

Beyond diabetes, nearly half of the participants sought information on other health conditions they were dealing with. For example, P17 (M, 76, bachelor's degree, diabetes for over 20 years) reported that *"我得糖尿病几年之后，我脑梗中风就是，嗯，就是这个方面跟医生谈的很多。他们通过检查【这个脑梗中风】也跟糖尿病有关。[A few years after I got diabetes, I had a stroke—um, I talked a lot with the doctors about it. Through their tests, they said this stroke was also related to diabetes.]"*

A noteworthy finding that came out due to the cultural background of participants (details and discussion can be found in Chapter 3) was that several participants were eager to find new family doctors or diabetes specialists, particularly those fluent in Chinese. They expressed frustration over the difficulty of finding a doctor who could accommodate their language preferences, highlighting the communication challenges they faced in managing their health.

> *就是疫情期间，然后他【原来的家庭医生】就是搬到温哥华去了。然后他走了以后我们就一时半会就找不到新的。[During the pandemic, our original family doctor moved to*

Vancouver... after he left, we couldn't find a new one for a while.] (P6, F, 74, technical training, diabetes for 7 years)

我说我不回到原来那个家庭医生，我说这个原来的家庭医生太不好了，后来这个糖尿病医生挺热心的，他就说那我给你介绍一个吧。 [I said I wasn't going back to that old family doctor; I said the original family doctor wasn't good at all. Later, this diabetes doctor was quite helpful, he said, "Well, I'll introduce you to someone then."] (P9, F, 74, bachelor's degree, diabetes for 16 years)

从我们以前那个家庭医生走了以后，我们看病也找不到他了。我女儿跟那个中国朋友谈起来，他给我们介绍这个刘医生。[After our old family doctor left, we couldn't find him for appointments anymore. My daughter talked about it with her Chinese friend, and they introduced us to this Dr. Liu.] (P22, M, 74, high school, diabetes for 14 years)

Older adults with diabetes in this thesis expressed a need for information across a range of topics, including diabetes management, other health conditions, and information about available healthcare professionals. Interestingly, some participants reported a decline in their interest in diabetes-related information over time, feeling that they had reached a saturation point in their knowledge. This finding contrasts with Huvila et al. (2018), who observed that the health information needs of older Swedish adults tend to increase with age. This discrepancy suggests that while the overall demand for general health information may grow as individuals age, their interest in specific types of health information may diminish as they become more experienced in managing a particular condition and feel confident in their existing knowledge.

Participants in my research were not just interested in diabetes-related information, but also information regarding to other health conditions. This finding aligns with the research by Akanbi and Fourie (2021), who found that pregnancy heightened women's desire to stay informed about pregnancy-related topics. Similarly, the findings of this thesis support the idea that pre-existing health issues drive the need for health information (Katavić et al., 2020; Li et al., 2023). Given that diabetes can lead to a variety of complications such as heart disease, stroke, and atherosclerosis, older adults with diabetes require a broader scope of information beyond just diabetes management.

A significant finding from this thesis is the high demand for accessible healthcare professionals, particularly for participants who are immigrants. This finding supports previous research on the health information-seeking behaviour of immigrants in South Korea, which indicated that participants were more likely to find tailored health information from sources in their home country, possibly because they could discuss their health issues in detail in their native languages (Yi et al., 2021). This discovery is crucial, especially in Canada, which has a long history of immigration. Ensuring that immigrants have sufficient access to health services is vital to equitable healthcare practices in the country. This finding emphasizes the importance of tailored healthcare services and policies that accommodate the unique needs of immigrant populations, ensuring that all older adults, regardless of their background, receive the necessary support to manage their health effectively.

Unmet information needs

Despite a strong interest among older adults with diabetes in accessing a broad range of health information, their needs are often inadequately addressed. For example, several participants expressed dissatisfaction, reporting that they did not receive sufficient guidance or up-to-date information from their healthcare providers.

> *家庭医生很不，不太负责任的。我打电话去给我查了一次血，也没有给我说，也没有给我换药呢。嗯，他也没有给我说血糖是高了还是低了，因为那次去了，我当时好像焦虑症的很厉害。嗯，我自己给他说了个焦虑症，完了他给我开了焦虑症的药，这个糖尿病的就没问什么。[The family doctor was very, very irresponsible. I called them, and they checked my blood once, but they didn't tell me anything. They didn't change my medication either. Um, they didn't even tell me if my blood sugar was high or low. That time I went in; I think I was really anxious. Um, I mentioned anxiety to them, so they prescribed me medication for anxiety, but didn't ask much about the diabetes.] (P10, F, 82, technical training, diabetes for 23 years)*

> *那个什么上个星期的星期五他们来过一次，我跟他们说了，嗯，我说我骶骨这个地方疼。呃，我这个地方老疼，走路疼啊，他们知道这个情况，也没跟我说什么。[Uh, last Friday they came once, I told them, um, I said my sacrum hurts in this area... uh, it's always painful here, hurts when I walk. They knew about it but didn't say much.] (P12, F, 90, technical training, diabetes for 21 years)*

Another concern raised by participants was the repetition of information across various sources: *"有讲座嘛，讲糖尿病的讲座。这些讲座反正就反正千篇一律，他们每一次讲都是一样，没有讲说新冠期间要怎么保护自己。[There are seminars, diabetes seminars. Those* *seminars are just, well, the same old stuff. They say the same thing every time. They didn't talk about how to protect yourself during COVID.]" (P21, M, 85, bachelor's degree, diabetes for 15 years).*

The final issue this section uncovered regarding unmet information needs is the limited ability of participants to articulate their health information needs effectively. Many older adults struggled to communicate specific questions or concerns, leading to a disconnect between their desire for information and the guidance they received.

> *我是想啊，会查当然好了，但是我不会呀，没有人教。[I think, yeah, of course, it'd be great to know how to search for information, but I don't know how, no one's taught me.] (P9, F, 74, bachelor's degree, diabetes for 16 years)*

> *看什么专业报纸啊杂志啊，我这个不会，因为我在这方面，哎呀，我感到非常这个贫乏，这个在这方面知识和应该是，接触不到，看不到。[Reading professional newspapers and magazines? I can't do that because in this area, ugh, I feel really lacking. When it comes to this kind of knowledge, I just don't have access to it, can't find it, can't read it.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

> *你看哪个吧，你上哪问谁去啊？你这一句英文不会讲。所以说也找不着什么渠道，问谁呀问。[Who do you ask? Where do you go? You can't even speak a word of English, so there's no way to find any channels, no one to ask, no one to help.] (P20, F, 80, no education, diabetes for 26 years)*

This research revealed that older adults with diabetes often experience unmet health information needs due to a combination of insufficient support from healthcare professionals, repetitive and non-specific information, and challenges in articulating their needs clearly. These findings resonate with existing literature. Previous studies have highlighted that healthcare professionals frequently fail to address the emotional dimensions of patients' information needs (Hargreaves et al., 2023). Additionally, while a large volume of health information is available, it often lacks clarity and practical relevance and is rarely adapted to meet the evolving needs of patients (Sbaffi & Hargreaves, 2022). Furthermore, the challenge of studying information needs is well-recognized in information science. Research has noted that individuals' information needs are often subconscious, and they struggle to articulate their psychological expectations and levels of satisfaction (Belkin, 1980; Li et al., 2023; Taylor, 1968).

These findings underscore the need for healthcare professionals to recognize the diverse and multifaceted nature of patient needs and address the cognitive and emotional aspects of information requirements. Health information must be continuously updated, personalized, and responsive to the specific circumstances of older adults with diabetes. In addition to being relevant to the latest developments, information should be presented in ways that are emotionally supportive and accessible.

This research also highlights the importance of empowering older adults with diabetes through targeted education and skill-building initiatives. By enhancing their ability to recognize, articulate, and communicate their health concerns, patients can engage more effectively with healthcare providers. This approach will help bridge the gap between patients' often unexpressed information needs and the explicit resources available to them. Ultimately, such efforts can improve overall health literacy and well-being, fostering a more patient-centred and responsive healthcare system.

4.2.2 Engaging with Diverse Information Sources

This sub-theme highlights the wide variety of information sources individuals consult to manage their health. It reflects the complexity and sometimes overwhelming nature of the information landscape, where people navigate multiple channels, from traditional media such as newspapers to digital platforms such as websites and social media. The inclusion of personal networks, such as family members and friends, and the use of various devices for accessing information underscore the personalized and selective nature of information engagement.

Many participants in this study tended to search for health information online. A significant number turned to social media platforms, including WeChat (a Chinese instant messaging, social media, and mobile payment app) and RedNote (a lifestyle platform where over 200 million users share their experiences monthly). P6, a 74-year-old with diabetes for seven years, also mentioned utilizing the latest Generative AI technology: ChatGPT. Most participants typically conducted online searches using Google or Baidu (China's largest and most widely used search engine).

> *后来一走，发现走不动路了。后来脑子一转是不是我糖尿病引起的。不是说因为糖尿病，脚要什么有反应的。我想我看看，因为我发现我的脚腕这里一段黑的。我开始就在网上查，就乱写了”糖尿病的后遗症”、”我的脚腕发黑是不是是糖尿病啊”之类的。*
>
> *[Later, when I started walking, I realized I couldn't walk... then I thought, could it be caused by my diabetes? Isn't it said that diabetes can affect your feet? So, I thought I should check it out because I noticed a dark spot on my ankle. I started looking it up online, just randomly*

typing things like "diabetes complications" and "Is my ankle turning black because of diabetes?"] (P8, F, 76, bachelor's degree, diabetes for over 20 years)

A few participants relied on books for diabetes-related information, either because they enjoyed reading or faced challenges with digital technologies. Journal articles also served as an information source for some participants, who incorporated journal reading into their daily routines. Additionally, the following quotes show that many participants explored diabetes-related information in newspapers, brochures, and instructional materials.

> *就很简单，不需要谁教。就那个血糖测量仪它上面都有说明，很容易对按照说明书就弄了。[It's really simple; no need for anyone to teach me. The blood glucose monitor has instructions, so I just followed them, and it was easy.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

> *就是发病以后去看病，他[医生]就给我一个手册，这个怎么吃饭，每天要在检测三次啊，就怎么样。[After getting sick, when I went to see the doctor, he gave me a booklet—how to eat, and that I had to test my blood sugar three times a day, stuff like that.] (P15, M, 79, master's degree, diabetes for 7 years)*

> *买了就照着说明书来。[I bought it (the blood glucose monitor) and just followed the manual.] (P18, M, 77, bachelor's degree, diabetes for 2 years)*

Many participants in this study also sought health information from their social networks, such as family, friends, fellow diabetes patients, and local communities. Participants who originally come from China often encountered language barriers in English or French and sought assistance from family members, typically their children or grandchildren, who either searched for health information online on their behalf or acted as translators during interactions with healthcare professionals. Some participants also obtained health information from friends or acquaintances who have more experience managing diabetes.

> *我还是问糖尿病这些人，问他们吃什么，怎么做的。有个糖尿病友告诉我在饿的情况下要带着小饼干吃一点，要多活动，所以我每次吃完饭都要在外面走走。 [I still ask people with diabetes what they eat and how they do things. One diabetes friend told me to carry some biscuits to eat a bit when hungry and take more exercise. So now, after every meal, I take a walk outside.] (P5, F, 75, technical training, diabetes for around 6 years)*

> *我的消息来源就是有时候，嗯，网上跟朋友联系一下就说怎么样啊，吃些怎么样啊，我跟糖尿病的朋友们联系一下，嗯，就是学点经验嘛，就是说。[I get my information from, sometimes, um, contacting friends online, asking them how they're managing, what they're eating. I keep in touch with my diabetes friends, um, just to learn a bit from their experiences.] (P19, F, 78, middle school, diabetes for 4 years)*

> *因为我是家里的第五个吧，都是糖尿病，以前就有这个意识了。加上一个呢？我的女儿，呃，她是做医生啊，所以她经常也督促我要注意什么，所以说一个不吃太饱，一个吃完饭吧，不能马上就躺下休息。[I'm the fifth one in my family with diabetes, so I was*

already aware of it. Plus, my daughter is a doctor, so she often reminds me what to pay attention to. Like, don't eat too much, and after a meal, don't lie down right away.] (P21, M, 85, bachelor's degree, diabetes for 15 years)

One participant, while seeking a new family doctor, explored recommendations from Centre Local de Services Communautaires (CLSCs) and the Chinese Service Center. These communities also organized various activities, such as seminars and lectures, aimed at educating older adults with diabetes.

我们中华医院呢，每一个星期一天，这一天呢，那个里面的医生呢，也有时候跟我们讲，嗯，这个高血压怎么样，糖尿病怎么样，也跟我们讲讲啊。[Zhonghua Hospital, once a week, the doctors there sometimes talk to us, um, about high blood pressure, diabetes, stuff like that.] (P10, F, 82, technical training, diabetes for 23 years)

就是那个华人中心就会组织我们去这方面讲课吧，有时候呃，就是讲饮食吃多少，要注意什么。 [The Chinese centre organizes these talks for us sometimes, about how much to eat and what to pay attention to.] (P19, F, 78, middle school, diabetes for 4 years)

因为我们是住在那个老人公寓里面嘛，那这里有很多活动。以前还有我们糖尿病组成一个小组，有人过来给我们上课，讲该吃什么，不该吃什么。还有社区里面也有糖尿病的那个讲座，华人服务中心也有。反正好几个单位都有给我们这个糖尿病的讲课。[We live in a senior apartment, and there are a lot of activities here. Before, we even had a small diabetes group where someone would come to teach us what to eat and what not to

> *eat. There are also diabetes seminars in the community, and the Chinese Service Centre has them too. There are quite a few places that offer diabetes lectures.] (P23, F, 79, technical training, diabetes for 15 years)*

Health professionals (e.g., family doctors, walk-in clinic doctors, nurses, and specialists) were among the most frequently used sources for older adults with diabetes. Participants engaged with healthcare providers during routine check-ups or when facing specific health issues, with discussions centred around symptoms and treatment options.

> *I had, you know, I just had some side effects from the medication for a while. I was feeling more tired, maybe a little bit dizzy. And I just wanted to be in order to find out what the doctor thought about that. So, we spoke on the phone, and he suggested that some of those side effects were kind of normal initially. And then I see how it went. And then I think we spoke again, maybe two or three weeks later, and that the side effects had pretty much subsided. So it was, so that's one thing I could think about. (P3, M, 69, master's degree, diabetes for 27 years)*

> *每三个月他们会见我们一次，呃，还挺认真的。呃，营养师跟你要谈一个小时，然后一个专门的护士会跟你谈一个小时就是这样。就是很详细的了解你的情况，监测你的那个慢性病的情况就是这样。[Every three months, they meet with us once. uh, they're quite serious about it. Uh. The dietitian talks to you for an hour, and then a specialized nurse also talks to you for an hour. It's very thorough, they really get to know your situation and monitor your chronic condition.] (P6, F, 74, technical training, diabetes for 7 years)*

> *然后呢 Chinatown 那个药房，这个地方真不错啊，【药剂师】就问了我这个症状以后呢，他就说你先针也不要打了，药也不要吃了，全停下来你看看你还吐不吐。那我一停下来就不吐了。 [Then, at the pharmacy in Chinatown, this place is really good. After the pharmacist asked me about my symptoms, he said, "Stop taking the injections and meds, stop everything for now and see if you're still throwing up." Once I stopped, I wasn't throwing up anymore.] (P9, F, 74, bachelor's degree, diabetes for 16 years)*

Some participants indicated they relied on approval from doctors in managing their diabetes. For example, P12 (F, 90, technical training, diabetes for 21 years) mentioned deviating from strict dietary suggestions by consuming a variety of foods in smaller portions, believing this approach was valid based on her doctor's approval of her well-controlled diabetes. Similarly, P14 (M, 68, bachelor's degree, diabetes for around six years) highlighted receiving praise from his doctor for diligently scientifically managing blood sugar levels. A striking finding was that some participants expressed contradictory attitudes toward obtaining information from traditional Chinese medicine practitioners.

> *比如说我对中医技术，对中药我很相信的，因为我自己亲自实践过的。更信任，我实践过的是吧，人家没有我这个实践他不知道的。嗯，就是实践是检验真理的标准是吧？所以呢，这个好多人不相信中医，我相信。 [For example, I really trust traditional Chinese medicine because I've personally experienced it. I trust it more because I've tried it myself, right? Others haven't experienced it, so they don't know. Um, it's like they say—"*

practice is the test of truth," right? So, a lot of people don't believe in Chinese medicine, but I do.] (P4, M, 75, bachelor's degree, diabetes for around 8 years)

然后我朋友就给我说我需要看中医。我说在这里人生地不熟的，哪里有好的中医啊。后来他就帮我打听到了唐人街的那个万寿堂。那还真的不错。 [Then my friend told me I should see a traditional Chinese doctor. I said, "I don't know anyone here. Where can I find a good one?" Later, my friend found one for me at the Wanshoutang in Chinatown. It turned out to be really good.] (P5, F, 75, technical training, diabetes for around 6 years).

总之我从来不相信中医，中医是坑人的。那个中医就是什么机理什么都不知道，然后胡说八道。所以我对中医，对任何一个中医的治疗我都不相信，呃，从来不进行。[In general, I never trust Chinese medicine—it's a scam. Chinese medicine doesn't even know how things work, it's all nonsense. So, I don't believe in it at all, and I'd never go for any treatment from a Chinese doctor.] (P13, M, 69, PhD, diabetes for 13 years)

One important result of this study is that many participants exhibited a preference for specific information sources, considering factors such as convenience and credibility.

要是你不是紧急情况的话呢？呃，可能一个月以后才排到你去见。那我还不如上网去搜一下好。[If it's not an emergency, um, it might take a month to get an appointment. So, I might as well just look it up online.]" (P6, F, 74, technical training, diabetes for 7 years)

> *如果说是这个上网查的信息和医生告诉我的信息不一样，我选择听医生的。[If the information I find online is different from what the doctor tells me, I'll listen to the doctor.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

> *像那个我们经常也看微信，所以网络上也有找了，但是找到这个不太那个，这个可信度也都是，也不是很那个。你做参考可以，但主要我们还是听家庭医生的。[We often check WeChat too, so sometimes we look online, but what we find there, well, it's not very reliable. You can use it for reference, but mostly, we still listen to our family doctor.] (P22, M, 74, high school, diabetes for 14 years)*

A few participants reported favouring particular sources because they offered more detailed information. For instance, P14 (68, bachelor's degree, diabetes for around six years) preferred hospital-provided brochures over newspapers, saying that these brochures were more detailed and informative. P19 (78, middle school, diabetes for four years) expressed a preference for attending diabetes-related lectures over visiting doctors, stating that the lectures organized by the Chinese Centre and the community were more comprehensive compared to her doctor, who, due to a high patient load, was less proactive in providing information.

This section revealed that older adults with diabetes actively seek health information through multiple channels, including digital platforms, printed materials, social networks, healthcare professionals, and organizations. These findings align with previous research (e.g., Chaudhuri et al., 2013; Oliphant et al., 2022; Yates et al., 2012), highlighting the diverse information sources that older adults utilize to manage their health. Consistent with prior studies (e.g., Czaja et al., 2009; Huang et al., 2012; McMillan et al., 2008; Tennant et al., 2015), many participants in this research reported a tendency to search for health information online. For some, the Internet is a convenient tool for accessing information (Song et al., 2019), offering socially supportive platforms where older adults can learn more about their conditions and engage with others who have similar health experiences (Tennant et al., 2015). The Internet, therefore, plays a dual role in providing both information and a sense of community.

Social networks are an important source of high-quality health information for older adults who do not use the Internet (Zhang & Liu, 2023). This finding supports previous observations that family members, individuals with similar conditions, and community-based programs are valuable sources of health information (Ahmadinia et al., 2022; Inthiran, 2021; Känsäkoski et al., 2021; Sullivan & Shaw, 2023). These social connections provide older adults with accessible information, often tailored to their immediate context.

Health professionals remain the preferred source of health information for older adults with diabetes, consistent with previous research (Aspinall et al., 2012; Stehr et al., 2021; Turner et al., 2018). This preference stems from two primary factors: the expertise and reliability associated with health professionals and the interactive, personalized nature of the information provided (Choi, 2019). Older adults value the opportunity to discuss their health directly with knowledgeable professionals who can offer tailored advice and clarification.

Participants' source-selection behaviour follows a two-step process: visiting the source and adopting it (Chi et al., 2020). In this study, many participants exhibited a strong preference for specific sources, a behaviour noted in previous research (e.g., Chi et al., 2020; Colosimo & Badia, 2021; Huisman et al., 2020; Kim et al., 2020). Their preferences were shaped by factors such as convenience, credibility, and perceived richness of information, driven by intrinsic motivations rather than external pressures (Song et al., 2022). Sbaffi and Zhao (2020) further explain that factors such as experience, age, health status, credibility and usefulness all significantly influence the selection of health information channels.

The above discussion reinforces the importance of understanding older adults’ nuanced preferences and motivations for seeking health information from various sources. Ensuring that information is accessible, credible, and tailored to meet their needs across multiple channels is critical to supporting their ongoing health management.

4.2.3 Balancing Information-seeking with Selective Engagement and Avoidance

This sub-theme explores the varying behaviour individuals exhibit when faced with health information. It acknowledges that while some individuals actively seek information to meet their needs, others may avoid it altogether due to the potential anxiety it may cause. It also highlights incidental encounters with information—when people come across health-related content unintentionally, such as through conversations or random online encounters—which can influence their decision to engage with or avoid further information.

A few participants mentioned that they did not feel the need to actively seek information daily but would look for it when necessary.

> *比如说我测的那个血糖到底是，呃，正常还是不正常啊。搜到那些信息，比如说要是说正常，那就没事啦，对不对？要是说他说偏高了，我再搜啊，那我现在这个情况该怎么办。[For example, I check my blood sugar, and, uh, is it normal or not? ... I search for information, and if it says it’s normal, then I’m good, right? But if it says it’s high, then I search more to figure out what I should do about it.] (P6, F, 74, technical training, diabetes for 7 years)*

> *有的时候我迫切想知道一些信息的话，我就主动去查阅。[Sometimes, when I urgently want to know something, I'll take the initiative to look it up.] (P11, F, 81, bachelor's degree, diabetes for 18 years).*

A noteworthy example is P21, an 85-year-old who had had diabetes for 15 years. She did not seek information for herself, relying entirely on her daughter instead: *"我就是因为有什么事情呢，我就电话给我女儿，我女儿在美国，她做肿瘤的医生了，那么我就问她，所以自己也没去查。[If something comes up, I just call my daughter. She's in the U.S., and she's a doctor specializing in oncology, so I asked her. I don't look things up myself.]"*

Participants conveyed that information about their diabetes often emerged naturally in conversations rather than through active searching. A couple of participants reported that discussions about their diabetes frequently arose during mealtimes with friends.

> *就是说，呃，人家要说要一块儿吃饭说，哎，这个点心很好吃啊，我就说我有糖尿病，我不能吃这个甜的啊。就这样聊天的时候聊出来的。并不是主动的说，哎呀，像那个祥林嫂似的，我有糖尿病，我有糖尿病。[For example, when someone suggests we eat together and says, "Oh, this dessert is really good," I just say, "I have diabetes, I can't eat sweet things." It just comes up in conversation. It's not like I go around constantly*

> *saying, oh, like Xiang Lin Sao[2], I have diabetes, I have diabetes.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

Participants also described encountering various forms of health information through social media, newspapers, and search engines. Although these encounters were often unexpected, they typically sparked a renewed interest in seeking more information.

> *开始偶然看到，以后就专门还有查了一点资料，这方面的资料说话都比较一致。[At first, I saw something by chance, and later I deliberately looked up more information. The sources I found all seemed to say the same thing.] (P15, M, 79, master's degree, diabetes for 7 years)*

> *我就是说还不是那么熟悉微信，碰上这方面的那个信息啊，我都爱看一下关注一下了。[I'm not that familiar with WeChat, but when I come across information related to this, I like to check it out and pay attention to it.] (P19, F, 78, middle school, diabetes for 4 years)*

Although not explicitly included in the interview guide, a few participants deliberately avoided information for physical or psychological reasons. P20 (80, no education, diabetes for 26 years) explained that she did not seek diabetes-related information due to her health conditions and literacy challenges. In contrast, most participants cited psychological factors as the main

---

[2] Xianglin Sao, a character from Lu Xun's 1924 short story "New Year's Sacrifice," is a widow who remarries after being forced by her mother-in-law for a dowry. Her second husband dies, and their newborn son is killed by wolves. Xianglin Sao returns to work as a servant, but her employers believe she brings bad luck and forbid her from preparing for the new year's sacrifice. This incident breaks her, leading her to beg on the streets and constantly recount her son's death. She eventually dies quietly on a winter night.

reason for their avoidance. For example, P8 (76, bachelor's degree, diabetes for over 20 years) avoided seeing her family doctor because of past unsatisfactory service. The following quotes illustrate how some participants intentionally distanced themselves from diabetes-related information to avoid negative emotions.

> *"知道他也去不了根儿啊。所以我只有跟它慢慢的，呃，跟它友好相处一起变老。那我就是这个心理，所以我也不去了解它。听得越多，心越烦，干脆就不听。[I know it can't be cured, so I just have to live with it, uh, and grow old with it. That's my mindset. So, I don't bother learning more about it. The more you hear, the more it stresses you out. It's better to just not listen.]" (P9, F, 74, bachelor's degree, diabetes for 16 years)*

> *"你们这个问的太多，对他们家族来说，他们也很不愿意说，对吧？再一个就是增加我们自己的心理负担，何必呢？哎呀，过好自己，我就是做好自己是吧，就是那个其他的人这些事我们管不了，也少管吧，不要去打听太多了。[You're asking too much about this. For their family, they really don't want to talk about it, right? And also, it adds to our own mental burden. Why bother? Just live your own life well and focus on yourself. The things other people deal with are beyond our control, so it's best to mind our own business and not ask too much.]" (P22, M, 74, high school, diabetes for 14 years)*

In addition to active information-seeking, this study identified non-active information-seeking behaviour among older adults with diabetes, such as information encountering and delegated information-seeking. These behaviours have been similarly observed by Trace et al. (2023), who found that some ovarian cancer patients relied on clinical sources, incidentally, encountered information, or delegated information-seeking tasks to family members. Information encountering, which involves unintentionally coming across useful information, has gained increasing attention from researchers in information science (Liu et al., 2022). Concepts closely related to this include incidental information acquisition and serendipitous information discovery.

Participants in this study also reported instances where information they received unexpectedly sparked further information-seeking activities. This phenomenon has been extensively discussed in prior research (e.g., Erdelez & Makri, 2020; Soroya et al., 2021; Wilson, 1997). Such findings contribute to the body of research on passive information-seeking, underscoring the importance of accidental or unplanned information discovery. In practice, creating information-rich environments where patients can engage in serendipitous information-seeking could greatly benefit older adults with diabetes. By fostering spaces where relevant health information can be encountered unintentionally, healthcare systems can help bridge gaps in knowledge.

Another key finding of this study is the occurrence of information avoidance. Various factors contribute to this behaviour, including concerns about privacy, fear of exposing one's health condition, and the stigma associated with certain illnesses (Oliphant et al., 2022; Li et al., 2023; Stvilia et al., 2021). Psychological discomfort, such as anxiety or distress, also plays a significant role in information avoidance, as confronting health-related information can trigger emotional responses that individuals prefer to avoid. Contrary to the general assumption that individuals with chronic conditions actively seek relevant information, some older adults with diabetes may refrain from doing so as a coping mechanism to protect their emotional well-being. In practice, this behaviour highlights the need for healthcare providers to be sensitive to the psychological barriers that may hinder patients from actively seeking information. Efforts to provide a more supportive and empathetic environment could encourage individuals to overcome these barriers and engage more openly with their health information needs. Additionally, addressing literacy challenges and tailoring communication strategies could help mitigate the impact of information avoidance in older adults with diabetes.

4.2.4 Section Summary

This section highlights how older adults with diabetes strategically navigate the health information system. Consistent with existing literature, this research shows that while older adults with diabetes have diverse and evolving information needs related to diabetes management, other health conditions, and available healthcare professionals, these needs often go unmet. Key barriers include insufficient support from healthcare professionals, problems with the information they receive, and challenges in articulating their information needs. The discussions around identifying and addressing these information gaps emphasize the importance of providing accessible, reliable, relevant, personalized, and up-to-date information.

Participants in this study sought health information from various sources, including digital platforms, printed materials, family members, friends, peers with diabetes, healthcare professionals, and local communities. Among these, the Internet is a convenient tool to access information. Healthcare professionals emerged as the preferred source due to their expertise and the opportunity for interactive communication. This study also found that many participants displayed a preference for certain sources of information, with their choices influenced by factors such as convenience and credibility. This finding reinforces the importance of understanding older adults' nuanced preferences and motivations in seeking health information from various sources.

An intriguing finding was that not all participants actively sought health information. Some delegated the task to family members, while others acquired information through casual conversations. Additionally, participants reported both encountering and avoiding information. Consistent with previous studies, this research shows that encountering new information often triggers further information-seeking behaviour, while avoidance mainly stems from emotional considerations. These results underscore the need to create a more supportive and empathetic environment where individuals feel encouraged to engage actively in managing their health.

4.3 Reflexive Engagement with Health Knowledge and Practices

This theme highlights that individuals are not passive recipients of health information but actively engage in a reflexive process involving learning, applying, evaluating, and sharing knowledge to improve personal and communal health outcomes. It reflects the dynamic process of using information to manage health, continuously integrating new knowledge, critically evaluating the credibility of information, and sharing insights with others. It encapsulates the active, ongoing, critical, and social nature of how individuals interact with health information.

4.3.1 Active Application of Information in Personal Health Management

This sub-theme focuses on how individuals actively apply health information to their daily self-management strategies. These strategies range from routine practices such as taking and adjusting medication, modifying diet, and engaging in physical exercise to more complex decisions such as scheduling medical appointments, undergoing surgery, and purchasing health-related products. The emphasis is on the proactive use of information to maintain and improve personal health, reflecting a commitment to continuous self-care and adapting to new health challenges.

Actions in daily routine

Actively using health information is exemplified through actions such as taking and adjusting medication based on medical advice. Many participants indicated that they began incorporating this information into their routines by taking medication consistently, either upon receiving a diabetes diagnosis or when addressing other health concerns.

> *我在国内退休前两年吧，血糖就开始高了。。。后来体检以后，医生就定位是糖尿病了，呃，就开始服药。[Two years before I retired in China, um, my blood sugar started to rise... After the health check, the doctor diagnosed it as diabetes, uh, and I started taking medication.] (P22, M, 74, high school, diabetes for 14 years)*

> *医生叫我不要大意，说我原来身体比较好，不等于我就没有毛病，他说要我这个，嗯，按照他们现在的这个要求，打这个胰岛素，还有就是吃二甲双胍那个药，还有一些别的药，我也记不清了名字了，嗯，反正也吃了，也吃了一些药，主要就是打胰岛素。[The doctor told me not to take it lightly. He said that just because I used to be healthy doesn't mean I have no issues. He told me to, um, follow their current guidelines, take insulin, and also take metformin. There were some other medications, too, but I can't remember their names. Um, anyway, I took them. Mainly, I took insulin.] (P18, M, 77, bachelor's degree, diabetes for 2 years)*

One participant, aged 76 and living with diabetes for over 20 years, maintained her medication routine despite experiencing unmet information needs. She expressed uncertainty about the physiological changes in her body due to a lack of detailed health information. She reported, *"我就发觉我脚腕的这一段是有点黑了，走路是有一点困难，而且是静脉曲张很厉害。。。我也不大清楚。反正我药还是准时要吃的。[I noticed my ankle area was turning a bit dark, and walking was a bit difficult. Also, my varicose veins got quite severe... I don't really understand it. But I still take my medication on time]" (P8).* This case illustrates that, despite gaps in medical knowledge and a limited understanding of her condition, the participant engaged in information use by adhering to established health guidance based on previously acquired information.

Health management practices often evolve as individuals access and incorporate new information. For many participants, the use of health information involved modifying medication regimens in response to updated recommendations from healthcare providers, which were based on new health indicators such as blood sugar levels. For instance, P22 (M, 74, high school, diabetes for 14 years) shared, *"他（医生）就是要求我们三个月，基本上固定三个月都要去抽血啊，看他开的药物到底对我们的那个治疗情况怎么样，那根据这个化验结果来调整药物。[He (the doctor) just requires us to go for blood tests every three months, yeah, basically every three months to check whether the prescribed medication is working and then adjusts the medication based on the results.]"* This participant's experience highlights how regularly updated information is translated into concrete health management actions.

In a particularly impactful example of information-based medication adjustment, one participant (P2), aged 70 and living with diabetes for 17 years, experienced diabetic ketoacidosis

(DKA), resulting in a prolonged hospital stay of over six weeks. After receiving information indicating that his previous medication regimen likely contributed to the DKA, he discontinued all other drugs and switched entirely to insulin. This change underscores the critical role of targeted information in reshaping health practices, as the participant's shift in medication use was directly influenced by the information received during his treatment.

Similarly, dietary adjustments emerged as one of the most prevalent health management practices shaped by newly acquired information. Participants engaged in this form of information use after receiving dietary recommendations from multiple sources, including healthcare professionals, family members, friends, and social media platforms. This variety of information channels provided participants with a diverse array of dietary guidance, which they then applied to their health management strategies.

> *It's really important for me to have that checked; it was a bit high last time, so I've tried to moderate my activity in my diet a bit more carefully. (P3, M, 69, master's degree, diabetes for 27 years)*

> *比如医生嘱咐你尽量少喝这谷物性的粥啊稀饭呀。嗯，因为它增糖速度比较快，吸收速度也比较快。所以就听从人家的这个建议吧，尽量少去喝这些谷物性的稀饭之类的这些食物。 [For example, the doctor advised me to drink less grain-based porridge or gruel, um, because it raises blood sugar quickly and is absorbed quickly. So, I listened to the advice and tried to drink less of these grain-based foods."] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *我是注重呢，就是在饮食上。有时候我喜欢吃什么还要吃一点，但是听完了讲座呢，哎哎，还是不要吃了，有些不健康的还是不要吃。[I mainly focus on my diet. Sometimes, I want to treat myself to something, but after attending lectures, well, I thought, 'I better not eat it.' Some unhealthy foods should just be avoided.] (P21, M, 85, bachelor's degree, diabetes for 15 years)*

Dietary adjustment and blood sugar monitoring are essential parts of daily routines for many individuals with diabetes. Participants in this study highlighted the importance of tracking and interpreting blood sugar information, as neglecting dietary management could lead to rapid fluctuations. Conversely, participants also relied on blood sugar information to inform their dietary choices. For instance, P9 (74 years old, bachelor's degree, living with diabetes for 16 years) shared that her day begins with checking and analyzing her blood sugar levels, using this information as a key reference for planning her meals throughout the day. This illustrates how integrating real-time health information into daily dietary decisions reflects a proactive approach to information use.

In addition to medication and dietary adjustments, physical exercise represents another dimension of how participants actively applied health information in managing their condition. Regular exercise is a widely recommended health practice for people with diabetes, and many participants reported incorporating it into their routines after learning about its benefits from various sources, such as healthcare providers, family members, friends, and social media. For instance, P22 (M, 74, high school, diabetes for 14 years) shared, "*医生有交代以后，那我在这个方面自己就注意了，嗯，就是每天要保持一个小时到两个小时的步行，散散步。[After listening to the doctor's advice, I paid more attention. Um, I make sure to walk for one to two* *hours every day.]”* This case underscores the dynamic use of information as individuals translate recommendations into specific behavioural changes, showcasing the influence of trusted information sources on personal health management strategies.

The above findings, where participants incorporated received health information into their physical actions—such as taking medication, adjusting medication, modifying diets, and engaging in physical exercise—are consistent with previous research that identifies physical acts as key components of information use (e.g., Choo et al., 2006; Liu & Li, 2021; Wilson, 2000). Similar patterns of information use have been observed in other populations. For instance, college and graduate students with disabilities and chronic illnesses report that everyday activities, such as communication tasks, medication management, and decision-making, are deeply intertwined with received health information (Smith & Master, 2023). These examples reinforce the idea that physical action is a crucial aspect of how individuals use information in real-world contexts, especially in managing chronic conditions where daily routines and health maintenance are key.

Most importantly, this study’s findings align with and support Savolainen’s Model of Everyday Information Practices (EIP), which emphasizes that wielding information in action is a fundamental aspect of information use (Savolainen, 2008). As mentioned in Chapter 2, Information use in the EIP model includes judging the value of information, filtering information, and wielding information in action. Information use is not a passive process; rather, it involves deliberate actions based on the information individuals seek and receive. Whether it is adjusting a diet, taking medication, or engaging in physical activity, these physical acts are manifestations of how individuals interpret and apply information to meet their health goals.

In practice, these findings reflect how individuals transform abstract health information into concrete actions that directly influence their well-being. This connection between information and action also underscores the importance of tailored and practical health communication strategies. When health information is relevant and actionable, individuals are more likely to translate it into meaningful physical behaviour that improve their health outcomes. This underscores the need for healthcare providers and information systems to ensure that the information they provide is not only accurate but also presented in a way that encourages practical application in everyday life.

Decision making

In addition to taking action in their daily routines, participants reported making decisions and planning their behaviour based on newly acquired health information. Older adults with diabetes emphasized that their perspectives on health management shifted after learning about diabetes complications and their potential impact on daily activities. This new information prompted them to pay more attention to their health. Information also played a crucial role in guiding other health-related decisions, such as prioritizing certain health management practices, scheduling medical appointments and surgeries, deciding on vaccinations and mask-wearing, and making specific health-related purchases.

As noted earlier, common strategies for diabetes management include medication adherence, dietary adjustments, and physical exercise. However, the prioritization of these actions varied significantly depending on participants' interpretations of health information. For instance, participants often delayed starting medication, opting to manage blood sugar levels through dietary changes and physical activity until new health data or professional advice indicated that medication was necessary. Similarly, decisions around exercise were dynamically adjusted based on bodily feedback. P14 (M, 68, bachelor's degree, living with diabetes for around six years) explained, *"锻炼那也要看身体情况，就比如疫情完了以后，我中招了以后，我总觉得这几个月老是特别的疲惫，身体不如原来，就是说原来能锻炼一个小时，现在可能半个小时就结束了，因为我自己感觉到累了。[Exercise depends on your condition. For example, after the pandemic, after I got infected, I always felt very tired for several months. My body wasn't as strong as before. I used to exercise for an hour, but now I might finish after half an hour because I feel exhausted.]"* This highlights the dynamic nature of information use, where participants actively adapted their health practices based on new information from both external sources and personal health monitoring.

Participants frequently discussed using body-related information to determine when to seek medical attention. For example, P18 (M, 77, bachelor's degree, living with diabetes for two years) decided to visit a doctor after noticing restricted hand movements, while P22 (M, 74, high school, living with diabetes for 14 years) sought an ophthalmologist due to blurred vision. Participants with stable health conditions reported infrequent medical visits but acknowledged their intention to make appointments based on emerging symptoms. This information-based decision-making extends to considerations of surgical procedures as well. For instance, P4 (M, 75, bachelor's degree, living with diabetes for around eight years) refrained from surgery after learning that his trusted doctor would not perform the procedure himself, stating, *"他（医生）说他不一定动手（做手术），那么我就有看法了，你不动手我就不弄了，我回国弄了。[If he (the doctor) didn't do the surgery himself, I wouldn't have the surgery; I would go back to China and find another expert.]"* Another participant, aged 81 and living with diabetes for 18 years, decided against cataract surgery after her doctor provided information indicating that her vision was still acceptable.

Additionally, some participants used information to decide on vaccination and mask-wearing practices during the COVID-19 pandemic.

> *I mean, I think we still have COVID. I mean, I'm someone who still wears a mask in like a grocery store, you know… but I'm sort of at the point now where I think probably by the end of April, I mean, I don't think I'd be wearing a mask very much at all. (P3, M, 69, master's degree, diabetes for 27 years)*

> *就是这个打疫苗呀，都是为了这个回国以及能够有回到这边来，这个飞机要，入关要检查【我】才打了两次疫苗。 [It was all about the vaccine, yeah, for returning to China and for being able to come back here. The flights required it, and there were entry checks... so I got vaccinated twice."] (P15, M, 79, master's degree, diabetes for 7 years)*

One of the most unexpected findings under the theme of active application of information in personal health management was related to consumer behaviour, as purchasing decisions were not explicitly addressed in the interview guide. Participants demonstrated how health information obtained from various sources translated into specific consumer actions. For example, P9 (74 years old, bachelor's degree, living with diabetes for 16 years) incorporated social media information into her grocery shopping decisions after discovering a list of eight recommended fruits for people with diabetes. She saved the post and consistently purchased these fruits. Similarly, two participants purchased blood glucose meters following their doctor's advice, enabling them to monitor their blood sugar levels at home. This finding shows that the active application of new health information extended beyond medical management to everyday purchases, underscoring the broader impact of information on personal health behaviour.

The above findings align with existing research that highlights decision-making as a critical way individuals use information across various contexts, including higher education (Adekoya, 2021), health management (Akanbi & Fourie, 2021; Liang et al., 2017; Zhang & Liu, 2023), and consumer behaviour (Savolainen, 2009). In this study, many participants reported making decisions based on information received from their bodies, drawing attention to the definition of information and the concept of embodied information—where the body itself is considered a source of information (Williams et al., 2024).

Within Library and Information Studies (LIS), there has been a shift from traditional cognitive approaches to more socio-constructivist perspectives, emphasizing the situational, contextual, and embodied experiences of individuals (Suorsa, 2024). Information, therefore, is not merely a cognitive or abstract entity detached from the body but can be experienced, interpreted, and understood through physical sensations, emotions, and sensory engagement. For example, participants in this study described adjusting their medication or lifestyle based on how their bodies reacted to food, exercise, or symptoms, further reinforcing the idea that information can be deeply embodied. This shift in understanding suggests that exploring embodied information is crucial for future research on information behaviour as it underscores the importance of recognizing humans as fully embodied beings when examining how they seek, process, and use information.

Additionally, this study uncovered an important, under-explored aspect of information behaviour—purchasing behaviour in the context of health management. Participants reported that buying products such as medications, supplements, and health-related devices was a significant part of managing their diabetes, a behaviour not extensively covered in prior research. This expands the scope of information use behaviour to include consumer decision-making, which is closely linked to how individuals gather and act upon health information. Understanding this connection opens new avenues for future research, as it suggests that consumer behaviour is an essential dimension of health-related information use, particularly for individuals managing chronic conditions.

In practice, the findings on decision-making, embodied information, and purchasing behaviour highlight the importance of viewing individuals as the primary agents of their health management. This perspective reinforces the need for healthcare systems to incorporate patient-driven approaches that recognize and respect individuals' embodied knowledge and decision-making capabilities. Empowering patients as active participants in their own care and ensuring that health information is actionable and relevant to their lived experiences is essential for more effective diabetes management and overall healthcare.

4.3.2 Ongoing Knowledge Integration and Development

Knowledge integration and development are essential for learning and cognitive growth, enabling individuals to build a robust and adaptable knowledge base applicable across various contexts. This sub-theme captures the continuous learning process and adaptation of one's understanding of health information. It highlights how individuals integrate new information with their existing knowledge and utilize experiential learning to refine their health management strategies. This process is reflexive, with individuals actively assessing and reassessing their knowledge, adapting their approach as their understanding evolves, and saving relevant information for future use.

Roughly half of the participants reported incorporating new information into their existing knowledge. These individuals expressed an enhanced comprehension of diabetes and its management following their research. At times, their primary objective was simply to obtain answers to their questions or gain insights into their situation without subsequent actions, such as verifying the accuracy of the information or implementing suggestions. The following quote illustrates a shift in one participant's knowledge after consulting her family doctor. Initially, upon being diagnosed with diabetes, she promptly began taking medication; however, she later discovered from her new family doctor that this approach was not advisable and expressed regret.

> *现在在加拿大这边经过学习知道，当时一检查出来不应该马上就诊断为糖尿病，应该先要有三个月的时间，应该要先控制一下食物，加强一下运动，并不应该吃药的。我就把药吃进去了，因为我们最开始不大了解，就把药吃进去了，那时候自己有点害怕，所以控制的很严。。。但是我现在药不吃就不行了，我已经连续吃了几年了，就不行了。 [Now, after studying in Canada, I realized that when I was first diagnosed, it shouldn't have been labelled as diabetes immediately. There should have been a three-month period to control diet and increase exercise before taking medication. But at that time, we didn't understand this, and I immediately took the medicine... Back then, I was a bit scared, so I was very strict. But now, I can't go without the medication. I've been taking it for years, and now, I can't manage without it.] (P23, F, 79, technical training, diabetes for 15 years)*

One interesting finding was that participants sought to confirm or validate the accuracy and applicability of the information they received by putting it to the test. The experiential learning process in this study primarily focused on diet and medication, with participants using their bodies' reactions as criteria for judgment.

> *主要研究吃什么药以及什么食物能让减少血糖的增加，吃什么药能使血糖正常，哪个药比较好。别人推荐了很多药，我们都是自己试出来的。[I focus on researching which medicines and foods can reduce blood sugar spikes, what medications can keep blood sugar stable, and which medications work best. People recommend a lot of medicines, and we've all experimented with them ourselves.] (P4, M, 75, bachelor's degree, diabetes for around 8 years)*

> *朋友们就是可能有议论，有的说这个很好，有的说这个不好，那我就直接自己去试验一下好不好吧。有的感觉就是没有什么，好像效果很好。嗯，他们说【名字】你要吃多一点，对这个糖分可以排除掉啊。但我觉得没用啊。你说不吃糖我照样这个血糖很高，我吃了这个一些甜的东西也没有，好像虽然是高了一点，也没有高到离奇。 [My friends talk about it, some say one thing is good, others say something else isn't. So, I try it myself to see if it works. Some things don't seem to work, others seem quite effective. For example, they said, you should take more of [name of a product]; it helps reduce sugar. But I didn't find it effective at all. Whether I eat sugar or not, my blood sugar remains high. But after I ate some sweet things, my blood sugar level seemed to be a little high, but not so high.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

> *我也会看啊。嗯，有的东西我看也是不准确的。比方讲有的讲糖尿病的人吃南瓜很好，会降血糖啊，我就去买南瓜，吃了以后不行，那不是真的。那我吃了以后血糖就会高。我一般，我这个人可能算比较认真的。 [I also do my own research. Something I read was inaccurate. For instance, some say that eating pumpkin is good for lowering blood sugar. I bought a pumpkin and tried it, but it didn't work. So, I guess it's not true. Eating pumpkin actually raised my blood sugar. I'm, I'm just being cautious about these things.] (P23, F, 79, technical training, diabetes for 15 years)*

Information use relies on both short-term and long-term memory. Short-term memory temporarily holds information for immediate use, while long-term memory stores it for future reference. Participants reported that if they found the information valuable, they would store it for later use. A few participants acknowledged using the save function available on social media platforms as a memory aid, attributing this decision to difficulties in recalling information due to age-related cognitive factors. For example, P8 (F, 76, bachelor's degree, living with diabetes for over 20 years) explained, *"我怕忘了，年纪大了有时候忘了嘛。觉得这个信息好像有点道理，然后我会收藏。[Now that I'm older, I sometimes forget. If I think this information is useful, I just save it.]"* A couple of participants also indicated that they intended to stop storing information once it became memorable. Additionally, several participants adopted alternative methods, such as taking notes or cutting out and copying printed materials, to preserve information for future review.

> *I do what they told [me]. I write down what they told me to do and how to change it. (P2, M, 20, technical training, diabetes for 17 years)*

> *我在报纸杂志上看到关于糖尿病啊，心脏病这事儿，我总会有些把它们摘抄下来。[I read about diabetes and heart disease in newspapers and magazines, and I always take notes.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

> *那有时候他开的药方啊，就要把它抄下来。[Sometimes, when the doctor gives a prescription, I write it down.] (P22, M, 74, high school, diabetes for 14 years)*

Findings in this section suggest that information incorporation, experiential learning, and storing information for future use are essential aspects of how individuals use health information. These practices align with the cognitive dimensions of information use identified in previous research (e.g., Liu & Li, 2021; Savolainen, 2009; Zhang & Liu, 2023). Health information use can lead to significant cognitive outcomes by enabling individuals to form a coherent understanding through the integration of new and existing information. This process not only enhances their current knowledge but also has the potential to modify and expand their understanding over time (Choo et al., 2006; Cole, 2012). These findings underscore that information use is an ongoing and dynamic process, one that involves deepening, refining, and reshaping one's knowledge base as new information is acquired.

An especially intriguing discovery in this study is how participants engaged in experiential learning to acquire diabetes-related information. Rather than relying solely on traditional academic sources such as lectures or readings, participants learned through hands-on, real-world experiences. This method of learning by doing—through experimenting with medicine and diet—is consistent with prior research (e.g., Hargreaves et al., 2023; Oliphant et al., 2022). For example, Oliphant et al.'s (2022) investigation of women's knowledge of heart disease found that nearly every participant had developed a deep, embodied understanding of what constituted optimal health and diet choices, based on their lived experiences. This emphasizes that in chronic disease management, learning is often grounded in real-world actions and reflection on personal experiences, rather than purely academic or formal learning settings.

Another noteworthy finding from this study is the way participants adapted various methods for saving health information for future reference. This practice of storing information has not been widely discussed in prior studies on information behaviour, which have traditionally focused more on how people seek or access information. Participants in this study demonstrated a need to retain useful information for later use by actions such as taking notes and using the save function available on social media. The ability to save and store health information adds another dimension to the concept of information use, suggesting that managing diabetes involves not only seeking and using information in the present but also preserving it for future decision-making.

In practice, recognizing that information incorporation, experiential learning, and information storage are key aspects of using health information contributes to improving current healthcare practice. The cognitive outcomes associated with health information use highlight the need for healthcare providers to focus on more than just delivering information. They must ensure that patients can incorporate new information into their existing knowledge base. This may involve providing information in ways that are more easily digestible and adaptable, such as through interactive or personalized educational tools. Additionally, the role of experiential learning in information use suggests that healthcare systems should promote hands-on approaches to patient education. For example, workshops, support groups, or community-based programs that allow individuals to practice managing their diabetes in real-world contexts could be highly beneficial. Finally, the discovery that participants in this study actively saved health information points to the need for better tools and systems to support this behaviour. Healthcare professionals and information services could develop methods to help patients organize and store important health data, such as apps and patient portals.

4.3.3 Critical Selection and Evaluation of Information

This sub-theme reflects individuals' reflexive approach as they navigate the vast amounts of information they encounter daily. These processes assist individuals in determining which information warrants their attention and use while also identifying what can be disregarded. Additionally, it emphasizes the importance of critically evaluating the credibility of health information.

Filtering information

Individuals manage the overwhelming amounts of information they encounter by selectively exposing themselves to certain types while ignoring others. In this study, most participants expressed skepticism regarding the information they received. When deciding whether to retain or discard information, participants considered various factors, typically bypassing irrelevant content and focusing on diabetes-related information or topics of personal interest.

> *因为那个微信有的发的很多，有很多我都不看，我都删了，然后如果有关糖尿病的我就看。 [Because, you know, there's a lot of stuff on WeChat, and a lot of it I don't look at, I*

> *just delete it. But if it's about diabetes, then I'll take a look.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

> *有时候就像北京电视台有时候举办一些座谈访问节目。所以有时候我就还反复的看一下他们这个说的情况，因为跟自己有关系，所以比较关注。 [Sometimes, like Beijing TV, they hold some discussion or interview programs. So, sometimes I'll watch them repeatedly because they're related to me, so I pay more attention.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *报纸上很少，嗯，我们那个中华导报嘛，对于这个糖尿病的报道呢？不多。但是偶尔也有报道一下吧。我反正也是走马观花一样，也有看也看，不过就是说，呃，只要有看有关糖尿病的，我还是也很注意去浏览一下。还是看一下诶。There's not much in the newspapers, um, in our "China Press", about diabetes, not much. But occasionally, there's a report here and there, right? I kind of just skim through, but, you know, if there's something about diabetes, I do pay attention, like, I do take a look, yeah. (P21, M, 85, bachelor's degree, diabetes for 15 years)*

Several participants filtered information based on its recency. P11 (F, 81, bachelor's degree, living with diabetes for 18 years) reported frequently watching YouTube due to its rapid updates. Similarly, P17 (M, 76, bachelor's degree, living with diabetes for over 20 years) stated, *"嗯，这个我一看，是我了解的，和我以前看的内容差不多的话我就不看。对新的消息，新的科研成果方面的我比较关注一些。[Um, when I see it, if it's something I already know, or if it's* *similar to what I've read before, I don't watch it. I'm more focused on new information, new scientific research]."*

A few participants noted that they filter out repetitive information and expressed dissatisfaction with the repetitiveness of diabetes-related lectures they attended. One participant further suggested improvements to the content of these lectures.

> *因为原来那个疫情之前呢，我参加了一个，那个就是公益讲座，一个医生呢就讲那个肠癌怎么样？什么症状？怎么样预防？我觉得那就挺好的，然后如果有类似的，有糖尿病有关的。不是一般的像少吃和多运动之类的，要进一步的，关于糖尿病的最新研究成果之类的。就是医学已经对于糖尿病的研究已经进展到什么地步了。希望有这个比较前沿一点的讲座。 [Before the pandemic, I attended this, um, public lecture, and the doctor was talking about colon cancer—what the symptoms are, how to prevent it. I thought it was pretty good. So, if there are similar ones, related to diabetes, I'd be interested. Not just the usual stuff like "eat less" and "exercise more", but something deeper, like the latest research on diabetes. I want something more cutting-edge.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

Many participants in this study prioritized sources with higher credibility, particularly given the inadequate quality of many other available sources.

> *But the point is, whatever search engine you're using, I go to for medical sources like university medical departments, studies that have been done by government agencies, that*

sort of thing. [I'm] not interested in going to sites that are not really, in my view, serious. (P3, M, 69, master's degree, diabetes for 27 years)

你像网络上啊，像那个我们经常也看微信，所以网络上也有找，但是找到这个不太那个，这个可信度也都是，也不是很那个。你做参考就是，但主要我们还是听家庭医生的。 [We also search the Internet, like on WeChat, but not everything we find there is… the reliability is questionable... We use it as a reference, but we mainly listen to family doctors."] (P22, M, 74, high school, diabetes for 14 years)

The above findings reveal that participants actively engaged in a critical process of filtering information, sorting through large volumes of data to discard content that was irrelevant, outdated, repetitive, or unreliable. This filtering is a crucial strategy for managing information overload, a challenge especially prevalent among older adults, as identified in previous research (Colosimo & Badia, 2021). The overwhelming influx of information, particularly at the time of diagnosis and as the condition progresses, often leads to confusion regarding both the quantity and quality of the information available (Sbaffi & Hargreaves, 2022). To manage this overload, individuals continuously sift through the information they receive, prioritizing what is most relevant to their personal health needs and discarding the rest (Savolainen, 2008).

In line with Savolainen's EIP model (2008), this study found that perceived media credibility and the concept of "cognitive authorities" significantly influence how participants select and use information sources. Individuals tend to trust and rely on sources they consider trustworthy and reliable, often using and disseminating information from these sources (Lindau et al., 2022). For participants in this study, these trusted sources ranged from healthcare professionals to government sources.

The discussions here show that the filtering process is an integral part of information use, as individuals sort information in ways that are meaningful to their health management. In practice, these findings underscore the importance of healthcare systems providing patients with information that is not only reliable but also timely, relevant, and free from unnecessary repetition. Updated and easily digestible information tailored to individual health concerns is essential for ensuring that patients are empowered to use it.

Information assessment

Participants emphasized the importance of critically evaluating received information, especially given the prevalence of readily available misinformation today. More specifically, a few participants expressed a lack of trust in information on social media and websites, citing the widespread misinformation in these sources.

> *哎呀，网上的假消息很多的，就看你怎么辨别。[Oops, there is a lot of fake news on the Internet, so it depends on how you identify it.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

> *我见到一些信息，但是我不太相信，嗯，像有些他这个说的就是，呃，不吃药就能治糖尿病，咋说了好多，我一看那个说的都是比较离谱，我就不相信，就不会继续看。[I've seen some information but don't really believe it. Well, for example, some people say that diabetes can be cured without taking medicine. As soon as I read it, I knew it was*

nonsense. I didn't believe it and wouldn't continue reading.] (P15, M, 79, master's degree, diabetes for 7 years)

An interesting discovery was that a few participants attempted to think critically due to the constantly changing information they encountered. They reported observing the inconsistent and evolving nature of scientific conclusions over time.

Maybe the researchers say what they want to say today. Tomorrow, they change. (P1, M, 74, diabetes for 41 years)

都像他们说是吃这个什么，那个什么。很多东西他今天说好，明天又说不好。我就想那你不要多吃就行了。嗯，有时候没有定论的时候我就自己来调整。有的说好，有的说不好，你就你就不要多吃就行了，嗯嗯，适当的吃一点就行了。 [Sometimes people tell me to eat this, sometimes they tell me to eat that... Maybe today they say this food is good for diabetics, but tomorrow they say it's not good… So, I'm thinking, if there is no conclusion, I'll decide it by myself. If some say it's good, and others say it's bad, just don't eat too much. Em, you eat, but you have to control the portion.] (P12, F, 90, technical training, diabetes for 21 years)

Participants reported that they assessed the quality of information using their existing knowledge and life experience. P9, a 74-year-old who had been living with diabetes for 16 years, explained that she evaluated the potential harm of information based on her knowledge before deciding whether to implement it. If the information posed no harm or side effects, she would proceed: *"我只凭我自己的知识水平来判断的啊，这个可能没有什么伤害，没有什么副作用，我就吃。 [I only judge based on my own knowledge, you know, this might not have any harm, and no side effects, so I just take it.]"* Many participants reported that they did not passively accept all conclusions presented; instead, they relied on their own judgment, drawing from their life experiences.

> *我呢也不是不信任，我呢，要通过自己的头脑分析的。我是一个辨证唯物主义者，我一分为二的看问题的，医生怎么说的，这个书上怎么说的，我自己是怎么考虑的，不是他说我就百分之百的相信的。 [It's not that I don't trust it; I want to analyze it from my own mind. I am a dialectical materialist, and I approach issues by looking at them in a nuanced way. It's not just about what the doctor says or what is written in the books; I also consider my own thoughts. I don't believe something just because someone says it; I don't unquestioningly accept it.] (P4, M, 75, bachelor's degree, diabetes for around 8 years)*

> *Well, you know, because of the work I've been doing for many years, I'm aware that you can find a lot of contradictory information. So, you know, I try to look for information that's pretty consistent over many good quality sources. (P3, M, 69, master's degree, diabetes for 27 years)*

> *根据经验，另外也有看，因为我看这方面的文章比较多嘛，嗯，那就是肯定有不同的观点的，然后，我自己分析我觉得哪个更有道理。[Based on experience, and also because I read a lot of articles on this topic, um, there are definitely different opinions. So, I*

analyze it myself and think about which one makes more sense to me.] (P11, F, 81, bachelor's degree, diabetes for 18 years)

Cross-referencing is another method participants used to assess information. Most participants noted that information obtained from various sources was generally consistent. A few participants mentioned consulting their doctors about information they had found online to gain professional input. An interesting discovery from this study was that some participants even evaluated information provided by healthcare professionals.

呃，就是根据那个他给出的建议，呃，给出的建议呢也不能全信对吧？我们民间有一句话，医生说的话呢，不能不信，也不能全信，就是这样。呃，医生说你非常严重啦，什么你全信了，那很快死掉。[You can't quite believe what he tells you, can you? People always say you shouldn't trust everything a doctor says, but you shouldn't ignore it either. If the doctor tells you that it's serious and you buy it, you'll die soon.] (P6, F, 74, technical training, diabetes for 7 years)

我可以说医生的话我也不是很相信，我要自己去分析这个药物这个药，呃，这个它的作用，它的副作用。 [I would say I do not 100% believe what doctors told me. I will do the research myself. I will look at the medicine instructions and check its benefits and side effects.] (P13, M, 69, PhD, diabetes for 13 years)

你比如像他们，有一些我们的这个同事吧，或者是老伙伴，嗯，过去的老朋友坐在一块儿喝酒的时候，有时候就讨论到中国人不是喜欢喝白酒吗？他们说也不能完全听医

生的，你比如像喝完白酒，喝完白酒这血糖还下降，我说不可能。。。我说通过喝白酒来控制血糖，我说这不是科学的办法。所以在就是跟医生讨论，就是每个月去讨论的时候把这个问题呢跟医生进行一下探讨，有的医生说有这种现象。就是喝完白酒以后餐后血糖呢不升本降，但是通过，为什么呢？他们医生就给你讲一些道理，就是讲一些医学方面的知识，它的抑制性的，可能对血糖有暂时的一些控制，但是这不是长久的，这最后它还是有反复，就有慢性的在提高的这么一个过程。[For example, my friends and I sometimes discuss that Chinese people like to drink alcohol. They said that you can't completely listen to the doctor because, for example, your blood sugar level actually drops after drinking alcohol. I said this is impossible... I said that drinking alcohol to control blood sugar is not a scientific method. So, I went to discuss it with the doctor... The doctor explained this phenomenon... Because of the inhibitory effect of alcohol, alcohol may temporarily control blood sugar, but this is not long-lasting. In the end, blood sugar will still relapse and gradually increase.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)

Somewhat unexpectedly, a few participants in this research reported different reasons for their tendency not to assess information. P5, who is 75 and has lived with diabetes for around six years, mentioned that she would trust any information provided by others and follow their guidance, influenced by a childhood education that encouraged belief in others. Other participants refrained from evaluating information because they believed there was nothing to lose by accepting it, as it merely added to their knowledge. They also tended to consider health information from sources such as newspapers and social media as trustworthy.

所以我们从来没有怀疑过，你又没有什么损失对吧？就是增加自己的知识，对那个糖尿病的那个知识嘛，所以我从来没怀疑过。[So, we never doubted it, right? You don't lose anything, you know? It's just about increasing your own knowledge about diabetes, so I've never doubted it.] (P19, F, 78, middle school, diabetes for 4 years)

这个吧，我不去判断。我觉得它说的对的呢？我在日常生活中会注意一下。嗯。也没说觉得什么不对，人家那个不管是报纸上也好，那个微信上也好，嗯，人家说健康方面的哈，一般说的还是比较靠谱的。[I don't judge it. If I think what they say is right, I'll pay attention to it in my daily life. Um. I didn't think anything was wrong with it, whether it's from newspapers or WeChat, um, what they say about health is generally quite reliable.] (P21, M, 85, bachelor's degree, diabetes for 15 years)

Participants reported being critical of the information they encountered, particularly due to the widespread nature of misinformation. The inconsistent and evolving nature of scientific conclusions was another reason to critically judge the validity of the information they received. Interestingly, this factor—participants evaluating information because of evolving scientific knowledge—has not been widely documented in previous research.

Some participants in this study relied on personal judgment and life experience to assess the information they received. This finding aligns with Wilson's (2000) research, which suggests that information use often involves comparing new information with one's existing knowledge. It also echoes Montesi's (2023) study on the everyday information behaviour of individuals in Spain during the COVID-19 pandemic, where people used personal and shared experiences to verify the effectiveness of COVID-related information. Additionally, several participants crosschecked information from multiple sources before accepting its credibility, reinforcing findings from Choi’s (2020) studies, which reported that older adults often validate information by consulting multiple sources.

Another noteworthy finding was the participants’ preference for assessing information provided by healthcare professionals. This aligns with previous research, such as Oliphant et al.’s (2022) study, which found that women often verify and negotiate heart health information, even when it comes from trusted healthcare experts. However, this study also identified a small group of participants who did not evaluate the information they received, a phenomenon also noted in prior research (e.g., Stvilia et al., 2021). These participants refrained from assessing information due to their trust in its source, contrasting with Inthiran’s (2021) findings, which reported that online health information consumers in Southeast Asia often neglected to evaluate information due to indifference, comprehension difficulties, or health-related limitations.

These results demonstrate that critical evaluation is a key component of information use. Individuals actively assess the information they encounter; understanding why and how they do so is an important direction for future research. Practically, improving the well-being of older adults with diabetes requires providing high-quality, reliable information and combating misinformation. Information professionals play a vital role in building trust by ensuring rigour and consistency in the research and information they disseminate. Furthermore, literacy education is crucial to help older adults with diabetes evaluate the information they receive effectively, empowering them to make informed health decisions.

4.3.4 Sharing Information as a Communal Practice

This sub-theme explores the social aspect of health management, where individuals share information within their communities. Whether through teaching others, exchanging personal experiences, or discussing diabetes-related information, this sub-theme highlights the communal nature of health management. It emphasizes the role of individuals as both learners and educators, contributing to collective health literacy and support within their social networks.

Participants in this study frequently exchanged information about diabetes treatment, including recommendations for diet and exercise and insights into managing complications. A few participants also extended their sharing to include guidance on accessing healthcare services for individuals with diabetes. These information-sharing interactions occurred through in-person conversations, phone calls, and social media platforms.

> *那我就跟他说那他的血糖真的是很高。嗯，没有家庭医生。我就告诉他，有一些是不需要预约的。。。就是很多没有家庭医生，你就可以去那里预约，我就把那个超级医院的那个联系方式发给他。 [So, I told him, yeah, his blood sugar is really high. Um, no family doctor. I told him, some places don’t require an appointment... For many people without a family doctor, you can go there and make an appointment. I gave him the contact info for these places] (P6, F, 74, technical training, diabetes for 7 years)*

> *对你看我有个朋友吧，他跟我一样，他比我小几岁，他的血糖就一直高。完了，我打电话告诉他说你少吃点。 [You see, I have a friend who is just like me. He is a few years younger than me, and his blood sugar has always been high. So, I often call him and tell him to eat less.] (P20, F, 80, no education, diabetes for 26 years)*

The participants in this study shared health information with others due to the considerable time they spent together and the natural integration of sharing into their daily interactions. One participant specifically mentioned frequently discussing diabetes-related information with friends, attributing this to the substantial time they spent together: *"我要知道什么消息，我都要分享给他们呢。嗯，因为我们经常在一起玩，他们也是这样。哎呀，糖尿病那个什么东西不能吃，什么东西吃了好啊，他们也会告诉我们。 [When I learn something new, I always share it with them. Um, because we hang out together often, and they do the same. 'Oh, this food is bad for diabetes,' or 'This food is good.' They also tell us.]" (P21, M, 85, bachelor's degree, diabetes for 15 years).* Some participants reported that exchanging diabetes-related information had become a daily habit: *"在网上微信上面看到了这个有关糖尿病的时候就相互发发吧。[Whenever we see information about diabetes on the Internet or WeChat, we send it to each other]" (P8, F, 76, bachelor's degree, diabetes for over 20 years).*

While many participants indicated that information sharing would naturally arise in conversation, some actively disseminated their knowledge to others. Most of these participants engaged in sharing primarily to exchange personal experiences and support others' well-being. For example, P4 (75, bachelor's degree, living with diabetes for around eight years) wrote an article for a Chinese newspaper to share his positive experience with surgery. He had promised the doctor he would write the article if the surgery was successful and expressed a desire to share his experience with a broader audience. The participants in the following quotes were particularly willing to share information with those they deeply cared about.

> *比如像同事这个家里的老人因为得糖尿病引起这个疾病，那种疾病，或者是因为这个糖尿病最后导致了呃，控制的不好这些问题呢，我们都相互的通报一下，就是跟他们随便聊一聊，然后大家相互的多掌握一些。 [For example, if a colleague's elderly family member develops a disease due to diabetes, or if diabetes eventually leads to poor control of other problems, we all share that information with each other. We just casually talk about it, and everyone shares what they know.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *这些都是比较，这个关系比较好的，嗯，就是就互相关心嘛。 [These are closer relationships, um, so we care about each other]" (P17, M, 76, bachelor's degree, diabetes for over 20 years).*

The extent of information richness influences the willingness to share information. A few participants were more inclined to share if they believed they had more extensive knowledge than others. For example, P1, who has lived with diabetes for over 40 years and regularly volunteers at the McGill University Health Centre (Glen Site), shared that he helps others with diabetes by teaching them what doctors often do not have time to explain. He draws on his experience to make the process easier and more relatable, all voluntarily.

> *Letting the people know that doctors don't explain to them, these doctors don't have time to explain. So, people learn from me easily because I've experienced it. I do better than a doctor. I know what to tell everybody else, so we have years of experience, so many tablets I consume, so many things. So, I took this on my own time; nobody paid me anything. I had a*

> *difficult time understanding my mistakes; I know so many other people have the same problem. (P1, M, 74, diabetes for 41 years)*

It is somewhat surprising that certain participants in this study refrained from sharing health information with others due to personal preferences in daily conversations (viewing diabetes as a non-topic or a private matter), misconceptions about diabetes, and concerns about hurting others with misinformation.

> *我从来不聊，我能跟他们聊什么呢？他们又不是医生，聊这个也很无聊，聊天的话就聊一些愉快的事嘛，你聊这些干嘛。[I never talk about it. What can I talk about with them? They're not doctors, talking about this is boring. If we talk, it should be about something fun, why talk about this?] (P16, M, 83, master's degree, diabetes for 30 years).*

> *I mean, none of my friends know a lot about it. So, you know, there's no point in discussing it with people who have misconceptions, or they know all about it when they don't have it. (P2, M, 70, technical training, diabetes for 17 years)*

> *不分享。有人问我就说一下，没人问我就不分享，我没有理由，也没有资格来【分享】，因为有些东西它不准。你分享了可能有一些对别人是一种伤害。[I don't share. If someone asks me, I'll say something. If no one asks, I won't share. I don't have any reason, or the qualifications to share. Because some of it isn't accurate. Sharing it might actually harm others.] (P13, M, 69, PhD, diabetes for 13 years)*

很多东西一般这个属于个人的隐私，跟他们讲这个事也不愿意说的太多。 [Some things are personal, and you don't want to talk too much about them with others.] (P22, M, 74, high school, diabetes for 14 years)

Older adults are not only passive recipients of health information within their social networks but also serve as vital sources of health information for those around them (McMillan et al., 2008). Many participants in this study reported sharing diabetes-related information with family members, friends, and peers who also manage diabetes, reflecting similar patterns found in previous research (e.g., Huisman et al., 2020; Savolainen, 2008; Wilson, 2020; Wolf & Veinot, 2015). Health information sharing is a mutual process that occurs among individuals and communities, where knowledge about disease prevention, screening, and interpreting medical results is exchanged to support one another (Donelle & Hoffman-Goetz, 2009; Lekic et al., 2020).

Participants in this study engaged in health information sharing for a variety of reasons. Some described the exchange of information as a natural, informal part of daily conversations, while others actively shared information to provide guidance and support to others in similar health situations. This highlights the dual nature of information sharing, which can occur both incidentally—arising naturally in everyday interactions—and deliberately when individuals intentionally disclose information to benefit others (Huisman et al., 2020; Lekic et al., 2020).

Information sharing, which encompasses both giving and receiving information, is a significant topic within the field of information behaviour, though it has often become intertwined with related concepts such as information-seeking and use (Willson, 2022). In the EIP model, information-seeking, use, and sharing are all considered part of everyday information practices (Savolainen, 2008). However, in Wilson's model of information use, information exchange and communication (whether through one-to-one or one-to-many interactions) are seen as aspects of information use (Wilson, 2022). In alignment with Wilson's (2022) research, this study views information sharing not as a separate process but as a natural extension of how individuals engage with and apply information in real-world contexts. Information use encompasses all actions taken by individuals or groups in response to information, with sharing being one of these actions. Moreover, in health contexts, information use is often collaborative and socially mediated. Sharing becomes a critical aspect of this process, as individuals use information not only for personal decision-making but also to inform and influence the choices and actions of others. Further research is needed to better understand the relationship between information use and sharing, as well as their conceptual boundaries.

The study also found instances of restrained information sharing. Some participants hesitated to share health information due to misconceptions about diabetes and the concern of sharing misinformation. These findings are consistent with Huisman et al. (2020), who identified similar reasons for non-sharing among older adults in Belgium, including the stigma surrounding certain health conditions and the risk of overwhelming others with too much information. Stvilia et al. (2021) observed similar patterns among HIV patients, who avoided sharing health information due to privacy concerns, fear of their condition being exposed, lack of confidence in the accuracy of shared information, and apprehension about being held accountable for the outcomes of using that information. Given the importance of sharing health information to provide mutual support within communities, the study suggests that efforts should be made to reduce the stigma and misconceptions surrounding diabetes. Additionally, health literacy education could empower patients to confidently assess and share accurate health information. By improving health literacy and fostering a more open and supportive environment, individuals may be more willing to engage in meaningful information sharing, benefiting not only their health management but also that of others in their social circles.

4.3.5 Section Summary

This section explains and discusses the theme of reflexive engagement with health knowledge and practice, addressing the research question on the various ways older adults with diabetes use health information. Participants in this research actively applied information in personal health management (e.g., medication management, dietary adjustments, and exercise routines) and decision-making. Many of these actions have been documented in past studies, emphasizing physical actions and decision-making as key components of information use. This study also identified that further work is needed to better understand embodied information and purchase behaviour in the context of health management. In practice, these findings underscore the importance of empowering patients as active participants in their care and ensuring that health information is actionable and relevant.

Participants also reported integrating received information with their existing knowledge, learning through experience, and saving information for future use. This aligns with existing research on the cognitive aspects of information behaviour and adds another dimension to information use. This finding highlights the need for healthcare providers to deliver digestible and adaptable information, promote hands-on approaches (e.g., workshops, support groups, or community-based programs) to patient education, and develop methods to help patients organize and store health information.

Additionally, many participants indicated they would evaluate the credibility of information sources and selectively accept information by assessing its relevance, credibility, accuracy, and timeliness. This finding supports information filtering and assessment as elements of information use. Understanding how and why individuals filter and assess health information is an important issue for future research. In practice, these findings emphasize the importance of healthcare systems providing patients with information that is timely, relevant, and reliable. Literacy education is also crucial to help older adults with diabetes critically select and evaluate health information.

Information sharing emerged as a significant behaviour in using health information. Participants shared diabetes-related information with others, either as a natural part of daily conversations or because they wanted to provide guidance and support to others in similar health situations. This finding reinforces the conclusions of past studies that information sharing occurs both deliberately and incidentally. Some participants refrained from sharing due to personal preferences, misconceptions about diabetes, or concerns about spreading misinformation that could harm others. This finding highlights the importance of improving health literacy education and fostering a more open and supportive environment.

4.4 Constructing Personal Health Identity

This theme explores how individuals form and navigate their personal health identity by responding emotionally to health challenges, relying on deeply held beliefs and coping mechanisms, and drawing on their personal health history, experiences, and lifestyle choices. It emphasizes that health management is deeply personal, rooted in how individuals perceive themselves and their relationship with their health. This theme is holistic, acknowledging that health identity encompasses not just physical well-being but also the attitudes, emotions, and life experiences that inform how individuals manage their health.

4.4.1 Emotional Responses to Health Challenges

This sub-theme captures the wide range of emotional reactions individuals experience concerning their health. From surprise and fear of death to feelings of depression, isolation, relief, and even happiness, this sub-theme reflects the emotional complexity of managing health conditions.

Some participants expressed surprise or confusion upon receiving information regarding their diabetes, particularly if they did not fit the typical profile or symptoms associated with the condition. For example, P19, who is 78 years old and has had diabetes for four years, found it hard to believe she had diabetes because she disliked sweet foods and experienced nausea after consuming sugar. Similarly, the participant in the following quote was surprised by the diagnosis, as she did not exhibit typical diabetes symptoms.

> *人家说糖尿病嘛，要困啊，要小便多啊，要肚子饿，我这个都没有的。嗯，我这个情况都没有的，我不知道。直到现在我也不感到我肚子经常会饿。说糖尿病人会嘴巴很干，但是我也没有感觉到。[People say that with diabetes you're supposed to feel tired, need to pee a lot, or feel really hungry, but I don't have any of that. Mm, I don't feel hungry often, even now. They say diabetics feel really thirsty, but I don't feel that either.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

Many participants reported feeling concerned about their diabetes diagnosis. The predominant worry among most of them centred on the potential complications associated with this chronic condition. Additionally, a few participants expressed concern about the adverse effects of the medications they were prescribed.

> *我主要关心它那个后遗症，我怕那个时间太长了这个糖尿病会给其他的组织器官带来什么不好的一些情况，所以我就特别注意这个糖尿病的控制。[I'm mostly concerned about the complications. I'm afraid that over time, diabetes will cause harm to other organs or tissues, so I pay special attention to managing my diabetes.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *呃，因为糖尿病说是就是那个什么慢性癌症嘛，就是说已经就是对身体比较有影响，对以后的，后遗症比较比较对身体这个影响嘛，嗯，所以我也有点担心。[Uh, because they say diabetes is like, um, a kind of chronic cancer, right? It really affects your body, especially in the long term, with complications and all that. So yeah, I'm a bit worried about it.] (P19, F, 78, middle school, diabetes for 4 years)*

Participants also reported that negative emotions undermined their interest in seeking information from healthcare professionals. For instance, P14, who is 68 years old and has had diabetes for approximately six years, disclosed experiencing side effects from his prescribed medication but chose not to inform his family doctor due to feelings of embarrassment. P11, an 81-year-old woman with diabetes for 18 years, opted out of surgery because of her fear.

Similarly, the participant in the following quote recounted a negative encounter with family doctors during the pandemic, describing its impact on her mood and subsequent decisions.

> *那个家庭医生啊，他比医院的更紧张，所以我们也不喜欢去看，也不喜欢去看家庭医生，他很害怕，害怕的要命，你知道吗？距离 1 米把我们的那个医疗卡拿去刷一下，再给我们。这个还要买一张纸列一下，还没有那么紧张嘛，把我们弄得我们心情也不好。所以我不去找家庭医生，如果有事情我就上医院去哦。[That family doctor, oh, he's even more nervous than the hospital doctors, so we don't like going to him. He's so scared, terrified, you know? He stays a meter away, just takes our health card to swipe, and that's it… It just stresses us out too, so I just don't go to him. If I need something, I'll go to the hospital instead.] (P21, M, 85, bachelor's degree, diabetes for 15 years)*

One interesting finding was that negative emotions could also trigger active seeking and use of health information. A few participants actively sought out diabetes-related information and took extra precautions in managing their condition, motivated by their fear of the potentially life-threatening aspects of diabetes. Similarly, many participants adhered to dietary and exercise recommendations out of concern for the complications associated with the condition.

> *我对糖尿病现在都很感兴趣，各式各样的我都要看的，有时候报纸上看看，有时候电视上看看。因为总是想（糖尿病）到底危害到什么程度，就是不注意可能糖尿病会马上去世啊或者什么。[I'm really interested in learning about diabetes these days. I'll watch all sorts of things—sometimes in the newspaper, sometimes on TV. I just want to know, like,*

how serious it can get. You know, if you don't manage it, maybe you could suddenly die or something.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)

嗯，就是对想多活几年呗。[Mm, yeah, it's all about wanting to live a few more years, right?] (P19, F, 78, middle school, diabetes for 4 years)

Expressing a sense of isolation as a diabetic patient, one participant actively recommended establishing a communication channel for individuals with diabetes to connect with one another.

就是，如果你们能向加拿大政府建议，呃，我建议就是把这个糖尿病人可以组织起来，让他们互相交流经验交流信息，然后那个可以在一个团体里头，可以那个不感觉到自己得了糖尿病这么孤独。[If you could make a suggestion to the Canadian government, um, I'd suggest they organize people with diabetes, so they can share their experiences and information with each other, in a group, you know? That way, people won't feel so alone in dealing with their diabetes.] (P7, F, 77, bachelor's degree, diabetes for 20 years)

It is important to note that not all participants experienced negative emotions while managing their diabetes. Many participants acknowledged the impact of a poor mood on their health and made conscious efforts to avoid negative feelings.

因为年纪大了毛病就多了。你要怎么好转也不可能靠自己吧。主要还是心态好一点，不要老是想着我有什么病，我有什么病，那是永远快乐不起来。[When you get older, *you get more health problems, right? You can't expect to get better just on your own. The key is to have a good mindset, not to always be thinking, 'I'm sick, I'm sick.' That way, you'll never be happy.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

我告诉你，你精神负担一天到晚担心，哎呀呀哎呀呀哎呀呀，我告诉你这个比糖尿病还可怕。[Let me tell you, the stress from worrying all the time, oh oh, it's worse than diabetes itself.] (P16, M, 83, master's degree, diabetes for 30 years)

反正就是那么回事儿。嗯，你高兴一天也是过一天，不高兴也是一天。一不高兴，对身体影响更大。呃，快快乐乐的每一天吧，就是。[It's just how it is. Mm, whether you're happy or not, a day still goes by. And if you're unhappy, it affects your body even more. So, might as well be happy every day, right?] (P17, M, 76, bachelor's degree, diabetes for over 20 years)

Interestingly, several participants shared that the information they discovered alleviated their anxiety and provided a sense of relief.

但是看了以后就心里安定一下吧。[But once I check, I feel more at ease.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)

我最经常还要再查一下这个血糖嘛，要控制这个标准，所以我一看以后，如果它这个说放宽一点我就会比较放心。[I regularly check my blood sugar, right? To make sure it *stays within the range. So, if I see that it's a little more relaxed, I feel more at ease.] (P15, M, 79, master's degree, diabetes for 7 years)*

我看到医生了，我听了医生的话我就安心了，我从来我不再去啰嗦。[After chatting with the doctor, I felt relieved and stopped nagging.] (P16, M, 83, master's degree, diabetes for 30 years)

This study observed that many participants experienced confusion upon receiving a diabetes diagnosis, echoing findings from Chen's (2021) research on fibromyalgia patients, who also faced prolonged uncertainty around both diagnosis and symptom management. This confusion highlights the need for clear, accessible, and supportive information during the diagnostic phase to ease emotional stress and foster patient understanding.

Additionally, the study revealed a complex relationship between emotions and health information behaviour. Some participants avoided health information due to negative emotions, while others actively sought it out to better manage their condition. This is consistent with Buchanan and Jardine's (2023) findings, where mothers concealed needs when fearing judgment or unwanted intervention, as well as Jensen et al.'s (2017) study, which found that older adults with cancer-related anxiety were more inclined to actively seek health information. This contrast between avoidance and active seeking illustrates how emotional responses can either inhibit or drive information-seeking behaviour.

One participant in this study expressed a strong desire to connect with others managing diabetes, citing feelings of isolation and the belief that peer support could mitigate these emotions. This finding aligns with Sbaffi and Hargreaves' (2022) work, which emphasized the value of shared experiences in reducing feelings of loneliness and helplessness. The desire for community support underscores the need for healthcare systems to facilitate peer interaction, especially for individuals with chronic conditions.

Participants in this study also highlighted the importance of maintaining a positive mood as part of their health management strategy. Prior research suggests that individuals who believe in their ability to understand and manage health information are more proactive in seeking it (Eriksson-Backa et al., 2018). This is particularly true for older adults using digital platforms to access health information. Choi (2019) found that optimistic older adults in the U.S. engaged more actively in online health information-seeking, while Chang and Im (2014) reported that older South Korean adults were more likely to use the Internet for health purposes when they felt comfortable with technology, found it easy to use, and enjoyed the process.

Involving emotions in the study of information behaviour is crucial because of the reciprocal relationship between emotions and information. Received information can change an individual's emotional state, and emotions, in turn, influence how individuals seek and use information. Ensuring that health information is both trusted and usable is essential because even information from a reliable source may be rejected if it has a negative emotional impact. As reported by Sbaffi and Hargreaves (2022), acceptance is as important as trust in determining whether information is adopted and integrated into health practices. This insight highlights the need for healthcare providers to deliver not only accurate and reliable information but also emotionally supportive communication.

4.4.2 Personal Belief and Coping Mechanisms

This sub-theme focuses on the various personal beliefs and coping mechanisms individuals develop to manage their health and emotional responses. It encompasses strategies for maintaining a sense of control, avoiding negative feelings, and fostering positivity, alongside more passive responses such as giving up or feeling lethargic. Additionally, it considers how individuals' self-esteem and personal interests influence their coping strategies, as well as broader attitudes such as scientific skepticism and the belief in enjoying life despite health challenges.

Participants expressed diverse life attitudes during the interviews. Several individuals actively took charge of managing their diabetes, asserting a sense of control over their health outcomes. For example, one participant remarked*, "因为这个健康还是掌握在自己手中的。医生也不能 24 小时老跟着你。 [Because health is still in your own hands. A doctor can't follow you around 24 hours a day.]" (P11, F, 81, bachelor's degree, diabetes for 18 years)*. Furthermore, a couple of participants emphasized the importance of adopting a scientific approach to managing their diabetes.

> *就是我有点相信自己的力量，愿意用自然的方法，尽量用自然的方法去对付这个疾病，当然就是现在还是要给自己提出目标，就是要加强自律吧？ 嗯，别尽量不要熬夜嗯，这样可能对疾病更会好一点，它糖尿病也会发展得更慢一些。[I kind of believe in my own strength, I prefer to deal with this illness using natural methods as much as possible. Of course, now I need to set goals for myself, like being more self-disciplined, right? Uh, try not to stay up late. That might help slow the progression of diabetes.] (P11, F, 81, bachelor's degree, diabetes for 18 years)*

因为它是一个长期的老年人的慢性病，所以不管是从自身，首先要有一个认识，自己要有一套控制的办法，然后在医生的指导下呢，通过正当的科学的这些手段呢？来这个呃，控制它。[Because it's a long-term chronic illness for the elderly, so, whether it's for oneself, first you have to recognize it, have your own way of controlling it, and then, under the guidance of doctors, use legitimate scientific methods to, uh, control it.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)

Numerous participants also mentioned exercising caution in their daily lives due to health concerns. P14 (68, bachelor's degree, diabetes for around six years) elaborated on his reasons for being careful about his diabetes, expressing that neglecting one's health is a form of irresponsibility towards oneself.

So, I see the doctors regularly. I speak to the diabetes and nurses regularly. And I just try and be careful. (P2, M, 70, technical training, diabetes for 17 years)

I mean, you know, it's with diabetes, you know, it could be an added complication. So, I try to be quite careful, you know, modified my behaviour to some extent. (P3, M, 69, master's degree, diabetes for 27 years)

现在跟你讲话，我的手也在动着，脚也动着，所以这个脚啊什么的从来没有发现哪儿就烂了或者什么东西，我平常很注意这个保护的。[As I'm talking to you now, my hands are moving, my feet are moving too, so, uh, my feet, well, I've never had any sores or

> *anything like that. I'm always very careful to protect them.] (P12, F, 90, technical training, diabetes for 21 years)*

In contrast, some participants adopted passive attitudes and coping mechanisms in their diabetes management. A few individuals expressed a desire to stay positive and enjoy life while they could. P22 (M, 74, high school, diabetes for 14 years) stated, *"再一个我这个人是比较开朗一点啊，就这个心态还算好吧，也没有很大的心理负担。我就该吃吃该喝喝该玩玩，嗯，那个年纪这么大了，就过好每一天的生活吧。[Also, I'm a bit more cheerful, yeah, my mindset is okay, not too burdened. I just eat when I need to eat, drink when I need to drink, play when I need to play. At this age, just live each day well, right?]"* Additionally, some participants did not strictly adhere to dietary and exercise recommendations or blood sugar testing requirements to avoid complications. Moreover, several participants admitted they were too lazy to seek information or follow prescribed diet and exercise suggestions.

> *像这医生给开药开错了，他们都说你这自己应该去查，我就是懒嘛，我就不查嘛，不知道他给我开的是什么药。我到现在我也不知道他给我开的什么药，呃，反正他开什么我吃什么。结果，呃，这个就是等于是药物中毒吧。[Like, when the doctor gives me the wrong prescription, they say, 'You should check it yourself,' but I'm just lazy. I don't check; I don't know what medicine he prescribed. Even now, I don't know what medicine he gave me, uh, but whatever he prescribes, I take it. As a result, uh, that kind of led to, like, a drug overdose.] (P9, F, 74, bachelor's degree, diabetes for 16 years)*

> *还有一个是我懒得自己去，呃，那什么，因为医生说我这不是很厉害，嗯，他说但是你就是比正常血糖要高一些，所以我就完全听医生的。[Another thing is, I’m lazy too, uh, well, because the doctor said mine isn’t that serious, mm, he said, ‘Your blood sugar is just a little higher than normal,’ so I just follow whatever the doctor says.] (P12, F, 90, technical training, diabetes for 21 years)*

> *所以我就一直没有进行这个胰岛素的注射，我主要是嫌那个太麻烦啊。那个药物的保管呀比如像出远门啊，你都不利于携带，所以我就尽量控制自己的这个饮食结构吧，我主要是从饮食上和体育锻炼这块。[That’s why I haven’t started insulin injections yet. Mainly because I think it’s too much hassle. Storing the medicine, especially when travelling, it’s not convenient to carry. So, I try to control my diet and exercise instead.] (P14, M, 68, bachelor’s degree, diabetes for around 6 years)*

Several participants expressed a lack of concern about their diabetes, viewing it as a common ailment among older adults or attributing their indifference to not experiencing severe symptoms. Conversely, a few participants had already given up hope, feeling that effective management of their diabetes was unattainable.

> *哎呀，就这么混着吧。 [Ah, I am just going to continue my life like this.] (P5, F, 75, technical training, diabetes for around 6 years)*

> *因为我觉得我是遗传，嗯，这是主要的，呃，所以我也没辙，我只有把它放下，呃，如果说是老想着老想着反倒很。压力很重吧，你就不想它了。 [Because I think mine is*

hereditary, mm, that's the main thing. Uh, so there's nothing I can do. I just let it go. If you keep thinking about it, it adds a lot of pressure, right? So, you just don't think about it.] (P9, F, 74, bachelor's degree, diabetes for 16 years)

这个根本就治不了。你看一开始得这病的时候就听说没有别的办法，所以说也不想那么多了。 [There's really no cure for it. You know, from the start, I've heard there's no solution, so I don't think much about it anymore.] (P20, F, 80, no education, diabetes for 26 years)

This study found that participants' diverse life attitudes significantly influence their health information-seeking and use, particularly in adhering to diet and exercise recommendations. The participants could be grouped into four distinct types based on their life attitudes: 1) *Proactive and Self-determined Individuals:* These individuals believe they can control their own lives and shape their futures. They actively pursue goals and exhibit resilience when faced with challenges. 2) *Conscientious Individuals:* Characterized by responsibility and caution, these people are diligent and methodical in their actions, prioritizing careful planning to avoid mistakes and ensure they fulfill their duties. 3) *Avoidant or Passive Individuals:* These individuals tend to avoid risks and effort, preferring to remain in their comfort zones. They are often reluctant to exert themselves, which may limit their engagement in health management. And 4) *Apathetic or Resigned Individuals:* This group displays indifference or apathy toward their circumstances, often lacking motivation or belief in the effectiveness of their actions. They are more likely to give up when faced with obstacles.

These different types align with findings from prior research. For example, Kim et al. (2020) discovered that individuals with passive or active dispositions tend to rely on different information sources. Specifically, passive individuals often seek information from non-human sources (e.g., written materials or online content), while proactive individuals place greater value on human resources such as healthcare professionals or peers. Similarly, Costello and Veinot (2020) found that people with proactive health information approaches tend to be more socially engaged compared to those with avoidant tendencies. These existing studies, however, primarily focus on how life attitudes influence health information-seeking rather than use. Given this gap, future studies should explore the influence of life attitudes on both health information-seeking and use. This study's categorization of life attitudes offers a more nuanced view of how individuals' attitudes shape not only their search for health information but also their practical application of it in daily life. It also provides valuable insights into personalized health interventions tailored to individuals' life attitudes.

4.4.3 Influences of Personal Health, Experience, and Lifestyle

This sub-theme explores how personal health conditions, life experiences, and daily lifestyle choices influence individuals' information-seeking behaviour and usage. It highlights the impact of factors such as aging, disability, and chronic conditions (e.g., diabetes) on daily routines and the challenges faced in maintaining health. Additionally, it considers how personal life experiences and lifestyle habits shape individuals' approaches to health management, revealing the deeply personal and experiential nature of health behaviour.

Physical conditions

Participants' personal health conditions significantly affect their information-seeking behaviour. Most became vigilant about diabetes-related information following their diagnosis, actively seeking out resources (e.g., consulting doctors and researching online) when experiencing any changes in their health. However, some participants found that their health conditions limited their ability to engage in information-seeking behaviours necessitating reliance on others for support and information.

> *但是现在我这个电脑也不是很快的速度，而且现在眼睛也不是很好，看起来比较累人，但是还会继续看。以前一天可以盯着电脑看四五个小时，现在最多大概一两个小时。[But now, my computer isn't that fast, and my eyesight isn't great either. It's more tiring to look at things, but I still keep looking. Before, I could stare at the computer for four or five hours. Now, at most, it's one or two hours.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

> *这个现在老了就不行了。好多东西都不行，现在要什么东西得，对外得要靠这个小孙子，没有小孙子的话，那我们就寸步难行了。[Now that I'm older, I can't do a lot of things. If I need anything from outside, I rely on my grandson. Without my grandson, we'd be stuck.] (P18, M, 77, bachelor's degree, diabetes for 2 years)*

> *另外我眼睛也不行，记忆力也不行。我要看电视就能看一季，看一会儿然后闭眼歇一会儿。那个报纸，我都看不见那字儿都，看一会儿眼睛疼，脑袋疼，我也疼的不看。[Also, my eyesight isn't good, and my memory isn't good either. When I watch TV, I can watch for a while, then I have to close my eyes and rest for a bit. With the newspaper, I can't*

> *even see the words. After a while, my eyes hurt, my head hurts, so I just don't read it.] (P20, F, 80, no education, diabetes for 26 years)*

Personal health conditions also influence how participants apply health information. For instance, P9 (F, 74, bachelor's degree, diabetes for 16 years) decided to incorporate new physical exercises after learning they were beneficial for the neck and waist of older adults. Conversely, P8 (F, 76, bachelor's degree, diabetes for over 20 years) regarded having diabetes at her age as typical and chose to adopt a more open-minded approach, deciding not to strictly adhere to dietary suggestions given her limited life expectancy. Additionally, P23 (F, 79, technical training, diabetes for 15 years) had to reduce her physical exercise due to issues with her legs. Several participants also noted that poor memory constrained their ability to effectively apply health information.

> *自始至终就是说我一开始查出来的时候就说叫我每天吃一粒二甲双胍。但我就是有时候会忘了吃。。。要不然现在我不像以前一样，就是随便记住每天要吃一粒那个二甲双胍。[From the very beginning, they told me to take one metformin pill every day. But sometimes I forget to take it. Now, I'm not as good as before at remembering to take one pill a day.] (P19, F, 78, middle school, diabetes for 4 years)*

> *到这儿就一直吃那个二甲双胍，那时候吃的药忘了是怎么样的。 [When I got here, I've been taking metformin the whole time. I can't even remember what medicine I took back then.]" (P20, F, 80, no education, diabetes for 26 years)*

Diabetes history also emerged as a significant factor influencing participants' health information-sharing behaviour. For example, P17, a 76-year-old with over 20 years of diabetes experience, consistently shared general knowledge about diabetes and its management with friends. In contrast, P19, who is 78 years old and has had diabetes for only four years, reported primarily receiving information from other diabetic patients with more experience.

This study found that the health information-seeking behaviour of older adults with diabetes evolves following their diagnosis, a pattern that aligns with prior research (Chi et al., 2020; Kvikne & Berget, 2022; Paimre et al., 2023). Participants demonstrated an increase in active health information-seeking after receiving a diabetes diagnosis, similar to Enwald et al. (2017), who reported heightened online health information-seeking after recent diagnoses.

This study also highlights that participants' health conditions often limit their ability to seek health information. The tendency to use the Internet and other sources for health information declines slightly with age (Medlock et al., 2015; Paimre et al., 2023), particularly in older populations. Notably, within this demographic, age distinctions are crucial (Alpay et al., 2004), which explains why not all participants struggle equally with managing their diabetes. Age categorization often divides older adults into two groups: young older adults and old older adults. Research shows that younger older adults, who see greater value in Internet-based health information, are more inclined to use it (Huisman et al., 2020), while advanced-age adults are less likely to do so (Stehr et al., 2021). This finding suggests the need for tailored information strategies that address the different capabilities and preferences of these subgroups.

Interestingly, the study also reveals that health status affects participants' adherence to health advice. While some participants in this study did mention efforts to improve their well-being, many reported not following recommendations for diet, exercise, or medication due to their declining physical condition. This contrasts somewhat with Ahmadinia’s (2023) finding that individuals who perceive their health concerns as severe are more likely to take health-related actions. This contradiction underscores the complexity of how health conditions affect information use. A possible explanation is that while individuals may initially seek out and act on health information when facing challenges, they may take fewer proactive measures if they feel those challenges are too overwhelming. This highlights the need for further research to better understand the nuanced relationship between health conditions and information use.

Moreover, this research reveals an intriguing aspect of information sharing within the diabetes community. Participants with extensive experience managing diabetes were more inclined to share health information with those with less experience, providing new insights into peer-to-peer support dynamics. While this topic has not been extensively explored, Sbaffi and Hargreaves (2022) previously noted differences in how experienced and less experienced caregivers form information trust, suggesting that experience plays a critical role in information-sharing behaviour.

Personal experience and lifestyles

Participants described how their personal life experiences shaped their information-seeking and usage behaviour. A couple of participants expressed a high level of trust in healthcare professionals, which stemmed from positive past experiences of receiving effective treatment. One participant, P2 (M, 70, technical training, diabetes for 17 years), specifically attributed his trust to his own work experience, stating, *“I consider myself to be an expert in that field, and if I say something about that field, I expect to be listened to… So, doctors and nurses clearly know a heck of a lot more about health than I do.”* Another participant, P1 (M, 74, diabetes for 41 years), with extensive personal experience, actively educated fellow diabetic patients about managing their condition, saying, *“Because I’ve learned so much from my work experience, I know almost everything about diabetes”* Additionally, two participants highlighted how their prior job experiences influenced their frequent sharing of information with others.

> *因为我们是过去我们都是，嗯，当过教师，所以对一些问题吧，大家都愿意共同的分享来讨论，为什么，最起码想知道为什么是吧。[We were teachers in the past, so when it comes to some issues, we like to share and discuss things together. Why? At least, we want to understand why, right?] (P14, M, 68, bachelor’s degree, diabetes for around 6 years)*

> *我在这里那个粮油中心做义工，也在这个呃，我也喜欢做点义工。呃，所以呢，我接触的楼里的人也比较多嘛。粮油资金每个月有安排免费的车子接送老人去买菜，这个事情需要两个人一共，我就是其中一个，那我做义工呢，那我出门就多了嘛，我接触的人就比较多一点，那就会给他们讲。[I volunteer at the food bank here. I like doing volunteer work, too. Uh, so I interact with a lot of people in the building. The food bank provides free rides for seniors to go grocery shopping once a month, and it takes two people to organize it, and I’m one of them. As a volunteer, I get out more, so I meet more people and share information with them.] (P23, F, 79, technical training, diabetes for 15 years)*

Active information-seeking and usage are influenced by participants’ lifestyles. A few reported that seeking health information is an integral part of their daily routine. For example, P11 (F, 81, bachelor’s degree, diabetes for 18 years) stated, *“我一直都是有这个习惯的。就是没有从来没有间断过，呃。我非常关注这方面的信息。[I’ve always had this habit... I’ve* *never stopped. Uh, I'm very focused on this kind of information.]"* Additionally, participants indicated that they utilized health information—such as taking notes, engaging in physical exercise, undergoing blood tests, taking medication, and scheduling medical appointments—simply out of habit.

> *I checked my blood sugar three or four times a day… I see the doctors regularly, I speak to the diabetes and nurses regularly, and I just try and be careful." (P2, M, 70, technical training, diabetes for 17 years)*

> *这个是我的生活习惯，因为我呢，从小啊，我就很爱运动啊，从我走路走得很多。[It's my lifestyle. Since I was young, I've loved exercising and walking a lot.] (P16, M, 83, master's degree, diabetes for 30 years)*

> *呃，就是生活习惯，多年的生活习惯。。。我专门有个本子，收集了很多。[It's a lifestyle habit, a habit developed over many years... I have a special notebook where I collect a lot of this information.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

One participant shared that she exchanged health information with friends primarily because they had little else to occupy their time. She explained, *"我们都是七八十的人，那么也没有什么事情做，嗯，那你说还能做什么？ [We're all in our seventies and eighties now, so there's not much we can do. Mm, what else can we do?]" (P21, M, 85, bachelor's degree, diabetes for 15 years)* Similarly, many participants indicated that they sought health information to fill their ample spare time.

我反正就是没事情的嘛，就这里看看那里看看。[I just have nothing to do, so I look at this and that.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)

所以我这一天的好多，不工作以后啊，呃，一个是那个什么，一个是平常的一些事情。就看 iPad 时间太多了。。。所以我这个是很多时间是花在看 iPad 上的。所以医疗知识也是从这上看的。 [So now, since I'm not working anymore, uh, it's mostly just daily things. I spend a lot of time looking at my iPad... so a lot of my time is spent on the iPad. And I get my medical information from there.] (P12, F, 90, technical training, diabetes for 21 years)

因为当时我已经退休了，有的是时间，哪里有这个糖尿病的讲座啊，或者报告啊，什么之类的我都会去听。 [Since I retired, I've had plenty of time. If there's a lecture or report on diabetes, I'll go listen to it.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)

One unexpected finding was that lifestyle choices limited participants' ability to seek and use health information. P20, an 80-year-old with 26 years of diabetes experience, shared that she lacked the habit of consulting doctors or scheduling medical appointments. When feeling unwell, her typical approach was to try to manage it independently. Similarly, P11 (81, bachelor's degree, diabetes for 18 years) avoided taking any medication for her diabetes, citing the absence of such a routine in her daily life. Moreover, several participants admitted that they did not adhere to dietary recommendations due to personal preferences for certain foods.

我现在知道的是我们糖尿病患者就是要多吃菜。我爱吃面条和馒头，他们就说我吃的不对。但是我总觉得我们北方人嘛，就是爱吃这些东西。我不是多么爱吃米饭的，就是爱吃个馒头呀饺子呀包子呀，反正就吃面食类的吧。现在我在慢慢控制，我吃鱼多。 [What I know now is that we, people with diabetes, need to eat more vegetables. I love eating noodles and steamed buns, but they tell me I'm eating wrong. But I still think, for us northerners, we just love eating these things. I'm not much of a rice eater, I prefer steamed buns, dumplings, and stuffed buns. So, I mostly eat flour-based foods. Now, I'm trying to control it and eat more fish.] (P5, F, 75, technical training, diabetes for around 6 years)

比方说糖尿病人不宜吃香蕉嗯，那我的香蕉呢不应该买，但是我很喜欢吃香蕉。那也可以，香蕉一天一根，但就吃 1/3 的样子。[For example, they say diabetics shouldn't eat bananas. I shouldn't be buying bananas, but I love them. So, I still eat one banana a day, but I only eat about a third of it.] (P21, M, 85, bachelor's degree, diabetes for 15 years)

This study found that participants' experiences and lifestyles significantly influenced their inclination to seek and use health information, aligning with prior research. For example, Trace et al. (2023) revealed that ovarian cancer patients' information behaviour is shaped by various individual factors such as life stage, family history, biological conditions, perceived knowledge, attitudes toward information, and coping styles. Similarly, Choi et al. (2022) and Savolainen (2008) observed that personal interests and established habits play key roles in shaping health information-seeking and use. The findings suggest that healthcare providers and policymakers should consider the personal experiences and lifestyle factors of older adults when designing health communication strategies. Tailored interventions that account for individual differences can increase the relevance of health information, making it more likely to be utilized.

Moreover, the study found that some participants actively sought and shared health information because they had more free time post-retirement. This contrasts with Colosimo and Badia’s (2021) research, where older adults engaged in peer-learning study groups expressed difficulty in integrating information-seeking into their busy schedules. The difference here may be explained by the fact that this study focuses on older adults with diabetes, for whom health management is a higher priority. Health issues can shift an individual’s priorities, prompting them to focus more on health-related information. For older adults managing chronic conditions, post-retirement life may provide the flexibility and time to engage more deeply in health management. Healthcare professionals should be aware of this and provide more in-depth, accessible, and personalized health information.

4.3.4 Section Summary

This section explains the impact of personal health identity and attitude on participants’ health information-seeking and use. The study found that various emotions (e.g., worry, surprise, and relief) arise after seeking health information. These emotions, in turn, influence participants’ information-seeking and use, where negative feelings either trigger active seeking or cause information avoidance and passive use. Further research is needed to explore the complex relationship between emotions and information behaviour, particularly in the context of health management. In practice, this finding highlights the importance of healthcare providers delivering emotionally supportive information.

Participants in this study could be categorized into four distinct groups based on their beliefs and life attitudes: Proactive and Self-determined Individuals, Conscientious Individuals, Avoidant or Passive Individuals, and Apathetic or Resigned Individuals. These groups exhibited different health information-seeking and use behaviour, particularly in how they applied health information to their daily health management practices. While most existing studies focus on how life attitudes affect information-seeking, further research is needed to better understand its influence on information use. This finding underscores the importance of providing personalized health interventions tailored to individuals' life attitudes.

This study also found that personal health, experiences and lifestyle affect participants' ability and willingness to seek and use health information. Declining health conditions either motivate participants to actively manage their health or limit their capacity to seek and use health information. Participants were more likely to follow suggestions regarding diet, exercise, and medication if these habits were already part of their daily routines. This finding suggests that healthcare providers and policymakers should consider these factors when designing health communication strategies. Tailored interventions that account for individual differences can increase the relevance of health information, making it more likely to be utilized.

4.5 Managing Health in a Socially and Culturally Complex Landscape

This theme encapsulates the social and contextual factors that influence how individuals manage their health. This theme highlights the role of shared identity and cultural influences, the ongoing struggle for patient empowerment and autonomy, the critical importance of social support networks, and the pervasive impact of accessibility and availability challenges. It underscores that health management is not merely a personal endeavour but one deeply embedded in social, cultural, and structural realities. Additionally, it recognizes the broader systemic issues that must be addressed to improve accessibility and support for all individuals within diverse communities.

4.5.1 Shared Identity and Cultural Contexts

This sub-theme explores how shared identities, such as age, ethnicity, and health conditions, create a sense of community and influence health behaviour. It also examines how global or cultural backgrounds shape individuals' health experiences and their perceptions of well-being.

Commonalities among participants

Many participants reported that information-seeking and sharing predominantly occurred among peers of similar age. Several actively engaged in organizations or online discussion groups tailored for older adults, where they frequently exchanged diabetes-related information. However, P20, who is 80 years old and has had diabetes for 26 years, mentioned that she rarely sought information from her friends, explaining, *"我认识的人都不会讲英语，都是老的，都没有办法 [The people I know, they don't speak English, they're all old, so I really have no way.]"*

Participants also expressed a preference for sharing health-related information with individuals who share the same ethnic background.

> *因为他来的时间也不长就是，呃，两三年的时间。在这边也没有多少的熟人，又没有家庭医生啊，那都是中国人嘛，对不对？诶，帮一点忙也没关系。 [Because he hasn't been here for long, uh, only two or three years. He doesn't know many people here, and he*

doesn't have a family doctor. They're all Chinese, right? So, helping a little bit isn't a big deal.] (P6, F, 74, technical training, diabetes for 7 years)

这个吧，我跟你说，我们呢都是从中国来的，大陆来的，对吧？呃，在这里年纪都差不多了。 [Let me tell you, we're all from China, from the mainland, right? Uh, and we're all around the same age here.] (P21, M, 85, bachelor's degree, diabetes for 15 years)

Many participants sought or shared information with individuals facing the same medical condition. Numerous participants exchanged diabetes-related information with their family members. However, some indicated that they typically limited the extent of their sharing unless other family members also had diabetes, suggesting that those without the condition might not be interested in discussing the topic.

因为我感觉到，嗯，他们得了糖尿病，我也是糖尿病。我想从人家那儿学一点知识，得一点经验而已。 [Because I feel, um, they have diabetes, and I also have diabetes. I just want to learn some knowledge from others, gain a bit of experience, that's all.] (P5, F, 75, technical training, diabetes for around 6 years)

那大家都是糖尿病人，那不是呃，能帮助别人一点那也是好事，对吧？ [Everyone's got diabetes, right? So, helping others a little, that's a good thing, isn't it?] (P6, F, 74, technical training, diabetes for 7 years)

> *有的人属于那个糖尿病前期，就是他的血压有点高，但是他还没有是糖尿病，这些人就特别愿意多问我们糖尿病怎么预防什么的。嗯，没有患糖尿病的人，就是那个他们问我，呃，你有糖尿病吗？我说我有糖尿病，嗯，他们没有糖尿病，他们就不是特别感兴趣，因为他们没有嘛。 [Some people are in the pre-diabetes stage, like their blood pressure is a bit high, but they don't have diabetes yet. These people especially like to ask us how to prevent diabetes. Mm, people who don't have diabetes, they ask me, uh, 'Do you have diabetes?' I say, 'Yes, I have diabetes.' Mm, if they don't have it, they're not that interested, because, well, they don't have it.] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

Participants in this study showed a distinct preference for seeking and sharing health information with individuals of similar age, ethnic backgrounds, and those who shared the same medical condition. This tendency highlights the significance of shared identity in the health information-seeking and use process, a factor that has not been extensively explored in previous research, thus opening new avenues for future studies. Inthiran (2021) pointed out that in certain developing countries, health consumers often dismiss information from accredited medical sources, instead valuing insights from peers who share the same disease or condition. This study echoes Inthiran's (2021) findings, revealing that older adults with diabetes may benefit more from peer-led interventions and community-based health programs.

Social/cultural contexts

Numerous Chinese participants highlighted the impact of social and cultural differences on their information-seeking and usage behaviour. A significant portion of them encountered challenges when seeking medical services in a foreign country.

家庭医生不是那么方便跟你聊了。你知道吧，家庭医生这边医生不跟中国一样，中国的你随便挂个号你就能见到医生，对不对？那这边呢，你要见家庭医生你都得预约啊。 [Family doctors here aren't that easy to talk to. You know, family doctors here aren't like in China. In China, you can just see the doctor easily, right? But here, you have to make an appointment just to see a family doctor.] (P6, F, 74, technical training, diabetes for 7 years)

找多伦多的医生啊？也没有，嗯，因为我，我也是，也不一定是长期在这边嘛，因为在这边太困难。嗯，环境也不舒服，语言也不通。嗯，这个社交圈子也没有。 [Finding a doctor in Toronto? I don't have one. Mm, because I, I don't really stay here long-term, right? It's just too difficult here. Mm, the environment is uncomfortable, and I don't speak the language. Mm, there's no social circle.] (P18, M, 77, bachelor's degree, diabetes for 2 years)

这个我觉得这里见家里医生都是要预约的，跟中国不一样，不是你想看就随时去，这里不行。 [I feel like, here, you have to make an appointment to see a family doctor. It's not like China, where you can go anytime you want. Here, you can't do that.] (P22, M, 74, high school, diabetes for 14 years)

Participants also highlighted the challenges of living in an English- or French-speaking country. Due to their limited understanding of these languages, many Chinese participants reported that they seldom searched for information online and instead relied on alternative resources such as libraries, radio, newspapers, and lectures in Canada. These individuals expressed a need for translators when communicating with their doctors.

> *到哪里去找呀，你也不会说话你怎么找啊？找到个外国医生你还不懂，每次要带一个翻译去。这个医生是中国人，还能说话，还能听得懂。嗯，哎呀，这个就是看病，加拿大就是看病难。 [Where do you go to find one? You can't speak the language; how do you find a doctor? And if you find a foreign doctor, you don't understand. You have to bring a translator every time. If the doctor is Chinese, at least you can talk to them and understand. Mm, oh, seeing a doctor here in Canada is hard.] (P10, F, 82, technical training, diabetes for 23 years)*

> *呃，华人医生很少，我看的都是外国医生，嗯，不过孩子跟着我他可以帮我，我提这个问题呀，或者医生怎么说的，孩子可以给我翻译一下。 [There are very few Chinese doctors. I see foreign doctors, mm, but my child comes with me, so they can help. I can bring up the issue, or if the doctor says something, my child can translate for me.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

> *这个假如说是有这个渠道的话，就比如说像这种有这种讲座，而且要我能听得懂的，我还是会愿意去听。因为你现在，你在这主要是环境不熟悉，语言不通，嗯，你要去，嗯，去想办点什么事情就是太难了。对，你说你找谁啊？ 嗯，人家讲的是什么话，就像现在人家跟我联系什么的，我首先要告诉人家我不懂英文，比较困难。 [If there was a channel, like, for example, if there were lectures like this, and I could*

> *understand them, I'd be willing to go. Because now, the main problem here is that I'm unfamiliar with the environment and don't speak the language. Mm, if you want to, uh, try to do something, it's too difficult. Right, who do you ask? Mm, what are they saying? Like, now when someone contacts me, the first thing I have to tell them is that I don't understand English, which is really hard.] (P18, M, 77, bachelor's degree, diabetes for 2 years)*

The majority of Chinese participants expressed a preference for having a family doctor who could speak Chinese. Perhaps the most striking example is P10 (82, technical training, diabetes for 23 years), who described her current family doctor as unprofessional and irresponsible. Despite this, she hesitated to switch doctors solely because her current doctor could communicate with her in Chinese.

The Chinese participants in this study encountered challenges in accessing health information services while living in a different country. This finding underscores the influence of social and cultural environments on health information-seeking and use, which aligns with previous research (e.g., Ahmadinia, 2023; Bao & Ke, 2023; Bazrafshani et al., 2022; Pang et al., 2020; Zhu & Liao, 2020). Chatman's (1991) theories on small worlds suggest that individuals' information needs and behaviour are shaped and constrained by the social norms, expectations, and perspectives within their immediate environments. These small worlds may limit individuals' desire or ability to seek information beyond their familiar cultural or social circles.

Chinese participants in this study also emphasized the challenges of living in an English/French-speaking country, citing limited options or opportunities in managing their diabetes due to language barriers. This observation aligns with the findings by Yi et al. (2021), who discovered that immigrants in South Korea preferred obtaining health information from sources in their home country, possibly because they could discuss health issues in depth in their native languages and share common experiences. Lee and Smith (2022) also observed that language barriers may have influenced the information-seeking behaviour of Korean-born mothers residing in the US, who tended to rely less on doctors or nurses compared to their US-born counterparts.

For the Chinese participants, the difficulty in navigating the Canadian health information landscape highlights how cultural and linguistic differences can act as barriers to effective information access. For immigrants, language and cultural differences limited their ability to communicate with others, making it challenging for them to obtain information (Wang et al., 2020). These challenges highlight the need for culturally sensitive health communication strategies. Providing multilingual health resources and employing culturally competent healthcare workers could help bridge these gaps. Addressing these barriers is essential for ensuring equitable access to health information and care across diverse populations, especially in multicultural societies such as Canada.

4.5.2 Struggle for Empowerment and Autonomy in Healthcare

This sub-theme highlights the challenges patients face in asserting their autonomy within the healthcare system. It addresses issues such as limited literacy, ageism, the dominance of doctor-driven care, and the struggle to have one’s voice heard. The sub-theme underscores the ongoing fight for patient empowerment and the importance of respectful, patient-centred care that acknowledges individual autonomy and choice.

Several participants expressed a lack of necessary knowledge or skills to access health information, placing them in a vulnerable position within the healthcare system. While some discontinued their search, others sought support from family members. A striking finding was that, despite possessing basic literacy skills, a few participants still encountered difficulties in accessing or comprehending professional knowledge about diabetes.

> *我就说那不是好像六点多点不是正常吗？我说这个不是不高吗？医生，他说你这个是不高。那我说那怎么说我就控制不好呢。他就说那个，呃，血糖什么蛋白什么就是要三个月的平均值来分析。不知道怎么，反正这个医学的我也不懂。 [I said, isn't a bit over six normal? I said, isn't that not high? The doctor said, "No, it's not high." So, I said, "Then why are you saying I'm not controlling it well?" He said, uh, something about blood sugar, something about protein, that it's analyzed based on a three-month average. I don't understand it; I don't understand the medical stuff.] (P6, F, 74, technical training, diabetes for 7 years)*

> *因为我也不懂它的名字是什么，我也不知道网上怎么用，怎么去查，所以我没查过。[I don't even know what it's called, I don't know how to use the Internet, or how to look things up, so I've never searched.] (P9, F, 74, bachelor's degree, diabetes for 16 years)*

> *因为我玩这个微信还不是那么熟悉，有时候呢，就教孩子帮我弄一下，帮我。 [I'm not that familiar with using WeChat either. Sometimes I have to ask the kids to help me out, help me with it.] (P19, F, 78, middle school, diabetes for 4 years)*

Additionally, a few participants reported encountering ageism during their interactions with healthcare providers, which impacted their emotions and subsequent information-seeking behaviour.

> *去看了以后他就跟我说，你76岁了一年不如一年了，就这样子了。废话吧，我也知道我一年不如一年了，对吧？他不能那样说，是吧？他总是认为我年纪大了，像我这样子的身体能够活到现在已经不错了。[After I saw the doctor, he told me, "You're 76 years old, and you're getting worse every year." Well, I already know that, right. He shouldn't say it like that, should he? He always thinks I'm old, and that it's a miracle I've lived this long with my condition.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

> *他说的基本上就是年纪大了，糖尿病时间长了，这些是应该有的症状，治愈不了。[What he's basically saying is that because I'm old and have had diabetes for a long time, these symptoms are expected, and they can't be cured.] (P20, F, 80, no education, diabetes for 26 years)*

Several participants expressed a lack of autonomy in managing their diabetes, indicating that doctors determined the timing of their appointments. They felt unable to undergo tests whenever they wished and were required to follow their doctors' instructions.

> *You're only allowed to do an A1C in Alberta every three months, and they will process it. Even if you ask for one. (P2, M, 70, technical training, diabetes for 17 years)*

> *我就是医生给我开药的时候，我不能拒绝是吧。[When the doctor prescribes me medication, I can’t refuse, right?] (P13, M, 69, PhD, diabetes for 13 years)*

> *因为住在这里要听他们的了，那我们也不敢那个。[Living here, you have to listen to them, and we don’t dare to, you know.] (P21, M, 85, bachelor’s degree, diabetes for 15 years)*

Some participants noted that they often felt compelled to take certain actions due to a lack of better alternatives. For instance, P18, who is 77 years old and has had diabetes for two years, expressed skepticism about his doctor’s advice but still followed the suggestions. *“说实话我也不太相信，嗯，但是你，你也没有别的办法。你这个糖尿病现在越来越严重，这也是避免不了的事情。 [Honestly, I don’t fully trust them, mm, but what else can you do? My diabetes is getting worse, and it’s inevitable.]”.*

Another participant highlighted the importance of having opportunities to voice her thoughts, stating that attending lectures provided a valuable platform for asking questions.

> *但是这个华人服务中心啊，社区里面，呃，给我们讲课啊，或者老师讲课啊，或者什么你可以提问题，你可以讲。 [But, at the Chinese service center, or in the community, they give us lectures, or the teachers give talks. You can ask questions, you can speak.] (P23, F, 79, technical training, diabetes for 15 years)*

This study found that participants’ knowledge and skills significantly influenced their ability to meet their health needs, consistent with existing literature on health information literacy.

Health information literacy encompasses older adults' capacity to acquire, process, comprehend, retain, and manage health information (Matas & Bronstein, 2018; Yates et al., 2012). It plays a critical role in shaping the health information-seeking behaviour of older adults (Ahmadinia et al., 2022; Yi et al., 2021). Those with high health literacy tend to avoid redundant searches across multiple sources, expressing confidence in their knowledge and decision-making abilities (Yamashita et al., 2020). In contrast, older adults with lower health literacy often exhibit less motivation to seek out health information (Kim & Utz, 2018) and have less engagement in their diabetes management. Providing literacy education, therefore, is vital to enhance their autonomy within the healthcare system.

Participants in this research recounted experiences of ageism and feelings of reduced autonomy in managing their diabetes, with healthcare professionals often holding a position of authority over patients. This dynamic sometimes led participants to seek information from sources where they felt their voices were more valued and heard. While Buchanan and Jardine (2023) identified age-related stigma among young mothers, which restricted their interactions with peer groups, the specific issues of ageism and autonomy in diabetes management have been underexplored. These findings highlight the need for further investigation into the challenges older adults face in asserting empowerment and autonomy in their healthcare interactions.

This study contributes to the growing body of evidence on the struggles older adults experience in maintaining autonomy while managing diabetes. Addressing these issues is critical to improving their health outcomes and fostering an environment where older patients feel empowered to actively engage in their health management. More research is required to better understand how ageism affects diabetes management and to develop strategies that support older adults in navigating healthcare systems with confidence and autonomy.

4.5.3 The Role of Social Support and Relational Networks

This sub-theme emphasizes the significance of social support and relational networks in managing health. It reflects how the presence or absence of support systems, along with the influence of others' experiences, shapes individuals' health decisions and their ability to navigate health challenges.

Anticipated support from social networks affects participants' information-seeking and use. Specifically, P23 (79, technical training, diabetes for 15 years) consistently shared information with others due to her involvement in volunteer work at older adults' apartments, where she interacted with many people daily. In contrast, a couple of participants reported a lack of sufficient social support in seeking health information, with one saying*"我就是说遇到什么情况的时候呢，好像感觉到很无助 [I mean, when something happens, I feel very helpless.]" (P9, F, 74, bachelor's degree, diabetes for 16 years).* Likewise, a few participants refrained from seeking or sharing information because of their limited social network.

> *现在少了，现在有的人呢到温哥华去了，有的人到往多伦多了。新进来的病人还不认识。 [Now there are fewer. Some people have moved to Vancouver, some to Toronto. I don't know the new patients that have come in.] (P10, F, 82, technical training, diabetes for 23 years)*

> *我这边没有朋友。我不认识，我这边社交活动的范围很小。[I don't have any friends here... I don't know anyone, and my social circle is very small.] (P18, M, 77, bachelor's degree, diabetes for 2 years)*

One interesting finding was that P8 (76, bachelor's degree, diabetes for over 20 years) actively engaged in physical exercise to enhance her health, considering the potential lack of assistance if she became immobile. She stated, *"就是做运动了好得快呀。那否则的话，我这个动也不动，总不能让人家来照顾你，因为我没有小孩的嗯，就我一个人在这里的。[Exercising helps you recover faster. Otherwise, if I don't move at all, I can't expect others to take care of me because I don't have children. It's just me here.]"*

Participants also reported that the tragic experiences of others made them more serious about their diabetes. For instance, P14 (M, 68, bachelor's degree, diabetes for around six years) expressed heightened concern about their diabetes after witnessing relatives with poorly controlled diabetes undergoing limb amputations. Similarly, P2 (M, 70, technical training, diabetes for 17 years) exercised great caution regarding surgery, influenced by the unfortunate deaths of two friends during surgical procedures.

In contrast, a couple of participants adopted less strict diabetes management practices after hearing about the lived experiences of others. P19, who is 78 years old and has had diabetes for four years, fostered a sense of reassurance and lessened concern about strict adherence to diabetes protocols after hearing positive experiences from energetic friends with diabetes. Likewise, P8 adopted the belief that strict management may not be as critical as once thought, prioritizing overall well-being and quality of life over rigorous dietary restrictions after observing the experiences of other diabetic patients.

> *因为我是住在老人公寓的，那周围有很多人就是平时想吃，女儿儿子都是不让他们吃嗯，等到要走的时候想吃的，他们马上给他吃，结果已经吃不下了，吃不下了。所以*

> *儿女们有时候也会很后悔应该给他吃。所以我想到这个问题，看到这个问题我就想，我现在 76 岁，还能活几年呢？还是要想通一点，想吃什么就吃什么吧。[Because I live in a senior apartment, there are many people around. Usually, their daughters or sons don't let them eat what they want, and by the time they're about to pass, they want to eat something, but they can't, they can't eat anymore. So, the children feel regretful that they didn't let them eat it earlier. So, when I see this, I think to myself, I'm already 76, how many years do I have left? I might as well just eat what I want.] (P8, F, 76, bachelor's degree, diabetes for over 20 years)*

In line with previous research (e.g., Huisman et al., 2020; Sapa, 2022; Trace et al., 2023), this study confirms that information behaviour is inherently social and collaborative. It offers valuable insights into how social support and networks significantly shape health information behaviour of older adults with diabetes.

Some Chinese participants reported abstaining from seeking or sharing health information due to their limited social networks, highlighting the impact of social isolation on health information behaviour. Social networks play a crucial role in shaping how individuals' access, interpret, and disseminate health-related information, particularly in immigrant communities (Wang et al., 2020). This finding aligns with previous research, which observed that Korean immigrants in the United States required various types of information—such as housing, work, banking, transportation, law, school, health, and language—but, importantly, also had an additional need for information to help them build a new social network after migration (Suh & Hsieh, 2019). These findings suggest that addressing social isolation among older Chinese immigrants in Canada could help with their health information-seeking and potentially improve their ability to make informed healthcare decisions.

Family members and friends often facilitate communication between older adults and healthcare providers, acting as surrogates or proxies in health information exchange processes (Aspinall et al., 2012; Turner et al., 2018; Zhang & Liu, 2023). A crucial element of social networks in health information behaviour is trust. Older adults place a higher value on the trustworthiness of family and friends than on their medical expertise when receiving health information (Choi, 2019). Trust thus functions as a key component in seeking and sharing health information, enabling smoother communication and reinforcing the collective nature of information behaviour.

Additionally, some participants reported significant changes in their diabetes management practices because of learning from the experiences of others. This observation aligns with the work of Huisman et al. (2020), who found that older adults' understanding of health and illness is often shaped by their observations of how others navigate similar health conditions. These findings highlight the indispensable role of social networks in influencing health information behaviour. Family, friends, and peers not only serve as trusted sources of information but also act as key enablers in facilitating communication and supporting informed decision-making. This suggests that healthcare systems should integrate and acknowledge the role of social networks in patient care, particularly for older adults with diabetes. By doing so, health interventions can be more effectively tailored to consider the social dimensions of health information behaviour, fostering more inclusive and supportive health environments.

4.5.4 Accessibility and Availability Issues

This sub-theme examines the structural barriers that impact health management, such as the accessibility of healthcare resources, food, and Information and Communication Technologies (ICT). It also considers the economic and financial constraints that influence access to necessary health services and the availability of resources.

Accessibility of food, medication, ICT, and health professionals

Participants who originally came from China reported difficulties in adhering to diet-related suggestions due to challenges in obtaining certain foods in Canada.

> *就是说像有些杂粮特别核桃在中国是有，在这边就好像有点困难。 [For example, some grains, especially walnuts, are available in China but seem to be a bit difficult to find here.] (P19, F, 78, middle school, diabetes for 4 years)*

> *这怎么说呢，反正在这里，我感觉就是购物比较远，跟国内不一样，买东西的话是女儿就周六周天有时间的带我们去买了。那就等于买了一周的。那你这个蔬菜买的多了，吃了第二天第三天就开始烂掉了，变颜色了，所以这个也是一个很大的问题。就是感到在这里好像吃这个蔬菜青菜还是没有国内那么方便吧。[How do I put this? I feel like shopping here is farther away, not like in China. Here, my daughter takes us shopping on Saturdays or Sundays when she has time. So, it's like we buy groceries for the whole week. But if you buy a lot of vegetables, they start to spoil by the second or third day, the colour changes, so that's a big issue. It feels like getting fresh vegetables here is not as convenient as in China.] (P22, M, 74, high school, diabetes for 14 years)*

One participant reported that the accessibility of medication has influenced his information use behaviour. He would write down diabetes-related information encountered on social media but took no further action:

> *也只能做参考，再一个他介绍那个中药，我们这里也买不到是吧，也没办法去做，就也只能看看算了。[It can only be for reference. And then, the Chinese medicine they recommend, we can't buy it here, right? There's no way to get it, so you can only look and forget about it.] (P22, M, 74, high school, diabetes for 14 years)*

A few participants also highlighted the accessibility of ICT. One participant regularly acquired information through computers but expressed dissatisfaction with the Internet speed (P8, F, 76, bachelor's degree, diabetes for over 20 years). Meanwhile, another participant noted that he experienced no difficulty in obtaining information due to the well-developed nature of the Internet today:

> *反正现在这个网络发达，要获取什么信息都不困难。要知道自己的那个检查结果什么什么的，那就是注册一个账号，然后你就查那个检查单，然后你就知道自己怎么回事，所以我觉得也不困难。 [But now the Internet is so advanced, it's not hard to get information. If you want to know your test results or whatever, you just register for an account, check your report, and then you know what's going on with yourself, so I think it's not hard.] (P6, F, 74, technical training, diabetes for 7 years)*

Many participants encountered difficulties in accessing family doctors. One participant elaborated on the significant gap between the demand for and supply of family doctors, particularly among older adults: *"需要家庭医生的人非常多，但是呢，家庭医生很少，好多人都没有家庭医生的，就是我认识的很多老人。或者华人很多都没有家庭医生，就算不是华人，很多也没有家庭医生是就是这。 [There are a lot of people who need a family doctor, but there aren't many family doctors. Many of the elderly I know, or many Chinese people, don't have family doctors. And not just Chinese, many people don't have a family doctor, that's just how it is.]" (P6, F, 74, technical training, diabetes for 7 years).* Conversely, another participant acknowledged his good fortune in having a general practitioner, recognizing that many people lack this privilege:

> *I'm very lucky because I can make contact with my doctor…I had an issue the other day. And I left a message with his receptionist or his administrative assistant. And she called me back later that day, and I saw him the next day. I mean, that's very unusual. So, with my doctor, I mean, I try not to, I have an understanding with him that if it's really important, I can email him. And he'll get back to me. (P3, M, 69, master's degree, diabetes for 27 years)*

Many participants estimated the time and effort required to access family doctors. P9, who is 74 years old and has had diabetes for 16 years, shared a lesson learned from a recent medical incident: *"我现在通过这场病我总结出来的经验就是找家庭医生是来不及的，找药房是比较快的。 [From this illness, I've learned that it's too slow to find a family doctor. It's faster to go to the pharmacy.]"* She added that she would initially visit the pharmacy if she felt unwell in the future. If she could not obtain sufficient treatment there, she would then consider going to the hospital. In her perspective, going to either a pharmacy or hospital is preferable to seeing a family doctor. Similarly, P20, who is 80 years old and has had diabetes for 26 years, tended to avoid doctor visits due to long waiting times and the associated inconvenience for her and her family members: "*看医生还得那么慢，要姑娘请假陪着去，所以说麻烦事挺多的嗯，所以说没有大病，要感冒几天就挺过去了。嗯，也是真这样啊。 [Seeing a doctor takes so long. My daughter has to take time off to accompany me, so it's really inconvenient. If it's not something serious, like a cold, I just tough it out for a few days. Mm, that's really how it is.]"*

Several participants indicated that they were not receiving sufficient information from their family doctors, attributing this to the doctors being overly busy and lacking adequate time to engage with them. Many participants expressed a desire for more in-depth conversations with healthcare professionals.

> *家庭医生根本不会跟你讨论，他们时间很紧张的，我每次去看病，反正自己写好，我最近血糖怎么样，然后讲一下，呃，吃的药怎么样？吃的二甲双胍什么反应，就给他讲一下，他去改一改药或者怎么样，就是这样讲一下吧，大概不到十来分钟就结束了。 [Family doctors won't really discuss things with you. Their time is very limited. Every time I see the doctor, I make sure to write down how my blood sugar has been recently, what medicine I've been taking, how Metformin has been affecting me. I tell them, they adjust the medicine, and then it's over. It's usually done in less than ten minutes.] (P23, F, 79, technical training, diabetes for 15 years)*

Overall, this study revealed that some participants did not adhere to the health recommendations they received, primarily due to limited access to specific foods and medications. This finding, which has not been extensively reported in prior research, might be explained by the unique demographics of the participants, who resided in Canada but relied heavily on health information from Chinese social media platforms. For immigrants, the challenge of seeking and using information lies not in a scarcity of resources or skills but in adapting to a new information environment (Ndumu, 2020; Suh & Hsieh, 2019). The geographic and cultural gap faced by participants could lead to discrepancies between the recommendations they encountered and the actions they actually took in Canada.

The accessibility of ICT also played a crucial role in whether participants used these sources to obtain health information. This finding aligns with existing research that demonstrates how access to resources significantly influences the selection and use of information sources (Buchanan & Jardine, 2023; Känsäkoski et al., 2021; Lee & Smith, 2022). For example, the perceived effort required to search for and acquire relevant information often dictates whether individuals choose to pursue further information-seeking (Kvikne & Berget, 2022). Yi et al. (2021) similarly observed that immigrants in South Korea, while distrusting online health information due to difficulties in evaluating its credibility, nonetheless relied on it heavily because of its convenience and accessibility.

Another significant finding from this study concerns the accessibility of healthcare professionals and its impact on the decision-making process for older adults with diabetes. Participants frequently mentioned the time, effort, and service quality as factors that influenced their decisions regarding health management. This discovery echoes previous studies, which identified barriers to accessing and evaluating health information or services, including difficulties in navigating the healthcare system, scheduling appointments, assessing the quality of treatment received, accessing healthcare services, and understanding one’s rights as a patient

(Ahmadinia et al., 2022). Similarly, Sbaffi and Hargreaves (2022) reported that healthcare professionals often failed to provide adequate emotional and practical support to people with dementia, highlighting broader systemic challenges in the provision of holistic healthcare support. These findings suggest that access to both ICT and healthcare professionals is pivotal in shaping how older adults with diabetes seek, evaluate, and apply health information.

Location and convenience

Participants identified location as a significant factor influencing their information use behaviour. P9, who is 74 years old and has had diabetes for 16 years, mentioned that she refrained from sharing information with family members due to their geographical distance, as they all reside in different countries. Conversely, another participant highlighted extensive information sharing with a fellow diabetic living on the same floor (P23, F, 79, technical training, diabetes for 15 years). An intriguing example involved a participant who abandoned the idea of joining a diabetes association upon realizing it would take hours to commute there physically.

> *我想就是那个比如说离家比较近，而且可以用 Zoom 联系的，我就可以。如果，嗯，我必须去，我就不想去了。嗯，那那么老远，我怎么去啊？ [I think, for example, if that association is nearby, and I can contact them via Zoom, then I'll go. But if I have to go far, I don't want to. Mm, it's so far, how can I get there?] (P7, F, 77, bachelor's degree, diabetes for 20 years)*

A couple of participants mentioned that the freezing weather in Canada affected their ability to apply the health information they received, particularly regarding exercising outdoors.

> *在加拿大就不一样了，冬天有半年多时间，我只能在家里运动，孩子给我买一个跑步机，还有骑一下运动自行车。就这样子活动活动，那外面呢冬天也冷，出不去，年龄大了也怕摔倒了，孩子也不让出去。 [It's different in Canada. In the winter, for more than half the year, I can only exercise at home. My child bought me a treadmill and an exercise bike. That's how I stay active. But outside, in the winter, it's too cold. I can't go out, and I'm afraid of falling. My child won't let me go out.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

> *冬天哇，因为太冷了一下大雪，外面冰滑，女儿也不让我们出门。出门以后路那么滑，要是摔倒了，骨折了就不得了，嗯，所以我感觉冬天在这里非常难熬。 [In winter, oh, when it's too cold and there's a lot of snow, the roads are icy, and my daughter doesn't let us go out. The streets are so slippery; if we fall and break a bone, that would be terrible. Mm, I feel like winters here are really hard to endure.] (P22, M, 74, high school, diabetes for 14 years)*

This study found that geographical locations influence information sharing and decision-making, a finding that has been reported in previous studies. For example, Pang et al. (2020) discovered that location plays a significant role in shaping the information behaviour of older adults during natural disasters, with remote locations cited as one reason for their reluctance to engage actively in information-related activities. Similarly, Shi and Luo (2020) revealed that mobility obstacles and transportation constraints hinder older Chinese adults from physically accessing public libraries. Additionally, the impact of weather on the application of health information has received limited attention in the literature. This study observed such an influence, likely due to participants residing in Canada, where harsh winter conditions are common.

This finding suggests that future research should pay closer attention to the role of weather and other environmental conditions in influencing health information behaviour. It also calls for healthcare systems and information dissemination strategies to account for these barriers, ensuring that older adults, particularly those in remote or harsh climates, can continue to access and apply the health information they need to manage diabetes effectively. Adaptations such as enhanced telehealth services, remote consultations, and improved delivery of information through digital platforms could mitigate the impact of physical and geographical constraints on older adults' health management.

Financial considerations

Some participants expressed scepticism towards health information sources they perceived as financially motivated, noting that economic incentives—such as profit-driven content or physician kickbacks—could undermine the credibility of the information or recommendations provided.

> *那个百度介绍一些个别的民办医院呀。。。还有什么个别的大夫治别的好，他们都是经济方面，经济利益好像驱动的比较大一些，所以说我对它们做的这些东西都是半信半疑，说几个月就治疗好了，我就不相信这个几个月能治疗好了。 [On Baidu, they talk about some private hospitals, or certain doctors who are good at treating specific*

conditions, but it seems like they're mainly driven by economic interests. So, I'm skeptical. They say they can cure it in a few months, but I don't believe you can be cured in just a few months.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)

他是哪个药的回扣拿得多，他就开什么药给你。。。那么自然而然在我的心理上就对这个医生看病有一个这个戒备的心理，到底是它是想治我的病还是卖他的药？ [Whichever drug gives the doctor a higher kickback, that's what they'll prescribe... So naturally, I'm wary of whether the doctor really wants to treat my illness or just sell me medicine.] (P18, M, 77, bachelor's degree, diabetes for 2 years)

Several participants noted that having health insurance alleviated the financial burden of acquiring medications or medical equipment; however, the ongoing monetary costs still significantly impacted their information-seeking behaviour and decisions regarding medical appointments and medication adherence.

原来打的是普通的那个胰岛素，现在打的是新的胰岛素。这个新的胰岛素在国内的时候也有，不过那个价格比较高。 [I used to take regular insulin, but now I'm on the new insulin. This new insulin was available in China too, but it was more expensive.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)

那时候挣钱少啊，我那时候我退休那多少钱那二百多块钱呢，哪舍得买那几个药啊。所以说我一次也没有买过。 [At that time, I wasn't earning much. I was retired, only *making a bit over 200 yuan (around $40). I couldn't afford to buy that medicine. So, I never bought it.] (P20, F, 80, no education, diabetes for 26 years)*

Additionally, a couple of participants mentioned seeking health information from newspapers and newsletters because these resources are available at no cost.

And then I had another more like sort of medical, you know, based newsletters that were sent to me, that were sent to doctors, and I subscribed, I mean, for free, right? I wasn't paying for any of this. And I would get information about, you know, vaccine development and that sort of thing. (P3, M, 69, master's degree, diabetes for 27 years)

每个星期不是有那么大量的咱们那些免费报纸吗？每个星期的报纸我都翻遍。那我这个时间几乎每天都花在这上边儿。[Every week, we get a bunch of free newspapers, right? Every week, I go through all the papers. I spend almost every day on that.] (P12, F, 90, technical training, diabetes for 21 years)

This study found that financial considerations played a key role in participants' selection of information sources, with monetary costs influencing decisions about medical appointments and medication adherence. These findings are consistent with previous research, which suggests that individuals with higher incomes are more likely to seek health information online (Konca et al., 2022; Sedrak et al., 2020). Income levels also significantly impact the purchase of technological devices and access to the Internet, affecting individuals' ability to engage with digital health resources (Konca et al., 2022).

Conversely, older adults with lower incomes tend to exhibit different health information-seeking behaviour. Rather than relying on private healthcare providers or paid digital platforms, they are more likely to seek information directly from public health centers, where access to healthcare professionals is more affordable (Agyemang-Duah et al., 2020). This preference highlights the economic barriers faced by lower-income individuals in accessing diverse health information sources, underscoring the importance of free or low-cost health services as primary avenues for health management.

These findings suggest that financial resources not only shape how individuals access health information but also determine their engagement with healthcare systems. Those with greater financial means have more flexibility in choosing information sources, while those with limited financial resources often depend on publicly available services, which can impact the timeliness and breadth of the information they receive. Addressing these disparities is crucial for ensuring equitable access to health information, particularly for older adults managing diabetes.

4.5.5 Section Summary

This section explains the impact of social and cultural factors on health information-seeking and use. Participants in this study preferred seeking and sharing health information with individuals of similar age, ethnic backgrounds, and those with the same medical condition. This aligns with previous research showing that people often value peer insights over accredited sources, particularly in managing diabetes. Chinese participants in Canada faced additional challenges due to cultural and linguistic barriers, limiting their access to the broader healthcare system. These findings highlight the importance of culturally sensitive, peer-led interventions and multilingual resources to improve health information access and support, especially in diverse, multicultural societies such as Canada.

This study found that participants' knowledge and skills significantly influenced their ability to access and understand health information, aligning with research on health information literacy. Those with lower literacy were less inclined to engage in their health management and, therefore, in a vulnerable position in the health system. This finding proves the importance of providing literacy education for older adults with diabetes. Participants in this study also experienced ageism and diminished autonomy in managing their diabetes, preferring information sources where they felt their voices were valued. These findings highlight the need for further research on empowering older adults in healthcare and addressing the power imbalance in the health system.

This study confirms that information behaviour among older adults is inherently social and collaborative, emphasizing the significant influence of social networks on how they seek and use health information. Limited social networks can hinder information-seeking and sharing, underscoring the impact of social isolation. Additionally, some participants reported adapting their diabetes management based on the experiences of others, highlighting the importance of learning within social networks. These findings suggest that healthcare systems should integrate and acknowledge the role of social networks in patient care, particularly for older adults with diabetes, to create more inclusive and supportive health interventions.

This study found that some older adults with diabetes did not adhere to health recommendations due to limited access to specific foods and medications, a gap potentially linked to their reliance on Chinese social media while residing in Canada. ICT availability and healthcare service quality influenced whether participants pursued or applied health information.

These findings align with existing research on how resource accessibility impacts information-seeking behaviour and highlight the need for better integration of health information with local resources. Physical barriers, such as mobility challenges and harsh winter conditions in Canada, limit participants' access to healthcare services and health information. Future efforts should focus on overcoming these barriers through telehealth, remote consultations, and improved digital health information access. Besides, this study found that financial considerations significantly influenced participants' health information-seeking and use. These findings align with existing research that highlights the impact of income on access to health resources, underscoring the need for equitable access to health information across different income groups.

4.6 Evolving Health Information Behaviour: Adaptation During and After the Pandemic

This theme captures the dynamic process of how individuals adjusted their health information behaviour during the pandemic and how they are now adjusting their behaviour in the post-pandemic period. It reflects the significant behavioural changes brought about by the pandemic, influencing daily routines, communication methods, and access to health services, and how individuals are navigating the post-pandemic landscape by changing and continuing their established activities. This theme highlights the resilience and adaptability of individuals in the face of unprecedented challenges.

4.6.1 Behavioural Adjustments During the Pandemic

This sub-theme explores various ways individuals adjusted their health information behaviour in response to the restrictions and challenges posed by the pandemic. It includes changes in information needs, information seeking, and information use. Additionally, this sub-theme acknowledges that, for some, the pandemic did not significantly alter their routines, highlighting the diversity in individual experiences.

Changes in information needs

When the COVID-19 pandemic emerged, several participants expressed curiosity about COVID-related information, such as infection rates, vaccination details, preventive measures, and treatment options. For example, P20 (80, no education, diabetes for 26 years) shared that her conversations with friends primarily focused on COVID-19 topics in recent years. An unexpected finding from the following quote was that one participant pointed out that COVID-19 could cause more severe symptoms and complications in individuals with diabetes, highlighting the insufficient dissemination of this information to the public.

> *But in the research that I've done, you know, diabetes can really be a problem with COVID. And I don't think this is made clear to people when there's public health information given about who should get vaccinated. So, I think it's important that that information gets out to people, you know, diabetes can be a serious complication with COVID. (P3, M, 69, master's degree, diabetes for 27 years)*

An interesting finding of this study was that one participant compared the difference between seeking COVID-related information and general health information, emphasising that COVID information tends to be more accessible.

> *疫情的不用问，都知道，那都不用问了。疫情的那个情况基本上都是公开的。特别是在加拿大这边，呃，基本上都公开，都不用问。就是你自己怎么防护的问题。那就是问自己的问题啊，呃，什么糖尿病啊。 [As for the pandemic, no need to ask, everyone knows. You don't even need to ask. The situation about the pandemic is mostly public knowledge. Especially here in Canada, um, it's basically all public information. No need to ask. It's more about how you protect yourself. That's what you have to ask yourself—um, like about your diabetes.] (P6, F, 74, technical training, diabetes for 7 years)*

Participants also described how their information needs evolved over the course of the pandemic. For example, one participant illustrated this shift by explaining how his information-seeking behaviour changed across different phases of the crisis. During the early stages, he monitored daily updates on COVID-19 cases and vaccination developments. However, by the end of 2022, he had stopped following this routine:

> *I got a few things like that The Montreal Gazette had a thing like that for a couple of years, and so I would take a quick look at it…So right now I'm more interested in the wider subject of other possible pandemics, you know, and so, but I don't, I don't do a lot of reading about it. I don't do a lot of research about it. (P3, M, 69, master's degree, diabetes for 27 years)*

Individuals' information needs are heavily influenced by their social circumstances. In this thesis, participants demonstrated a strong desire for COVID-19-related information during the pandemic. This observation mirrors the findings of Shi et al. (2021), who reported that news and information about COVID-19 constituted a significant portion of students' information-seeking behaviour during the pandemic. COVID-19-related information spans a wide range of topics, including the economic and social impacts of the crisis, movement and travel restrictions, and guidelines for infection prevention (Dreisiebner et al., 2022). Participants in this study mainly focused on managing their diabetes during the pandemic. This finding aligns with earlier research showing that people tend to prioritize information that is personally relevant during crises, such as how to protect themselves from infection (Ke et al., 2021; Zheng et al., 2022). These discussions underline the critical importance of providing sufficient, accessible, and personalized health information, particularly for individuals managing chronic conditions such as diabetes, during health emergencies. Ensuring that this information is tailored to individual needs can empower people to take effective preventive measures and manage their health more confidently during crises.

One striking finding was that participants' information needs changed throughout the pandemic. This is consistent with the research of Bao and Ke (2023), who noted that individuals' information needs are shaped by various social factors, such as economic conditions and societal norms, leading to fluctuations in the type and intensity of information sought during different stages of the pandemic. This evolving pattern of information-seeking highlights the dynamic nature of information needs during prolonged crises, emphasizing the need for more responsive information dissemination strategies that can adapt to the changing phases of a crisis. Health communication should evolve in tandem with people's shifting concerns. By doing so, healthcare systems and public institutions can better meet the complex, evolving needs of individuals during extended periods of uncertainty, such as the COVID-19 pandemic.

Changes in seeking and using information

Many participants reported shifts in their information-seeking behaviour during the pandemic, including limited access to printed materials and fewer opportunities for in-person interactions (e.g., gatherings and workshops). Specifically, several participants noted a reduced opportunity to read newspapers during this time, either because these publications were no longer available or due to concerns about potential infection from handling them. With numerous restrictions implemented to prevent the spread of the virus, people were encouraged to stay home and avoid public gatherings. As a result, many participants expressed fear and anxiety, leading them to limit outings and consequently report a decrease in social interactions compared to the pre-pandemic period.

> *就是谈论的不多了，因为见面的机会也少了，大家在一块儿聊天啊聚会啊这种都没有了，所以只能是自己手机呀或者是网上啊看一看，就不是特别关注，主要是对这个新冠关注一下啊。 [We don't talk about it much anymore because we don't meet up as often. There are no gatherings or chats, so now I mainly just check my phone or look things up online. I'm not as focused on it; I'm more concerned about COVID.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *现在疫情期间几乎就是很少接触，基本上断绝了外来的联系。除了孩子和家人之间，和外人很少接触了。 [During the pandemic, I hardly had any contact with others, basically cut off from outside communication. Besides my kids and family, I barely interacted with anyone else.] (P17, M, 76, bachelor's degree, diabetes for over 20 years)*

Many participants also highlighted significant challenges in accessing healthcare professionals during the pandemic. They experienced longer wait times for appointments, fewer opportunities to communicate with doctors, and, in some cases, were unable to undergo essential medical tests. For example, P12 (F, 90, technical training, diabetes for 21 years) failed to return for a follow-up appointment after undergoing surgery in China. Similarly, P22, who is 74 years old and has had diabetes for 14 years, was forced to find a new family doctor when her previous doctor's clinic closed due to the pandemic. Particularly affected was P5 (75, technical training, diabetes for around six years), who had recently immigrated from China to Canada and relied heavily on traditional Chinese medicine to manage her diabetes. With fewer opportunities to travel internationally and consult her doctor in China, she had to adjust her medication routine without the usual guidance: "*之前汉中那个医生开的药我还没吃呢，我舍不得吃。我现在回不去中国，就只能省着吃，隔一段时间再吃。 [I still haven't taken the medicine the doctor in Hanzhong prescribed for me. I've been reluctant to use it. Now that I can't return to China (because of the expensive flight tickets and quarantine policy), I'm saving it, taking it sparingly.]"*

Participants reported significant changes in their communication methods with both healthcare professionals and friends during the pandemic, shifting from in-person interactions to virtual platforms such as phone calls and Zoom *"疫情期间我跟你讲，刚开始疫情来的时候，那一段人都吓死了，最多是电话或者 zoom 上讲一讲。然后呃，就没有那面对面的活动 [During the pandemic, let me tell you, at the start, people were terrified. We'd talk on the phone or zoom, but no face-to-face activities.]" (P23, F, 79, technical training, diabetes for 15 years).*

An unexpected finding was that one participant noted potential changes beyond the shift in communication channels, suggesting that people began to treat in-person conversations with greater seriousness:

> *I mean, it's probably in some subtle and not-so-subtle ways when you're speaking to somebody on the phone or Zoom, as opposed to speaking to them in person, it's just, it's different, you know, because you, you don't get all the reaction and the feeling that you do when you're actually sitting next to a person. You know, you don't notice some of the subtlety of how they're reacting to what you're saying. So, it's a bit different, but I think it'd be people take you a little more seriously when you're talking in person. You know, it's just it hasn't. It's not that people don't want to take you seriously. It's that you just, I just think it has a bit more impact. When you speak in person. They can feel you, you know, it's not just they could see you, they feel you, they see your facial expressions more intently, you know, so I think it's different in that way. (P3, M, 69, master's degree, diabetes for 27 years)*

An interesting and notable pattern that emerged was the substantial increase in the time participants spent online searching for health information.

> *因为疫情出不去就老玩手机。嗯就下载了小红书，呃还有什么你说的公众号。这些东西他手机上都有呃，原来呢，我总是愿意逛商场，一天到晚逛商场，呃，但是自从疫情了以后，商场也不敢逛了啊，所以就憋在家里头，无地可去。 [Since I couldn't go out during the pandemic, I was always on my phone… I downloaded Xiaohongshu, and, uh, what else, you know, those WeChat public accounts. I have them all on my phone now.*

Before, I used to love going to the mall, spending the whole day there. But since the pandemic started, I don't dare go anymore, so I'm just stuck at home with nowhere to go.] (P9, F, 74, bachelor's degree, diabetes for 16 years)

我觉得疫情期间获取的信息更多了，因为不出去玩儿了。在家里面就看这些东西。一会儿看看这个，一会儿看看那个，而且也不是说光看糖尿病的，别的方面的也看，但是有糖尿病的信息绝对是就这样的哦。 [I think during the pandemic I actually got more information because I wasn't going out. At home, I'd just watch all kinds of things, not just stuff about diabetes, but other topics too. But if there's diabetes-related info, I'd definitely check it out.] (P12, F, 90, technical training, diabetes for 21 years)

Despite the greater access to information, some participants indicated that restrictions and safety concerns significantly impeded their ability to follow healthcare professionals' recommendations, such as engaging in outdoor physical exercise to manage their diabetes.

再说这疫情这三年吧，差不多，嗯，就是因为我一个人那个独居嘛，所以就除了买菜。我好多时候都不敢出去，就是大门不出二门不迈了就变成这样了。然后在家里呢，锻炼，那当然就是运动量比较小。 [Over these past three years of the pandemic, I've been living alone, so besides grocery shopping, I hardly went out. I was basically shut in, didn't go anywhere. I exercised at home, but of course, that meant less physical activity.] (P11, F, 81, bachelor's degree, diabetes for 18 years)

> *要是锻炼少了出门少了。不敢去了，很多地方不敢去了。[I exercised less and went out less, it's because I didn't dare. There are many places I no longer feel safe going to.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *过去我们上午就骑自行车要骑一个半小时。中午吃完饭休息一会儿。那我们俩再去游泳，天天都是这样子。那自从到了新冠了以后嘛，就没有了，就不敢出去了，这个活动就没有了，那就是自己在家里。[Before, we used to ride bikes for an hour and a half in the mornings. After lunch, we'd rest for a bit and then go swimming. That was our daily routine. But since COVID hit, we stopped going out, no more activities. So now it's just at home.] (P21, M, 85, bachelor's degree, diabetes for 15 years)*

The demand for health-related information has increased, driven by the uncertainty and stress of the pandemic; discrepancies, however, emerged between participants' stated health information needs and the actual information or services they received or utilized (Ahmadinia et al., 2022; Zheng et al., 2022). Participants in this study reported difficulties in accessing reliable information from printed materials, social networks, and healthcare professionals. These challenges were particularly prominent for immigrant participants, many of whom were accustomed to managing chronic conditions through healthcare systems in their home countries. The pandemic not only disrupted access to local healthcare services but also severed ties with the medical support systems they relied on abroad. This highlights the critical need for more robust support, such as multilingual telehealth services, to ensure that individuals from diverse cultural backgrounds can access the care they need during crises such as the COVID-19 pandemic.

The study also revealed a broader adaptation to digital platforms, aligning with prior research by Bao and Ke (2023), who found that online information exchanges and social media interactions became substitutes for face-to-face communication during pandemic restrictions. Digital platforms offered a lifeline for those unable to access traditional healthcare or social support systems, facilitating information flow and social connectivity. Surprisingly, some participants reported receiving more information during the pandemic, largely due to their increased use of digital tools. This mirrors Zimmerman's (2021) observation of heightened active and passive information-seeking behaviour, characterized by more frequent online browsing and social media engagement during the pandemic. The proliferation of digital engagement created expanded opportunities for participants to encounter a wider range of health-related information.

However, a striking finding from this study was that participants reported difficulties in using the health information they accessed. While digital platforms provided more information, the pandemic's physical restrictions and safety concerns posed significant barriers to applying this knowledge in daily life. Many older adults with diabetes struggled to translate what they learned online into practical actions due to limitations on movement, the closure of in-person health services, and fear of exposure to the virus. This finding underscores the gap between being informed and being able to act on that information, particularly in the context of a health crisis. Considering these challenges, the study suggests that healthcare systems should focus on not only improving access to digital health information but also supporting individuals in applying this information effectively. This could include offering practical, actionable advice that considers the physical and emotional realities of navigating a pandemic, as well as enhancing digital literacy and providing alternative channels for those unable to access online resources.

Changes in mental states

Participants expressed that the pandemic posed a severe threat to their health, particularly due to compromised immune systems and existing vulnerabilities. Initially, trustworthy information about the virus was scarce, prompting them to pay closer attention to their health. The fear of the unknown, particularly regarding COVID-19 symptoms and transmission, heightened concerns about personal health and safety.

> *Because at the beginning, there was no protection at all, there were no vaccines, there was nothing. And it sounded pretty scary. And they already had, you know, diabetes. And I have other health issues as well. And I thought better to protect myself, right? (P3, M, 69, master's degree, diabetes for 27 years)*

Several participants also became more cautious when making health decisions during the pandemic, paying extra attention to the sources and authenticity of health information. They ensured they relied only on trustworthy sources. For example, one participant described how the pandemic led him to reconsider undergoing surgery. He was concerned about the increased risk of contracting COVID-19 during hospital visits and the potential complications for his recovery. To make informed decisions, he sought information from various sources, including academic books and consultations with experts:

> *那当然更谨慎一些了。。。这个呢因为对身体的事情不能马虎，你这个全部听医生的也不行。最好的医生是自己，我们自身的免疫力特别重要。[Now I’m more cautious… When it comes to your health, you can’t be careless. You can’t blindly follow everything the doctor says. The best doctor is yourself, and our immune system is especially important.] (P4, M, 75, bachelor’s degree, diabetes for around 8 years)*

The emotional toll of the pandemic extended beyond concerns about physical health. One participant shared her feelings of isolation and depression, which she attributed to being unable to leave her home and the reduction in social interactions. The prolonged lockdowns and social distancing measures exacerbated feelings of loneliness, particularly for those already managing chronic conditions.

> *有的人我从 2019 年到 2023 年，四年了吧，都没有见过。嗯，现在也很少到别人家去串门，或者是那个跟别人一起活动，以前呢，有时候还去教会啊什么的，到别人家聚会啊。现在什么都没有，就是在家呆着。。。嗯，与世隔绝的这种感觉 [There are people I haven’t seen since 2019—four years now. And I hardly visit anyone these days or participate in activities. Before, I’d sometimes go to church or visit people’s homes, but now there’s none of that. It feels like being cut off from the world.] (P7, F, 77, bachelor’s degree, diabetes for 20 years)*

Consistent with existing literature (e.g., Shi et al., 2021; Zheng et al., 2022), this research highlights the significant influence of emotions on individuals’ information-seeking and use behaviour during the pandemic. For many, especially those with pre-existing health conditions, the pandemic was not only a public health crisis but also an emotional one. The continuous exposure to COVID-19-related information heightened stress and anxiety levels for many participants (Stvilia et al., 2021), which, in turn, drove them to seek health-related information more diligently. This finding also corroborates Ke et al. (2021), who found that emotions often shape cognitive needs, and vice versa, forming a dynamic interaction where emotions influence the type and urgency of information sought, while the information itself can impact emotional well-being.

In practice, this research points to the need for healthcare systems and information providers to address both the physical and psychological dimensions of health management, particularly during periods of crisis. Providing accurate and timely health information is essential, but equally important is the inclusion of emotional support and mental health resources. Offering guidance on how to cope with the stress and uncertainty of a public health emergency, along with information on self-care and mental well-being, can help individuals better manage the emotional toll of a crisis.

No changes

Contrary to expectations, this study found that not all participants experienced significant changes in their information-seeking behaviour during the pandemic. For instance, one participant who primarily relied on healthcare providers for his health management reported that he only sought information directly from them and strictly adhered to their instructions. He felt well-supported by his doctors, resulting in little to no impact from the COVID-19 pandemic on how he accessed or engaged with health information:

And through the pandemic, pandemic made no difference to me. It's because I had my supply of drugs and got more if I needed them… I've been very well-schooled by the healthcare team here. So, I don't have any questions. I can always ask them if I have a question. (P2, M, 70, technical training, diabetes for 17 years)

Similarly, several other participants who were already accustomed to using online communication tools or who had stable health conditions reported no major shifts in their routines during the pandemic. These individuals noted that they continued using the same platforms and methods to access health information and maintained their usual health management practices without disruption. For them, the pandemic did not necessitate any new strategies or adjustments in their information-seeking behaviour.

呃，也没有变化嗯，因为这个疫情对我来说就是这个出去戴口罩呀，回来洗手这个呢，别的方面我觉得没有啥这个大的影响。 [There hasn't been much change for me. The pandemic just meant wearing a mask when going out and washing hands when I got home. Other than that, I didn't feel much of an impact.] (P15, M, 79, master's degree, diabetes for 7 years)

而且没多大影响。因为我没有什么变化呀。我保持挺正常的，那你大夫也说你保持挺正常啊。 [Not much has changed. I've stayed the same, and the doctor even says I'm doing fine.] (P20, F, 80, no education, diabetes for 26 years)

Findings related to unchanged aspects of health information behaviour stand out because they have not been widely addressed in prior research, which often focuses on the disruptions and challenges faced by individuals during the pandemic (e.g., Bao & Ke, 2023; Dreisiebner et al., 2022; Montesi, 2023). The fact that some participants experienced continuity in specific activities and actions highlights the importance of personal context in shaping information needs and responses. It suggests that under certain conditions—such as having a strong support system from healthcare providers, being comfortable with digital tools, or managing a stable health condition—people may not feel the need to adapt their information-seeking habits, even during a global crisis such as COVID-19.

This observation opens a potential area for future research: understanding the specific circumstances under which individuals' information behaviour remains unchanged, and what factors contribute to their resilience or stability in accessing health information during times of widespread disruption. By exploring these conditions, researchers could gain deeper insights into how personal, social, and technological factors influence information needs and behaviour across diverse populations, including those who may not experience significant changes in their routines during crises. This could inform better support strategies for those who are more vulnerable to disruptions in their health management.

4.6.2 Change and Continuity in Post-Pandemic

This sub-theme explores the extent to which changes in health information behaviour among older adults with diabetes persist as pandemic restrictions ease. It highlights how individuals have either adapted their information-seeking practices in response to the post-pandemic or maintained long-standing habits despite disruptions. Understanding these patterns provides insight into how health information behaviour evolves and whether pandemic-driven shifts will be sustained in the long term.

Several participants expressed relief as in-person health-seeking resumed, allowing them to access information through direct conversations with healthcare providers rather than relying on telemedicine or digital sources. The following quotes provide examples of returning to in-person consultations. They signal a preference for direct interactions when seeking health-related information, reinforcing the importance of personal communication in medical decision-making.

> *现在呢，我们又开始活动了，这个呃，有很多讲座哈，不是说都是在zoom上讲座了，现在也恢复了，到社区里面，大家大概就是二十来个吧，他大概安排也是控制在25个左右，一个大会议室，差不多吧。 [Now we've resumed activities. There are a lot of talks, and it's not all on Zoom anymore. We're meeting in the community again. About 20 or so people, and they're capping it at around 25 in a big meeting room.] (P21, M, 85, bachelor's degree, diabetes for 15 years)*

> *疫情期间，医生就是电话里面讲一下你怎么情况，开一下药，就到药店去拿药。现在疫情以后，从这上个月开始，我们要到里面去跟医生当面看病。嗯，会好一点，那会多讲一点，嗯，那比电话里面好一点。[During the pandemic, the doctor would just call to check in and prescribe medication, then I'd pick it up from the pharmacy. But since last month, we've started seeing the doctor in person again. It's better; we talk more. It's better than over the phone.] (P23, F, 79, technical training, diabetes for 15 years)*

Interestingly, some participants revealed that their health information behaviour remained largely unchanged during the pandemic. For them, the pandemic reinforced pre-existing information behaviour rather than prompting change. These individuals found stability in their trusted information sources (i.e., they reported continuing to rely on the same information sources and maintaining their established routines for managing diabetes throughout the pandemic), reducing the likelihood of long-term behavioural shifts.

> *利用信息获取信息呢，就是，呃，基本上都是这样吧，嗯，一个就是，嗯，就是健康方面的信息呢，网上，嗯，这是一个重要的渠道。。。或者呢，跟朋友互相沟通聊天呃，也可以得到这方面的信息。嗯，大概是这样吧。 [When it comes to getting information, it's basically the same... Mostly, I get health-related info online. That's a major source. Or I chat with friends, and we share information that way. That's pretty much it.] (P6, F, 74, technical training, diabetes for 7 years)*

> *糖尿病方面还是少食多餐，坚持力所能及的体育锻炼，我总觉得还是这些。 [For diabetes, it's still about eating smaller, more frequent meals, and doing as much exercise as I can manage. I always feel that's the key.] (P14, M, 68, bachelor's degree, diabetes for around 6 years)*

> *我是主要是医生，报纸都不是，报纸只是用来消遣时间的。我从来不会去注意在报纸上去找糖尿病的什么东西，我不会。我就看医生，一年至少看两次。 [I mainly rely on my doctor, not the newspapers. The newspapers are just for passing the time. I never look to*

> *them for information about diabetes. I wouldn't know how. I just follow what the doctor says, seeing them at least twice a year.] (P16, M, 83, master's degree, diabetes for 30 years)*

These findings illustrate the dual trajectories of health information behaviour post-pandemic—one characterized by changing back and the other by continuity. Past studies have examined the impact of the pandemic on consumer behaviour and education and explored the implications for the post-pandemic era (e.g., Diaz-Gutierrez et al., 2023; Zhu et al., 2023), but there has been limited exploration of whether pandemic-driven changes in health information behaviour will endure. This study underscores the importance of understanding which changes are likely to persist and why, offering implications for healthcare professionals and public health communicators.

From a policy and healthcare communication perspective, these insights highlight the need for flexible strategies that account for diverse information-seeking behaviour. Public health initiatives should support those who have adopted new, effective digital health information practices while also recognizing that some individuals may continue to rely on long-standing, in-person sources. Ensuring accessibility to both digital and traditional information channels will be critical in sustaining positive health information behaviour and improving long-term health outcomes.

One thing that should be emphasized here is the limited research evidence uncovered regarding participants' health information behaviour in the post-pandemic era. This is likely due to the timing of the interviews, which were conducted in 2023—the same year the World Health Organization (WHO) declared that COVID-19 was no longer a global public health emergency. Although the WHO acknowledged that the virus remained a health threat, the transition out of the pandemic phase was still ongoing. As a result, participants were often discussing their intended future actions rather than reflecting on established post-pandemic behaviour. Some found it difficult to predict their future health information behaviour as pandemic-related regulations and healthcare policies continued to shift during that period.

Additionally, several participants had long-standing experiences with diabetes management and had developed stable information-seeking habits over the years. For these individuals, the pandemic did not significantly alter their health information behaviour, as they had already established trusted sources and routines for managing their condition. Instead, they expressed greater concern with broader aspects of daily life rather than seeking new diabetes-related information.

Future research could build upon these findings by examining health information behaviour now that society has fully transitioned into the post-pandemic era. Specifically, studies could explore whether any anticipated changes have been realized and whether individuals have sustained, abandoned, or modified behaviours they initially adopted during the pandemic. Furthermore, an important area for investigation is the health information behaviour of recently diagnosed diabetes patients, particularly those who were diagnosed during the pandemic. Tracking how their information-seeking patterns evolved from the time of diagnosis to the post-pandemic period could provide valuable insights into the long-term effects of pandemic-era disruptions on health information engagement.

4.6.3 Section Summary

This section explores the self-reported changes made by older adults with diabetes during the COVID-19 pandemic. Consistent with previous studies, these changes occurred across multiple areas, such as participants' health information needs, seeking habits, communication methods, and mental well-being. Many participants also expressed difficulties in using health information, such as adhering to healthcare recommendations, due to COVID-19-related restrictions, which disrupted their regular routines and access to healthcare services. These findings emphasize the importance of employing timely and responsive information dissemination strategies that can adapt to the shifting phases of a crisis, ensuring that individuals receive the support they need as conditions evolve.

An intriguing discovery was that not all participants experienced significant changes in their health behaviour during the pandemic. This suggests the complexity of information behaviour and highlights a potential area for future research on the stability of information-seeking patterns during a health crisis. Understanding why some individuals maintained consistent habits while others adjusted significantly could provide deeper insights into the factors influencing information behaviour under stress or uncertainty.

The study also identified two distinct trajectories of health information behaviour in the post-pandemic era: one characterized by changing back and the other by continuity. However, research evidence on this aspect remains limited. While this paper contributes to the existing evidence, its findings are based on participants' expectations rather than their actual behaviours, highlighting the need for further research.

4.7 Chapter Summary

This chapter presents and discusses five themes: 1) strategic navigation of health information ecosystems, 2) reflexive engagement with health knowledge and practices, 3) personal health identity and attitudes, 4) managing health in a socially and culturally complex landscape, and 5) Evolving health information behaviour: adaptation during and after the pandemic.

The first theme explores how older adults with diabetes navigate the health information system, addressing RQ1: How do older adults with diabetes in Canada seek and use health information, particularly in terms of their actions after finding the information they were looking for? It reveals that while participants have diverse and evolving information needs related to diabetes and other health conditions, their needs often go unmet due to inadequate support from healthcare professionals and challenges in articulating their needs. Participants sought information from various sources, with healthcare professionals being the preferred choice for their expertise. Some relied on family or casual conversations rather than actively seeking information. This finding highlights the need for accessible, reliable, and empathetic information to better support their health management.

The second theme examined how older adults with diabetes engage with health knowledge and practice, also addressing RQ1. It reveals diverse strategies for using health information for medication management, dietary adjustments, exercise routines, and decision-making. Participants actively integrated new information with their existing knowledge, assessed the credibility of sources, and selectively accepted or rejected information based on relevance and reliability. These behaviours underscore the need for healthcare providers to offer clear, actionable, and credible information while promoting hands-on education and improving health literacy. Additionally, participants shared health information with peers both deliberately and incidentally, emphasizing the social dimension of information use, though some hesitated due to misconceptions or fear of misinformation. These findings highlight the importance of creating supportive environments for effective information sharing and empowering patients to take an active role in managing their health.

The third theme explored how personal health identity, emotions, and life attitudes shape health information-seeking and use among older adults with diabetes, addressing RQ2: What factors relate to how older adults with diabetes in Canada seek and use health information? Emotions such as worry, surprise, and relief significantly influenced participants' behaviour, with negative emotions prompting either active information-seeking or avoidance. Participants were categorized into four groups—Proactive, Conscientious, Avoidant, and Apathetic—based on their beliefs and life attitudes, which affected their engagement with health information. Declining health conditions and established lifestyle habits also influenced participants' ability and willingness to adopt health information. These findings emphasize the need for personalized, emotionally supportive health interventions that consider individual attitudes, experiences, and routines to enhance the effectiveness of health communication strategies.

The fourth theme explored the impact of social, cultural, and systemic factors on health information-seeking and use among older adults with diabetes, addressing RQ2 again. It reveals that participants preferred engaging with peers of similar age, ethnicity, or health conditions due to shared experiences and a sense of community. Chinese participants in Canada faced cultural and linguistic barriers, highlighting the need for culturally sensitive, multilingual resources. Limited health literacy, ageism, and power imbalances in healthcare further complicate their ability to manage their conditions, emphasizing the need for tailored education and supportive networks. Social connections played a crucial role in shaping participants' information behaviour, but isolation and limited social networks hindered access to relevant health information. Environmental and financial barriers, such as harsh winters, mobility challenges, and low income, also restricted access to healthcare services and essential resources, indicating a need for telehealth and equitable health information access to better support diverse, vulnerable populations in managing their health.

The last theme examined self-reported changes in health information behaviour among older adults with diabetes during the COVID-19 pandemic, addressing RQ3: How did the health information behaviour of older adults with diabetes in Canada change during the COVID-19 pandemic, and to what extent are these changes likely to persist in the future? It reveals disruptions in information needs, seeking habits, communication methods, and mental well-being due to pandemic-related restrictions. In terms of the persistence of health information behaviour in the post-pandemic era, some participants reported a change back to in-person information seeking (i.e., changes introduced by the pandemic will be abandoned) while others continued the same routines (i.e., pandemic makes no difference to their health information seeking and use). These findings underscore the importance of timely information dissemination and suggest further research on the long-term impacts of the pandemic on health information behaviour.

Chapter 5: Conclusions

This thesis explored how older adults with diabetes in Canada sought and used health information, the factors influencing their health information behaviour, and how this behaviour changed during and after the COVID-19 pandemic. Using a qualitative approach with 23 participants, the study generated five key themes: 1) strategic navigation of health information ecosystems, 2) reflexive engagement with health knowledge and practices, 3) constructing personal health identity, 4) managing health in socially and culturally complex landscapes, and 5) evolving health information behaviour: adaptation during and after the pandemic (see Chapter 4: Findings and Discussion). These findings offer both theoretical insights and practical implications.

5.1 Theoretical Implications

5.1.1 Contribution to Information Use

Past research went through different notions of information use and discovered seven major conceptions of information use: 1) as information practices, 2) as information search, 3) as information processing, 4) as knowledge construction, 5) as information production, 6) as applying information, and 7) as effects of information (Kari, 2010). In this thesis, information use is defined not as what Kari (2010) described as information practices or information search; rather, it is a combination of information processing, knowledge construction, information production, applying information, and effects of information. It broadens the understanding of information use as a separate component of information behaviour and frames it as a physical, cognitive, individual, and social behaviour.

Specifically, in the limited number of studies focused on information use, physical actions and knowledge integration have been frequently discussed. This research found that participants integrated health information into their physical actions—such as taking or adjusting medication, modifying diets, and engaging in physical exercise. These findings reinforce the notion that physical action is a crucial dimension of how individuals apply information in real-world contexts. They also support Savolainen's Everyday Information Practices (EIP) model, which highlights the importance of using information in practical action (Savolainen, 2008). Furthermore, this thesis identified practices such as information incorporation, experiential learning, and storing information for future use, underscoring the role of knowledge integration as a critical aspect of information use. These findings extend the understanding of information use as an ongoing and dynamic process—one that involves deepening, refining, and reshaping one's knowledge base as new information is acquired. By emphasizing both physical action and knowledge integration, this thesis enhances the understanding of information use as both a physical and cognitive behaviour.

This research also contributes to existing research by detailing the processes of information selection, evaluation, and sharing. Participants actively engaged in filtering large volumes of information, discarding content that was irrelevant, outdated, repetitive, or unreliable. They reported being critical of the information they encountered, particularly due to the prevalence of misinformation and the evolving nature of scientific knowledge. Moreover, participants utilized information not only for personal decision-making but also to inform and influence the choices and actions of others. This thesis integrates information sharing as a vital component of information use, recognizing it as a natural extension following information-seeking. By discussing information selection, evaluation, and sharing, this thesis contributes to the understanding of information use as both a personal and social behaviour.

5.1.2 Contribution to Information Behaviour

This thesis develops existing research on information behaviour. It reveals non-active information-seeking behaviour among older adults with diabetes, such as information encountering and delegated information-seeking, adding empirical evidence for the processes of incidental information acquisition and serendipitous information discovery. These findings confirm the current understanding of information-seeking models by demonstrating that information can be obtained unintentionally (e.g., Wilson, 2020; Lee et al., 2022) or through the assistance of others (i.e., the proxy information seeking) (e.g., Paimre et al., 2023; Webster & Ryan, 2023), highlighting the diverse ways older adults navigate their health information environment.

Additionally, this research enriches the conceptualization of embodied information by revealing how participants frequently made health decisions based on bodily sensations. Many reported that their health status influenced not only their adherence to medical advice but also their interpretation of health-related information. This adds research evidence to existing research on embodied information (e.g., Suorsa, 2024; Williams et al., 2024). It also suggests expanding current models or frameworks of information behaviour by emphasizing the embodied dimension of information experiences in health contexts and calling for a deeper exploration of the relationship between health conditions and information use.

Furthermore, this thesis uncovers a complex relationship between emotions, life attitudes, autonomy, and health information behaviour. Participants exhibited a range of emotional responses, with some avoiding health information due to negative emotions, while others actively sought it to better manage their condition. This dichotomy between avoidance and active seeking highlights how emotional responses can either inhibit or motivate health information-seeking, advancing existing discussions on the role of emotions in information behaviour (e.g., Alwreikat et al., 2021; Beaudoin et al., 2021; Willson & Given, 2020).

Life attitudes also play a significant role in health information practices. Participants' diverse attitudes toward life directly influenced their adherence to dietary and exercise recommendations, revealing that life attitudes affect both health information-seeking and use. However, existing studies predominantly focus on how life attitudes influence information-seeking alone (e.g., Costello & Veinot, 2020; Kim et al., 2020), overlooking their impact on information use. This thesis thus addresses a gap in the literature by contributing to a more comprehensive understanding of how life attitudes shape both the seeking and application of health information, particularly in managing diabetes.

Finally, this thesis contributes to the growing body of literature on the challenges older adults face in maintaining autonomy while managing chronic conditions such as diabetes, which has been understudied in existing research (Buchanan & Jardine, 2023). It highlights the tension between autonomy and the need for support in health management, underscoring the importance of further research on ageism and its potential impact on diabetes management, particularly regarding the autonomy struggles experienced by older adults.

5.1.3 Contribution to the Health Crisis Context

This thesis makes a significant contribution to the growing body of research on health information behaviour by offering insights into information-seeking patterns during and after the

COVID-19 pandemic. While prior research has established that global crises, such as the COVID-19 pandemic, disrupt information behaviour (e.g., De Gani et al., 2022; Ke et al., 2021, Shi et al., 2021), this thesis uncovers an important nuance: under certain conditions, individuals may experience minimal or no change in their information-seeking habits. The continuity observed among some participants suggests that factors such as robust support systems, digital literacy, and stable health conditions can buffer individuals from the need to adapt their information strategies in times of crisis. This finding introduces a new dimension to existing theories of health information behaviour by highlighting the context-specific nature of these behaviours and the potential for resilience in the face of widespread disruption.

Moreover, this thesis addresses a gap in the literature, as limited research has examined the lasting impact of the COVID-19 pandemic on individuals' information behaviour. By revealing how people re-engage with activities that were restricted during the pandemic and re-establish disrupted routines, this research enriches our understanding of post-pandemic behaviour. Notably, some participants reported a continued reliance on the same information sources and maintained their established routines for managing diabetes throughout the pandemic, with expectations to do so in the post-pandemic era as well. These findings deepen our understanding of information behaviour in the context of a health crisis and suggest that future research should explore the conditions under which certain aspects of information behaviour remain unchanged during such crises.

5.2 Practical Implications

This research offers valuable insights for stakeholders, including policymakers, healthcare professionals, health librarians, and information professionals. It aims to enhance the well-being of older adults with diabetes by providing relevant information and services and creating supportive information environments.

5.2.1 Contribution to Information Provision

1) **Providing Reliable and Comprehensive Information:** This research underscores the importance of offering health information that is reliable, comprehensive, and relevant. It highlights that individuals engage in a filtering process when managing their health, sorting through information in ways that are meaningful to them. Therefore, healthcare systems must ensure that patients have access to accurate, timely, and relevant information. Moreover, older adults with diabetes require health information that extends beyond diabetes management alone. Given the potential complications of diabetes, such as heart disease and stroke, patients need broader information on managing related health conditions.

2) **Personalization and Adaptability of Health Information:** The study reinforces the need for healthcare providers to offer personalized and adaptable information. Older adults have nuanced preferences and motivations when seeking health information from various sources. Life attitudes also influence their search for and application of health information. As such, ensuring that information is tailored to the individual's personal context is essential for supporting ongoing health management. Additionally, the study reveals that transforming abstract health information into actionable steps is critical for improving well-being, emphasizing that healthcare providers should deliver information in ways that encourage practical application in daily life.

3) **Responding to Changing Information Needs in Crises:** During prolonged health crises such as the COVID-19 pandemic, older adults' information needs evolved, with their emotional

state playing a key role in how they sought and used health information. The study found that the emotional impact of health information can lead to its rejection, even when the source is reliable. This highlights the need for responsive information dissemination strategies that adapt to the changing phases of a crisis. Furthermore, healthcare providers must address the emotional and psychological dimensions of health management, especially during times of crisis, by offering not only accurate information but also emotional support and mental health resources.

5.2.2 Contribution to Information Services

1) **Improving Existing Tools and Platforms:** This thesis underscores the need for better tools to help older adults with diabetes save and organize health information. Many participants, accustomed to managing their chronic conditions through healthcare systems in their home countries, faced significant disruptions during the pandemic, losing access to local services and familiar support systems. Geographic location and weather also influenced how participants used health information. These findings highlight the importance of digital platforms that assist in organizing health data and the necessity of multilingual telehealth services to ensure access to care, especially in crises such as the COVID-19 pandemic. Digital solutions that support remote healthcare can further alleviate challenges posed by physical and geographical barriers, enhancing health management for older adults.

2) **Ensuring Access to Information Professionals**: This thesis highlights a significant demand for accessible health information among older adults with diabetes. The presence of information professionals, such as health librarians, can play a pivotal role in shaping how these individuals, particularly immigrant participants, seek, assess, and utilize health information. This is especially relevant in a diverse and immigrant-rich country such as Canada, where equitable

access to health information is vital for fostering inclusive healthcare. Tailored information services and policies that address the unique health needs of immigrant older adults are essential to empowering individuals from all backgrounds to effectively manage their health.

3) **Delivering Targeted and Practical Education:** The study identified a gap between participants' often unexpressed health information needs and the explicit resources available to them. It also found that participants' knowledge and skills significantly influenced their ability to meet their health needs. These findings emphasize the importance of empowering older adults with diabetes through targeted education and skill-building initiatives. By enhancing their ability to recognize, articulate, and communicate their health concerns, patients can engage more effectively with healthcare providers. Additionally, the study highlights the value of experiential learning in information use. Healthcare systems should promote hands-on approaches to patient education, such as workshops, support groups, and community-based programs. These initiatives would allow individuals to practice managing their diabetes in real-world settings, enhancing their self-management skills and overall health outcomes.

5.2.3 Contribution to Information Environment

1) **Rich Information Environments:** Participants in this thesis reported instances where the information they received unexpectedly prompted them to seek additional health information. This finding suggests that creating environments where patients can engage in spontaneous information-seeking could be highly beneficial for older adults with diabetes. Healthcare systems should consider fostering spaces where relevant health information is easily accessible and can be encountered serendipitously, helping to fill gaps in patients' knowledge.

2) **Open and Empathetic Environments:** Some participants avoided seeking information or limited their information sharing due to anxiety, privacy concerns, fear of spreading misinformation, or misconceptions about diabetes. This underscores the need for information providers to be sensitive to the psychological barriers that may prevent patients from actively seeking information. Efforts should be made to reduce stigma and misconceptions surrounding diabetes by creating open and empathetic environments where patients feel comfortable expressing their needs and engaging in meaningful information exchanges.

3) **Patient Empowerment:** Participants shared experiences of ageism and feelings of reduced autonomy in managing their diabetes, often perceiving healthcare professionals as holding authority over them. However, the study also revealed that participants relied on their personal experiences, health conditions, and lifestyles when applying health information. These findings highlight the importance of recognizing individuals as primary agents in managing their health. Healthcare practices should adopt patient-centred approaches, ensuring that older adults are empowered to take active roles in their care and that health information is relevant and actionable in the context of their lived experiences.

4) **Socially Supportive Environment:** This thesis confirmed that health information behaviour is inherently social and collaborative. While some participants abstained from seeking or sharing health information due to limited social networks, others made significant changes in managing their diabetes after learning from their peers. The findings also revealed a strong desire among participants to connect with others managing diabetes. This suggests that older adults with chronic conditions could benefit from peer-led interventions and community-based health programs. Healthcare systems should facilitate peer interaction, particularly for individuals with chronic conditions, by integrating social networks into patient care. This would foster more

inclusive and supportive environments, enhancing the social dimensions of health information behaviour.

5.3 Limitations and Future Research

5.3.1 Reflection and Limitations

This thesis adopts a qualitative approach, aiming to explore an understudied topic—information use—rather than to generate universally applicable conclusions. The demographic characteristics of participants should be carefully considered when applying the findings to other contexts. A notable aspect of this thesis is that all participants had an immigrant background, a result influenced by the recruitment process. Despite outreach to multiple organizations, engagement was limited, and a significant portion of participants were recruited through the Chinese Family Service of Greater Montreal. Consequently, most participants were Chinese immigrants or temporary residents in Canada, highlighting the need to consider cross-cultural factors when interpreting the findings. For instance, some participants originally from China cited language barriers and cultural differences as influencing their health information use. Additionally, participants were primarily recruited through social organizations and social media, which may have contributed to a sample with higher educational attainment. More than half of the participants held a bachelor's degree or higher, suggesting that they may have higher literacy levels and greater engagement with external information sources. Moreover, I did not specifically collect information on participants' access to healthcare professionals, their residency status in Canada, their health insurance coverage, or their language proficiency. These demographic characteristics might influence their health information behaviour and should be taken into account when applying the results to other populations.

The following aspects should also be considered when interpreting this research. Response bias might exist during qualitative interviews because of the researchers' presence. Some participants may tailor their responses to what they perceive as acceptable, which may not fully align with their true experiences or opinions (i.e. social desirability bias). Participants in my research might respond to questions in a way that they think would be viewed favourably by me. For instance, one participant cautiously expressed, *"我也是谈谈我自己的看法，好多东西我都不，严格地讲，我都不，不希望跟人家讲. [I am just talking about my opinions; there are lots of things I do not, to be honest, I do not want to tell others]."* Besides, since most interviews were conducted in Chinese due to participants' language preferences, nuances may be lost in translation, which could affect the accuracy and effectiveness of the quotes when translated into English. Finally, it is important to consider the temporal context of data collection. Most interviews were conducted between March and September 2023, a period when the acute phase of the COVID-19 pandemic had largely subsided, but uncertainties about its long-term effects remained. While formal restrictions were no longer in place, some participants expressed uncertainty about whether the pandemic was truly "over", reflecting lingering concerns about health risks and societal adjustments. This context may have influenced participants' reflections on long-term behavioural changes and information practices. Rather than documenting fully stabilized post-pandemic behaviours, the findings capture participants' expectations and ongoing adaptations in 2023. As a result, insights related to the pandemic's lasting impact should be understood as perspectives shaped by that particular moment in time rather than definitive accounts of enduring change. If the study were repeated today, some findings might remain relevant—such as shifts toward digital health information use and remote healthcare engagement—while others may have evolved as individuals fully transition into a post-pandemic routine.

5.3.2 Future Research

This thesis details elements of information use. Some unexpected and interesting findings were that participants reported buying products such as medications, supplements, and health-related devices and saving information as part of their information use. Prior studies on information behaviour have not widely discussed these behaviours, which provide directions for future research.

Despite these promising findings, the exploration of information use did not yield as much evidence as I anticipated. This difficulty may be attributed to several factors: 1) participants often prioritize the process of seeking information over actions taken after information seeking; 2) some participants cease further actions upon finding answers to their queries; and 3) individuals struggle to articulate their cognitive processes, a recurring challenge noted in previous studies (e.g., Belkin, 1980; Taylor, 1968; Wilson, 2020). Information use remains inadequately addressed within information science, often being treated as an adjunct to information needs or seeking. Information use refers to the actions people take with the information they find, offering significant advantages in shaping practical interventions, such as developing effective information systems, providing social services, and implementing policies. Therefore, additional studies are still needed to develop a full picture of information use.

This thesis provides research evidence on how individuals navigate health information ecosystems, engage with information, and the personal, social, and cultural factors related to their seeking and use. However, future work is still needed on significant aspects of information behaviour. Some participants in this thesis reported that they did not seek or use health information—an aspect that has been insufficiently explored in prior studies and warrants further investigation in future research endeavours. This thesis also highlights the evolving interplay between psychological states and information behaviour, where people's emotions change alongside information seeking and use, and vice versa. Therefore, future studies on this topic are suggested.

Moreover, the study emphasizes the significance of social networks (including family, friends, and communities) for older adults. Managing diabetes is a collaborative effort rather than an individual endeavour. Thus, to enhance the quality of life for older adults with diabetes, it is crucial to ensure they have sufficient social support and to recognize the pivotal role played by their social networks. However, there remains a scarcity of research evidence within library and information science concerning collaborative information behaviour and community engagement in this context (Chen et al., 2023; Sapa, 2022). Further studies on these topics are therefore recommended.

Furthermore, this thesis underscores the substantial influence of health conditions on health information use. Older adults with diabetes often consider their physical well-being when adhering to dietary and exercise recommendations, indicating that health status serves as both an information source and a determinant of behaviour. This suggests that information is not solely derived from textual sources but also from individuals' bodily experiences. Consequently, additional research is warranted to deepen our understanding of embodied information.

Participants in this thesis shared numerous experiences during the COVID-19 pandemic, offering insights into health information behaviour amid a health crisis. Unexpectedly, several participants reported minimal changes during the pandemic, attributing this to adequate medical support and stable health conditions. Further investigation is recommended to delve into these unchanged aspects. These findings also suggest the importance of investigating the health information behaviour of older adults across different phases—pre-pandemic, pandemic, and post-pandemic—to understand evolving patterns and needs.

Finally, while the findings of this thesis are valuable for understanding health information utilization among older adults with diabetes, they may not be broadly applicable due to the small sample size of only 23 participants and only one data collection method (i.e., interviews). Future research could incorporate other data sources (e.g., personal documents, public records, and policy texts) or other qualitative methods (e.g., observations) to triangulate the findings. Adopting quantitative research could also contribute to assessing the generalizability of these findings across larger populations.

In conclusion, this dissertation provides exploratory evidence for understanding the specific actions that older adults with diabetes took after finding the health information they needed (i.e., their information use behaviour). It also contributes to the field of information behaviour research by addressing non-active information behaviour, embodied information, and the complex interplay between emotions, life attitudes, autonomy, and health information behaviour. Furthermore, it offers research evidence on changes in information behaviour during the pandemic and their implications for the post-pandemic era. From a practical perspective, this dissertation offers guidance on providing targeted information, improving effective information services, and creating a supportive information environment. I hope that my dissertation, along with the discussion of future research directions, will inspire more scholars and practitioners to engage with the field of health information behaviour.

References

Adekoya, C. O. (2021). Information literacy, information use and sustainable development of higher education in Nigeria. *Information Discovery and Delivery*, *50*(3), 275-284. https://doi.org/10.1108/IDD-04-2021-0048

Afzal, W. (2017). A proposed methodology for the conceptualization, operationalization, and empirical validation of the concept of information need. *Information Research*, *22*(3), Article 761. http://www.informationr.net/ir/22-3/paper761.html

Agyemang-Duah, W., Arthur-Holmes, F., Peprah, C., Adei, D., & Peprah, P. (2020). Dynamics of health information-seeking behaviour among older adults with very low incomes in Ghana: A qualitative study. *BMC Public Health*, *20*(1), 1–13. https://doi.org/10.1186/s12889-020-08982-1

Ahmadinia, H. (2023). Breaking the barriers: The impact of health information and cultural factors on immigrant health in the Nordic countries. *Library & Information Science Research*, *45*(3), 101253. https://doi.org/10.1016/j.lisr.2023.101253

Ahmadinia, H., Eriksson-Backa, K., & Nikou, S. (2022). Health information seeking behaviour during exceptional times: A case study of Persian-speaking minorities in Finland. *Library & Information Science Research*, *44*(2), 101156. https://doi.org/10.1016/j.lisr.2022.101156

Anderson, R., & Bury, M. (Eds.). (2024). *Living with chronic illness: The experience of patients and their families*. Taylor & Francis

Akanbi, O. M., & Fourie, I. (2021). The information source preferences and information monitoring behaviour of pregnant women in Pretoria, South Africa. *Information Research*, *26*(2), Paper 902. https://doi.org/10.47989/irpaper902

Aldousari, E. A., & Al-Sejari, M. (2021). Health information seeking behaviour among the Kuwaiti population during the COVID-19 pandemic. *Malaysian Journal of Library & Information Science*, *26*(3), 105–122. https://ajap.um.edu.my/index.php/MJLIS/article/view/27343/14248

Alpay, L. L., Toussaint, P. J., Ezendam, N. P., Rövekamp, T. A., Graafmans, W. C., & Westendorp, R. G. (2004). Easing Internet access of health information for elderly users. *Health Informatics Journal*, *10*(3), 185–194. https://doi.org/10.1177/1460458204045416

Alwreikat, A., Shehata, A., & Edakar, M. A. M. (2021). Arab women feelings while seeking information during the COVID-19 pandemic: Applying PMT constructs. *Online Information Review*, *46*(3), 525–546. https://doi.org/10.1108/OIR-09-2020-0419

Aslan, A., Mold, F., Van Marwijk, H., & Armes, J. (2024). What are the determinants of older people adopting communicative e-health services: a meta-ethnography. *BMC health services research*, *24*(1), 60. https://doi.org/10.1186/s12913-023-10372-3

Aspinall, E. E., Beschnett, A., & Ellwood, A. F. (2012). Health literacy for older adults: Using evidence to build a model educational program. *Medical Reference Services Quarterly*, *31*(3), 302–314. https://doi.org/10.1080/02763869.2012.698174

Ayers, S. L., & Kronenfeld, J. J. (2007). Chronic illness and health-seeking information on the Internet. *Health*, *11*(3), 327–347. https://doi.org/10.1177/1363459307077547

Bao, X., & Ke, P. (2023). Chaos, expansion, and contraction: The information worlds of depression patients during the COVID-19 pandemic lockdown. *Journal of the Association for Information Science and Technology*, *74*(8), 971–989. https://doi.org/10.1002/asi.24769

Bates, M. J. (1989). The design of browsing and berrypicking techniques for the online search interface. *Online Review*, *13*(5), 407–424. https://doi.org/10.1108/eb024320

Bazrafshani, A., Panahi, S., Sharifi, H., & Merghati-Khoei, E. (2022). Drivers and barriers to using online social networking technologies among people living with HIV/AIDS in Iran. *Information Research*, *27*(3), paper 940. https://doi.org/10.47989/irpaper940

Beaudoin, C. E., & Hong, T. (2021). Predictors of COVID-19 preventive perceptions and behaviors among millennials: Two cross-sectional survey studies. *Journal of Medical Internet Research*, *23*(8), e30612. https://www.jmir.org/2021/8/e30612

Belkin, N. J. (1980). Anomalous states of knowledge as a basis for information retrieval. *Canadian Journal of Information Science*, *5*(1), 133–143. https://tefkos.comminfo.rutgers.edu/Courses/612/Articles/BelkinAnomalous.pdf

Belkin, N. J. (2005). Anomalous state of knowledge. In K. E. Fisher, S. Erdelez, & L. E. McKechnie (Eds.), *Theories of information behavior* (pp. 44–48). Information Today, Inc.

Berget, G., & MacFarlane, A. (2020). What is known about the impact of impairments on information seeking and searching? *Journal of the Association for Information Science and Technology*, *71*(5), 596–611. https://doi.org/10.1002/asi.24256

Berkowsky, R. W., & Czaja, S. J. (2018). Challenges associated with online health information seeking among older adults. In *Aging, technology and health* (pp. 31-48). Academic Press. https://doi.org/10.1016/B978-0-12-811272-4.00002-6

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Braun, V., & Clarke, V. (2021). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling and Psychotherapy Research*, *21*(1), 37–47. https://doi.org/10.1002/capr.12360

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide*. SAGE.

Broekhuis, M., van Velsen, L., De Franco, D., Pease, A., & Hermens, H. (2022). Contextual health information behavior in the daily lives of people with type 2 diabetes: A diary study in Scotland. *Health Communication*, *37*(3), 272–284.

Brown, L. K., & Veinot, T. C. (2021). Information behavior and social control: Toward an understanding of conflictual information behavior in families managing chronic illness. *Journal of the Association for Information Science and Technology*, *72*(1), 66–82. https://doi.org/10.1002/asi.24362

Buchanan, S., & Jardine, C. (2023). The information behaviours of disadvantaged young first-time mothers. *Journal of Documentation*, *79*(2), 357–375. https://doi.org/10.1108/JD-03-2022-0072

Butterfield, L. D., Borgen, W. A., Amundson, N. E., & Maglio, A. S. T. (2005). Fifty years of the critical incident technique: 1954-2004 and beyond. *Qualitative Research, 5*(4), 475-497. https://doi.org/10.1177/1468794105056924

Case, D. O., & Given, L. M. (2016). *Looking for information: A survey of research on information seeking, needs, and behavior* (4th ed.). Emerald.

CDC. (2022). *About chronic diseases*. https://www.cdc.gov/chronicdisease/about/index.htm#:~:text=Print,disability%20in%20the%20United%20States

Chaitoff, A., & Zheutlin, A. R. (2024). Epidemiology of hypertension in older adults. *Clinics in Geriatric Medicine*, *40*(4), 515-528. https://doi.org/10.1016/j.cger.2024.04.007

Chang, S. J., & Im, E. O. (2014). A path analysis of Internet health information seeking behaviors among older adults. *Geriatric Nursing (New York, N.Y.)*, *35*(2), 137–141. https://doi.org/10.1016/j.gerinurse.2013.11.005

Chatman, E. A. (1991). Life in a small world: Applicability of gratification theory to information-seeking behavior. *Journal of the American Society for Information Science and Technology*, *42*(6), 438–449. https://doi.org/10.1002/(SICI)1097-4571(199107)42:6<438: AID-ASI6>3.0.CO;2-B

Chatman, E. A. (1996). The impoverished life-world of outsiders. *Journal of the American Society for Information Science*, *47*(3), 193–206. https://doi.org/10.1002/(SICI)1097-4571(199603)47:3<193::AID-ASI3>3.0.CO;2-T

Chaudhuri, S., Le, T., White, C., Thompson, H., & Demiris, G. (2013). Examining health information-seeking behaviors of older adults. *Computers, Informatics, Nursing: CIN*, *31*(11), 547–553. https://doi.org/10.1097/01.NCN.0000432131.92020.42

Chen, A. T. (2021). Interactions between affect, cognition, and information behavior in the context of fibromyalgia. *Journal of the Association for Information Science and Technology*, *73*(1), 31–44. https://doi.org/10.1002/asi.24538

Chen, A. T., Ocepek, M. G., & Zhang, Y. (2023). Guest editorial: Research methods in information behavior research. *Library and Information Science Research*, *45*(1), 101221. https://doi.org/10.1016/j.lisr.2022.101221

Chen, X., Li, M., & Kreps, G. L. (2022). Double burden of COVID-19 knowledge deficit: Low health literacy and high information avoidance. *BMC Research Notes*, *15*(1), 27. https://doi.org/10.1186/s13104-022-05913-8

Chi, Y., He, D., & Jeng, W. (2020). Laypeople's source selection in online health information-seeking process. *Journal of the Association for Information Science and Technology*, *71*(12), 1484–1499. https://doi.org/10.1002/asi.24343

Choi, W. (2019). Older adults' health information behavior in everyday life settings. *Library and Information Science Research*, *41*(4), Article 100983. https://doi.org/10.1016/j.lisr.2019.100983

Choi, W. (2020). Older adults' credibility assessment of online health information: An exploratory study using an extended typology of web credibility. *Journal of the Association for Information Science and Technology*, *71*(11), 1295–1307. https://doi.org/10.1002/asi.24341

Choi, W., Park, M. S., & Lee, Y. (2022). Associations between mastery of life and everyday life information-seeking behavior among older adults: Analysis of the Pew Research Center's information engaged and information wary survey data. *Journal of the Association for Information Science and Technology*, *73*(3), 393–406. https://doi.org/10.1002/asi.24556

Choo, C. W., Furness, C., Paquette, S., Van Den Berg, H., Detlor, B., Bergeron, P., & Heaton, L. (2006). Working with information: Information management and culture in a professional services organization. *Journal of Information Science*, *32*(6), 491–510. https://doi.org/10.1177/0165551506068159

Chung, J., Gassert, C. A., & Kim, H. S. (2011). Online health information use by participants in selected senior centers in Korea: Current status of Internet access and health information use by Korean older adults. *International Journal of Older People Nursing*, *6*(4), 261–271. https://doi.org/10.1111/j.1748-3743.2010.00238.x

Clarke, P., Evans, S. H., Shook, D., & Johanson, W. (2005). Information seeking and compliance in planning for critical care: Community-based health outreach to seniors about advance directives. *Health Communication*, *18*(1), 1–22. https://doi.org/10.1207/s15327027hc1801_1

Cole, C. (2012). *Information need: A theory connecting information search to knowledge formation.* Information Today.

Colosimo, A. L., & Badia, G. (2021). Diaries of lifelong learners: Information-seeking behaviors of older adults in peer-learning study groups at an academic institution. *Library & Information Science Research*, *43*(3), 101102. https://doi.org/10.1016/j.lisr.2021.101102

Connelly, L. M. (2016). Trustworthiness in qualitative research. *Medsurg Nursing*, *25*(6), 435–436.

Costa, I. G., & Camargo-Plazas, P. (2023). The processes of engagement in information-seeking behavior for individuals with diabetes who developed diabetic foot ulcer: A constructivist grounded theory study. *Digital Health, 9*, 20552076231177155. https://doi.org/10.1177/20552076231177155

Costello, K. L., & Veinot, T. C. (2020). A spectrum of approaches to health information interaction: From avoidance to verification. *Journal of the Association for Information Science and Technology*, *71*(8), 871–886. https://doi.org/10.1002/asi.24310

Creswell, J. W. (2016). *30 essential skills for the qualitative researcher.* SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

Czaja, S. J., Sharit, J., Nair, S. N., & Lee, C. C. (2009). Older adults and Internet health information seeking. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *53*(2), 126–130. https://doi.org/10.1177/154193120905300204

De Gani, S. M., Berger, F. M. P., Guggiari, E., & Jaks, R. (2022). Relation of corona-specific health literacy to use of and trust in information sources during the COVID-19 pandemic. *BMC Public Health*, *22*(1), 1–14. https://doi.org/10.1186/s12889-021-12271-w

Dean, C. A., Geneus, C. J., Rice, S., Johns, M., Quasie-Woode, D., Broom, K., & Elder, K. (2017). Assessing the significance of health information seeking in chronic condition management. *Patient Education and Counseling*, *100*(8), 1519–1526. https://doi.org/10.1016/j.pec.2017.03.012

Deng, Z., Deng, Z., Fan, G., Wang, B., Fan, W. (P.), & Liu, S. (2023). More is better? Understanding the effects of online interactions on patients' health anxiety. *Journal of the Association for Information Science and Technology*, *74*(11), 1243–1264. https://doi.org/10.1002/asi.24822

Dervin, B., & Nilan, M. (1986). Information needs and uses. *Annual Review of Information Science and Technology*, 21, 3-33. https://hdl.handle.net/2027/uc1.b3642142

Diabetes Canada. (2024a). *Diabetes in Canada 2024 Backgrounder*. https://www.diabetes.ca/getmedia/d7bd5e56-a654-450e-b8ee-0cd05f28ee46/2024-Backgrounder-Canada.pdf

Diabetes Canada. (2024b). *Diabetes Canada asks people to make time for diabetes this November*. https://www.diabetes.ca/media-room/press-release/diabetes-canada-asks-people-to-make-time-for-diabe

Diaz-Gutierrez, J. M., Mohammadi-Mavi, H., & Ranjbari, A. (2023). COVID-19 impacts on online and in-store shopping behaviors: Why they happened and whether they will last post pandemic. *Transportation Research Record*,*0*(0). https://doi.org/10.1177/03611981231155169

Dieterle, U., & Becker, C. (2011). Health information for the elderly and their caregivers: A training toolkit for public libraries. *Journal of Consumer Health on the Internet*, *15*(2), 132–148. https://doi.org/10.1080/15398285.2011.573332

Donelle, L., & Hoffman-Goetz, L. (2009). Functional health literacy and cancer care conversations in online forums for retired persons. *Informatics for Health and Social Care*, *34*(1), 59–72. https://doi.org/10.1080/17538150902779535

Dreisiebner, S., März, S., & Mandl, T. (2022). Information behavior during the Covid-19 crisis in German-speaking countries. *Journal of Documentation*, *78*(7), 160–175. https://doi.org/10.1108/JD-12-2020-0217

Ek, S. (2015). Gender differences in health information behaviour: A Finnish population-based survey. *Health Promotion International*, *30*(3), 736–745. https://doi.org/10.1093/heapro/dat063

El-Attar, T., Gray, J., Nair, S. N., Ownby, R., & Czaja, S. J. (2005). Older adults and Internet health information seeking. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *49*(2), 163–166. https://doi.org/10.1177/154193120504900203

Ellis, J., Mullan, J., Worsley, A., & Pai, N. (2012). The Role of Health Literacy and Social Networks in Arthritis Patients′ Health Information-Seeking Behavior: A Qualitative Study. *International journal of family medicine*, *2012*(1), 397039. https://doi.org/10.1155/2012/397039

Enwald, H., Kangas, M., Keranen, N., Immonen, M., Simila, H., Jamsa, T., & Korpelainen, R. (2017). Health information behaviour, attitudes towards health information, and motivating factors for encouraging physical activity among older people: Differences by sex and age. *Information Research-an International Electronic Journal*, *22*(1), paper isic1623. http://InformationR.net/ir/22-1/isic/isic1623.html

Erdelez, S., & Makri, S. (2020). Information encountering re-encountered: A conceptual re-examination of serendipity in the context of information acquisition. *Journal of Documentation*, *76*(3), 731–751. https://doi.org/10.1108/JD-08-2019-0151

Eriksson-Backa, K., Enwald, H., Hirvonen, N., & Huvila, I. (2018). Health information seeking, beliefs about abilities, and health behaviour among Finnish seniors. *Journal of Librarianship and Information Science*, *50*(3), 284–295. https://doi.org/10.1177/0961000618769971

Feufel, M. A., & Stahl, S. F. (2012). What do web-use skill differences imply for online health information searches? *Journal of Medical Internet Research*, *14*(3), e87. https://www.jmir.org/2012/3/e87

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327–358. https://doi.org/10.1037/h0061470

Forero, R., Nahidi, S., De Costa, J., Mohsin, M., Fitzgerald, G., Gibson, N., McCarthy, S., & Aboagye-Sarfo, P. (2018). Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine. *BMC Health Services Research*, *18*(1), 1–11. https://doi.org/10.1186/s12913-018-2915-2

Frants, V. I., & Brush, C. B. (1988). The need for information and some aspects of information retrieval systems construction. *Journal of the American Society for Information Science (1986-1998)*, *39*(2), 86.

Gille, S., Griese, L., & Schaeffer, D. (2021). Preferences and experiences of people with chronic illness in using different sources of health information: Results of a mixed-methods study. *International Journal of Environmental Research and Public Health*, *18*(24), 13185. https://doi.org/10.3390/ijerph182413185

Ginsburg, G. S., Picard, R. W., & Friend, S. H. (2024). Key issues as wearable digital health technologies enter clinical care. *New England Journal of Medicine*, *390*(12), 1118-1127.

Given, L. M., Case, D. O., & Willson, R. (2023). *Looking for information: Examining research on how people engage with information*. Emerald Publishing Limited.

Godbold, N. (2006). Beyond information seeking: Towards a general model of information behaviour. *Information Research, 11*(4) paper 269. http://InformationR.net/ir/11-4/paper269.html

Goodall, K. T., Newman, L. A., & Ward, P. R. (2014). Improving access to health information for older migrants by using grounded theory and social network analysis to understand their information behaviour and digital technology use. *European Journal of Cancer Care*, *23*(6), 728–738. https://doi.org/10.1111/ecc.12241

Government of Canada. (2024). *Age-friendly communities.* https://www.canada.ca/en/public-health/services/health-promotion/aging-seniors/friendly-communities.html

Granderath, J. S., Sondermann, C., Martin, A., & Merkt, M. (2021). Actual and perceived knowledge about COVID-19: The role of information behavior in media. *Frontiers in Psychology*, *12*, 778886. https://doi.org/10.3389/fpsyg.2021.778886

Green, J., & Thorogood, N. (2018). *Qualitative methods for health research* (Introducing qualitative methods series) (4th ed.). Sage Publications.

Hargreaves, S., Sbaffi, L., & Ford, N. (2023). Information seeking amongst informal caregivers of people with dementia: A qualitative study. *Journal of Documentation*, *79*(2), 281–300. https://doi.org/10.1108/JD-03-2022-0066

Harviainen, J. T., & Hamari, J. (2015). Seek, share, or withhold: Information trading in MMORPGs. *Journal of Documentation*, *71*(6), 1119-1134. https://doi.org/10.1108/JD-09-2014-0135

Herner, S., & Herner, M. (1967). Information needs and uses in science and technology. *Annual Review of Information Science and Technology*, *2*, 1–34. https://hdl.handle.net/2027/mdp.39015024192034

Hicks, A., McKenzie, P., Bronstein, J., Seiden Hyldegård, J., Ruthven, I., & Widén, G. (2025). Information avoidance: A critical conceptual review. An Annual Review of Information Science and Technology (ARIST) paper. *Journal of the Association for Information Science and Technology*, *76*(1), 326-346. https://doi.org/10.1002/asi.24968

Hirvonen, N. (2022). Nameless strangers, similar others: The affordances of a young people's anonymous online forum for health information practices. *Journal of Documentation*, *78*(7), 506–527. https://doi.org/10.1108/JD-09-2021-0192

Hoffman-Goetz, L., Donelle, L., & Thomson, M. D. (2009). Clinical guidelines about diabetes and the accuracy of peer information in an unmoderated online health forum for retired persons. *Informatics for Health and Social Care*, *34*(2), 91–99. https://doi.org/10.1080/17538150902865136

Horrell, L. N., Hayes, S., Herbert, L. B., MacTurk, K., Lawhon, L., Valle, C. G., & Bhowmick, A. (2021). Telemedicine use and health-related concerns of patients with chronic conditions during COVID-19: Survey of members of online health communities. *Journal of Medical Internet Research*, *23*(2), e23795. https://www.jmir.org/2021/2/e23795/

Huang, M., Hansen, D., & Xie, B. (2012). Older adults' online health information seeking behavior. In *Proceedings of the 2012 iConference* (pp. 338–345). https://doi.org/10.1145/2132176.2132220

Huisman, M., Biltereyst, D., & Joye, S. (2020). Sharing is caring: The everyday informal exchange of health information among adults aged fifty and over. *Information Research*, *25*(1), paper 848. http://InformationR.net/ir/25-1/paper848.html

Huvila, I., Enwald, H., Eriksson-Backa, K., Hirvonen, N., Nguyen, H., & Scandurra, I. (2018). Anticipating ageing: Older adults reading their medical records. *Information Processing & Management*, *54*(3), 394–407. https://doi.org/10.1016/j.ipm.2018.01.007

Inthiran, A. (2021). Trust or do not trust: Evaluation strategies used by online health information consumers in South East Asia. *Information Research*, *26*(1), paper 886. https://doi.org/10.47989/irpaper886

Jensen, J. D., Liu, M., Carcioppolo, N., John, K. K., Krakow, M., & Sun, Y. (2017). Health information seeking and scanning among US adults aged 50–75 years: Testing a key postulate of the information overload model. *Health Informatics Journal*, *23*(2), 96–108. https://doi.org/10.1177/1460458215627290

Jia, R. M., Du, J. T., & Zhao, Y. C. (2022). Characteristics of the health information seeking behavior of LGBTQ+ individuals: A systematic review on information types, information sources, and influencing factors. *Journal of Documentation*, *78*(2), 361–388. https://doi.org/10.1108/JD-03-2021-0069

Kalantzi, S., Kostagiolas, P., Kechagias, G., Niakas, D., & Makrilakis, K. (2015). Information seeking behavior of patients with diabetes mellitus: A cross-sectional study in an outpatient clinic of a university-affiliated hospital in Athens, Greece. *BMC Research Notes*, *8*(1), 1–7. https://doi.org/10.1186/s13104-015-1005-3

Känsäkoski, H. M., Hirvonen, N., Palmgren-Neuvonen, L., Nygård, T., & Huotari, M.-L. (2021). Finnish adolescents' selection and assessment of health information sources. *Information Research*, *26*(1), paper 893. https://doi.org/10.47989/irpaper893

Kari, J. (2010). Diversity in the conceptions of information use. *Information Research*, *15*(3), 15-3. http://InformationR.net/ir/15-13/colis7/colis709.html

Katavić, S. S., Martinović, I., & Kim, S. U. (2020). College students' sexual health information needs and source preferences in relation to worry about sexual health outcomes. *Information Research*, *25*(1), paper 853. http://InformationR.net/ir/25-1/paper853.html

Kaziunas, E., Ackerman, M. S., & Veinot, T. C. (2013). Localizing chronic disease management: Information work and health translations. *Proceedings of the American Society for*

Information Science and Technology, *50*(1), 1–10. https://doi.org/10.1002/meet.14505001090

Ke, Q., Du, J. T., & Ji, L. (2021). Toward a conceptual framework of health crisis information needs: An analysis of COVID-19 questions in a Chinese social Q&A website. *Journal of Documentation*, *77*(4), 851–870. https://doi.org/10.1108/JD-10-2020-0173

Kim, J. A., & Chang, H. R. (2016). A study on the information behavior of older adults with diabetes. *Journal of the Korean Society for Information Management, 33*(1), 197-223. https://doi.org/10.3743/KOSIM.2016.33.1.197

Kim, S. H., & Utz, S. (2018). Association of health literacy with health information-seeking preference in older people: A correlational, descriptive study. *Nursing & Health Sciences*, *20*(3), 355–360. https://doi.org/10.1111/nhs.12413

Kim, S., Sinn, D., & Syn, S. Y. (2020). Personal health information management by college students: Patterns of inaction. *Information Research*, *25*(1), paper 851. http://InformationR.net/ir/25-1/paper851.html

Kitzie, V. L., Wagner, T. L., Lookingbill, V., & Vera, N. (2022). Advancing information practices theoretical discourses centered on marginality, community, and embodiment: Learning from the experiences of lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA+) communities. *Journal of the Association for Information Science and Technology*, *73*(4), 494-510. https://doi.org/10.1002/asi.24594

Konca, M., Demirci, S., Çakmak, C., & Uğurluoğlu, Ö. (2022). Exploring the socio-economic determinants of health information-seeking behaviour on the Internet in Turkey. *Information Research*, *27*(2), paper 930. https://doi.org/10.47989/irpaper930

Kong, W., Song, S., Zhao, Y. C., Zhu, Q., & Sha, L. (2021). TikTok as a health information source: Assessment of the quality of information in diabetes-related videos. *Journal of Medical Internet Research*, *23*(9), e30409. https://www.jmir.org/2021/9/e30409/

Kuhlthau, C. (1988). Developing a model of the library search process: Cognitive and affective aspects. *RQ*, *28*(2), 232–242. http://www.jstor.org/stable/25828262

Kuske, S., Schiereck, T., Grobosch, S., Paduch, A., Droste, S., Halbach, S., & Icks, A. (2017). Diabetes-related information-seeking behaviour: a systematic review. *Systematic reviews*, *6*, 1-17. https://doi.org/10.1186/s13643-017-0602-8

Kvikne, B., & Berget, G. (2022). "My words were completely gone." A qualitative study of the information seeking behaviour of people with aphasia. *Information Research*, *27*(1), paper 916. https://doi.org/10.47989/irpaper916

Lebrasseur, A., Fortin-Bédard, N., Lettre, J., Raymond, E., Bussières, E. L., Lapierre, N., ... & Routhier, F. (2021). Impact of the COVID-19 pandemic on older adults: Rapid review. *JMIR Aging*, *4*(2), e26474. https://aging.jmir.org/2021/2/e26474

Lee, H. Y., Jin, S. W., Henning-Smith, C., Lee, J., & Lee, J. (2021). Role of health literacy in health-related information-seeking behavior online: cross-sectional study. *Journal of Medical Internet Research*, *23*(1), e14088. https://www.jmir.org/2021/1/e14088/

Lee, H. S., & Smith, C. A. (2022). A comparative mixed methods study on health information seeking among US-born/US-dwelling, Korean-born/US-dwelling, and Korean-born/Korean-dwelling mothers. *Journal of the Association for Information Science and Technology*, *73*(7), 929–943. https://doi.org/10.1002/asi.24601

Lee, K., Hoti, K., Hughes, J. D., & Emmerton, L. (2014). Dr. Google and the consumer: A qualitative study exploring the navigational needs and online health information-seeking behaviors of consumers with chronic health conditions. *Journal of Medical Internet Research*, *16*(12), e3706. https://www.jmir.org/2014/12/e262/

Lee, L., Ocepek, M. G., & Makri, S. (2022). Information behavior patterns: A new theoretical perspective from an empirical study of naturalistic information acquisition. *Journal of the Association for Information Science and Technology*, *73*(4), 594–608. https://doi.org/10.1002/asi.24595

Lekic, D., Rivière, A. L., & Ihadjadene, M. (2020). Information behaviour of top managers of telecommunications network units in the context of the digital transformation of the organization. *Information Research*, *25*(4), paper 884. https://doi.org/10.47989/irpaper884

Li, X., Luo, X., Cox, A., Zhang, Y., & Lu, Y. (2023). The mental health information needs of Chinese university students and their use of online resources: A holistic model. *Journal of Documentation*, *79*(2), 442–467. https://doi.org/10.1108/JD-12-2021-0249

Liang, H., Xue, Y., & Zhang, Z. (2017). Understanding online health information use: The case of people with physical disabilities. *Journal of the Association for Information Systems*, *18*(6), 2. https://aisel.aisnet.org/jais/vol18/iss6/2

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Lindau, S. T., Makelarski, J. A., Abramsohn, E. M., Beiser, D. G., Boyd, K., Huang, E. S., ... & Tung, E. L. (2022). Sharing information about health-related resources: Observations from a community resource referral intervention trial in a predominantly African American/Black community. *Journal of the Association for Information Science and Technology*, *73*(3), 438–448. https://doi.org/10.1002/asi.24560

Link, E. (2021). Information avoidance during health crises: Predictors of avoiding information about the COVID-19 pandemic among German news consumers. *Information Processing & Management, 58*(6), Article 102714. https://doi.org/10.1016/j.ipm.2021.102714

Litchman, M. L., Rothwell, E., & Edelman, L. S. (2018). The diabetes online community: Older adults supporting self-care through peer health. *Patient Education and Counseling*, *101*(3), 518–523. https://doi.org/10.1016/j.pec.2017.08.023

Liu, J., & Li, Y. (2021). Supporting information use and task accomplishment: What system features do users like and expect? *Journal of Information Science*, *47*(5), 627–641. https://doi.org/10.1177/0165551520917100

Liu, Y., Qin, C., Ma, X., & Liang, H. (2022). Serendipity in human information behavior: A systematic review. *Journal of Documentation*, *78*(2), 435–462. https://doi.org/10.1108/JD-02-2021-0029

Longo, D. R., Schubert, S. L., Wright, B. A., LeMaster, J., Williams, C. D., & Clore, J. N. (2010). Health information seeking, receipt, and use in diabetes self-management. *The Annals of Family Medicine, 8*(4), 334-340. https://doi.org/10.1370/afm.1115

Lu, L., & Yuan, Y. C. (2011). Shall I Google it or ask the competent villain down the hall? The moderating role of information need in information source selection. *Journal of the American Society for Information Science and Technology*, *62*(1), 133–145. https://doi.org/10.1002/asi.21449

Luger, T. M., Houston, T. K., & Suls, J. (2014). Older adult experience of online diagnosis: Results from a scenario-based think-aloud protocol. *Journal of Medical Internet Research*, *16*(1), e16. https://www.jmir.org/2014/1/e16

Lund, B., & Ma, J. (2021). Exploring information seeking of rural older adults during the COVID-19 pandemic. *Aslib Journal of Information Management*, *74*(1), 54–77. https://doi.org/10.1108/AJIM-04-2021-0118

Ma, D., Zhou, J., & Zuo, M. (2024). Information Seeking and Receiving of Older Adults with Diabetes in the Online Health Community: An Information Need Contextualization Perspective. *Health Communication, 40*(3), 1-12. https://doi.org/10.1080/10410236.2024.2349314

Madukwe, A. I., & Osonwa, J. O. (2021). Information needs and seeking behaviors of communal frontline health workers in Anambra State. *Library Philosophy and Practice*, 1–20. https://digitalcommons.unl.edu/libphilprac/5686

Magsamen-Conrad, K., Dillon, J. M., Billotte Verhoff, C., & Faulkner, S. L. (2019). Online health-information seeking among older populations: Family influences and the role of the medical professional. *Health Communication*, *34*(8), 859–871. https://doi.org/10.1080/10410236.2018.1439265

Malone, T., Jo, P., & Clifton, S. (2017). Perceived eHealth literacy and information behavior of older adults enrolled in a health information outreach program. *Journal of Consumer Health on the Internet*, *21*(2), 137–147. https://doi.org/10.1080/15398285.2017.1300040

Manafo, E., & Wong, S. (2012). Exploring older adults' health information seeking behaviors. *Journal of Nutrition Education and Behavior*, *44*(1), 85–89. https://doi.org/10.1016/j.jneb.2011.05.018

Marcella, R., Rowlands, H., & Baxter, G. (2013). The critical incident technique as a tool for gathering data as part of a qualitative study of information seeking behaviour. In Ramos, I. & Mesquita, A. (Eds.), *Leading issues in business and management research, Volume 2* (pp. 247–253). Sonning Common, Portugal: Academic Conferences and Publishing International.

Marchionini, G. (1995). Information-seeking perspective and framework. In G. Marchionini, *Information seeking in electronic environments* (pp. 27–60). Cambridge University Press.

Matas, H., & Bronstein, J. (2018). A qualitative inquiry of old people's health literacy in situations of health uncertainty. *Health Information & Libraries Journal*, *35*(4), 319–330. https://doi.org/10.1111/hir.12234

Mackey, L. M., Doody, C., Werner, E. L., & Fullen, B. (2016). Self-management skills in chronic disease management: what role does health literacy have?. *Medical Decision Making*, *36*(6), 741-759. https://doi.org/10.1177/0272989X1663833

McMillan, S. J., Avery, E. J., & Macias, W. (2008). From have-nots to watchdogs: Understanding Internet health communication behaviors of online senior citizens. *Information, Communication & Society*, *11*(5), 675–697. https://doi.org/10.1080/13691180802126745

Medlock, S., Eslami, S., Askari, M., Arts, D. L., Sent, D., De Rooij, S. E., & Abu-Hanna, A. (2015). Health information–seeking behavior of seniors who use the internet: A survey. *Journal of Medical Internet Research*, *17*(1), e10. https://www.jmir.org/2015/1/e10/

Mengiste, M., Ahmed, M. H., Bogale, A., & Yilma, T. (2021). Information-seeking behavior and its associated factors among patients with diabetes in a resource-limited country: A cross-sectional study. *Diabetes, Metabolic Syndrome and Obesity*, *2021*(14), 2155–2166. https://doi.org/10.2147/DMSO.S289905

Montesi, M. (2023). Everyday information behavior during the "new normal" of the Covid-19 pandemic: Approaching the notions of experiential and local knowledge. *Journal of Documentation*, *79*(1), 160–182. https://doi.org/10.1108/JD-03-2022-0056

Moore, R. C., & Hancock, J. T. (2020). Older adults, social technologies, and the coronavirus pandemic: Challenges, strengths, and strategies for support. *Social Media + Society*, *6*(3). https://doi.org/10.1177/2056305120948162

Moshfeghi, Y., & Pollick, F. E. (2019). Neuropsychological model of the realization of information need. *Journal of the Association for Information Science and Technology*, *70*(9), 954–967. https://doi.org/10.1002/asi.24242

Ndumu, A. (2020). Toward a new understanding of immigrant information behavior: A survey study on information access and information overload among US Black diasporic immigrants. *Journal of Documentation*, *76*(4), 869-891. https://doi.org/10.1108/JD-04-2019-0066

NIA. (2019). *Diabetes in older people*. https://www.nia.nih.gov/health/diabetes-older-people

Noh, Y. (2022). A study on researcher use behavior changes since Covid-19. *Journal of Librarianship and Information Science*, *54*(4), 545–557. https://doi.org/10.1177/09610006211033893

Okolo, C. A., Ijeh, S., Arowoogun, J. O., Adeniyi, A. O., & Omotayo, O. (2024). Reviewing the impact of health information technology on healthcare management efficiency. *International Medical Science Research Journal*, *4*(4), 420–440. https://doi.org/10.51594/imsrj.v4i4.1000

Oliphant, T., Berry, T., & Norris, C. (2022). 'In a perfect world doctors and the medical profession would accept people for who they are': Women's heart health information practices. *Information Research*, *27*(2), paper 931. https://doi.org/10.47989/irpaper931

Oyovwe-Tinuoye, G. O., & Ferdinand, O. A. (2020). Covid-19 information seeking behaviors of Nigerian health practitioners: A study of medical doctors in Delta State. *Library Philosophy and Practice*, 1–15. https://digitalcommons.unl.edu/libphilprac/4153/

Paimre, M., Virkus, S., & Osula, K. (2023). Health information behavior and related factors among Estonians aged ≥ 50 years during the COVID-19 pandemic. *Journal of Documentation*, *79*(5), 1164–1181. https://doi.org/10.1108/JD-10-2022-0217

Paisley, W. (1968). Information needs and uses in science and technology. *Annual Review of Information Science and Technology*, *3*, 1–30. https://hdl.handle.net/2027/uc1.b3642044

Pan, S. L., Cui, M., & Qian, J. (2020). Information resource orchestration during the COVID-19 pandemic: A study of community lockdowns in China. *International Journal of Information Management*, *54*, 102143. https://doi.org/10.1016/j.ijinfomgt.2020.102143

Pang, N., Karanasios, S., & Anwar, M. (2020). Exploring the information worlds of older persons during disasters. *Journal of the Association for Information Science and Technology*, *71*(6), 619–631. https://doi.org/10.1002/asi.24294

Paterson, B., & Thorne, S. (2000). Developmental evolution of expertise in diabetes self-management. *Clinical Nursing Research, 9*(4), 402-419. https://doi.org/10.1177/10547730022158663

Price, M. J. (1993). An experiential model of learning diabetes self-management. *Qualitative Health Research, 3*(1), 29-54. https://doi.org/10.1177/104973239300300103

Pian, W., Zheng, R., Potenza, M. N., Chen, L., & Ma, F. (2024). Health information craving: Conceptualization, scale development, and validation. *Information Processing & Management*, *61*(4), Article 103717. https://doi.org/10.1016/j.ipm.2024.103717

Pine, K. H., Lee, M., Whitman, S. A., Chen, Y., & Henne, K. (2021, May). Making sense of risk information amidst uncertainty: Individuals' perceived risks associated with the COVID-19 pandemic. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1–15). https://doi.org/10.1145/3411764.3445051

Sairanen, A., & Savolainen, R. (2010). Avoiding health information in the context of uncertainty management. *Information Research, 15*(4), paper 443. http://InformationR.net/ir/15-4/paper443.html

Sapa, R. (2022). Library and information science applied studies on collaborative information behavior. *Library & Information Science Research*, *44*(4), 101204. https://doi.org/10.1016/j.lisr.2022.101204

Sarkar, S., Mitsui, M., Liu, J., & Shah, C. (2020). Implicit information need as explicit problems, help, and behavioral signals. *Information Processing & Management*, *57*(2), 102069. https://doi.org/10.1016/j.ipm.2019.102069

Savolainen, R. (1995). Everyday life information seeking: Approaching information seeking in the context of "way of life." *Library & Information Science Research*, *17*(3), 259–294. https://doi.org/10.1016/0740-8188(95)90048-9

Savolainen, R. (2005). Everyday life information seeking. In Fisher, K. E., Erdelez, S., & McKechnie, L. E. (Eds.), *Theories of information behavior* (pp. 143–148). Information Today, Inc.

Savolainen, R. (2007). Information behavior and information practice: Reviewing the “umbrella concepts” of information-seeking studies. *The Library Quarterly*, *77*(2), 109-132. https://doi.org/10.1086/517840

Savolainen, R. (2008). *Everyday information practices: A social phenomenological perspective.* Scarecrow Press.

Savolainen, R. (2009). Epistemic work and knowing in practice as conceptualizations of information use. *Information Research*, *14*(1), Paper 392. http://InformationR.net/ir/14-1/paper392.html

Savolainen, R. (2022). What drives people to prefer health-related misinformation? The viewpoint of motivated reasoning. *Information Research*, *27*(2), paper 927. https://doi.org/10.47989/irpaper927

Savolainen, R., & Thomson, L. (2022). Assessing the theoretical potential of an expanded model for everyday information practices. *Journal of the Association for Information Science and Technology*, *73*(4), 511-527. https://doi.org/10.1002/asi.24589

Sbaffi, L., & Hargreaves, S. (2022). The information trust formation process for informal caregivers of people with dementia: A qualitative study. *Journal of Documentation*, *78*(2), 302–319. https://doi.org/10.1108/JD-01-2021-0014

Sbaffi, L., & Zhao, C. (2020). Modeling the online health information seeking process: Information channel selection among university students. *Journal of the Association for Information Science and Technology*, *71*(2), 196–207. https://doi.org/10.1002/asi.24230

Sedrak, M. S., Soto-Perez-De-Celis, E., Nelson, R. A., Liu, J., Waring, M. E., Lane, D. S., Paskett, E. D., & Chlebowski, R. T. (2020). Online health information-seeking among older women with chronic illness: Analysis of the women's health initiative. *Journal of Medical Internet Research*, *22*(4), Article e15906. https://doi.org/10.2196/15906

Shabi, I. N., & Oyewusi, F. O. (2018). Health literacy and internet health information use among in-school adolescents in Osun State, South-West, Nigeria. *Journal of Consumer Health on the Internet*, *22*(1), 25–41. https://doi.org/10.1080/15398285.2017.1402636

Shehata, A. (2021). Health information behaviour during COVID-19 outbreak among Egyptian library and information science undergraduate students. *Information Development*, *37*(3), 417–430. https://doi.org/10.1177/0266666920976181

Shi, Y., & Luo, L. (2020). Meeting Chinese older adults' health information needs: The role of public libraries. *The Library Quarterly*, *90*(3), 332–348. https://doi.org/10.1086/708961

Shi, Y., Li, C., & Luo, L. (2021). Impact of the COVID-19 pandemic on Chinese college students' information behavior and library needs: A qualitative study. *The Library Quarterly*, *91*(2), 150–171. https://doi.org/10.1086/713051

Smith, C. A., & Masters, P. R. (2023). College students and patient work: Health information management by emerging young adults. *Library & Information Science Research*, *45*(1), 101216. https://doi.org/10.1016/j.lisr.2022.101216

Song, S., Yao, X., & Wen, N. (2021). What motivates Chinese consumers to avoid information about the COVID-19 pandemic?: The perspective of the stimulus-organism-response model. *Information Processing & Management, 58*(1), Article 102407. https://doi.org/10.1016/j.ipm.2020.102407

Song, S., Zhao, Y. C., Yao, X., Ba, Z., & Zhu, Q. (2022). Serious information in hedonic social applications: Affordances, self-determination, and health information adoption in

TikTok. *Journal of Documentation*, *78*(8), 890–911. https://doi.org/10.1108/JD-08-2021-0158

Song, X., Song, S., Chen, S., Zhao, Y. C., & Zhu, Q. (2019). Factors influencing proxy Internet health information seeking among the elderly in rural China: A grounded theory study. In *International Conference on Human-Computer Interaction*. Springer, Cham, 332–343. https://doi.org/10.1007/978-3-030-22012-9_24

Soroya, S. H., Farooq, A., Mahmood, K., Isoaho, J., & Zara, S. E. (2021). From information seeking to information avoidance: Understanding the health information behavior during a global health crisis. *Information Processing & Management*, *58*(2), 102440. https://doi.org/10.1016/j.ipm.2020.102440

St. Jean, B. (2012). *Information behavior of people diagnosed with a chronic serious health condition: A longitudinal study* (Doctoral dissertation, University of Michigan). https://hdl.handle.net/2027.42/91570

St. Jean, B. (2017). Factors motivating, demotivating, or impeding information seeking and use by people with type 2 diabetes: A call to work toward preventing, identifying, and addressing incognizance. *Journal of the Association for Information Science and Technology, 68*(2), 309-320. https://doi.org/10.1002/asi.23652

St. Jean, B., Jindal, G., & Chan, K. (2018). "You Have to Know Your Body!": The Role of the Body in Influencing the Information Behaviors of People with Type 2 Diabetes. *Library Trends, 66*(3), 289-314. https://doi.org/10.1353/lib.2018.0004

Statistics Canada. (2023a). *Diabetes among Canadian adults.* https://www.statcan.gc.ca/o1/en/plus/5103-diabetes-among-canadian-adults

Statistics Canada. (2023b). *A glimpse at the health of Canadians.* https://www.statcan.gc.ca/o1/en/plus/5102-glimpse-health-canadians

Stehr, P., Weber, W., & Rossmann, C. (2021). Health information behavior of 65+: Reaching older target groups. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, *64*(1), 37–44. https://doi.org/10.1007/s00103-020-03253-1

Stvilia, B., Stvilia, K., & Bodokia, I. (2021). Information behaviour of HIV patients during the COVID-19 pandemic in the Republic of Georgia. *Information Research*, *26*(4), paper 910. https://doi.org/10.47989/irpaper910

Sullivan, M., & Shaw, G. (2023). The health information behaviors of people who inject drugs: A scoping review of the literature. *Journal of Documentation*, *79*(6), 1502–1513. https://doi.org/10.1108/JD-07-2022-0153

Suh, M., & Hsieh, G. (2019). The “Had Mores”: Exploring Korean immigrants’ information behavior and ICT usage when settling in the United States. *Journal of the Association for Information Science and Technology, 70*(1), 38-48. https://doi.org/10.1002/asi.24078

Suorsa, A. (2024). Embodied and dialogical basis for understanding humans with information: A sustainable view. *Journal of the Association for Information Science and Technology*. https://doi.org/10.1002/asi.24952

Tao, S., Sun, S., Wu, S., Peng, T., Cao, L., Yan, M., ... & Li, H. (2024). Current status and influencing factors of health literacy among older adults in combined medical and nursing care institutions: a cross-sectional study. *Frontiers in Public Health*, *11*, 1323335. https://doi.org/10.3389/fpubh.2023.1323335

Taylor, R. (1986). On the study of information use environments. *Proceedings of the American Society for Information Science*, *23*, 331–334. https://hdl.handle.net/2027/mdp.39015024070685

Taylor, R. (2015). Question-negotiation and information seeking in libraries. *College & Research Libraries*, *76*(3), 251–267. https://doi.org/10.5860/crl.76.3.251

Tennant, B., Stellefson, M., Dodd, V., Chaney, B., Chaney, D., Paige, S., & Alber, J. (2015). eHealth literacy and Web 2.0 health information seeking behaviors among baby boomers and older adults. *Journal of Medical Internet Research*, *17*(3), e70. https://www.jmir.org/2015/3/e70

Theis, S., Schäfer, D., Bröhl, C., Schäfer, K., Rasche, P., Wille, M., ... & Mertens, A. (2019). Predicting technology usage by health information need of older adults: Implications for eHealth technology. *Work*, *62*(3), 443–457. https://content.iospress.com/articles/work/wor192878

Theis, S., Schäfer, D., Schäfer, K., Rasche, P., Wille, M., Jochems, N., & Mertens, A. (2018). What do you need to know to stay healthy? Health information needs and seeking behaviour of older adults in Germany. In *Congress of the International Ergonomics Association* (pp. 516–525). Springer, Cham. https://doi.org/10.1007/978-3-319-96077-7_55

Tian, Y. J., Felber, N. A., Pageau, F., Schwab, D. R., & Wangmo, T. (2024). Benefits and barriers associated with the use of smart home health technologies in the care of older persons: a systematic review. *BMC geriatrics*, *24*(1), 152. https://doi.org/10.1186/s12877-024-04702-1

Tian, Y., & Robinson, J. D. (2008). Incidental health information use and media complementarity: A comparison of senior and non-senior cancer patients. *Patient Education and Counseling*, *71*(3), 340–344. https://doi.org/10.1016/j.pec.2008.02.006

Trace, C. B., Zhang, Y., Yi, S., & Williams-Brown, M. Y. (2023). Information practices around genetic testing for ovarian cancer patients. *Journal of the Association for Information Science and Technology*, *74*(11), 1265–1281. https://doi.org/10.1002/asi.24823

Turner, A. M., Osterhage, K. P., Taylor, J. O., Hartzler, A. L., & Demiris, G. (2018). A closer look at health information seeking by older adults and involved family and friends: Design considerations for health information technologies. *AMIA Annual Symposium Proceedings*, 1036–1045. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6371280/

UN. (2020). *Government policies to address population aging.* https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Oct/undesa_pd_2020_pf_government_policies_population_aging.pdf

Urquhart, C., Light, A., Thomas, R., Barker, A., Yeoman, A., Cooper, J., ... & Spink, S. (2003). Critical incident technique and explicitation interviewing in studies of information behavior. *Library & Information Science Research*, *25*(1), 63–88. https://doi.org/10.1016/S0740-8188(02)00166-4

van der Smissen, D., Rietjens, J. A., van Gemert-Pijnen, L., van Dulmen, S., van der Heide, A., & Korfage, I. J. (2021). Information needs of patients with chronic diseases and their relatives for web-based advance care planning: a qualitative interview study. *BMC palliative care*, *20*, 1-7. https://doi.org/10.1186/s12904-021-00770-x

Wang, C., Huang, R., Li, J., & Chen, J. (2020). Towards better information services: A framework for immigrant information needs and library services. *Library & Information Science Research, 42*(1), 101000. https://doi.org/10.1016/j.lisr.2019.101000

Weber, W., Reinhardt, A., & Rossmann, C. (2020). Lifestyle segmentation to explain the online health information-seeking behavior of older adults: Representative telephone survey. *Journal of Medical Internet Research*, *22*(6), Article e15099. https://doi.org/10.2196/15099

Webster, G., & Ryan, F. (2023). Social media by proxy: How older adults work within their 'social networks' to engage with social media. *Information Research*, *28*(1). https://doi.org/10.47989/irpaper952

Whetstone, M. (2013). Information needs of adults living with type 2 diabetes: When cookbooks are more than just recipes. *Proceedings of the American Society for Information Science and Technology, 50*(1), 1-4. https://doi.org/10.1002/meet.14505001163

WHO. (2017). *10 facts on aging and health*. https://www.who.int/news-room/fact-sheets/detail/10-facts-on-aging-and-health

WHO. (2021). *Decade of healthy aging 2021–2030.* https://www.euro.who.int/en/health-topics/life-stages/healthy-aging/news/news/2021/01/decade-of-healthy-aging-2021-2030

WHO. (n.d.). *Aging.* https://www.who.int/health-topics/aging#tab=tab_1

Williams, L., Cox, A., & Jimenez, A. (2024). Creating, using, and sharing embodied information in the ultrarunning community on Instagram. *Information Research: An International Electronic Journal*, *29*(2), 635–651. https://doi.org/10.47989/ir292853

Willson, R. (2022). “Bouncing ideas” as a complex information practice: Information seeking, sharing, creation, and cooperation. *Journal of Documentation*, *78*(4), 800–816. https://doi.org/10.1108/JD-03-2021-0047

Willson, R., & Given, L. M. (2020). “I’m in sheer survival mode”: Information behaviour and affective experiences of early career academics. *Library & Information Science Research*, *42*(2), 101014. https://doi.org/10.1016/j.lisr.2020.101014

Wilson, T. (1981). On user studies and information needs. *Journal of Documentation*, *37*(1), 3–15. https://doi.org/10.1108/eb026702

Wilson, T. (1997). Information behaviour: An interdisciplinary perspective. *Information Processing & Management*, *33*(4), 551–572. https://doi.org/10.1016/S0306-4573(97)00028-9

Wilson, T. (1999). Models in information behaviour research. *Journal of Documentation*, *55*(3), 249–270. https://doi.org/10.1108/EUM0000000007145

Wilson, T. (2000). Human information behavior. *Informing Science*, *3*(2), 49–56. http://inform.nu/Articles/Vol3/v3n2p49-56.pdf

Wilson, T. (2020). Remodelling the model. *Anales de Documentación*, *23*(2), 1–5. http://orcid.org/0000-0002-2097-9389

Wilson, T. (2022). Exploring information behaviour: An introduction. Sheffield, UK. https://informationr.net/ir/bonusbook.html

Wolf, C. T., & Veinot, T. C. (2015). Struggling for space and finding my place: An interactionist perspective on everyday use of biomedical information. *Journal of the Association for Information Science and Technology*, *66*(2), 282–296. https://doi.org/10.1002/asi.23178

Wu, D., & Li, Y. (2016). Online health information seeking behaviors among Chinese elderly. *Library & Information Science Research*, *38*(3), 272–279. https://doi.org/10.1016/j.lisr.2016.08.011

Yamashita, T., Bardo, A. R., Liu, D., & Cummins, P. A. (2020). Literacy, numeracy, and health information seeking among middle-aged and older adults in the United States. *Journal of Aging and Health*, *32*(1), 33–41. https://doi.org/10.1177/0898264318800918

Yang, Z., Xu, X., Yao, B., Rogers, E., Zhang, S., Intille, S., ... & Wang, D. (2024). Talk2care: An llm-based voice assistant for communication between healthcare providers and older adults. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, *8*(2), 1-35.

Yates, C., Stoodley, I., Partridge, H., Bruce, C., Cooper, H., Day, G., & Edwards, S. L. (2012). Exploring health information use by older Australians within everyday life. *Library Trends*, *60*(3), 460–478. https://doi.org/10.1353/lib.2012.0004

Yi, Y. J., Hwang, B., Yoon, H., & Jeong, H. (2021). Health literacy and health information-seeking behavior of immigrants in South Korea. *Library & Information Science Research*, *43*(4), 101121. https://doi.org/10.1016/j.lisr.2021.101121

Ying, M., Lei, R., Chen, L., & Zhou, L. (2019). Health information seeking behaviours of the elderly in a technology-amplified social environment. In *International Conference on Smart Health* (pp. 198–206). Springer, Cham. https://doi.org/10.1007/978-3-030-34482-5_18

Zha, X., Li, L., Yan, Y., Wang, Q., & Wang, G. (2016). Exploring digital library usage for getting information from the ELM perspective: The moderating effect of information need. *Aslib Journal of Information Management*, *68*(3), 286–305. https://doi.org/10.1108/AJIM-12-2015-0200

Zhang, X., Foo, S., Majid, S., Chang, Y. K., Dumaual, H. T. J., & Suri, V. R. (2019). Self-Care and Health-Information-Seeking Behaviours of Diabetic Patients in Singapore. Health Communication, 35(8), 994–1003. https://doi.org/10.1080/10410236.2019.1606134

Zhang, Y., & Liu, J. (2023). Deconstructing proxy health information-seeking behavior: A systematic review. *Library & Information Science Research*, *45*(3), 101250. https://doi.org/10.1016/j.lisr.2023.101250

Zheng, H., Goh, D. H. L., Lee, E. W. J., Lee, C. S., & Theng, Y. L. (2022). Understanding the effects of message cues on COVID-19 information sharing on Twitter. *Journal of the Association for Information Science and Technology*, *73*(6), 847–862. https://doi.org/10.1002/asi.24587

Zhu, M., & Liao, X. Z. (2020). Chatman's theory of life in the round applied to the information seeking of small populations of ethnic minorities in China. *Information Research*, *25*(3), paper 868. http://InformationR.net/ir/25-3/paper868.html

Zhu, Y., Geng, G., Disney, L., & Pan, Z. (2023). Changes in university students' behavioral intention to learn online throughout the COVID-19: Insights for online teaching in the post-pandemic era. *Education and Information Technologies*, *28*(4), 3859–3892. https://doi.org/10.1007/s10639-022-11320-0

Zimmerman, M. S. (2021). Health information-seeking behavior in the time of COVID-19: Information horizons methodology to decipher source path during a global pandemic. *Journal of Documentation*, *77*(6), 1248–1264. https://doi.org/10.1108/JD-01-2021-0022

Appendix A: Recruitment Flyer

PARTICIPANTS NEEDED

Description

We are conducting a study about how older adults with diabetes in Canada use health information during the COVID-19 pandemic to better understand and service older adults' daily well-being.

Who is eligible?

- 65 and above
- Have Type 2 diabetes
- live in Canada
- English/Mandarin speaking

What is involved?

- A 1-hour interview (in-person or online)
- Financial compensation ($25) will be provided for participation

Interested?

Please contact Zoey Zhang at 514-967-4660 or xiaoqian.zhang@mail.mcgill.ca

* Participation information will be kept secure and confidential.
* Supervisor: Dr. Joan Bartlett (joan.bartlett@mcgill.ca)

McGill | School of Information Studies

老年糖尿病患者招募

研究简介

麦吉尔大学信息学院正在进行一项关于老年糖尿病患者在新冠疫情期间如何使用健康信息的调查。我们的研究将帮助利益相关者（例如政策制定者、健康图书馆员和健康专家）改善老年人的健康状况。

参与形式与报酬

- 大约1小时的一对一访谈（线上/线下均可）
- 访谈结束后所有参与者将获得25加元的报酬。

参与者要求

- 年龄：65岁及其以上
- 患有二型糖尿病
- 居住在加拿大
- 讲英语或普通话

联系方式

电话： 514-967-4660
邮件： xiaoqian.zhang@mail.mcgill.ca

* 整个参与将会严格保密

* 项目导师: Dr. Joan Bartlett (joan.bartlett@mcgill.ca)

McGill | School of Information Studies

Appendix B: List of Contacted Organizations, Institutions, and Clubs

1. Action Centre-ville
2. ALPAR - Assistance and leisure association for people with reduced autonomy
3. Banting & Best Diabetes Centre
4. Bouger et Vivre
5. Carrefour des Aînés de Pierrefonds
6. Center des Femmes Dynamique de Laval
7. Chinese Family Service of Greater Montreal
8. Club le Rendez-Vous de Châteauguay
9. Club Les Aînés De Lasalle
10. Contactivity Centre
11. Cote Saint-Luc Women's Club
12. Creative Social Center
13. Cummings Jewish Center for Seniors
14. Diabetes Canada
15. Diabetes Quebec
16. Diabetes Research Center
17. Diabetes Research Institute Foundation
18. Evaluation of Diabetes Treatment Study McGill
19. FADOQ-Region ILE de Montreal
20. Federation for Aging in Dignity and Overall Quality
21. Gay and Grey Montréal
22. Jewish General Hospital Library

23. Laval Clinical Research Center

24. Little Brothers-Montreal Center

25. LMC Montreal Ville St Laurent

26. McGill Community for Lifelong Learning

27. McGill Diabetes Technologies Lab

28. McGill University Health Center

29. Montreal Diabetes Research Center

30. Project Change - Community Center for Seniors

31. Senior Citizen’s Forum of Montreal

Appendix C: Letter for Permission

[Contact person]

[Organization name]

[Organization address]

[Date]

Dear Sir/Madam,

Re: Permission to conduct research at [organization name].

My name is Xiaoqian Zhang. I am a doctoral student at the School of Information Studies at McGill University. I am seeking permission to distribute my recruitment flyers at [organization name].

My research involves understanding how older adults with diabetes use health information during the COVID-19 pandemic. Many older adults have difficulties in using health information during the pandemic. As the whole world tries to recover from the COVID-19 pandemic, resilience may be worse among some older adults, especially those with chronic diseases, such as diabetes. As such, it is necessary to know how older adults with diabetes use health information during the COVID-19 pandemic and their changes in the post-pandemic age.

This research has been approved by the Research Ethics Board of McGill University (REB file number 22-07-105). I have attached my thesis proposal and consent form to this email. Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Sincerely,

Xiaoqian Zhang

Xiaoqian Zhang

School of Information Studies, McGill University

3661 Peel St., Montreal, QC, H3A 1X1

xiaoqian.zhang@mail.mcgill.ca

Supervisor: Prof. Joan Bartlett, joan.bartlett@mcgill.ca

Appendix D: Interview Guide

Pre-Interview Script

Good morning/afternoon/evening,

Thank you for participating in my doctoral dissertation research. First, I'd like to give you some background information about myself and my research. I am Zoey, a PhD student at School of Information Studies McGill University. So, basically, we deal with anything related to the interaction between people and information, such as library studies, knowledge management, archival studies, user experience (UX), and data science. My research focuses on information behaviour, which is how people seek and use information in various contexts. My goal for today's interview is to understand how older adults with diabetes use health information during the COVID-19 pandemic. Does this make sense to you? Any questions?

Before we start, I would like to reiterate that the participation is confidential, and you will not be identified in any research reports. This interview is all about your experience, ideas, and thoughts, so there are no right or wrong answers. Please know that you can stop or take a break whenever you want.

……………………………………………………………………………………………………

In-person interview:

I'm required to obtain your signed consent that you have agreed to participate in the study.

Pass consent form and pen – allow time for completion – place in file

……………………………………………………………………………………………

Online interview:

Also, I want you to know I already have your consent form. But I want to confirm again that you have understood the consent form and are willing to participate.

If yes,

Open the Voice Memos app and start a new recording

Thank you. We'll start now.

Start recording

How is health information used? Lessons from older adults with diabetes during the COVID-19 pandemic

Date: ________________ **Place:** __________________

Interviewer: __________ **Interviewee ID:** ____________

1. **To start, tell me something about yourself and your diabetes. You don't have to give me every detail, maybe just a few sentences.**

2. **Could you walk me through a specific time when you needed to learn something new about your diabetes?**

   Probes:

   - What do you often need to know or find out something about your diabetes? and why?
   - How did you find it?
   - Which source did you use? and why?

3. **May you describe what happened after you found the information that you needed? / What did you do with it? / How did you use the information?**

   Probes:

   - Select or check information
   - Save for future
   - Change in knowledge
   - Emotion
   - Decision-making

- Health management
- Information sharing (who, why, when, what)

Follow-up questions:

- What else did you do?
- What do you usually do? (Is this what you usually do? Or just a one-time thing?)

4. **According to you, why did you do that? / Why did you use information in that way?**

   Follow-up questions:

   - Are there any other causes that you think played a role?
   - How did these things affect you?
   - Could you walk me through your feelings when seeking/using/sharing that information?
   - Could you walk me through your thoughts on seeking/using/sharing that information?

5. **How did the pandemic affect the way you need/look for/use information? Could you walk me through your changes in using information for your diabetes during the pandemic?**

   Probes:

   - How did you use the information for your diabetes before March 2022?
   - What did you do during the pandemic?
   - So, you mentioned... are you still doing that now?

   Follow-up questions:

- Why did you change?
- What do you think of these changes?

6. **How would you describe these changes? Do you consider keep doing that in the future? And why?**

7. **I’ve asked all my questions, is there anything you would like to add to your answers? Have we missed anything you think is important?**

Post-Interview Script

Thank you so much for sharing your experience with me. I really appreciate it. One last thing, would it be alright if I contacted you again to clarify what you've discussed today? Or to send the results of this research?

Thank you again.

Pause recorder as the participant leaves - but leave it on as long as there's a discussion.

Start the recorder again for wrap-up comments by the interviewer.

Check the recorder and its label.

Appendix E: Codebook

Theme 1: Strategic Navigation of Health Information Ecosystems

Explanation: This theme encapsulates the deliberate and calculated approach individuals take in managing their engagement with health information. It reflects the diverse and often complex ecosystem of sources that individuals navigate to meet their specific health information needs. This theme acknowledges that while individuals actively seek out information to fill knowledge gaps, they also engage in selective information avoidance or passive encounters, balancing the need to stay informed with the challenges of information overload. The theme highlights the interplay between proactive information seeking and the adaptive strategies individuals use to manage the vast and varied health information landscape they inhabit.

Subtheme 1: Identifying and addressing information gaps

Explanation: This sub-theme captures the specific health information needs that drive individuals to seek out diverse sources. It highlights the persistent gaps in knowledge, particularly about emergent issues like COVID-19, where there is often a tension between general public health information and personalized health concerns. The sub-theme also covers broader health topics like diet, exercise, and chronic conditions (e.g., diabetes), where individuals seek reliable information to fill gaps in their understanding and meet their personal health needs.

Related codes:

- Covid information
- Covid information vs. personal health information
- Information about blood tests

- Information about diabetes
- Information about diabetes associations
- Information about diet
- Information about doctors
- Information about medicine
- Information about exercise
- Information about other diseases
- Information about travel
- Unmet needs

Subtheme 2: Engaging with diverse information sources

Explanation: This sub-theme highlights the wide variety of information sources individuals consult to manage their health. It reflects the complex and sometimes overwhelming nature of the modern information landscape, where people have to navigate numerous channels, from traditional media like newspapers and radio to digital platforms like websites and social media. The inclusion of personal networks, such as family members and friends, and the use of various devices for accessing information underscore the personalized and selective nature of information engagement.

Related codes:

- Government sources
- Health professionals
- Websites
- Social media

- Journal articles
- Books
- Newspapers, brochures, etc.
- Radio
- TV
- Family members
- Friends
- Lectures
- Local community
- People with diabetes
- Phone
- iPad
- Computer
- Source selection

Subtheme 3: Balancing information seeking with selective engagement and avoidance

Explanation: This sub-theme explores the varying behaviours individuals exhibit when faced with health information. It acknowledges that while some individuals actively seek out information to meet their needs, others may avoid it altogether, either due to overwhelming amounts of information or the potential anxiety it may cause. This sub-theme also reflects the incidental encounters with information—where people come across health-related content unintentionally, such as through conversations or random encounters online—which can influence their decision to engage with or avoid further information.

Related codes:

- Information avoidance
- No seeking
- Seeking when necessary
- Encountering
- Come up in conversation

Theme 2: Reflexive Engagement with Health Knowledge and Practices

Explanation: This theme encapsulates the active, ongoing, and social nature of how individuals interact with health information. It reflects the dynamic process of applying information to manage health, continuously integrating and developing knowledge, critically evaluating information credibility, and sharing insights with others. Individuals are not just passive recipients of health information but actively engage in a reflexive process that involves learning, applying, evaluating, and sharing knowledge to enhance personal and communal health outcomes. This theme highlights the central role of reflexivity in how people manage their health, ensuring that their actions and decisions are informed by thoughtful consideration of the information they receive and the context in which they live.

Subtheme 1: Active application of information in personal health management

Explanation: This sub-theme focuses on how individuals actively apply health information to their daily lives. It includes a wide range of self-management strategies, from routine blood sugar testing and medication adjustments to more complex decisions like making medical appointments, undergoing surgery, or purchasing health-related products. The emphasis here is on the proactive use of information to maintain and improve health, reflecting a commitment to continuous self-care and adaptation to new health challenges.

Related codes:

- Blood sugar testing
- Take medicine
- Adjust diet
- Adjust medicine

- Do physical exercise
- Wear masks
- Get vaccinated
- Make medical appointments
- Get a new doctor
- Have surgery
- Making purchase

Subtheme 2: Ongoing knowledge integration and development

Explanation: This sub-theme captures the continuous process of learning and adapting one's understanding of health information. It highlights how individuals integrate new information with their existing knowledge base, engage in critical thinking, and utilize experiential learning to refine their health management strategies. This process is reflexive, where individuals actively assess and re-assess their knowledge, saving relevant information for future use and adapting their strategies as their understanding evolves.

Related codes:

- Add to knowledge
- Change knowledge
- Critical thinking
- Save information
- Experiential learning

Subtheme 3: Critical selection and evaluation of information

Explanation: This sub-theme emphasizes the importance of critically evaluating the credibility of health information. It reflects a reflexive approach where individuals assess the effectiveness and expertise behind the information and rely on reputation and trust. This process involves filtering out misinformation, ensuring relevance, cross-referencing sources, and maintaining an up-to-date understanding of health knowledge.

Related codes:

- Effectiveness
- Reputation
- Judge information
- Filter information
- Trust
- Relevance
- Match other sources
- Quality of information
- Misinformation
- Up to date

Subtheme 4: Sharing information as a communal practice

Explanation: This sub-theme explores the social aspect of health knowledge, where individuals share information within their communities. Whether teaching others, exchanging personal experiences, or discussing diabetes-related information, this sub-theme highlights the communal nature of knowledge. It emphasizes the role of individuals as both learners and educators, contributing to collective health literacy and support within their social networks.

Related codes:

- Teach others
- Exchange experience
- Exchange diabetes-related information

Theme 3: Constructing Personal Health Identity

Explanation: This theme explores how individuals form and navigate their personal health identity by responding emotionally to health challenges, relying on deeply held beliefs and coping mechanisms, and drawing on their personal health history, experiences, and lifestyle choices. It emphasizes that health management is deeply personal, rooted in how individuals see themselves and their relationship with their health. This theme is holistic, acknowledging that health identity is not just about physical well-being but also about the attitudes, emotions, and life experiences that inform how individuals manage their health.

Subtheme 1: Emotional responses to health challenges

Explanation: This sub-theme captures the wide range of emotional responses individuals experience about their health. From the fear of death and feelings of depression or isolation to moments of relief, happiness, or even surprise, this sub-theme reflects the emotional complexity of managing health conditions. It also considers the role of intuition or “gut feeling” in emotional responses, emphasizing the deeply personal and often unpredictable nature of health-related emotional experiences.

Related codes:

- Emotional burden
- Fear of death
- Feel concerned
- Feel confused
- Feel depressed
- Feel isolated

- Feel relieved
- Feel scared
- Feel happy
- Feel embarrassed
- Feel lucky
- Feel regret
- Feel surprised
- Gut feeling

Subtheme 2: Personal belief and coping mechanisms

Explanation: This sub-theme focuses on the various personal beliefs and coping mechanisms individuals develop to manage their health and emotional responses. It includes strategies for avoiding negative feelings, staying positive, maintaining a sense of control, and more passive responses like giving up or being lazy. The sub-theme also considers how individuals' self-esteem, privacy concerns, and personal interests influence their coping strategies, alongside broader attitudes like scientific skepticism or the belief in enjoying life despite health challenges.

Related codes:

- Avoid negative feelings
- Avoid trouble
- Stay positive
- Be careful in daily life
- Be responsible
- Being lazy

- Give up
- Sense of control
- Care about others
- Did not care
- Enjoy life while you can
- No hope
- Personal interests
- Privacy
- Scientific attitude
- Self-esteem

Subtheme 3: Influences of personal health, experience, and lifestyle

Explanation: This sub-theme explores how personal health conditions, life experiences, and daily lifestyle choices impact individuals' overall health management. It highlights the influence of factors like aging, disability, and chronic conditions (e.g., diabetes) on daily routines and the challenges faced in maintaining health. This sub-theme also considers how habits, spare time, and personal life experiences shape individuals' approaches to health management, revealing health behaviour's profoundly personal and experiential nature.

Related codes:

- Daily routine
- Getting old
- Disability
- Diabetes history

- Out of habit
- Personal health condition
- Spare time
- Personal life experience

Theme 4: Managing health in a socially and culturally complex landscape

Explanation: This theme encapsulates the social and contextual factors that influence how individuals manage their health. It highlights the role of shared identity and cultural influences, the ongoing struggle for patient empowerment and autonomy, the critical importance of social support networks, and the pervasive impact of accessibility and availability challenges. This theme underscores that health management is not just a personal endeavour but one deeply embedded in social, cultural, and structural realities. It recognizes the broader systemic issues that must be addressed to improve accessibility and support for all individuals within diverse communities.

Subtheme 1: Shared identity and cultural contexts

Explanation: This sub-theme explores how shared identities, such as age, ethnicity, and health conditions, create a sense of community and influence health behaviour. It also addresses how cultural contexts, environmental concerns, and social differences shape individuals' health experiences and their perceptions of well-being.

Related codes:

- Same age
- Same disease
- Same ethnicity
- Culture propagation
- Environmental concerns
- Social and cultural differences

Subtheme 2: Struggle for empowerment and autonomy in healthcare

Explanation: This sub-theme highlights individuals' challenges in asserting their autonomy within the healthcare system. It addresses issues such as ageism, the dominance of doctor-driven care, and the struggle to have one's voice heard. The sub-theme underscores the ongoing fight for patient empowerment and the importance of respectful, patient-centred care that acknowledges individual autonomy and choice.

Related codes:

- Ageism
- Doctor driven
- To be heard
- Lack autonomy
- Out of choice
- Service attitude
- Expertise
- Information literacy
- Language barriers

Subtheme 3: The role of social support and relational networks

Explanation: This sub-theme emphasizes the significance of social support and relational networks in managing health. It reflects how the presence or absence of support systems, along with the influence of others' experiences and family history, shapes individuals' health decisions and their ability to navigate health challenges.

Related codes:

- Lack of support
- Social network
- Others life experience
- Family history

Subtheme 4: Accessibility and availability issues

Explanation: This sub-theme examines the structural barriers that impact health management, such as the accessibility of healthcare resources, food, and information and communication technologies (ICT). It also considers the economic and financial constraints that influence access to necessary health services and the availability of resources.

Related codes:

- Accessibility of certain food
- Accessibility of health professionals
- Accessibility of ICT
- Accessibility of medicine
- Easy to do
- No sources
- Locations
- Health insurance
- Economic benefits
- Financial issues
- Going out was difficult in daily life
- Rich information

Theme 5: Evolving health information behaviour: Adaptation during and after the Pandemic

Explanation: This theme captures the dynamic process of how individuals adjusted their behaviour during the pandemic and the persistence of behaviour change in the post-pandemic period. It reflects how the pandemic led to significant behavioural changes, influencing daily routines, communication methods, and access to health services, and how individuals navigate the post-pandemic landscape by changing or continuing their established activities. This theme highlights the resilience and adaptability of individuals in the face of unprecedented challenges.

Subtheme 1: Behavioural adjustments during the pandemic

Explanation: This sub-theme explores the various ways individuals adjusted their behaviour in response to the restrictions and challenges posed by the pandemic. It includes the reduction in physical and social activities, the increased reliance on digital communication and information sources, and the heightened caution many adopted to protect their health. This sub-theme also acknowledges that for some, the pandemic did not significantly alter their routines, highlighting the diversity in individual experiences.

Related codes:

- Fewer chances to read newspapers during the pandemic
- Less communication during the pandemic
- Less exercise during the pandemic
- Not going out during the pandemic
- Seeing doctors was difficult during the pandemic
- More time to access information during the pandemic

- Be extra careful during the pandemic
- No changes during the pandemic
- Changed interests during the pandemic
- Pandemic focused
- Ways of communication during the pandemic

Subtheme 2: Change and continuity in post-pandemic

Explanation: This sub-theme explores the extent to which changes in health information behaviour among older adults with diabetes persist as pandemic restrictions ease. It highlights how individuals have either adapted their information-seeking practices in response to the pandemic or maintained long-standing habits despite disruptions. Understanding these patterns provides insight into how health information behaviour evolves and whether pandemic-driven shifts will be sustained in the long term.

Related codes:

- Getting normal nowadays
- Going out nowadays
- Increased information activities after the pandemic
- Same routine during post-pandemic

Appendix F: Ethics Certificates

McGill University
Research Ethics Board Office
www.mcgill.ca/research/research/compliance/human

CERTIFICATE OF ETHICS APPROVAL

REB File Number:	22-07-105
Project Title:	How is health information used? Lessons from older adults with diabetes during the COVID-19 pandemic
Student Principal Investigator:	Zoey Zhang
Department:	Information Studies (School of)
Supervisor Name:	Preofessor Joan Bartlett
Sponsor/Funding Agency (if applicable):	CSC FRQSC

Research Team (if applicable):

Name	Affiliation

Approval Period:

FROM	TO
20-Dec-2022	19-Dec-2023

The *REB-2* reviewed and approved this project by Delegated review in accordance with the requirements of the McGill University Policy on the Ethical Conduct of Research Involving Human Participants and the Tri-Council Policy Statement: Ethical Conduct For Research Involving Humans.

* Approval is granted only for the research and purposes described.
* The PI must inform the REB if there is a termination or interruption of their affiliation with the University. The McGill REB approval is no longer valid once the PI is no longer a student or employee.
* An **Amendment** form must be used to submit any proposed modifications to the approved research. Modifications to the approved research must be reviewed and approved by the REB before they can be implemented. Changes to funding or adding new funding to a previously unfunded study must be submitted as an Amendment.
* A **Continuing Review** form must be submitted before the above expiry date. Research cannot be conducted without a current ethics approval. Submit 2-3 weeks ahead of the expiry date.
A total of 5 renewals are permitted after which time a new application will need to be submitted.
* A **Termination** form must be submitted to inform the REB when a project has been completed or terminated.
* A **Reportable New Information** form must be submitted to report any unanticipated issues that may increase the risk level to participants or that may have other ethical implications or to report any protocol deviations that did not receive prior REB approval.
* The REB must be promptly notified of any new information that may affect the welfare or consent of participants.
* The REB must be notified of any suspension or cancellation imposed by a funding agency or regulatory body that is related to this study.
* The REB must be notified of any findings that may have ethical implications or may affect the decision of the REB.

Appendix G: Online Interview Consent Form

McGill
School of Information Studies

McGill University
3661 Peel Street
Montreal, Québec
Canada H3A 1X1

Tel.: (514) 398-4204
Fax: (514) 398-7193
E-mail: sis@mcgill.ca
http://www.mcgill.ca/sis

Participant Consent Form

参与者知情同意书

Researcher: Xiaoqian Zhang, PhD candidate, School of Information Studies, Faculty of Arts, McGill University. Tel: 514-967-4660 Email: xiaoqian.zhang@mail.mcgill.ca

研究者：张小倩，博士研究生，单位：School of Information Studies, Faculty of Arts, 麦吉尔大学。电话 514-967-4660 邮箱: xiaoqian.zhang@mail.mcgill.ca

Supervisor: Prof. Joan Bartlett, School of Information Studies, Faculty of Arts, McGill University. Tel: 514-398-6976 Email: joan.bartlett@mcgill.ca

导师：Prof. Joan Bartlett, 单位：School of Information Studies, Faculty of Arts, 麦吉尔大学。电话: 514-398-6976 邮箱: joan.bartlett@mcgill.ca

Title of Project: How is health information used? Lessons from older adults with diabetes during the COVID-19 pandemic

项目名称：关于新冠期间老年糖尿病患者如何使用健康信息的调查

Sponsor(s): China Scholarship Council, FRQSC

赞助者：China Scholarship Council, FRQSC

Purpose of the Study: You are invited to participate in this doctoral dissertation research. The goal is to understand how older adults with diabetes use health information during the pandemic and its implications for the post-pandemic era.

研究目的：此博士论文研究的总体目标是了解患有糖尿病的老年人在新冠期间如何使用健康信息及其对疫情后时代的影响。

Study Procedures: The researcher would like to virtually interview you to discuss how you have used health information since March 2020, the factors related to your actions, and the possible changes in your future behaviour. The interview will be done over Zoom and last around 60 minutes. It will be recorded to capture what you said accurately. Zoom recordings will be made locally (not on the cloud), and only the audio recordings will be saved. You are not required to participate by video; therefore, you may leave your camera function off. The audio recording will only be used to create the interview transcript using Otter.ai.

研究过程：此次研究将以线上访谈方式进行。研究者将邀请您分享自2020年3月以来您是如何使用健康信息的，您使用行为背后的原因以及您未来行为可能发生的变化。采访将通过Zoom进行，大约持续60分钟，访谈过程会被录音以准确捕捉您所分享的内容。Zoom录制将在本地（而不是在云端）进行，并且只会保存录音。您不需要通过视频参与，因此您可以根据需要关闭相机功能。录音将仅用于使用Otter.ai创建访谈记录。

Voluntary Participation: Participation in this study is voluntary. You can decline to answer any question/take part in any procedure and may withdraw from the study at any time, for any reason. If you decide to withdraw in the middle of the interview, the audio recording will be destroyed unless you give permission otherwise. Data will be de-identified after the interview. Once de-identified, data can no longer be withdrawn.

自愿参与：参与本研究是自愿的。您可以拒绝回答任何问题或参与任何程序，您也可以随时退出研究。如果您决定在采访中途退出，录音将被销毁，除非您另行同意保留此次录音。在采访结束后，所有与您有关的个人信息将会在访谈记录中被抹去，在此之后，数据就不能再撤回。

Potential Risks: There are no anticipated risks to you by participating in this research. However, there is always the possibility of third-party interception when using communications through the internet although all reasonable precautions are taken.

潜在风险：参与本研究不会给您带来任何预期风险。然而，尽管采取了所有合理的预防措施，但通过互联网使用通信时始终存在第三方拦截的可能性。

Potential Benefits: Participating in the study will not directly benefit you; however, we hope to better understand how older adults with diabetes use health information during the pandemic and its implications in the post-pandemic era. This understanding will also support stakeholders (such as policymakers, health librarians, and health professionals) in improving older adults' health and well-being and overcoming the growing health problems.

潜在利益：参与研究不会给您带来直接利益；但是，我们希望更好地了解患有糖尿病的老年人在新冠期间如何使用健康信息以及对疫情后期的影响。我们的研究将帮助利益相关者（例如政策制定者、健康图书馆员和健康专家）改善老年人的健康状况并克服日益严重的健康问题。

Compensation: You will receive a $25.00 Amazon digital gift card for your participation. This will be sent to the email that you provide. The email will only be used to send the compensation and destroyed afterward.

报酬：您将收到一张价值 25.00 加元的亚马逊数字礼品卡以感谢您的参与。此报酬将发送到您提供的电子邮件。该电子邮件地址将仅用于发送报酬，一旦您成功接收报酬，您的邮件地址将被删除。

Confidentiality: Your participation is confidential. The only identifiable information that will be collected is your name on the consent form, the audio recording, and email address. A copy of your consent will be printed through McGill uPrint service; the digital version and the original email will be immediately deleted. The copy of your consent form will be stored in a locked file cabinet in the researcher’s office. After the interview, the audio recording will be locally saved on the researcher’s password-protected laptop. The recording will only be used to produce a transcript of the interview using Otter.ai. This platform takes an audio file and generates a transcript. To further protect the privacy of the participants, identifiable information, if any, will be removed from the audio before sending it to Otter.ai. Once the transcript is generated and verified, the audio file will be removed from Otter.ai’s servers. The transcript text file will be downloaded onto the researcher’s password-protected computer and removed from

Otter.ai's servers. The file will be identified by code, not your name. Only the researcher of this study and the supervisor have access to the consent form and the audio recording. The identifiable information will not be disseminated in any way. Your email address will be destroyed once the compensation is provided.

保密：您的参与是严格保密的。本研究收集的与您有关的信息是您在此知情同意书上的签名，录音，以及您的电子邮件地址。您签字后的知情同意书将通过 McGill uPrint 服务打印出来，之后原始电子邮件将会被立即删除。打印出来的知情同意书将存放在研究人员办公室中一个上锁的文件柜中。采访结束后，录音将会被本地保存（非云端保存）在研究者受密码保护的笔记本电脑上。访谈录音将仅被使用通过 Otter.ai 制作采访记录。为了进一步保护您的隐私，您的个人信息（如果有的话）将在发送到 Otter.ai 之前从音频中删除。在生成访谈记录后，原始音频文件将从 Otter.ai 的服务器中删除。访谈记录将下载到研究者受密码保护的个人笔记本电脑上。访谈记录将会以编码来命名而非您的姓名。只有研究者本人和导师可以访问知情同意书和录音。您的个人身份信息不会以任何方式传播。一旦您收到报酬，您的电子邮件地址也将会在邮件中删除。

Dissemination of Results: The findings of this study will be disseminated as a dissertation, presentations at academic conferences, and publications in professional journals. In all dissemination, non-identified codes (e.g., P1, P2, etc.), not your name, will be used to fully respect your privacy and anonymity. You will be asked if you want to receive the research results at the end of the interview. If you want, you will be contacted again using the email address previously collected to set up Zoom interviews and send compensation.

研究出版：本研究的结果将会在学术论文、学术会议以及专业期刊上发表。在所有这些发表物中，我们将使用非识别代码（例如 P1、P2 等）而非您的姓名以充分尊重您的隐私和匿名性。访谈结束后，研究者会询问您是否希望收到此次的研究结果。如果您愿意，我们将再次与您联系。

Questions: If you have any questions or need clarification about the project, please get in touch with Xiaoqian Zhang at xiaoqian.zhang@mail.mcgill.ca or Prof. Joan Bartlett at joan.bartlett@mcgill.ca.
疑问：如果您有任何关于本研究的疑问，请联系张小倩（xiaoqian.zhang@mail.mcgill.ca）或 Prof. Joan Bartlett（joan.bartlett@mcgill.ca）.

If you have any ethical concerns or complaints about participating in this study and want to speak with someone other than the research team, please get in touch with the Associate Director of Research Ethics at 514-398-6831 or lynda.mcneil@mcgill.ca.
如果您对参与本研究有任何伦理问题或投诉，并想与研究团队以外的人交谈，请联系研究伦理委员会副主任，电话：514-398-6831 或 邮箱：lynda.mcneil@mcgill.ca。

Please sign below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. To ensure the study is being conducted properly, authorized individuals, such as members of the Research Ethics Board, may have access to your information. Please save a copy of this consent form for your records.

如果您已阅读以上信息并同意参与本研究，请在下方签名。同意参与这项研究并不代表您放弃任何权利或免除研究人员的责任。为确保研究正常进行，经授权的个人（例如研究伦理委员会的成员）可能会访问您的信息。请保存此同意书的副本以供参考。

Participant's Name 姓名: (please print)____

Participant's Signature 签名:________________________ **Date 日期**: _________________

Appendix H: In-person Interview Consent Form

McGill
School of Information Studies

McGill University
3661 Peel Street
Montreal, Québec
Canada H3A 1X1

Tel.: (514) 398-4204
Fax: (514) 398-7193
E-mail: sis@mcgill.ca
http://www.mcgill.ca/sis

Participant Consent Form

参与者知情同意书

Researcher: Xiaoqian Zhang, PhD candidate, School of Information Studies, Faculty of Arts, McGill University. Tel: 514-967-4660 Email: xiaoqian.zhang@mail.mcgill.ca

研究者：张小倩，博士研究生，单位：School of Information Studies, Faculty of Arts, 麦吉尔大学。电话 514-967-4660 邮箱: xiaoqian.zhang@mail.mcgill.ca

Supervisor: Prof. Joan Bartlett, School of Information Studies, Faculty of Arts, McGill University. Tel: 514-398-6976 Email: joan.bartlett@mcgill.ca

导师：Prof. Joan Bartlett, 单位：School of Information Studies, Faculty of Arts, 麦吉尔大学。电话: 514-398-6976 邮箱: joan.bartlett@mcgill.ca

Title of Project: How is health information used? Lessons from older adults with diabetes during the COVID-19 pandemic

项目名称：关于新冠期间老年糖尿病患者如何使用健康信息的调查

Sponsor(s): China Scholarship Council, FRQSC

赞助者：China Scholarship Council, FRQSC

Purpose of the Study: You are invited to participate in this doctoral dissertation research. The goal is to understand how older adults with diabetes use health information during the pandemic and its implications for the post-pandemic era.

研究目的：此博士论文研究的总体目标是了解患有糖尿病的老年人在新冠期间如何使用健康信息及其对疫情后时代的影响。

Study Procedures: The researcher would like to interview you to discuss how you have used health information since March 2020, the factors related to your actions, and the possible changes in your future behaviour. The interview will last around 60 minutes and will be audio recorded to accurately capture what you said. The audio recording will only be used to create the interview transcript using Otter.ai.

研究过程：研究者将邀请您分享自2020年3月以来您是如何使用健康信息的，您使用行为背后的原因以及您未来行为可能发生的变化。采访大约持续60分钟，访谈过程会被录音以准确捕捉您所分享的内容。录音将仅用于通过Otter.ai来创建访谈记录。

Voluntary Participation: Participation in this study is voluntary. You can decline to answer any question/take part in any procedure and may withdraw from the study at any time, for any reason. If you decide to withdraw in the middle of the interview, the audio recording will be destroyed unless you give permission otherwise. Data will be de-identified after the interview. Once de-identified, data can no longer be withdrawn.

自愿参与：参与本研究是自愿的。您可以拒绝回答任何问题或参与任何程序，您也可以随时退出研究。如果您决定在采访中途退出，录音将被销毁，除非您另行同意保留此次录音。在采访结束后，所有与您有关的个人信息将会在访谈记录中被抹去，在此之后，数据就不能再撤回。

Potential Risks: There are no anticipated risks to you by participating in this research.

潜在风险：参与本研究不会给您带来任何预期风险

Potential Benefits: Participating in the study will not directly benefit you; however, we hope to better understand how older adults with diabetes use health information during the pandemic and its implications in the post-pandemic era. This understanding will also support stakeholders (such as policymakers, health librarians, and health professionals) in improving older adults' health and well-being and overcoming the growing health problems.

潜在利益：参与研究不会给您带来直接利益；但是，我们希望更好地了解患有糖尿病的老年人在新冠期间如何使用健康信息以及对疫情后期的影响。我们的研究将帮助利益相关者（例如政策制定者、健康图书馆员和健康专家）改善老年人的健康状况并克服日益严重的健康问题。

Compensation: You will receive $25 for your participation.

报酬：您将会收到 25 加元以感谢您的参与。

Confidentiality: Your participation is confidential. The only identifiable information that will be collected is this consent form and the audio recording of the interview. This consent form will be stored in a locked file cabinet in the researcher's office. The audio recording will be locally kept on the researcher's password-protected computer. The file will be identified by code, not your name. Only the researcher of this study and the supervisor have access to the consent form and the audio recording. The audio recording will only be used to produce a transcript of the interview using the platform Otter.ai. This platform takes an audio file and generates a transcript. To further protect the privacy of the participants, identifiable information, if any, will be removed from the audio before sending it to Otter.ai's services. The transcript text file will be downloaded onto the researchers' password-protected computer and removed from Otter.ai's servers. The identifiable information will not be disseminated in any way.

保密：您的参与是严格保密的。本研究收集的与您有关的信息是您在此知情同意书上的签名以及访谈录音。您签字后的知情同意书将存放在研究人员办公室中一个上锁的文件柜中。采访结束后，录音将会被保存在研究者受密码保护的笔记本电脑上。访谈记录将会以编码来命名而非您的姓名。只有研究者本人和导师可以访问知情同意书和录音。访谈录音将仅被使用通过 Otter.ai 制作采访记录。为了进一步保护您的隐私，您的个人信息（如果有的话）将在发送到 Otter.ai 之前从音频中删除。在生成访谈记录后，原始音频文件将从 Otter.ai 的服务器中删除。访谈记录将下载到研究者受密码保护的个人笔记本电脑上。您的个人身份信息不会以任何方式传播。

Dissemination of Results: The findings of this study will be disseminated as a dissertation, presentations at academic conferences, and publications in professional journals. In all dissemination, non-identified codes (e.g., P1, P2, etc.), not your name, will be used to fully respect your privacy and anonymity. You will be asked if you want to receive the research results at the end of the interview. If you want, you will be contacted again.

研究出版：本研究的结果将会在学术论文、学术会议以及专业期刊上发表。在所有这些发表物中，我们将使用非识别代码（例如P1、P2等）而非您的姓名以充分尊重您的隐私和匿名性。访谈结束后，研究者会询问您是否希望收到此次的研究结果。如果您愿意，我们将再次与您联系。

Questions: If you have any questions or need clarification about the project, please get in touch with Xiaoqian Zhang at xiaoqian.zhang@mail.mcgill.ca or Prof. Joan Bartlett at joan.bartlett@mcgill.ca.

疑问：如果您有任何关于本研究的疑问，请联系张小倩（xiaoqian.zhang@mail.mcgill.ca）或 Prof. Joan Bartlett（joan.bartlett@mcgill.ca）.

If you have any ethical concerns or complaints about your participation in this study and want to speak with someone, not on the research team, please get in touch with the Associate Director, Research Ethics at 514-398-6831 or lynda.mcneil@mcgill.ca.

如果您对参与本研究有任何伦理问题或投诉，并想与研究团队以外的人交谈，请联系研究伦理委员会副主任，电话：514-398-6831 或 邮箱：lynda.mcneil@mcgill.ca。

Please sign below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. To ensure the study is being conducted properly, authorized individuals, such as members of the Research Ethics Board, may have access to your information. A copy of this consent form will be given to you and the researcher will keep a copy.

如果您已阅读以上信息并同意参与本研究，请在下方签名。同意参与这项研究并不代表您放弃任何权利或免除研究人员的责任。为确保研究正常进行，经授权的个人（例如研究伦理委员会的成员）可能会访问您的信息。请保存此同意书的副本以供参考。

Participant’s Name: (please print)____

Participant’s Signature:__________________________ **Date**: ____________________