Teaching Shared Decision-Making in Health Professions Education

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June 2023

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of
Ph.D. in Family Medicine and Primary Care

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ABSTRACT

Introduction

Patients increasingly expect to be involved in clinical decisions that affect their health and their lives. This involves being treated respectfully and, as healthcare becomes increasingly complex and hyper-specialized, to engage with various healthcare professionals and trainees (HCP/Ts) in different roles who are expected to work together optimally. This requires commitment and skill on the part of HCP/Ts and trainees to be able to communicate, coordinate, and collaborate effectively – indeed to be able to empathize – with those in other roles, and with the circumstances of patients and families. This ideal is captured in the concept of shared decision-making (SDM). Much of the literature on SDM in health professions education (HPE) focuses either on advocating for its importance in the form of commentary articles, or through empirical articles that look at outcomes of medical interventions, or descriptive accounts of localized experiments in SDM education. However, research in the social sciences shows that people are able, in interaction, to integrate their emotions and their bodily responses in ways that help them understand what circumstances are like for others with whom they interact. Healthcare professions educators have increasingly recognized the benefit of actually practicing interacting with others, and one way through which this happens is role-playing games (RPGs). What is missing in the literature is a deeper understanding of what is required and what is involved when HCP/Ts participate in such simulated activities as RPGs, to enable them to fully appreciate and be able to engage in SDM.

Objectives

The overall aim of this thesis is to understand the processes involved in role adoption in the simulated activity of RPGs for learning SDM, as a foundation for improving SDM training in medical education. The specific objectives are to: 1) explore the current methods and approaches to teaching SDM for HCP/Ts, including RPG; 2) identify the processes by which HCP/Ts engage in their roles specifically in role play-based serious games designed for HPE; and 3) Identify factors involved in shaping the way HCP/Ts can engage in collective problem-solving through RPGs.

Methodology and Methods

Given the need to understand processes of educational engagement, this thesis engages a qualitative research approach. Three studies were conducted to achieve the thesis aim and objectives. First, a systematic scoping review was conducted to explore approaches to teaching SDM and accompanying skills, in particular communication skills, and also RPGs (study 1). Four databases were searched (MEDLINE, ERIC, PsycINFO, and Scopus) for qualitative and quantitative studies addressing the topic of teaching SDM in medical education. Second, a qualitative study was undertaken to identify the processes by which HCP/Ts participate in pedagogical RPGs and engage with assigned roles (study 2). HCP/Ts were recruited to take part in four iterations of an RPG including discussions around their reflections on the RPG experience, whose proceedings and subsequent focus groups were recorded and transcribed *verbatim*. Data from transcripts were analyzed thematically to come to themes relating to the processes of role embodiment. Third, a qualitative study was undertaken to identify how HCP/Ts respond collectively to a clinical dilemma through an RPG (study 3). Observational and subsequent focus group transcripts were analyzed through thematic analysis to discern stages of role engagement.

Findings

The scoping review conducted as study 1 showed that RPGs have generally been well perceived by learners. Through the presentation of 12 different approaches to teaching SDM that were discerned in study 1, articles variously focused on prior knowledge of SDM; impact on SDM skills of the participants; impact of training on the confidence of the participants in practicing SDM; impact on knowledge of and attitudes towards SDM; and perceptions of the participants on particular training interventions received. Most importantly, the review discerned little engagement in the literature with processes of role adoption. Study 2 showed that HCP/Ts engage with their assigned roles within an RPG in the form of four processes: role commitment; simultaneous evocation of front and back stages; reflexivity; and visceral lingering. Analysis of the participation in RPGs in study 3 showed that participation in RPGs can be framed as engagement through a three-part progressive continuum: individualism; empathy; and empathetic reasoning.

Discussion and Conclusion

This thesis contributed to the SDM literature with an account of the actual embodied processes of role engagement, beyond a focus solely on the content of SDM. The thesis has proposed concepts that represent stages, degrees or forms of embodied processes of role engagement.

These findings are represented in a theoretical model that combines processes with stages of role adoption. The findings can be framed as criteria by which SDM teaching and assessment can be undertaken, although their applicability in other settings awaits future research. The findings contribute to understanding how it is that learners can be engaged in mutual empathy, and in a sustainable way, to guide optimal healthcare collaboration, and effective coordination of care, to satisfy the needs of patients and society.

RESUME

Introduction

Les patients s'attendent de plus en plus à être impliqués dans les décisions cliniques qui affectent leur santé et leur vie. Cela implique d'être traité avec respect et, à mesure que les soins de santé deviennent de plus en plus complexes et hyperspécialisés, de s'engager avec divers professionnels de la santé et stagiaires (HCP/T) dans différents rôles qui sont censés travailler ensemble de manière optimale. Cela nécessite un engagement et des compétences de la part des professionnels de la santé et des stagiaires afin de pouvoir communiquer, coordonner, et collaborer efficacement - et même de pouvoir faire preuve d'empathie - avec ceux qui jouent d'autres rôles, ainsi qu'avec les circonstances des patients et des familles. Cet idéal est repris dans le concept de prise de décision partagée (PDP). Une grande partie de la littérature sur la PDS dans la formation aux professions de santé (FPS) se concentre soit sur la défense de son importance sous la forme d'articles de commentaires, soit sur des articles empiriques qui examinent les résultats des interventions médicales, soit sur des comptes rendus descriptifs d'expériences localisées dans la formation à la PDS. Cependant, la recherche en sciences sociales montre que les gens sont capables, dans l'interaction, d'intégrer leurs émotions et leurs réactions corporelles de manière à comprendre les circonstances dans lesquelles se trouvent les autres personnes avec lesquelles ils interagissent. Les formateurs aux professions de santé reconnaissent de plus en plus l'intérêt de s'entraîner réellement à interagir avec les autres, et l'un des moyens d'y parvenir est le jeu de rôle (RPG). Ce qui manque dans la littérature, c'est une compréhension plus approfondie de la manière dont les HCP/T doivent participer à la formation à la GDS d'une manière authentique,

pour leur permettre d'apprécier pleinement et d'être capables de s'engager dans une véritable GDS.

Objectifs

L'objectif général de cette thèse est de comprendre les processus impliqués dans l'adoption de rôles pour l'apprentissage de la PDS, comme base pour améliorer la formation à la PDS dans l'enseignement médical. Les objectifs spécifiques sont les suivants 1) explorer les méthodes et les approches actuelles de l'enseignement de la GDD pour les professionnels de la santé, y compris les jeux de rôles ; 2) identifier les processus par lesquels les professionnels de la santé s'engagent dans leurs rôles spécifiquement dans les jeux de rôles sérieux conçus pour l'EPH ; 3) identifier les facteurs impliqués dans la façon dont les professionnels de la santé s'engagent dans la résolution collective de problèmes par le biais des jeux de rôles sérieux.

Méthodologie et Méthodes

Étant donné la nécessité de comprendre les processus d'engagement éducatif, cette thèse adopte une approche de recherche qualitative. Trois études ont été menées pour atteindre le but et les objectifs de la thèse. Tout d'abord, une étude systématique a été menée pour explorer les approches de l'enseignement de la MJF et des compétences d'accompagnement, en particulier les compétences de communication, ainsi que le RPG (étude 1). Quatre bases de données ont été consultées (MEDLINE, ERIC, PsycINFO et Scopus) à la recherche d'études qualitatives et quantitatives portant sur l'enseignement de la PDS dans le cadre de la formation médicale. Deuxièmement, une étude qualitative a été entreprise afin d'identifier les processus par lesquels les professionnels de la santé et les thérapeutes participent à des RPG pédagogiques et s'engagent dans les rôles qui leur sont assignés (étude 2). Les HCP/T ont été recrutés pour participer à quatre itérations d'un RPG, y compris des discussions autour de leurs réflexions sur l'expérience du RPG, qui ont été enregistrées et transcrites mot à mot. Les données des transcriptions ont été analysées de manière thématique afin de dégager des thèmes relatifs aux processus d'incarnation des rôles. Troisièmement, une étude qualitative a été entreprise pour déterminer comment les HCP/T répondent collectivement à un dilemme clinique par le biais d'un RPG (étude 3). Les transcriptions des observations ont été analysées par le biais d'une analyse thématique.

Résultats

Parmi les 12 approches de l'enseignement de la PDS qui ont été discernées dans l'étude 1 (examen de la portée), les articles se sont diversement concentrés sur les connaissances préalables de la PDS ; l'impact sur les compétences de PDS des participants ; l'impact de la formation sur la confiance des participants dans la pratique de la PDS ; l'impact sur les connaissances et les attitudes à l'égard de la PDS ; les perceptions des participants à l'égard des interventions de formation particulières qu'ils ont reçues. Les études ont montré que les RPG ont généralement été bien perçus par les apprenants. L'étude 2 a montré que les HCP/T s'engagent dans les rôles qui leur sont assignés au sein d'un RPG sous la forme de quatre processus : l'engagement dans le rôle, l'évocation simultanée des scènes avant et arrière, la réflexivité et l'attardement viscéral.

L'analyse de la participation aux jeux de rôles dans l'étude 3 a montré que la participation aux jeux de rôles peut être définie comme un engagement dans un continuum progressif en trois parties : individualisme, empathie et raisonnement empathique.

Discussion et Conclusion

Cette thèse a contribué aux concepts de la littérature sur la gestion du développement durable en rendant compte des processus incarnés de l'engagement dans un rôle, au-delà de l'accent mis uniquement sur le contenu de la gestion du développement durable. De telles expériences sont courantes pour les participants aux jeux de rôle, mais cette thèse les a articulées à partir des concepts susmentionnés. Les résultats peuvent être considérés comme des critères selon lesquels l'enseignement et l'évaluation de la MJF peuvent être entrepris, bien que leur applicabilité dans d'autres contextes doive faire l'objet de recherches futures. Les résultats contribuent à comprendre comment les apprenants peuvent être engagés dans une empathie mutuelle, et de manière durable, pour guider une collaboration optimale en matière de soins de santé, et une coordination efficace des soins, afin de satisfaire les besoins des patients et de la société.

ACKNOWLEDGMENTS

I am sincerely grateful and very fortunate to have been supervised by Dr. Gillian Bartlett and Dr. Peter Nugus. I am grateful to Dr. Bartlett who has always been very empowering of me. She has always encouraged and helped me to build and extend my professional network and has allowed me to become more confident and independent as a researcher. I am also grateful to Dr. Nugus who has been very supportive and keen on my development as a researcher. He has provided me with the guidance I needed throughout my thesis and has helped me to grow as a researcher with rigor and critical thinking. I would also like to thank all the participants who took part in the research reported in studies 2 and 3 of this thesis.

I would like to thank my committee members, Dr. Amalia Issa and Dr. Tracie Barnett, who have been accessible and who have provided me with the feedback and support that I needed throughout my doctoral studies. I have also had the pleasure of working with Dr. Issa as a research assistant, an experience that has also helped me to further develop as a researcher with her mentorship.

I would like to thank Dr. Jean-Jacque Lebrun who has been a phenomenal support for me. It is with Dr. Lebrun's support that I was able to find a healthy environment, that is Dr. Bartlett's team and then Dr. Nugus's team at the Department of Family Medicine, that allowed me to grow as a researcher and to produce this thesis dissertation.

I would like to thank the Department of Family Medicine and especially Dr. Tibor Schuster and Ms. Sherrie Child who have been very supportive of me in all administrative aspects as well as any advice or guidance with academic courses and progress.

It has been a pleasure being a part of the Department of Family Medicine which has allowed me to build connections of collegiality and friendship. I am especially grateful to Dr. Reem El Sherif who has been a great friend and mentor to me since I started my graduate studies at the department. I am also grateful to her for reviewing and providing feedback on this thesis. I am very grateful to my dear friends and colleagues: Ms. Stephanie Long, Ms. Lashanda Skerritt, Ms. Mary Henein, Mr. Anish Arora, Ms. Laura Rojas-Rozo, Mr. David Ortiz-Paredes, and Mr. Christian Ruchon.

I would like to thank all my colleagues and friends from Dr. Bartlett and Dr. Nugus teams and especially Dr. Svetlana Puzhko, Dr. Ayat Salma, and Ms. Monia Poncik. It was great being a part of a team of talented researchers.

I have had the pleasure of being a part of the Ed-TECH Office at the Faculty of Medicine and Health Sciences at McGill University. I would like to thank Dr. Tamara Carver who is a unique leader of an incredible team. Dr. Carver leads with empathy and rigor, she has been incredibly supportive of me and my development as a researcher and I learn a lot from her leadership. I would like to thank

Ms. Anya Oléandre, the program administrative, for her incredible support and friendship. I am also grateful to Ms. Oléandre for proof-reading the French translation of the abstract of this thesis.

I would like to extend my thanks to Dr. Saki Sultana, a friend and colleague, who was the second reviewer for the scoping review reported in this thesis. I also would like to extend my thanks to Mrs. Jackie Bartlett for her continuous encouragement and much-appreciated advice. I am also grateful to her for proof-reading my thesis.

I would like to extend my warm thanks and sincere appreciation to all of my friends, too numerous to name in total, but who include Ms. Alla Saleh, Dr. Rayelle Itoua Maïga, Dr. Michael Förster, Ms. Sara Ferwati, Ms. Reem Kurdieh, Dr. Nour Ghaddar, Ms. Mariam El Sheikh, Ms. Fatima Hubaishi, Dr. Raidan Alyazidi, Ms. Eisha Ahmed, Ms. Duha Alawad, Ms. Nada Al-Emadi, Dr. Terrie Schauer, and Dr. Patricia Lee Men Chin. I am incredibly grateful to you all for your support.

Above all, I thank my beloved family to whom, as indicated below, I dedicate this thesis. I am very fortunate and very grateful to my parents, Adel and Nabila, and my sister, Mariem who have always been there for me. Thank you for all your support and encouragement through the hard times and the good times too.

Funding acknowledgment

My doctoral work has been funded by the Fonds de recherche du Québec – Santé, the Graduate and Postdoctoral Studies at McGill University, funds from my supervisors Dr. Gillian Bartlett and Dr. Peter Nugus, and the Department of Family Medicine at McGill University. This does not represent any conflict of interest on my part or on the part of the funders. The funders had no vested interest in the direction of the findings, being committed only to the general principle that new findings would be produced by the research.

DEDICATION

I dedicate this doctoral thesis to my parents, Nabila & Adel, and to my sister, Mariem. Thank you for being my role models of honesty, perseverance, and ethical hard work. I could never have accomplished this without your continuous support and unconditional love.

PREFACE

Contribution to Original Knowledge

This is a manuscript-based thesis consisting of three manuscripts that are completed and are ready for submission to a peer-reviewed journal. The thesis contributes original knowledge to the field of health professions education research as well as shared decision-making (SDM) research. Specifically, study 1 is a scoping review that explores and maps out the existing evidence in the literature, both quantitative and qualitative, on shared decision-making in medical education. The scoping review identified a gap and shed the light on the thinness of existing literature, focusing almost exclusively on reporting localized training interventions or evaluating the knowledge of the SDM principles and perceptions of healthcare professionals and trainees (HCP/Ts) following participation in such activities. The study draws on previous studies to emphasize the potential that role playing games (RPGs) hold as a training modality, and identifies a research gap in relation to ways in which engagement happens or fails to happen, serving as foundations for studies 2 and 3. Study 2 is a qualitative study that engages participants in an RPG and analyses their perspectives in post-activity focus groups to understand and describe the main concepts through which HCP/Ts can be seen to embody their assigned roles. Study 3 is also a qualitative study, drawing both on observational and post-activity focus group data, that identifies specific processes by which HCP/Ts engage in a simulated SDM encounter and stages of the accomplishment of their particular roles.

Therefore, in its collective studies, this thesis contributes to further current understanding of the processes that are involved in SDM in health professions education (HPE), beyond descriptions of isolated experiments in SDM education and under-theorized evaluations of perceptions of such activities. New knowledge about processes of engagement in SDM through RPGs is imperative to provide recommendations for teaching and assessment of clinical skills that require HCP/Ts to engage with the empathy required for a genuinely collaborative approach in healthcare – that is, taking the voices of colleagues on an interprofessional team and taking patient's and families' voices into account in making healthcare decisions.

Contribution of Authors

I am the primary author of all of the chapters of this doctoral thesis. Dr. Peter Nugus, my primary supervisor, has provided me with support in the conception of this thesis through engaging in hours-long discussions. He has provided me with detailed feedback for each of the chapters of this doctoral thesis, including the completed manuscripts reported in chapters 4, 5, and 6. Dr. Gillian Bartlett, my co-supervisor, has reviewed all the chapters including the completed manuscripts and provided me with insightful and constructive feedback. The work reported in chapters 5 & 6 utilizes an RPG that was developed by Dr. Gillian Bartlett and her team with funding support from Genome Canada for the PGx project with Dr. Bruce Carlton. My thesis committee members, Dr. Amalia Issa and Dr. Tracie Barnett, have provided me with constructive feedback along the progression of my doctoral journey and have also reviewed and commented constructively on the completed manuscripts reported in chapters 4,5, and 6 of this doctoral thesis.

Chapters 1 (introduction), 2 (review of the literature), 3 (theoretical framework and methodology), 7 (discussion and insights), and 8 (conclusion)

I am the only author of these chapters. I received constructive and detailed feedback from my primary supervisor, Dr. Peter Nugus, on the initial and revised versions of these chapters. I also received detailed and constructive feedback from my co-supervisor, Dr. Gillian Bartlett, on the revised version of these chapters.

Chapter 4 (study 1 – scoping review – completed manuscript ready for submission to journal *Medical Education*)

Title: Exploring Approaches to Teaching Communication Practices for Shared Decision-Making Teaching and Learning in Medicine: a scoping review

Authors: Sarah A.E. Aboushawareb, Saki Sultana, Peter Nugus, Tracie Barnett, Amalia M. Issa, and Gillian Bartlett.

Contribution: I am the main author of this manuscript. I was responsible for the conceptualization and design of this study including designing the search strategy, reviewing the search strategy with the McGill librarians Genvieve Gore and Jill Boruff, running the search, identifying and selecting the studies, analyzing the data, interpreting and reporting the findings, writing the initial version of the manuscript, and incorporating the feedback from the co-authors to arrive to the final version of the manuscript. I am grateful to my co-supervisor Dr. Gillian Bartlett who has conceptualized the study with me during our discussions and multiple meetings as well as refining the search strategy. Dr. Bartlett has also provided me with constructive feedback regarding the design and analysis, as well as the interpretation of the findings. I am grateful to Saki Sultana, who was the second reviewer for this scoping review, and who has contributed to the analysis and interpretation stages, as well as having provided feedback on the revised version of the written manuscript. My primary supervisor, Dr. Peter Nugus, provided me with constructive feedback on the initial and the revised versions of the written manuscript. My thesis committee members, Dr. Amalia Issa and Dr. Tracie Barnett have also provided me with constructive and specific feedback on the revised version of the written manuscript.

Chapter 5 (study 2 – qualitative study – completed manuscript ready for submission to journal *Simulation & Gaming*)

Title: Understanding the Processes of Role Adoption in Pedagogical Role Play Games: A Narrative Dramaturgical Perspective on Games in Health Professions Education

Authors: Sarah A.E. Aboushawareb, Gillian Bartlett, Amalia Issa, Tracie Barnett, and Peter Nugus

Contribution: I am the main author of this completed manuscript. I was responsible for the study design, recruitment of participants, data collection through the moderation of the RPG sessions and the post-RPG focus groups, data analysis, the interpretation and reporting of the findings, and writing the initial version of the manuscript, as well as incorporating the feedback from the co-authors to arrive at the final revised version reported in this doctoral thesis. My primary supervisor, Dr. Peter Nugus, contributed to the conception of the manuscript as well as discussing the analysis and interpretation of findings. He has also provided me with detailed feedback on the different iterations of the analysis as well as the initial and revised versions of the completed manuscript. My co-supervisor, Dr. Gillian Bartlett, contributed to the study design as well as the data collection through attending the RPG sessions as an observer and note-taker. She has also contributed feedback on the revised versions of the completed manuscripts. My thesis committee members, Dr. Amalia Issa and Dr. Tracie Barnett, provided constructive and specific feedback on a revised version of the completed manuscript.

Chapter 6 (study 3 – qualitative study – completed manuscript ready for submission to journal *Advances in Health Sciences Education*)

Title: Learning Reciprocal Adaptation in Pediatric Oncology Role Play Games: Practicing Empathetic Reasoning to Strengthen the Patient Voice.

Authors: Sarah A.E. Aboushawareb, Gillian Bartlett, Tracie Barnett, Amalia Issa, and Peter Nugus

Contribution: I am the main author of this completed study. This study drew on the same RPG sessions that were used for study 2 reported in chapter 5 of this thesis. Accordingly, my contribution remains the same as reported for study 2 in terms of study design, recruitment, and data collection. I was also responsible for the multiple stages of data analysis, interpretation and reporting of the findings into the initial and revised versions of the completed manuscripts. The conception of the manuscript and verifying the different iterations of data analysis occurred through engaging in lengthy discussions with my primary supervisor, Dr. Peter Nugus. He also provided me with detailed feedback on the initial and revised versions of the completed manuscript. My co-supervisor, Dr. Gillian Bartlett, contributed to the RPG design and data collection as described for study 2. She has also provided feedback on the revised versions of the completed manuscripts. Dr. Tracie Barnett and Dr. Amalia Issa have also provided constructive and specific feedback on the revised versions of the completed manuscript.

List of Appendices

Appendix 1

Includes a detailed description of the guide to participate in the RPG sessions as well as sample game cards.

Appendix 2

Includes the consent form that was used for participating in the RPG sessions used for the data collection for studies 2 and 3 that are reported in chapters 5 and 6 of this thesis. The consent form was produced as part of the ethical approval process by the Institutional Review Board (IRB) of the Faculty of Medicine and Health Sciences of McGill University (IRB study number A12-B55-18A).

LIST OF ABBREVIATIONS

SDM	Shared Decision-Making
PGx	Pharmacogenetics
AMA	American Medical Association
HCP/Ts	Healthcare Professionals and Trainees
HPE	Healthcare Professions Education
RPG(s)	Role Playing Game(s)
IAM	Information Assessment Method
CPD	Continuous Professional Development
EoL	End-of-Life
EDI	Equity, Diversity, and Inclusion

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CHAPTER 1: INTRODUCTION

It is becoming increasingly expected that patients take an active part in the clinical decisions that pertain to their health [1–4]. It is also seen to be an ethical imperative for healthcare professionals and trainees (HCP/Ts) to have open and transparent discussions with their patients, to educate patients about clinical diagnoses with the aim of gaining their opinion on different treatment options available for the patients, and to come to a mutual decision regarding the treatment plan [1–4]. There is an increasing emphasis in the literature on the need to take into consideration patients' values and priorities [1,2,4,5]. This approach to clinical decisions is known as shared decision-making (SDM) and there has been an advocacy for a shift in HCP/Ts' communication to engage SDM in their clinical practices [1,2,4,5].

Accompanying this desired shift is the perception that SDM and the communication skills it assumes is a "competency", or skill, that can be acquired, taught, and assessed [1,4,4–8]. The challenge is that a shift to SDM requires HCP/Ts to acquire particular skillsets and competencies that enable them to adopt a shared approach to clinical decisions [1,4,4–8]. Indeed, explaining a diagnosis to patients who are of varying levels of educational and linguistic accomplishment has been seen to be difficult. Moreover, eliciting a patient's fears, concerns, values or priorities has been recognized as a challenging task [1,4,4–8]. Engaging in SDM entails communication and exchange in an empathetic manner with patients, their families and other health care professionals in an interprofessional team [9–12]. HCP/Ts engaging empathetically means that a health care professional would "put some skin in the game, to really care about the outcome as if it were [their] own” [9,13]. In fact, empathy is an integral component of the SDM process that has been shown to lead to higher patient satisfaction of the clinical encounter and patient autonomy and especially in clinical cases with high uncertainty regarding health outcomes [9–12]. The shift toward SDM is seen to be essential to deliver healthcare that corresponds to the needs of the patients and aligns with their priorities. Taking an SDM approach in clinical encounters is then expected to lead to higher adherence to treatment plans for the patients, decreased overtreatment, higher satisfaction of the clinical encounter for both the patient and the HCP/Ts and, as a result, decreased healthcare costs, and lead to better health outcomes for patients [1,4,4–8,14]. In addition, SDM is seen as an empathy-based communication skill which requires the physician to build trust with patients and their families, and pro-actively foster sharing of priorities, values, and feelings [15–18]. SDM is a process that requires healthcare professionals to commit to collaborate effectively, with other healthcare professionals in different roles, and with the patients and their families, to arrive at treatment plans [18–24]. Interprofessional collaboration between HCP/Ts, defined as optimal intervention to fulfill their specialized role of different professions, has been associated with positive health outcomes for the patients, patient satisfaction, and decreased morbidity [18–24]. Collaboration between the healthcare team members can reflect positively on the HCP/Ts themselves as well because it is associated with higher professional satisfaction [18–24]. The question then becomes: how can an empathy-based, collaboration-focused communication skill such as SDM be systematically and effectively taught to HCP/Ts?

There is increasing recognition in the literature that in order for HCP/Ts to be able to consistently and comfortably engage with their patients, as well as other HCP/Ts, in the discussions required to arrive at a mutual clinical decision, they need to receive rigorous training [25–29]. This then turns attention to health professions education (HPE) in general and with medical education in particular. Medical education is an important and representative focus to explore the prospect of SDM because contemporary health systems are structured to allow and require doctors to be the primary decision-maker among other HCPs in determining points of transition in patient trajectories, such as testing, diagnosis, treatment, and discharge [30].

An initial search of the literature showed numerous articles reporting on curricula and training interventions that seek to address SDM. These articles, however, are mostly commentary articles that advocate for the teaching and learning of SDM [4,31,32]. In addition, the literature has featured empirical studies that report on localized experiments or proposed approaches to the teaching and learning of SDM [33–37]. These articles provide suggestions of models of SDM, suggested steps of SDM-based communication that HCP/Ts can learn and practice, as well as suggested activities for the purpose of teaching SDM to HCP/Ts [4,31,32]. Examples of the suggested activities for teaching SDM include role-playing, practicing using decision aids, practicing eliciting values, and using educational videos, among other activities [32].

The literature reporting on training interventions shows that there are multiple approaches taken to teaching SDM in HPE such as didactics, educational videos, and online modules, among other approaches [33–37]. One of the approaches reported in the literature is the use of serious games, based on role-playing. Role-playing games (RPGs) are intended to enhance skills, such as communication skills focusing on SDM [38]. Role-playing is defined as a serious game "…that focuses attention on the interaction of people with one another" [38,39]. RPGs emphasize what people do and how they perform in different situations. The basis of role-playing is requiring participants to imagine that they are a different person, and to behave in the same way that they believe that person would behave. From an educational point of view, the intention is that the participant, or the rest of the class, learns something about the person or the situation. The others in the role play provide a social context, or framework, which sets up expectations in which participants can try out different characters and responses, and "feel" in a tangible way the way another would [38,39].

What is known from the literature is that it is increasingly seen as an ethical imperative to adopt SDM in clinical practices and hence, incorporating SDM training in HPE. Much of the research on SDM in medical education takes the form of commentary articles advocating for SDM, un-theorized descriptions of local interventions, or studies of outcomes of RPG experiences. The research problem with which this thesis deals is that the optimal approach for the teaching and learning of SDM is unknown, because there is little empirical research on how roles can be, and are or are not, adopted in HPE. The objective of this thesis, therefore, is to expand knowledge about engagement in RPGs through understanding the processes by which HCP/Ts engage in adopting roles in the context of learning SDM.

Structure of this Thesis

This thesis contains seven chapters that are sub-divided as follows:

Chapter 1

This chapter has provided an overall summary of this thesis including a summary of the literature, the gap in knowledge I sought to address, and the thesis objective.

Chapter 2

Chapter 2 reports on what is known in the literature about teaching and learning in medical education, communication around treatment options in the clinical setting, as well as teaching SDM in HPE.

Chapter 3

Chapter 3 introduces the conceptual and methodological approach adopted in carrying out this doctoral work. This includes introducing Goffman's theory of dramaturgy and empathy, and reciprocal adaptation, detailing how the qualitative studies will proceed, and efforts to enhance rigor, and the context of the studies.

Chapter 4

Chapter 4 provides the first study of this thesis, which is a scoping review that explores the different approaches taken to teach SDM in medical education, with a focus on RPGs. The manuscript will be submitted to the journal *Medical Education.*

Chapter 5

Chapter 5 presents study 2, a qualitative study that analyzes factors that shape the processes by which HCP/Ts engage in their roles in an RPG setting for learning SDM. The manuscript will be submitted to the journal *Simulation & Gaming*.

Chapter 6

Chapter 6 presents a qualitative study that analyzes how participants learn reciprocal adaptation in the context of an RPG setting for teaching and learning SDM. The manuscript will be submitted to the journal *Advances in Health Sciences Education*.

Chapter 7

This chapter discusses the findings from all three studies and highlights the new insights gained from them. The limitations, implications of the findings, as well as recommendations for future research are provided in this chapter.

CHAPTER 2: REVIEW OF THE LITERATURE

Teaching and learning in medical education

The field of medical education has seen major changes throughout the past 150 years, with an increasingly espoused aim of educating healthcare providers to apply evidence from science and increasingly appeal to the needs of patients and society [40]. This evolution has involved building systematic and structured curricula intended to produce alignment between knowledge, skills and attitudes to be imparted through medical education with formal standards required by professional bodies or accrediting agencies [40]. Medicine as a practice has also been seen to shift from dogmatically following the beliefs of the physician to whom one is apprenticed to increasingly reliant on some level of research, which has included observations from the bedside and experimental findings [40–42].

In the US, this perceived shift has coincided with the founding of the American Medical Association (AMA), with a major focus on "cultivating and advancing medical knowledge" and "elevating the standard of medical education" [40]. Fifty years later, the president of AMA, then Dr. John Wyeth, set up a committee on medical education. This was intended to match Sir William Osler's claim that "a new school of practitioners has arisen… (which) seeks to study, rationally and scientifically… the practice of medicine" [40,43,44]. Between 1850 and approximately 1900, medical schools in the US were independent from universities, which was seen to have led to the isolation of medicine from other sciences. In contrast, in Germany, which was seen to be leading the field of medical research at the time, medical clinics, bedside teaching, and scientific laboratories were all part of the same institution and informed each other [40].

The desired synergy between education and science inspired American physicians who had studied in Germany to develop a similar approach in the US, leading to the development of the Institute for Experimental Medicine in Harvard by H. P. Bowditch [40,41]. The prerequisites for admission into medical school, the length of the studies, and the methods for medical education have also seen change over this time [40,41]. This change started from admitting students with no high school diploma into a 2-year medical training program that provided theoretical knowledge only to having a baccalaureate degree prerequisite for admission, increasing the length of studies to four years, incorporating a science-based curriculum, affiliating medical schools with universities and hospitals, increasing the bed-side experience, as well as adding postgraduate residencies for specialization in hospitals, leading to the development of the Graduate Medical Education program [40,45–47]. The history of medical education is a history of innovation and these snapshots shed light on the continuous development of medical curricula, with the espoused intention to base medical education on scientific findings, aiming to graduate competent healthcare providers who are able to answer to their societies' healthcare needs.

As medical students, residents, and clinicians work and practice, they learn by doing – that is, engaging in practical medical care [25,48]. "Learning by doing" was recognized as a way of connecting theory and practice in medicine [25,48]. Scheele further advocated that medical education is supposed to strike a balance in the design of medical curricula between learning by doing through simulation and theoretical education [25,48]. Moreover, researchers and innovators in medical education have increasingly sought to match training methods to the perceived knowledge and skills required [25]. As an advance on the idea of structured and systematic education is the contention that physicians required life-long learning, structured and systematized in the innovation of Continuing Professional Development (CPD) which is intended for physicians, post graduation [49]. CPD includes different activities intended for healthcare providers to participate in and focus on maintaining, developing, and diversifying their knowledge and skills, ultimately for better health outcomes for patients [49]. Accordingly, medical education is seen to start from medical school and through a clinician's professional journey. The systematization of medical education is an important step on the pathway to emphasize the priorities and needs of patients, from their own perspectives – a journey that would eventually involve emphasizing skills by which doctors could empathize with patients and colleagues.

The Royal College of Physicians and Surgeons of Canada further formalized aspects of medical education by conceiving perceived requirements of being a doctor as a series of core "competencies" that a physician needs to respond to society's healthcare needs [50,51]. The framework, called CanMEDS (Canadian Medical Education Directions for Specialists), groups these core competencies into seven major roles that a physician is expected to learn and be able to exhibit in a clinical setting: medical expert, communicator, collaborator, leader, health advocate, scholar, and professional [50,51]. As a medical expert, a physician is expected to apply medical knowledge informed by research evidence, up-to-date and ethical clinical practice, and professional values to deliver the necessary care for the patient [50,51].

The discourse of medical education came to focus not only on medicine that was evidence-based, but on engaging explicitly with the priorities and self-perceived needs of patients, which also includes optimizing the input of other professional roles, such as nurses, occupational therapists and physical therapists, as and when needed by the patient [30]. That is to say, healthcare delivery is expected to accord with the values and preferences of the patients and in collaboration with other healthcare professionals [50,51]. As a communicator, a physician is expected to form a relationship with patients and their families through eliciting and understanding their values and priorities when deciding on treatment plans, an approach known as shared decision-making (SDM) [50,51]. Being a collaborator entails the ability to work in an interprofessional environment, *i.e.,* to work efficiently and effectively with other members of the healthcare team to deliver optimal care for the patient [50,51]. A physician is expected to be committed to lifelong learning as a scholar [50,51]. Continuous professional development (CPD), teaching other HCP/Ts, interpreting and evaluating evidence, engaging in evidence-based shared decision-making, and adding to the research efforts conducted in the medical field are all expected to be part of the physician's role as a scholar [50,51]. As a professional, a physician is expected to be committed to clinical competence, ethical conduct of clinical practice, CPD, and interprofessional collaboration to ensure care delivery that meets the society care needs [50,51]. In the role of a leader, a physician is expected to collaborate with other healthcare professionals and engage in a shared decision-making process in order to continuously improve the healthcare system and the care delivery to patients [50,51]. Finally, as a health advocate, a physician's role is expected to go beyond disease diagnosis and treatment to include disease prevention and health promotion in the population [50,51]. Hence, the different roles comprising this framework suggest that communication skills are key for physicians, especially concepts such as SDM and interprofessional communication which are seen to be important skills for physicians to have in order to be able to serve the population. Thus, the increasing engagement of medical education researchers with topics of patient voice and shared decision-making have drawn impetus from a strong applied context to increasingly emphasize patient self-determined needs and decision-making input.

In order to equip HCP/Ts with the necessary skills and competencies in order to answer to the population healthcare needs, there has been a shift from the traditional knowledge-retention – focused education to competency-based medical education which is more focused on outcomes-based training [50,52–54]. A recent review showed that the shift towards teaching competencies adds more complexity to medical education but can be supported through stakeholder engagement and leadership which is intended to provide specific guidance on implementation. Allocating resources of time and money as well as policy change were found to promote the engagement of residents and faculty members in competency teaching and learning and this was identified as a facilitator to competency-based education [52,55–57]. Planning activities to support the development and education of faculty members and residents about the definition, teaching and implementation of clinical competencies was another factor identified to support the shift towards competency-based medical education [52,58–60]. Providing educational and technological support for curriculum development and delivery of training interventions to teach clinical competencies was found to be needed to support the shift from traditional to competency-based education [52,55–57,59].

Communication around treatment options in the clinical setting

A quintessential example of the challenges involved in designing curriculum for and applying it to medical education has been non-technical skills, such as communication. Communication between healthcare professionals and patients is defined as a dynamic process in which patients and healthcare professionals “exchange information that mutually influences attitudes, behaviors and relationships” concerning the care patients receive and the treatment decisions, where patients and healthcare professionals interpret one another’s verbal and nonverbal, explicit and implicit, obvious and subtle interactional behavior” [61,62]. Healthcare systems have increasingly espoused a more patient-centred philosophy of care than previously, that has three main goals: 1) to better inform patients about their medical conditions, 2) to increase the role patients play in managing their medical conditions, and 3) to promote the interactions between patient and healthcare professionals [63]. A strategy to achieve this is taking a shared decision-making approach to communication around medical conditions and treatment options [64].

The concept of shared decision-making (SDM) is gaining more research attention. SDM is considered to be “an approach where clinicians and patients share the best available evidence when faced with the task making decisions, and where patients are supposed to consider options, to achieve informed preferences”, as defined by the journal Canadian Family Physician [31,65].

Some studies show that SDM increases the patient's knowledge and reduces regrets about decisions made [31,66]. It is also shown to increase satisfaction about the consultation for the patient as well as the physician [31,66]. A shift towards an SDM approach in the clinic is being advocated for and is even regarded as "an ethical imperative" [31] that needs to be integrated in the current healthcare practice to better answer to the needs of the society that the healthcare system is serving. It is also an integral part of the expected roles of the physician as per the CanMEDS framework [50,51].

SDM does not have a clear or rigid definition and accordingly it has been suggested that it can be better presented to fall on a continuum that oscillates between complete patient autonomy to a paternalistic approach where the physician is largely in control of decisions, despite providing tokenistic opportunities for patient input into decision-making [67]. The model described by Kon, 2010 contains five main points that represent a spectrum of degrees of shared decision-making: 1) *patient-agent-driven*, where the physician only presents patients with possible options without making recommendations and patients have full autonomy over their decision; 2) *physician recommendation*, where the physician makes recommendations taking into consideration the values of the patients; 3) *equal partners*, where the patient and physician reach the decision together; 4) *informed*, where the physician makes the decision for the patient after having fully informed the patient while taking into consideration the patient's values; and finally 5) *physician-driven*, where the physicians restricts decisions to those that are value-neutral [67]. The approach to use along this continuum varies depending on the clinical situation [67].

Although communication between patient and healthcare professionals in a clinical setting is described as a bi-directional process [61,62], there is a knowledge gap in research regarding patients' perspectives and experiences communicating with their healthcare professionals such as conversations around survival and quality of life [68,69]. This lack of knowledge subsequently affects the provision of a patient-centered approach to care since there is little known about the topics that the patients would prefer to discuss and be educated on in their cases and treatment choices and decisions [62,68–71]. In a Danish study comprising semi-structured interviews with 18 oncology outpatients, some of the communication problems that patients faced were identified, including the need for full and in-depth explanations and information on the treatment and side effects at the beginning of the treatment [62]. Patients also reported that the way information was conveyed to them was impersonal, and they did not perceive it to be tailored to their individual circumstances [62]. Patients also stated that, although the communication style was mostly cheerful and uplifting, it was rather superficial and intended to hide the seriousness of the situation [62]. Oncology patients, for example, can experience existential issues related to loneliness, probability for survival, disease progression and death, all of which were reported to be missing from their conversations with their healthcare professionals [62].

Balancing expert clinical knowledge with patient perspectives and wishes represents an inherent tension. As such, there is debate in decision-making in healthcare, notably regarding treatment, with respect to the inclusion of patients as part of the decision-making process in the clinic. In

Canada, at least, these decisions are mostly made by the clinicians with minimal or no involvement of the patient [72]. On the one hand, some clinicians find that the patients may not always know the most appropriate options for a particular medical condition. Others may find it difficult to inform their patients about their case in a way that is appropriate for the patients and is sufficient for patients to make a well-informed decision [31,32,72]. In other cases, clinicians may find that the process of including the patient in the decision-making process might be too time-consuming [31,32,72]. The variations in beliefs about including patients in decisions regarding their health in Canada can depend on sociodemographic factors of the patients, care settings, and geographical areas [72]. In addition, in pediatrics, clinicians may be inclined to make the decisions regarding the child's health with little or no input from the family or the child [73].

A scenario that further complicates this is communication around survival and quality of life in clinical oncology is a dramatic domain to explore SDM, because clinical oncology settings also presents challenges whereby patients perceive that they are deprived of high-quality conversations about their treatment options and about their quality of life [74]. One reason is that communication around treatment options is often inadequate and tends to give patients unrealistic hope about their curability, especially in those patients with terminal stage cancer [75]. Furthermore, patients can be subjected to aggressive treatment regardless of their wishes, and even when that treatment is ineffective. The Cancer Care Outcomes Research and Surveillance study investigated the prevalence of the patients' expectation of chemotherapy being curative [76]. The study included 1193 patients who were diagnosed with metastatic lung or colorectal cancer [76]. The study found that 69% of patients with lung cancer and 81% of patients with colorectal cancer did not understand that chemotherapy in their cases was not likely to be curative [76]. Accordingly, engaging in clear and honest communication based in SDM around treatment options would be needed in such cases in order to respect patient's autonomy and reserve their dignity. The reason is that engaging in SDM entails providing and eliciting information on diagnosis, treatment options, values, and priorities and making sure that patients understand, fully, their treatment options. To support HCP/Ts in adopting SDM in their clinical practice, consistent and systematic efforts in teaching SDM in HPE grounded in best evidence of teaching may be required, however, is currently lacking [31–37].

Children and adolescents provide an ideal example of the opportunities and challenges of SDM because they are still under the legal care or parents or guardians. Accordingly, when the medical issue concerns a pediatric patient, communication around treatment options becomes even more challenging since there is no universal agreement on the age at which children should be included in the decision-making process around their treatment [73]. It is still unclear how HCP/Ts are trained to incorporate these views and how this layer of complexity plays a role in SDM. In countries like the Netherlands, for example, children can decide on their treatment choices independently from the age of 16 years and those aged 12 years are allowed to give consent, with their parents, on treatment decisions as well as research participation. In the US, the minimum age for assent is 7 years [77,78]. Although Article 12 of the UN Convention on the Rights of the Child indicates that "children shall be provided with the opportunity to be heard in any judicial or administrative proceeding affecting the child directly" [79], there seems to be a discrepancy on how children are involved in the process in different countries. However, such regulations all emphasize the importance of including children in decisions pertaining to their health and treatment [73]. Empirical evidence shows that children of age 9 years are usually able to make informed choices and that children at the age of 14 years are as competent as adults [73,80–82].

In pediatric oncology settings, decisions regarding treatment may lead to negative outcomes such as regrets about the decision, worry and stress [83]. It is, therefore, important to better understand the decision-making process and, in particular, to promote shared decision-making for pediatric patients, and indeed for any vulnerable population. Increased SDM in pediatric care is expected to result in more informed decisions [84]. In a pediatric oncology clinical setting, there are multiple available treatment choices, each with its advantages and side effects, be it short-term or long-term, making the decision-making process in this setting rather sensitive and challenging [84–86]. In order to deliver more informed choices, that balance patient input with expert knowledge, it has been suggested that patient input should represent the middle of the decision-making continuum, as equal partners decision-making approach where the child, the parents, and the physician come together to weigh decisions [67,84,87].

Grootens-Wiegers et al., 2017 attempted to address the complexity of neurological development and the capacity for decision-making in children and adolescents according to the Four Standards of Medical Decision-Making Capacity: expressing a choice, understanding, reasoning, and appreciation [73]. They show that the development of decision-making capacity in children is nonlinear with age, emerging around the age of 12 years with respect to medical decisions. The authors note that adolescents are prone to making more risky choices in emotional situations such as those where their peers are involved (i.e., being peer-pressured) and less so in situations where a treatment is received in the hospital. To facilitate the child's autonomy while still offering protection, the authors suggest the use of a double consent procedure of parents and minors aged 12 to 18 years [73]. Accordingly, there is a need for training interventions that incorporate the multiple levels of consent needed for SDM in case of children and adolescence.

Research suggests that communication can be further complicated in the case of an end-of-life (EoL) diagnosis for multiple reasons. In the case of adults diagnosed of EoL, one reason that can complicate the communication is that EoL diagnosis is frequently first given by emergency physicians [88–90]. In these cases, the emergency physicians have little to no prior knowledge of the patient's background, values, priorities which may impede the communication, and the SDM process, with the patient and their families around managing their feelings as well as deciding on next care steps [88–90]. Engaging in SDM in EoL is important in order to respect the dignity of the dying person [88–91]. Another reason that has been suggested to complicate communication in cases of EoL diagnosis is that some clinicians are perceived not to be transparent with their patients regarding their prognosis while most patients want honest and transparent communication [92–94]. Patients who are given a falsely optimistic prognosis often die in hospitals after having received an aggressive treatment plan [76,93,94]. Additionally, there is a gap in communication wherein patients have tended not discuss their concerns with their clinicians openly [93,95]. It has also been found that patients tend not to specify the amount of information they would like to know about their diagnosis, prognosis, treatment options and side effects

[93,95]. On the other hand, clinicians tend not know how much of that information they need to share with the patient, and have been found to avoid conversations about cancer survival and curability [75,93]. Such disruption in communication prevents patients from making informed decisions about their EoL treatment.

Communication challenges are not exclusive to adult EoL diagnosis, they also exist in the case of pediatrics EoL diagnosis as well as palliative care [96]. Since childhood death has become relatively rare, medical, psychological, and other practitioners involved in the dying child's care may have less training and experience handling this complex medical situation [97,98]. In addition, and also due to the rarity of childhood death, most research efforts and evidence around communication in EoL are for adults [97]. However, a dying child and their family may have different communication needs than a dying adult [97]. As a result, the complex physical, emotional and psychological needs of the dying child and their families are not clear and may not be met by the professionals providing the EoL care [97]. Moreover, the expectation for cure in the case of childhood cancer is much higher which leads to a reluctance and often a delay in communicating the prognosis and the transition to palliative care in cases of children with terminal cancer [97,99,100]. This makes the referral to EoL viewed by some as giving up on hope and delays the discussions around palliative care [97,99,100]. Nonetheless, open communication about the child's prognosis with the parents as well as the child is expected and beneficial for the process of SDM [97,99,100]. This allows the families and children to know what to expect in terms of symptoms and treatment, and it may facilitate healthy grieving [97,99,100]. Hence, there is an opportunity to enhance training on communication skills, and specially SDM, in high-stress situations such as childhood terminal diagnosis where the stakes are high and there maybe high heterogeneity in the priorities, preferences, and values of the stakeholders involved in the process: HCP/Ts, the child, and their family.

A shift towards teaching SDM

Medical education is intended to provide sufficient medical teaching and training to respond to the medical care needs of a community in the near future [25]. Ideally, the curricula taught are to be carefully designed and updated according to those needs leading to adequately equipping healthcare providers to meet the community needs as well as solving complex problems in healthcare systems [25,26]. The questions here become: what does society need from its healthcare providers in the near future? What are the requirements of the healthcare system in the near future? And, if we believe that patients have the right to be involved in their own care decision-making, do patients need to be more involved in the decision-making process regarding their health? [25–27]. Seeking to answer these questions can shift the discourse of medical education from being solely focused on teaching and learning the medical content into giving more attention to gaining the appropriate skills and competencies, as a result of the teaching and learning process, to meet the needs of the society [26,28,29,51]. This is also in-line with the concepts comprising the CanMEDS framework such as communication including SDM, commitment to CPD as well as to interprofessional collaboration [50,51].

Accordingly, along with the expanding knowledge and innovations in healthcare, a consequential challenge is incorporation into medical curricula. In response, educators tend to fill the curricula with information which can over-load the students and leave less time for the teaching and learning process [101]. Accordingly, any suggested additions to the medical curricula need to be delivered in a precise, engaging, and innovative fashion and avoid overwhelming the HCP/Ts. One such approach to medical education that has been gaining attention in the last years is the use of serious games [102]. Serious games are games that are designed and delivered for pedagogical reasons [102,103]. They can be carried out in-person or virtually and they have been shown to lead to higher satisfaction for learners by allowing them to learn new skills in a safe and interactive environment [102–105]. Such new skills involve the all-important skill of decision-making. This approach has been taken to teach communication skills in medical education [106].

Despite the strong advocacy for SDM, the approaches taken to teach it are rather heterogenous, and the outcomes measured by researchers are not always clear [107]. The topic of SDM is introduced in some undergraduate curricula and CPD training and undertaken in approaches that vary between being theoretical and practical action [10,36,107]. Theoretical approaches can include lectures and DVDs [36,107], and the more practice-based approaches can take place in the form of role-playing or during clinical practice itself and observing other physicians in action [10,36,107]. There remains room for improving current guidance for approaches to teaching SDM with recommendations to focus on practical training interventions that allow for reflective practice to advance students' knowledge, effect attitude change, and promote learning of new skills [10,36,107].

Problem statement

The research literature has increasingly seen role-playing games (RPGs) – a means of simulating supposedly "real-life" interactions – as having the promise to enhance collaboration and patient-centredness as training to empathize with the "other". Although accounts of training interventions, or suggestions for educational approaches for teaching SDM in HPE are important, they have tended to be descriptive, and with an absence of the use of concepts that could help transfer their findings to other settings beyond the local intervention, and to help us understand the processes of engagement in SDM. The ability to design educational or policy interventions rely on understanding processes – the points in dialogical activities in which circumstances support or impede the empathy required to engage in shared decision-making [108]. In fact, without such knowledge, HCP/Ts run the risk of unknowingly falling into what has been called "epistemic injustice", in which patients may not be believed or even faulted for their views and perceptions of their health status and preferences [108]. What is missing in the literature is an understanding of the processes by which HCP/Ts are able to take on roles in RPGs and learn empathy-based concepts such as SDM. Such understanding is needed in order to be able to systematically design, implement, and assess, training interventions aimed at teaching empathy-based concepts such as SDM.

Therefore, in this doctoral thesis, I sought to gain a deep understanding of the processes underlining role adoption and learning empathy-based concepts in medical education, in order to come to a theoretical framework that can be used to inform education and policy. This was achieved through answering the following research questions: 1) what are the current approaches for teaching communication skills that focus on SDM in medical education (with a focus on RPGs)? 2) how do HCP/Ts adopt roles in pedagogical role play games focusing on SDM? and 3) how participants in a pedagogical role play engage with processes of shared decision-making?

The specific research objectives of this thesis are to:

1) explore the current methods and approaches to teaching SDM for HCP/Ts, including RPGs (addressed in study 1, reported in chapter 4)
2) identify the processes by which HCP/Ts engage in their roles specifically in role play-based serious games designed for HPE (addressed in study 2, reported in chapter 5); and
3) identify factors involved in shaping the way HCP/Ts engage in collective problem-solving through RPGs (addressed in study 3, reported in chapter 6).

CHAPTER 3: THEORETICAL FRAMEWORK & METHODOLOGY

Epistemology

Considering different research paradigms including post-positivism, social constructivism, pragmatism, critical realism, and critical theory [109,110], the necessary insight on the processes of role engagement and joint decision making in medical education, is best considered through the adoption of a social constructivist paradigm. Social constructivism is rooted in an epistemology of intersubjective knowledge where social interaction constructs how we know the world [111]. Knowledge is seen to be constructed with others through practice, and through reflections on present and past experiences [112–114]. As noted by the authors of a recent article in the Academic Medicine journal, this paradigm "invites us to question taken-for-granted assumptions and attend to socially and historically contingent meanings" [111–114]. It is this social constructivist worldview that guided the choice of research methodology – specifically, exploring the engagement of learners with simulated activities, asking them to place themselves in the roles of others and understanding their perspectives through RPGs. Questioning assumptions and processes, including the role of researchers themselves, assumes attention to the language that people use, and so a qualitative research approach is adopted in this thesis.

Theoretical Underpinning

This thesis aims to understand the processes by which HCP/Ts assumed roles in pedagogical RPGs designed for teaching and learning SDM, and the ways in which the HCP/Ts engage in joint decision-making. This investigation can show the factors that shape whether or how training interventions on complex concepts in medical education such as SDM can be designed as a foundation for intervening in policy or education. An important gap that has been identified in the literature is that these game-based training interventions need to have theoretical underpinnings that point to common threads of factors shaping the processes by which people engage in role-play, to guide the design of educational interventions and their evaluation [115].

Goffman's theory of dramaturgy

Goffman's theory of dramaturgy shapes the present exploration into role-play processes. The sociologist Erving Goffman (1922-1982) describes interaction and influence among people to be similar to a theatrical stage in which individuals play roles in order to be able to associate with each other for particular purposes, similar to actors in theatre [116,117]. Goffman argues that individuals, when in public, act in the way that the society expects from their roles in that society and that they also have private lives that are not shared and which involve preparing for their expected roles [116–118]. This has been known as front stage and back stage behavior, respectively [116–118]. Goffman sees the two behaviours as integrated such that backstage behaviours are often unconsciously conducted, and that the need to meet others' expectations in interaction influences backstage thoughts and behaviour [116–118]. This means that the two are difficult to distinguish and mutually influence each other. Dramaturgy theory draws on the principles of symbolic interactionism theory, which is a theoretical framework that holds that individuals' interactions are based on previously agreed on set of words, gestures, or actions (symbols) by a society or social group [119].

Goffman uses dramaturgical metaphors in order to explore and describe how people co-construct their roles in social interactions [116,117,120]. Goffman makes the argument that people put up a certain "face" that portrays what is socially expected from them, which is similar to the "face work" that actors do together during a performance to maintain positive face and avoid embarrassment through their deep knowledge of their performance and dependency on each other to deliver their respective acts [116–118]. In doing so, Goffman argues that the end goal of the individuals is to achieve positive portrayals of themselves in the face of other individuals in society [116–118]. Accordingly, individuals use techniques of impression management (aligning with societal expectations of their roles) and face-saving (avoiding contradiction with societal expectations) in order to give the best representation of themselves in any social setting [116,117,120,121]. A dramaturgical view of role-play games, then, emphasizes the performative alignment with perceived expectations that are observable, more so that behaving as a reflection of one's thoughts.

While dramaturgy is a theory that examines how individuals present themselves in social interactions, a variation of dramaturgy, narrative dramaturgy emphasizes the way stories are constructed and presented [116,117,120–123]. Juxtaposing the concepts from dramaturgy and narrative dramaturgy to RPGs in medical education has shown that RPGs require narrative construction that is similar to dramaturgy [116,117,120–123]. RPGs are intended to tap into "real-life" experiences that can conceivably by employed by others, given our shared status as human beings [116,117,120–123]. The concept of stagecraft in drama is also similar to the concept of scenario design in RPGs where both revolve around shaping the different physical or theoretical elements in order to construct an experience [116,117,120–123]. In addition, in drama there are the concepts of story and plots, where the first is a linear sequence of events that is the overarching scenario, and the latter is the introduction of a set of events at different time points, making them non-linear [116–118,122]. In an RPG, an overarching story is put forward, and plots are introduced which lead to building tension, triggering emotions, and further engaging the participants in the experience [116–118,122]. In study 2 (reported in chapter 6 of this thesis), to understand the processes by which HCP/Ts engaged in their roles during a pedagogical RPG for teaching SDM, the concepts from dramaturgy and narrative dramaturgy were used to provide a deeper understanding of the manifestation of roles

Empathy and reciprocal adaptation

Empathy has been defined as "understanding [another's] emotions, concerns, and situations, communicating that understanding to the [other] and acting on that understanding" [124,125]. Empathy has been shown to have rather positive effects on the physician-patient relationship [124,126–129]. Several studies have shown that an empathetic communication with patients leads to better health outcomes, higher satisfaction of the clinical encounter, as well as compliance with recommended treatment [124,126–129]. On the other hand, lack of empathy has been correlated with worsening patient health outcomes and psychological distress [125,130]. Hence, there is advocacy for incorporating empathy medical education and a move away from the "detached concern" model that is said to have previously been applied by physicians during clinical encounters [131–133]. Medical education, especially during formal university degree-granting medical training, has been seen as the foundation for promotion of empathetic communication skills to enable patients and colleagues to articulate their perspectives and preferences, and communicate them effectively [125]. Promoting empathy-based communication skills in medical education presents challenges. In fact, many studies report a decrease in empathy as medical students interact more with patients, and that this decline continues through residency and subsequent practice [125,128,134–139]. Empathy has been shown to depend on multiple factors such as gender, personality, education and career, as well as shared experience with the patient [125,137,140–142]. For instance, females have been shown to display more empathy [125,137,140–142]. Also, medical students who have received training that includes a focus on humanities have been found to display more empathetic communication than those who have not [125,137,140–142]. This has prompted arguments for the inclusion of training interventions for empathy-based communication concepts such as SDM in the medical student curriculum as well as CPD [125,137,140–142].

In study 3 (reported in chapter 7 of this thesis), the concept of reciprocal adaptation is employed in order to gain an understanding of how HCP/Ts engage in SDM in the context of an RPG, and what this engagement is expected to realize. Reciprocal adaptation is defined as “the procedure… where each participant gradually learns to adapt and to enter into the other’s frame of reference” [143]. According to Gumperz’s definition, when people are involved in a process of negotiation (or in the case of our setting, clinical decision-making), they engage in a process of interactive reframing in which they seek to share other’s frames of mind, including exposure to their arguments and perspectives [143,144]. Accordingly, the concept of reciprocal adaptation was chosen to explore how participants in an educational activity engage with processes of shared decision-making by having an opportunity to demonstrate understanding of the perspective of another.

Methodology

Qualitative research

The empirical studies reported in this thesis are qualitative studies that were conducted under the constructivist paradigm [112]. Focusing on words or images – usually words – qualitative research reflects human experience and enables investigation of the way people engage with particular phenomena, including their perspectives and behaviors [145–148]. Qualitative research has been used to understand the lived experiences of people managing the effects of a certain disease or treatment, as well as decision-making around treatment plans and medical interventions, either at the beginning of the disease or in more terminal cases such as the case of end-of-life care [148]. A qualitative approach can also be taken to explore and understand questions around the healthcare systems such as accessibility, quality of care, and health promotion, among other topics [148].

There has been a dramatic increase in the use of qualitative research to answer questions related to healthcare and healthcare systems [148–155]. Indeed, there has been an advocacy for the incorporation of qualitative studies to the body of evidence-based practice research and that excluding qualitative evidence from systematic reviews leads to biased results. As such, this has resulted in the generation of systematic reviews of qualitative evidence; qualitative meta-synthesis, qualitative meta-data analysis, and meta-ethnography [148–154,154,155]. This approach has put the emphasis on the importance of qualitative evidence in evidence-based practice [148].

In conducting a qualitative study, researchers may choose to start with a theory, as is the case in the qualitative studies in this thesis. Purposeful sampling of participants was undertaken for this research, which means that, rather than being randomly sampled, participants are chosen for their ability by virtue of their role or circumstance to help the researcher address the research question. Thematic analysis was conducted on the collected data, as elaborated under “Data analysis” below, and results are reported with detailed description of methods of data collections, analysis, and findings [145,147,156,157]. There are multiple approaches to conducting qualitative research, including: ethnography, grounded theory, phenomenology, and narrative research.

Context on the Methods Used

Study 1

Systematic reviews are used in the field of healthcare as early as in the 1980s and they became more of a staple in evidence synthesis to inform practice, policy, and further research with the formation of the Cochrane and the Joanne Briggs Institute in the 1990s [158–161]. There are different types of systematic reviews including scoping reviews [158]. Scoping reviews are intended to answer broad questions related to a topic or a field where the literature or evidence is still emerging, with the aim of mapping that literature [158,162–164].

Prior to conducting this scoping review, an initial search of the literature regarding teaching and learning SDM in HPE, including medical education, was carried out as it was a topic of interest. Thin literature was retrieved that explored teaching SDM in medical education, especially from a social sciences perspective. The initial search returned commentary articles that strongly advocated for adopting SDM in the clinical setting as well as teaching its concepts in medical education [4,31,32]. Other studies that resulted from the initial search reported on the evaluation of training interventions pertaining to SDM. A limited number of reviews were conducted on the topic. However, these reviews focused on reporting on quantitative studies or focused on searching medical and biomedical databases [36,37].

This study aimed to answer the first objective of this thesis which is to explore the current methods and approaches to teaching SDM for HCP/Ts with a particular emphasis on serious gaming as a teaching tool. To realize this objective, a systematic scoping review of quantitative and qualitative evidence was undertaken. Conducting a scoping review helped to summarize and 'map' the range of evidence surrounding teaching SDM in medical education as well as to find the gaps in the literature which guided the subsequent studies reported in this thesis [162,165]. The scoping review was conducted systematically according to the framework reported by Arksey and O'Malley in 2005, as shown in Study 1 [162].

This scoping review sought to answer the questions: 1) what are the approaches that are reported in the literature on teaching SDM to HCP/Ts? 2) what are the measure and outcomes that these approaches or training interventions of SDM focus on? A special focus was given to the use of training interventions that either included RPG or were solely based on RPGs. This focus on RPGs was especially important as it was one of the approaches that came up in my initial literature search.

In line with the importance of mapping not only the medical and biomedical literature on the topic of teaching SDM to HCP/Ts, but also have an interdisciplinary and social sciences-focused approach, four databases were selected for the search that cover this wide scope of literature. The first database was Ovid MEDLINE (Medical Literature Analysis and Retrieval System) which is database that includes studies published in medical and biomedical journals. The second database was ERIC EBSCO (Education Resources Information Center) which is a database that covers studies focused on education research. The third database was APA PsycINFO which includes literature that focuses on research carried out in both psychology and health sciences. The fourth, and last, database was Scopus which is a known multidisciplinary database covering health, life, and social sciences in addition to arts and humanities. The articles were classified according to the above questions, and the findings are elaborated within Study 1.

Studies 2 and 3

Preface

As SDM is being advocated to achieve better health outcomes, its implementation in the clinical practice requires teaching healthcare providers and trainees to adapt their communication skills to include SDM [10,166–170]. Serious games based on role-playing are used for training on skill acquisition and so they could be one of the approaches to take in medical educational to teach healthcare professionals and trainees communication skills focusing on SDM [38]. This was also identified as a finding from the scoping review conducted in study 1 (reported in chapter 4 of this thesis). Role-playing games (RPGs) as an educational method are advocated to draw on pedagogical theories [38,171].

Development of the RPG

The particular serious game in this thesis uses an RPG approach that was developed by Dr. Gillian Bartlett and her team to give a voice to the patients who are children, adolescents and young people. The game was based on the format of a game developed by Dr. Jameson Wetmore for understanding of nanotechnology applications. Dr. Bartlett and her team took a participatory approach to the initial development and testing of the RPG where it was informed by input from patients, patients' families, researchers, and the treating clinicians. It was designed to collect information related to balancing survival against health-related quality of life in treatment decisions [172].

RPGs typically involve a "Game Master" who is responsible for explaining the setting that the RPG experience is imitating, and the characters involved in it [173–175]. The participants are typically provided with cards that describe the characters they are representing in the RPG session. RPGs also have a main plot that the participants navigate, collaboratively, in order to reach a final goal. In the context of HPE, taking part in RPGs allows HCP/Ts to transiently experience the role of other stakeholders in clinical encounters. Taking part in such experiences has been associated with increased reflection, peer learning and collaboration, as well as increasing empathy towards the experience of patients and their families.

Under the supervision of Dr. Gillian Bartlett, I further adapted the RPG (called Anthony's World) to be conducted online and tested it throughout four different iterations (four different sessions) prior to the data collection sessions that I used for studies 2 and 3 reported in this thesis (data not published). In Anthony's World, the participants, who were all HCP/Ts, were assigned character cards that were either a parent, a child, or a clinician. The participants were then asked to act within the borders of the characters that they were assigned to for the duration of the session. To help participants get into their assigned character, the session started with a warm-up exercise. Following that, participants were presented with a clinical case of neuroblastoma and the participant with the child character was asked to read the case (which represents the child's diagnosis) out loud for all participants to hear. The participants were then presented with the description of five possible treatments for the disease along with information on the 3-year survival rate for every treatment option as well as the possible adverse effects of each of the treatment options. The participants were asked to list in their game notepads the treatment options in their order of preference and they were asked to do this each individually. Then, they were asked to share their treatment preferences and their reasoning with everyone. They were then asked to discuss together the treatment options and to try and come to a consensus on the best treatment to introduce to the child as well as the rest of the preferences.

The participant with the child character was asked if consensus was reached and invited to share the agreed on new list of preferences of treatment options. At this point of the game, it was made clear that the participant with the child character had the final decision on the order of treatment options in the event that consensus was not reached among the group. The participants were then presented with the pharmacogenetics (PGx) results related to the child character's risk of experiencing adverse events for the different treatment options. They were then asked to repeat the individual and group decision-making exercises again with the new knowledge of the pharmacogenetics results. In the end, the participants were asked to share their thoughts on the experience. Anthony's World is described in greater detail in Appendix 1 of this thesis.

Context on the inclusion of pharmacogenetics in the RPG

In addition to the changes in approaches to clinical decision-making, medical innovations are continuously developed and adopted from the research side to the clinical setting to help deliver patient-centered care with lower risk of developing side effects and higher QoL. One such innovation is PGx testing which is a test designed to help guide clinical decisions regarding the choice of treatment and the appropriate drug dose depending on the genetic makeup of the patient [176–178]. That is because certain genetic variations can change the patient's response to treatment and susceptibility to developing adverse drug reactions, which are the harmful side effects associated with taking certain medications [176–180]. Receiving personalized care depending on the results of the PGx testing can inform the needed drug dose as well as decrease the potential adverse drug reactions, leading to better care outcomes and higher QoL for the patient [176–182]. However, clinical implementation of PGx testing faces multiple challenges, one of which is related to education. In order for healthcare professionals to integrate PGx test results into their clinical decisions, they need to receive adequate education on how to interpret the results. Moreover, they would also need training intervention on how to communicate the test results to the patients and their families and incorporate this additional knowledge (PGx test results) into the SDM process to arrive at treatment plans that correspond to the priorities and values of all stakeholders involved: healthcare professional, patient, and/or their family [177,178,182,183].

Recruitment

Recruitment was carried out through sending recruitment e-mails to HCP/Ts who were part of the researchers' wider professional and social networks of HCP/Ts. A combination of purposive sampling, with maximum variation, and convenience sampling approaches were adopted [184,185]. Participants were all HCP/Ts (according to the definition of the Canadian Institute for Health Information[186]), accredited kinesiologists, medical residents, trainees, or students. A total of 19 HCP/Ts were recruited to take part in the RPG where they were assigned to different roles of the stakeholders of a pediatric oncology clinical setting (clinician, parent, or child). Participants were of varying of HPE backgrounds, gender, and years of practice, is also another point of strength. Seven participants were general practitioners, four pharmacists, two residents, one undergraduate medical student, one pediatrician, one pediatrics nurse, one occupational therapist, one kinesiologist, and one family doctor. The majority of participants were females (n=15). This diversity was intentional in order to make the observations and conclusions more transferable. It was also an attempt to have a reflection of real-life clinical situations where clinicians from different healthcare professions are to communicate and to collaborate, among themselves and with patients and their families, to come to clinical decisions regarding treatment plans.

Data collection

All RPG sessions were carried out on the Zoom online platform and were both audio and video recorded including the post-session unstructured focus groups. Recordings were transcribed verbatim. The data for study 2 came from the transcripts of the post-session focus groups. The data for study 3 came from the transcripts from the RPG sessions as well as the post-session focus groups. I convened the focus groups. They were deliberately designed to be open-ended to optimize the reflections of the participants, given that the participants were professionals, and also that they had just emerged from the role-play experience. In the same zoom room as the RPGs were conducted I asked: How did you feel about the role-play game? I also prompted each individual so that each person had the opportunity to speak.

Study 3 drew on the post-RPG focus groups, as outlined above. It also drew on observational data of engagement with the RPG. I took notes of what was said and overt emotional reactions, such as laughter to help contextualize the data. The RPGs were audio-and video-recorded to obtain a reliable record of the text and discussion to facilitate detailed analysis.

Data analysis

Thematic analysis was conducted systematically taking an iterative inductive-deductive approach [145,147,156,157]. At first, segments of data from each participant were identified and coded across particular RPG sessions by the first author. A code was a full sentence or a phrase that was a minimally meaningful unit – from which an interpretation could be derived. Transcribed data of each participant was followed over the time of the RPG session and the following focus groups and codes were identified. Following this, similar codes that stemmed from participants who were assigned the same character were grouped. Codes were compared across the different characters (child, parent, clinician) looking for divergence, if any, and similar codes were further combined into the major themes reported in the findings. This process was done in a consistent “line by line” manner to enhance rigor, and any divergence found to the observed patterns prompted the creation of new codes or categories. Final major themes were discerned following input from multiple research team members [187].

Rigor and trustworthiness in qualitative research

Research rigor can be defined as how strong a research design and how appropriate the methods are to answer the research question/s of a particular study [188]. To enhance the rigor of the work described in this thesis, a detailed reporting of the research design and methods has been provided and expert feedback was solicited throughout [188–191].

Efforts were also engaged to enhance the trustworthiness of the research – that is, how plausible the findings are. [188,192]. According to Guba and Lincoln, trustworthiness can be assured through four axes: credibility, transferability, dependability, and confirmability [188,193].To enhance the credibility of the empirical studies reported in this thesis, which is the believability of the portrayal of participants [188], multiple RPG sessions were conducted and participants’ feedback on their experience were documented and incorporated into subsequent iterations of the game without changing its fundamental structure. In addition, a detailed description of the participants’ experiences was noted as they progressed through the different parts of the RPG. All feedback received from participants was analyzed and reported. Transferability was enhanced through describing the features of the game in detail to emphasize its features that are common to other settings. To enhance dependability, which is similar to the concept of reliability in quantitative research, i.e. “the stability of findings over time” [188,193,194], the literature was searched for disconfirming evidence to weigh out the findings and was reported in the discussion sections of the studies. Confirmability is the degree to which a study’s findings could be confirmed by other researchers [193,194]. Despite its potentially post-positivist connotations of similarity across researchers, confirmability was interpreted from a constructivist point of view, acknowledgeing multiple truths, to suggest the *plausibility* of the findings. A confirmability audit was used to make sure that the data coming from the transcripts of the different sessions gave rise to the themes identified and generated. This was done with a secondary expert. Field notes were taken throughout the studies where prior expectations, views, and any biases were documented throughout the timeline of the research conducted and incorporated into the analysis. I kept reflexive notes during the data collection and analysis period to incorporate and account for reflections on my background as a pharmacist, having changed identity to being a student, and also to being a female.

Ethical considerations

I sought to conduct this research in accordance with the World Medical Association Declaration of Helsinki [195]. Ethical approval was obtained from McGill University Research Ethics Office (Institutional Review Board (IRB)) before launching the RPG sessions and focus groups. Participants were e-mailed the consent forms and the signed consent forms were returned prior to the start of the RPG sessions. At the beginning of each RPG sessions, participants were made aware of the purpose of the study and a discussion around consent took place then the participants were asked to provide a verbal consent form. All RPG sessions and the post-RPG focus groups were video and audio recorded with the consent of the participants.

Participants were asked to keep the names, information, and the discussions/views of other participants in the same session confidential. All names and information of the participants in all RPG sessions were kept confidential and will not be disclosed in any future publications or other knowledge transfer methods. All participants' names were removed at the time of the transcription and were replaced by the role names that they were assigned to in the RPG sessions (parent, child, and clinicians). Participation in all sessions were voluntary and the participants could leave the study at any point, should they choose to, but this did not occur.

All data collected from the RPG sessions are only available to the research team members and are securely stored. This information will be kept for 7 years as per the requirements of the McGill University IRB. Ethical review laid a foundation for starting the recruitment process for the qualitative studies reported in this thesis.

CHAPTER 4: STUDY 1 - EXPLORING APPROACHES TO TEACHING COMMUNICATION PRACTICES FOR SHARED DECISION-MAKING IN MEDICAL EDUCATION: A SCOPING REVIEW

(Completed Manuscript 1 to be submitted to journal *Medical Education*)

Preface

The scoping review was carried out systematically to comprehensively search the medical, biomedical, and multi-disciplinary literature on teaching SDM in medical education. The aim of this scoping review was to map the literature on the training interventions used to teach SDM in medical education and how they are evaluated. The findings from this review guided the subsequent work reported in studies 2 and 3 of this thesis.

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Keywords

Shared Decision-Making, Medical Education, Health Professions Education, Continuing Professional Development, Scoping Review

Abstract

Objective

Health professional education researchers have documented increased training on shared decision-making (SDM) skills in undergraduate as well as continuing professional development (CPD). In this review, we seek to understand the current methods and approaches to teaching SDM for healthcare providers and trainees with a particular emphasis on serious gaming as a teaching tool.

Methods

This scoping review involved the systematic search of 4 databases: MEDLINE, ERIC, PsycINFO, and Scopus for qualitative and quantitative studies literature covering the topic of teaching SDM in medical education.

Results

We identified 20 records that met our search criteria and were included in this study. We found that SDM training provided in medical education included a combination of teaching modalities:

literature, didactics, simulations, role-playing games (RPGs), video tutorials, in-person feedback, case studies, pre-/post-assessments, online forum, group discussion, online modules, and decision boxes. We also found that the foci and results of the papers in the included studies could be classified into one of 5 main themes: prior knowledge of and training in SDM; impact on SDM skills of the participants; impact on the training on the confidence of the participants in practicing SDM; impact on knowledge of and attitudes towards SDM; and perceptions of the participants of the SDM training received.

Conclusion

Our scoping review shows that there is relatively limited literature available exploring teaching SDM in medical education. In addition, there is high heterogeneity in the documented approaches taken to teach SDM, to observe and measure the outcomes of the training, and to explore the factors supporting and impeding SDM training. Although there are different approaches to teaching SDM, serious gaming has been shown to have promising results as a training modality and warrants deeper investigation.

Introduction

There have been increasing calls for shared decision-making (SDM) in clinical practice [1,2]. SDM has been defined as “an approach where clinicians and patients share the best available evidence when faced with the task making decisions, and where patients are supposed to consider options, to achieve informed preferences” [3,4]. Accordingly, implementing SDM in clinical practice entails having healthcare professionals and patients engage in a discussion around the diagnosis and available treatment options to reach a consensus around the treatment plan [3,4]. Practicing SDM in the clinic is regarded as an ethical imperative. It is intended to advance patient autonomy, whereby patients are involved in the decision-making process; beneficence and non-maleficence, whereby healthcare professionals and patients would work together to balance the benefits and risks of a particular treatment or procedure as well as avoid harm; and also justice, whereby the distribution of benefits, risks, and costs may shift favorably towards fewer costs and procedures [1,2,5–7]. It is also argued that SDM could contribute to equity in healthcare delivery by involving all patients in the decision-making process regardless of their level of education or social status [1,2,6–8]. In addition, some studies show that SDM increases the patient's knowledge and reduces regrets about decisions made regarding particular treatment options [4,6]. It is also shown to increase satisfaction with particular clinical consultations among both the patient as well as the physician [4,6].

SDM is considered to be an evidence-based approach because it provides patients and healthcare professionals the possibility of making decisions together based on the scientific evidence available to the healthcare professional, as well as the knowledge of both the healthcare professional and the patient [9–12]. Evidence-based practice has been defined as the "conscientious and judicious use of current best evidence in conjunction with clinical expertise and patient values to guide healthcare decisions" [9,13]. SDM is also considered to be congruent with the "patient-centered" movement in healthcare, whereby patients' active engagement in their own healthcare planning has been shown to lead to greater satisfaction and commitment [9,12,14,15].

Several barriers have been identified to the clinical implementation of SDM, such as time constraints, the level of education of patients, as well as the attitude and skill of the healthcare professionals to practice SDM [9,12,16,17]. Accordingly, there has been increasing advocacy for redressing such barriers through formal medical education in order to educate the healthcare professionals on SDM and modify their attitudes and perception of SDM in clinical practice [9,18].

A remaining issue, nonetheless, is that for all the claims of the need for SDM, there is little evidence of the extent to which it is applied in education and practice [9,12,16,17]. A relatively recent review focused only on outcomes measures of quantitative studies evaluating SDM interventions [19]. Little is known about the broad landscape of empirical studies of SDM in terms of its size, scope, scale, diversity, or commonality of approaches or outcomes. This is important for SDM in practice to provide frameworks for policy evaluation, service evaluation, and for educating future generations of healthcare professionals to engage patients effectively and sustainably in decision-making to support optimal patient outcomes. Without a comprehensive understanding of the landscape of studies and training interventions on SDM in medical education and their effectiveness, it will not be possible to gauge what is needed to enhance the capacity of healthcare professionals to incorporate SDM in clinical practice; nor would it be possible to propose healthcare policies to systemize the training and clinical practice of SDM. Therefore, the goal of the article is to present a scoping review of what is known empirically on SDM and medical education in healthcare both in undergraduate curricula as well as in continuing professional development.

Methods

We conducted a scoping review to summarize and map the range of evidence surrounding teaching SDM in medical education, both undergraduate and CPD, as well as to find the gaps in the literature which can guide future research efforts [20,21]. We took a systematic approach to conducting the scoping review by following the framework proposed by Arksey and O'Malley [20] which comprises 5 stages: 1) identifying the research questions; 2) identifying relevant studies; 3) study selection; 4) charting the data; and 5) collating, summarizing, and reporting the results [20]. This methodology for conducting and reporting scoping reviews has been recommended for complex and under-investigated fields [19,20]. We have also engaged an adapted version of the analytical process employed Durand et al to report parts of the results [19].

Stage 1. Identifying the research question

We mapped the literature surrounding teaching SDM in medical education to answer the following 2 questions: 1) what are the characteristics of the courses or training sessions that focus on SDM in medical education, both undergraduate and CPD? and 2) what are the findings, perceptions, and meanings in relation to the courses or training sessions that focus on SDM in medical education, both undergraduate and CPD?

Stage 2. Identifying relevant studies

We searched a total of 4 databases for published papers, namely: Ovid MEDLINE (Medical Literature Analysis and Retrieval System, a primary database for biomedical journals); ERIC EBSCO (Education Resources Information Center, a database of education research); APA PsycINFO (database for psychology and health sciences); and for the citation index we searched Scopus (primary multidisciplinary database covering health, life, and social sciences in addition to arts and humanities). We engaged multiple databases to minimize bias and retrieve as many articles as possible to map the literature as comprehensively as possible. The main concepts that were combined and searched were: medical education for undergraduate students and residents; shared decision-making; curriculum; medical education for clinicians; and continuing education. The search terms and strategy were designed by the researcher (SA), in consultation with co-authors, and were discussed, refined, and verified with an expert librarian at the Schulich Library at McGill University. The search terms are reported in table 1 and the full search strategy is reported in the supplementary material.

Stage 3. Study selection.

Inclusion and exclusion criteria were set by two co-authors (SA & GB) in order to decide on the studies to include in the scoping review to answer our questions. A study was included if it: 1) reported courses or training sessions that were focused on teaching SDM for undergraduate medical students, residents, or clinicians in continuing professional development, 2) was reported in English, 3) involved a qualitative, quantitative, or mixed-methods design (where quantitative studies could include randomized, non-randomized controlled trials, prospective and retrospective cohort studies, cross-sectional, and quasi-experiments). All review papers, editorials, opinion pieces, and any studies not reporting, evaluating, or analyzing the education approach were excluded.

Two researchers (SA & SS) proceeded to independently screen all articles retrieved from the 4 databases for eligibility to include in the scoping review according to the aforementioned inclusion and exclusion criteria. Disagreements between the researchers on study inclusion were resolved through discussion between the two reviewers and through discussion with a third researcher (GB). The study selection was undertaken using Rayyan QCRI software [22] and the included studies were summarized using the PRISMA diagram for scoping reviews [23].

Stage 4. Charting the data.

An initial data extraction form was customized (SA) and tested, independently, by the two researchers conducting the scoping review (SA & SS) by extracting information from three of the included studies into the form. The final extraction form allowed for extracting data on author, year of publishing, study country, study design, the purpose of the study, type of training introduced, participants, framework, training duration, training description (aim, brief description, delivery method, mandatory/optional/ under development), outcome measures, main results including of perceptions of training, and integration into teaching/training curricula). These domains were identified through an initial search of the literature as well as through a discussion between the researchers (SA & GB) [19,24].

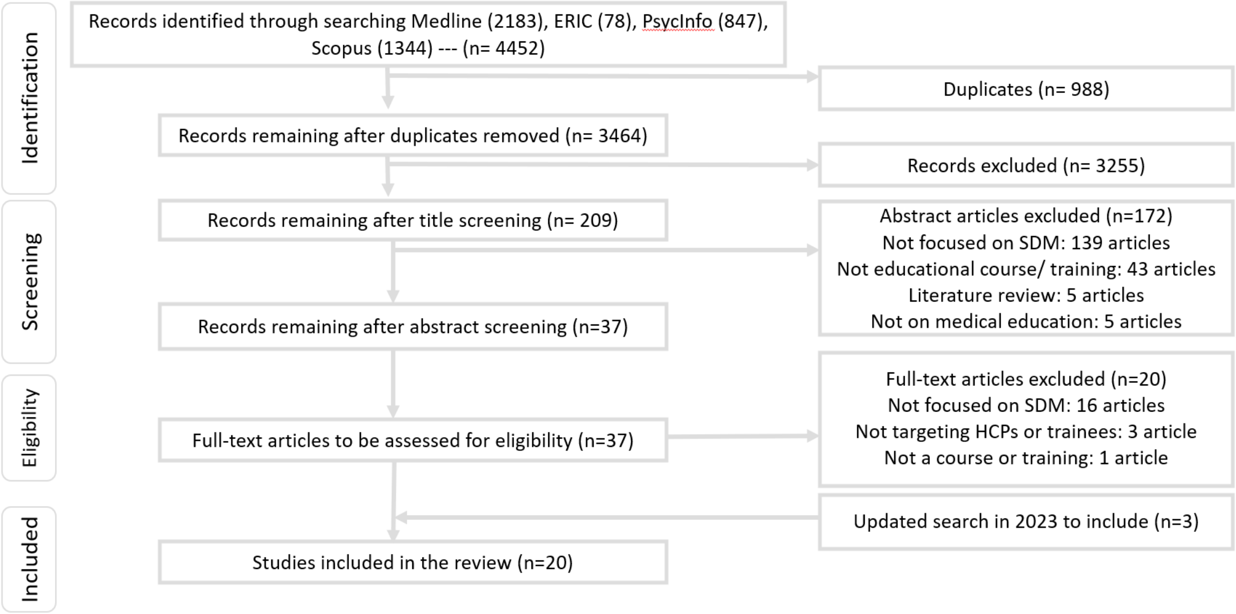
The two researchers (SA & SS) independently extracted all data from the included studies and any disagreements were resolved by discussion between the two researchers and with a third researcher (GB). Quality assessment was not carried out as it is not required for scoping reviews [20,21,23].

Stage 5. Collating, summarizing and reporting results.

The extracted data were thematically analyzed, tabulated, and summarized. Thematic analysis involved carefully coding individual segments of data, organizing subsequent data segments into codes, and grouping these codes into broader categories, then themes, all the while searching explicitly for variations in the data [25]. In addition, the findings were reported using a descriptive narrative, and gaps in the literature were identified and articulated.

Results

Our search of the 4 databases yielded a total of 4452 records: MEDLINE (n=2183), ERIC (n=78), PsycINFO (n=847), and SCOPUS (n=1344), see figure 1. After the removal of duplicates (n=988), 3464 records remained. Title screening resulted in the exclusion of 3255 records, with only 209 records remaining for abstract screening. The total of records remaining after abstract screening was 37 records. Additionally, 172 records were excluded, given that 139 records were not focused on teaching SDM in medical education, 43 records were not reporting an educational course or training, five records were literature reviews, and five articles were not focused on medical education. After the full-text screening, 20 records were excluded, whereby 16 records were not focused on teaching SDM, three records were not targeting healthcare professionals or trainees, and one record was not a course or training intervention. Accordingly, 17 records were included in the study after the screening process. Three more relevant records were added after the selection stage that were retrieved by tracking the citations (snowballing) of the selected documents, see figure 1.



Ann Intern Med. 2018;169:467-473. doi:10.7326/M18-0850

Figure 1. PRISMA flow diagram of included studies

Features of the included studies

There were 20 studies that were included (n=20) [26–45]. Of these, 12 studies were conducted in the US [26,29,31,35–43], four studies were conducted in Germany [27,28,30,32], two studies were conducted in the UK [44,45], and two studies were conducted in Canada [33,34]. The study designs varied in that four studies were randomized controlled trials (RCTs) [27,28,34,38], two studies were mixed-methods [33,45], 11 studies were cross-sectional educational intervention [26,29,30,32,35,36,39,40,42–44], two studies were cross-sectional simulation-based studies [31,37], and one was a prospective study [41]. Participants in six of the included studies were medical students [29,30,35,36,43,45], in seven studies participants were residents [26,31,37,39–42], and in seven studies the participants were healthcare professionals [27,28,32–34,38,44]. The number of participants in the studies varied from 10 to 674 participants per study [26–42]. Some studies also included the patients as participants in the training that was offered [34,38]. The description of the studies is summarized in table 2.

The aim of the studies ranged from teaching and supporting healthcare students and professionals on SDM in different clinical settings [27,32–42] to have a wider scope of teaching communication within which SDM is one of the concepts covered [26,28–31]. The specific aim of each study is summarized in table 3.

The main approaches taken to teach SDM in medical education in the included studies

We thematically analyzed the reported training descriptions of the different studies to teach SDM in medical education. We found that the included studies used different combinations of one or more of 12 possible approaches to deliver the training on SDM to their participants, all summarized in table 4.

1. *Literature*. In this approach, the participants are provided with material from the literature on SDM to read on their own. Three studies provided the participants with background material that covered the concept of SDM and the research that had been conducted on SDM [27,31,32]. Two of these studies also provided background information on an SDM framework on which they based their training [27,32].

2. *Didactics*. In this approach, the participants sit through presentations (in-person or online) on the topic of SDM. Ten studies used didactics and demonstrations as the teaching modalities to deliver part of the training [29–31,35,36,38–41,43]. In six studies, the presented information was on the topic of SDM [35,36,38–40,43]. In three studies, the presentations focused on communication [29–31]. In one study, the didactics covered a more medically-specific topic [41].

3. *Simulations*. In this approach, participants engage in a re-enactment of a clinical encounter either with other students or with standardized patients. Seven studies incorporated simulations

as one of the teaching modalities used in training the participants [26,28,30,31,37,39,45]. In one study, the simulation consisted of a virtual patient consultation experience [45]. In three studies, simulations were designed to allow for 'time ins', 'time outs' and 'rewinds', to allow the participants to receive feedback and work on any challenging parts [26,31,39]. In one study, the simulations were conducted one-on-one and in small groups [37]. The structure of the simulations in the other studies was not described [28,30]. The simulations were conducted with standardized patients or trained actors [26,28,30,31,37,39].

4. *Role-playing game (RPG)*. In this approach, participants engage in role-playing games where they are given the role of a stakeholder of the clinical encounter to play. Six studies used RPG as one of the teaching modalities to deliver part of the training [29,35,36,40,42,43]. The design and the roles assigned to participants differed from one study to another. In two studies the participants were asked to assume the roles of either the patient or the physician in order to practice the use of a decision aid tool [36], or to practice the assessment of patients with high cholesterol using a proposed decision worksheet [40]. Two studies allowed the participants to assume the roles of either the healthcare professional, patient, or observer in order to learn more about patient-centered care [35] and SDM [43]. Two studies allowed the participants to assume the role of the healthcare professional only, either that of a physician leading the family meeting [29] or that of a resident in the intensive care unit [42].

5. *Video tutorials*. In this approach, participants sit through pre-recorded video tutorials discussing the subject of SDM. Five studies incorporated the use of video tutorials in their training [27,28,32,34,35]. In one study, the video tutorial was used to provide background information to participants on patient-centered care [35]. In two studies, participants were shown pre-recorded real consultation sequence that follows the Multifocal Approach to the Sharing in SDM (MAPPIN'SDM) framework [27,32]. The MAPPIN'SDM is a theoretical model that allows for a systematic mapping of the assessment of 15 indicators of SDM from three perspectives: physician, patient, and trained observer. The 15 SDM indicators included in this theoretical model were: defining problem, equipoise statement, preferred communication approach, role attribution, listing options, "pros" and "cons", expectations, indicating source of recommendations/evidence, doctors evaluation of patient's understanding, patient's evaluation of doctor's understanding, opportunity of questions (from patient), opportunity of questions (from physician), supporting strategies of decision-making, indicate decision, and follow up arrangement [27,32]. In two studies, the videos used were recorded with actor patients to show consultations [28] and to show the presence/absence of SDM [34].

6. *In-person feedback*. In this approach, the participants receive feedback on their performance in the provided training either from the trainers or their colleagues or both. Ten studies provided the participants with in-person feedback during their training [26–32,34,38,42]. In two studies, the feedback was given within a 15-minutes interactive session with an analysis of a video recording of the participants engaging in SDM and it was structured based on the MAPINN'SDM framework [27,32]. In four studies, participants received feedback after their RPG session either from other

participants, SFM, SPs, or facilitators [26,29,38,42]. In one study, participants had to pass an end-of-course test in addition to receiving the feedback on their simulation practice [30]. In one study, feedback was given in an “open role-play” session with the participants [31]. In one study, participants were given feedback through a coaching session that took place two weeks after the training with a facilitator with a discussion around implementing the learnt goals into the clinical practice [28].

7. *Case studies*. In this approach, the participants are given case studies based on clinical encounters that show decisions around treatment options and the participants are asked questions around them. Three studies presented the participants with case studies to discuss as part of the provided training (problem-based learning) [26,30,40]. One study reported presenting the participants with short case studies and asking them to answer questions about the treatment options as well as to write a chart about the medical encounter in the case study [40]. For the two other studies there is no reported description of the case studies. In one of those studies, the case study was used to facilitate discussion around GOC [26] and in the other study it was used to help participants set their learning goals for the training provided to them [30].

8. *Pre-/post-assessment*. In this approach, the participants are assessed on their knowledge of the topic of SDM prior to participating in the training and then once again after the training and the results are compared to assess progress. Seven studies used pre-/post-assessments [36,37,39,40,43–45] whereas one study used only a post-assessment survey on the utility of the

decision worksheets for clinical implementation [35]. In two studies, the pre- and post-assessment consisted of a self-evaluation of participants’ knowledge in addition to a video-taped simulation that the participants received faculty feedback on [36,39]. In one study, a self-assessment survey was distributed prior to the training, immediately after, and then again one month after the training [37].

9. *Online forum*. One study used an online forum to allow participants to discuss virtually with faculty about the made-up cases and receive their feedback [36].

10. *Group discussion*. In this approach, participants are given the opportunity to discuss the provided training with their peers and/or their trainers. Four studies used group discussions [34,36,41,43] as one of the components of the training provided to the participants. In one study the group discussion aimed at exploring the facilitators and barriers to the adoption of SDM in clinical practice [34]. In the second study, the discussions aimed at exploring the challenging interactions with patients and best approaches to respond [41]. In the third study, the discussion was undertaken virtually [36]. In the fourth study the discussions were explicitly aimed at debriefing about the experience [43].

11. *Online modules*. In a digital approach, online courses/modules are developed and are made available to the participants to take part in. Two studies used online modules to deliver parts of

the training [33,42] and one study used self-directed online modules to deliver the entirety of the training on the topic of SDM [44]. In one study, self-directed e-learning was used to provide an activity on the topic of SDM [33]. In another study, the participants were provided an online module to cover topics od ICU decision-making [42].

12. *Decision boxes*. One study used decision boxes to deliver part of the training where five decision boxes were provided with description of the different treatment options available to the patients for the participants to choose from [33].

Only eight studies based the training they provided on one or more theoretical frameworks [26,27,31–34,41,43]. In addition, only six studies reported on SDM training that are integrated into medical education [29,30,36,40,41,43].

The main results/outcomes of the training provided in the included studies

Each of the 20 included studies focused on reporting different outcomes of the training provided to the participants that pertain to SDM. We herein report them thematically under five main themes (see table 5):

Prior knowledge of and training on SDM. Nine of the included studies reported findings related to prior knowledge of SDM by the participants [26,27,29,31,37,38,40,41,44]. In general, all pre-assessments of prior knowledge or training on SDM in eight studies showed little-to-no prior knowledge of SDM among the participants [26,27,29,31,37,38,40,41]. The pre-assessments tested for the participants' knowledge in domains such as the use of decisional mnemonics [26], the ability to conduct and respond to family conferences [31,37,41], having difficult conversations, eliciting and expressing emotions [31], giving bad news, conflict resolution [29], discussing treatment options [40], and discussing end-of-life care [41]. In one study, the prior knowledge was assessed through standardized patients' (SPs) ratings of participants' skills of communicating risk and SDM [38]. In one study, the pre- and post-assessments of SDM knowledge did not show significant changes [44].

Impact on SDM skills of the participants. This theme was identified among the outcomes measured or observed in 14 of the 20 included studies [27–32,34,36–42]. Different approaches were taken in order to measure this outcome, such as pre-/post-assessment surveys or questionnaires [31,32,37,41], different scales for assessment of SDM [32,34,39], self-reporting post-training through checklists, portfolio, surveys, and questionnaires [28,30,36], observers' ratings of participants' SDM skills [29], and using different indicators as measures of the SDM skills of participants such as the use of "Decision Worksheets" from an intranet system [40] or the proportion of patients who undergo cancer screening [38]. The reported results showed differential impact of the different training interventions provided on the SDM skills outcomes observed or measured. Some of the studies reported a significant positive impact of the training provided to the participants on their SDM skills outcomes measured or observed [28,31,41]. Other studies showed a positive impact of the training on the SDM skills outcomes [29,36,37,42]. However, none of these results included measurements for significance or had results that were found to be significant. In one study, significant improvement in the measured SDM skills scores was only observed when the results were stratified for US residents versus International Medical Graduates [39]. Other studies showed improvement only in particular SDM skills and not others [32], where there was improved communication as reported by participating doctors, but no improvement in patients' involvement as reported by the patients and observers. One study [30] also reported particular skills to be observed more often in the participants' interactions such as describing treatment options (see table 3). In another study [38], significant increase in general communication about risk and screening, and SDM in the process were found for the intervention group after 6 months. In another study, no statistical significance was observed in the SDM skills outcomes of the participants. However, clinical significance was found in the reduction in antibiotic use (which was one of the outcomes measured to indicate SDM) [34]. In another study, the results were inconclusive due to limitations of the study design and setting [40].

Impact of the training on the confidence of the participants in practicing SDM was one of the six identified themes. This theme was identified in seven of the included studies [26,31,35,40–42,44]. The seven studies used different approaches to assess the impact of the training provided on the confidence in practicing SDM such as pre-/post-assessment surveys and questionnaires [26,31,35,40–42,44]. Some of the studies reported a significant increase in the level of confidence when practicing SDM after receiving the training [35,42,44]. Some of the studies reported an increase in the participants' confidence level in practicing SDM as a result of taking part in the offered training [26,31,40,41]. However, significance was not observed.

Impact on knowledge of and attitudes towards SDM. Nine of the 17 included studies [26,30,32,33,35,39,43–45] reported findings on the impact of the training on the participants' knowledge of and attitudes towards SDM. This theme refers to how SDM is perceived by the participants in terms of utility and preparedness to use it in clinical settings. This was mostly assessed using surveys or questionnaires post-training [26,30,32,35,39,43–45]. The results showed that the participants had positive attitudes towards SDM post training. In such cases, the participants either wanted to continue using a tool that was introduced through the training to facilitate the SDM process [26,33], or acclaimed the benefits and effectiveness of SDM in clinical communication [30,33,43,45]. In other studies, participants' positive attitudes towards and perceptions on the utility of SDM remained the same pre- and post-training [32,35]. One study reported that there was a significant improvement in the understanding of the participants of the use of SDM in clinical communication [39].

Perceptions of the participants on the training received. Nine of the 20 included studies used post-training surveys and questionnaires to collect feedback from the participants of the training and report on their perceptions on the training that they were provided [29–31,33,35,36,42,43,45]. The majority of the participants found the training to be useful [29–31,33,35,36,42]. The participants also indicated that they liked the learning tasks, with some favoring RPG and simulation [30,31,43]. In particular, two of these studies used RPG as the main method to deliver the training on SDM to the participants [35,36,43]. In their feedback, the participants of one study indicated that they found that RPG was an effective and engaging method for teaching that allowed for exploring different views [35]. In a second study, the participants indicated that they have achieved many of the learning outcomes and were in favor of learning more about and adopting SDM due to their participation in the RPG-based training [36]. In one study, the participants suggested doing RPG with standardized patients [43].

Discussion

In this article we set out to map the literature surrounding the approaches taken to, and findings and perceptions from, teaching SDM in medical education. This is the first scoping review to systematically explore the literature, medical and biomedical as well as interdisciplinary, regarding teaching SDM in medical education including undergraduate, residency, or continuing professional development.

The inundation of commentary articles that had previously been available suggests that many educators and researchers have had something to say about SDM. But this is not enough [4,46–48]. We found that there is a thin body of literature that empirically investigates, discusses, or documents approaches to teaching SDM in medical education. Only 20 studies fell into our inclusion criteria from the literature that were published in the past ten years. The identified records proved to be heterogeneous in their approach to teaching SDM where a combination of theoretical and practical teaching methods was used. There was also heterogeneity in the outcomes measured and the approaches used to measure them. Less than one third of the studies included in this scoping review reported the use of a theoretical framework or a pedagogical theory that support their approach to teaching SDM and assessing the outcomes of the training provided. This heterogeneity made it challenging to compare the efficacy of the different approaches. This is congruent with results in a review focusing exclusively on quantitative studies that were integrated in undergraduate medical education only [19].

As a potential redress to the limitations of didactic education, serious games have garnered increased attention, largely for their emphasis on simulating “real” situations [49]. Serious games are games that are developed with a pedagogical purpose, and they can be carried out either in-person or virtually [49,50]. They have been shown to lead to higher satisfaction for learners by allowing them to learn new skills in a safe and interactive environment [49,51,52]. Such new skills involve the all-important skill of decision-making. This approach has been taken to teach communication skills in medical education [53]. As stated, six of the included studies used RPG as one component of the training provided to the participants. These studies reported positive outcomes in the themes of impact on SDM skills [29,36,40,42], impact on confidence practicing SDM [35,40,42], impact on knowledge of and attitudes towards SDM [35,43], and perception of participants on the training provided [29,35,36,42,43]. RPG have also been gaining more attention in the literature for being a potentially effective vehicle for teaching and specifically in medical education. However, the reported RPGs in the included studies in this review do not describe in detail the RPG setting and they do not mention any pedagogical or theoretical underpinning for their use in this specific context of teaching SDM in medical education, nor how they were designed to capture the complexity of SDM as a concept and a skill to be taught.

Limitations. The limitation of this search is that it only included records reported in English. All reviews run the risk of inexplicably missing certain studies [54] However, we took multiple approaches in order to strengthen our scoping review using the methodological framework suggested by Arksey and O'Malley [20]. We have also searched multiple databases to decrease the bias in our results. In additions, our screening process was undertaken by two independent researchers to minimize bias.

The studies included in this scoping review suggest that the focus of the training may be to educate and train the participants on mastering the "techniques" of SDM. The danger is that such an approach could see SDM education reduced to a set of boxes to check rather than the use of SDM to enhance the humanity and contexts of patient care [18]. The fear is that, consequently, such checklists could lead to SDM being applied in a tokenistic and technical form which does not achieve adequate levels of patient engagement, and as such be unethical or otherwise harmful [18]. It is important that more empirical studies are undertaken to provide a firm basis from which to design policies guiding the systematic teaching and training of medical students, residents, and healthcare professionals on adopting and implementing SDM in clinical practice. Training interventions need to be designed in a such a way that allows collaborative learning and reflection on the different roles exhibited by the different stakeholders of a clinical encounter (patient and clinician at the very least), to allow for the necessary change in perspective, communication skills, and attitude towards patient care.

Conclusion

The 20 studies included in this review reported on training interventions delivered to undergraduate medical students, residents, or healthcare professionals as part of their continuing professional development. The studies showed the training interventions were delivered using various teaching modalities and most of them were not based on a pedagogical theoretical underpinning. Various studies reported on particular outcomes that we sorted into 5 major themes, and the studies showed improvement in at least one of the outcomes measured. Nonetheless, the present scoping review sheds light on the absence of coherence in approaches to teaching SDM skills in medical education, the lack of integration of these training interventions in medical curricula, the absence of rigorous outcome measurement tools for the training interventions, the lack of research on contexts and processes of SDM education, and the lack of theoretical underpinnings to support deep insight into the systemic factors that support and impede the advancement through education of realistic and sustainable SDM. Training interventions based on RPG were shown to be effective and well perceived by the participants which opens the way to further development and use of RPG as an educational modality for teaching SDM.

Acknowledgments

We would like to acknowledge the contribution of the expert associate librarians at the Schulich Library at McGill University for the professional help in verifying the search strategy and syntax.

Funding

Sarah A. E. Aboushawareb is supported by a doctoral studentship from the Fonds de Recherche du Québec – Santé.

Conflict of Interest

The authors report no conflict of interest.

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LIST OF TABLES

Table 1. Syntax for the search strategy

Search #1	**Concept #1: Medical Education undergrads/residents**	**AND Concept #2: Shared Decision Making**	**AND Concept #3: Curriculum**
	medical education	decision making	**OR** Curriculum (curriculu*.mp)
	OR educational models (education model*.mp)	**OR** shared decision making	**OR** Curriculum development
	OR medical students (medical student*.mp)	**OR** patient participation	
	OR medical residents (medical resident*.mp)	**OR** physician-patient relations	
	OR Clinical medical education		
OR Search #2	**Concept #1: Medical education for clinicians**	**AND Concept #2 Shared decision making**	**AND Concept #3: continuing education**
	Physicians (physician*.mp)	decision making	continu* professional development
	OR Clinicians (clinicican*.mp)	**OR** shared decision making	**OR** continuing medical education
		OR patient participation	**OR** lifelLifelong learning
		OR physician-patient relations	**OR** Continuing health education
			OR Self-directed learning
			OR SDL
			OR Point of care learning

Table 2. Description of the included studies

Study Characteristics		Count	%	Studies
Study design	RCT	4	20%	(Geiger et al., 2017; Goelz et al., 2011; Legare et al., 2011; Price-Haywood et al., 2014)
	simulation-based	2	10%	(Johnson et al., 2017; Parham et al., 2019)
	Cross-sectional	11	55%	(Leblang et al., 2022; Hoffmann et al., 2021; Ajayi et al., 2019; Hagiwara et al., 2017; Hauser et al., 2017; Kasper et al., 2017; Mitchell & Goldenberg, 2020; Morrow et al., 2011; Rusiecki et al., 2018; Simmons et al., 2016; Yuen et al., 2013)
	prospective	1	5%	(Smith et al., 2013)
	Mixed methods	2	10%	(Jacklin et al., 2021; Lawani et al., 2021)
Participants	Medical students	6	30%	(Leblang et al., 2022; Jacklin et al., 2021; Hagiwara et al., 2017; Hauser et al., 2017; Mitchell & Goldenberg, 2020; Morrow et al., 2011)
	Residents	7	35%	(Ajayi et al., 2019; Johnson et al., 2017; Parham et al., 2019; Rusiecki et al., 2018; Simmons et al., 2016; Smith et al., 2013; Yuen et al., 2013)
	Healthcare professionals	7	35%	(Hoffmann et al., 2021; Geiger et al., 2017; Goelz et al., 2011; Kasper et al., 2017; Lawani et al., 2021; Legare et al., 2011; Price-Haywood et al., 2014)
Country of study	Canada	2	10%	(Lawani et al., 2021; Legare et al., 2011)
	US	12	60%	(Leblang et al., 2022; Ajayi et al., 2019; Hagiwara et al., 2017; Johnson et al., 2017; Mitchell & Goldenberg, 2020; Morrow et al., 2011; Parham et al., 2019; Price-Haywood et al., 2014; Rusiecki et al., 2018; Simmons et al., 2016; Smith et al., 2013; Yuen et al., 2013)
	UK	2	10%	(Jacklin et al., 2021; Hoffmann et al., 2021)
	Germany	4	20%	(Geiger et al., 2017; Goelz et al., 2011; Hauser et al., 2017, p. 2; Kasper et al., 2017)

Table 3. Aim of the training provided

No.	Study	Aim
1	Leblang et al, 2022	The integration of training and assessment on shared decision-making to second year medical students.
2	Hoffmann et al, 2021	Reporting and evaluation of an e-learning course aimed at teaching shared decision-making and risk communication skills to clinicians.
3	Jacklin et al, 2021	Evaluation of a virtual patient-based workshop to teach medical students communication skills for shared decision-making.
4	Lawani et al, 2021	To support healthcare professionals in using shared decision-making with older adults living with neurocognitive disorders and their caregivers.
5	Mitchell and Goldenberg, 2020	To teach medical students about providing patient-centered education as a key component of shared decision-making.
6	Parham et al, 2019	To increase the confidence of neonatology fellows in performing core communication skills to guide family decision-making.
7	Ajayi et al, 2019	Using the PERSON Mnemonic framework to conduct goals of care discussions.
8	Rusiecki et al, 2018	Using a seven-step SDM curriculum with standardized patient case to increase the knowledge and positive attitude towards SDM and SDM communication skills for internal medicine residents.
9	Kasper et al, 2017	Provide training to doctors on involving patients on medical decision through shared decision-making
10	Johnson et al, 2017	To provide communication education to Pediatric Critical Care Medicine (PCCM) fellows to prepare them for communication challenges throughout their career.
11	Geiger et al, 2017	Provide training to doctors on involving patients on medical decision through shared decision-making
12	Hauser et al, 2017	Teach medical students patient-physician conversation about drug prescription
13	Hagiwara et al, 2017	Teaching Family Meeting communication skills at the undergraduate level
14	Simmons et al, 2016	To promote shared decision-making in treatment decisions for four common chronic conditions: diabetes, depression, hypertension, and hyperlipidemia among residents of internal medicine
15	Price-Haywood et al, 2014	A continuing medical education (CME) program to teach primary care physicians (PCP) how to engage in cancer risk communication and shared decision-making with patients who have limited health literacy (HL).

16	Yuen et al, 2013	To teach residents SDM in the ICU
17	Smith et al, 2013	A curriculum to train internal medicine residents on practical end of life communication practices including: establishing patient preference, participating in SDM, discussing prognosis, and delivering bad news.
18	Morrow et al, 2011	To teach medical students SDM.
19	Goelz et al, 2011	To improve oncologists' communication skills in consultations focusing on the transition to palliative care
20	Legare et al, 2010	Training family physicians in shared decision-making for the use of antibiotics for acute respiratory infections

Table 4. Description of the training reported in the included studies

No	First author, year	Training Description
1	Leblang et al, 2022	The training included 103 medical students who first participated in didactics sessions that covered the Agency of Healthcare Research and Quality SHARE approach principles of practicing shared decision-making. Next, the students took part in role-play exercises where they practiced SDM with patients in set scenarios. The students took turns playing the role of the physician and then the observer for other students taking part in the training. The students also had the opportunity to debrief and discuss their experiences. Last, the students were given a questionnaire to assess their knowledge, attitude, and feedback on their training experience.
2	Hoffmann et al, 2021	Free, online, two-hour long, self-directed e-learning modules were provided to healthcare professionals. The e-learning modules were tailored to five different disciplines of medicine: general practitioners, ophthalmologists, obstetricians and gynecologists, preoperative surgeons, and plastic surgeons. The modules consisted of four parts covering the topics of: introduction to SDM, principles of SDM, providing detailed information about treatment options, and going from preferences to decisions. The online modules feature patients with their basic demographics and clinical details who continue throughout the course to illustrate the content. The online modules also involve video segments illustrating the elements of SDM as well as clinical consultations deploying SDM. The course also included questions to assess knowledge and skills learnt.
3	Jacklin et al, 2021	The training was provided to 22 medical students at a conference in the form of a one-hour workshop on clinical decision-making. The students were asked to fill out a pre-assessment and then they were asked to take part in a virtual patient experience that simulated one primary care consultation. Students could access the simulation through a website, and they had to answer multiple-choice questions followed by receiving personalized feedback. The students were then asked to take a post-assessment questionnaire.
4	Lawani et al, 2021	Two modalities: Self-directed e-learning activity on SDM and five evidence summaries (decision boxes) describing the options available to the patients (choosing a support option to decrease caregiver burden; choosing a non-pharmacological treatment to manage agitation, aggression, or psychotic symptoms; deciding whether or not to stop driving following diagnosis; deciding whether or not to prepare a power of attorney).
5	Mitchell and Goldenberg, 2020	Two in-person workshop sessions of 1.5 hours each. Both sessions started with a 15-minute introduction and didactic section guided by PowerPoint slides and videos to give background information on patient-centered care. Following, a 20-minute interactive session where students pair up to practice the learnt skills. Next, a 45-

		minute role-play exercise focused on providing patient-centered care for medical scenarios where students assumed roles of doctor, patient, and observer. Each session ended with a 10-minute wrap-up period.
6	Parham et al, 2019	The training consists of 7 modules with associated workshops that cover topics ranging from communication skills to dealing with conflict during decision-making. The 7 workshops consist of one-on-one and small-group simulations led by trained family educators. Self-assessment survey questionnaires were administered prior introducing the curriculum, again right after the completion of the curriculum, and then a last time 1 month after engaging in the curriculum. The questions assessed the fellows' skill level in 12 core competencies which are: discussing complex medical diagnosis with families, giving bad news, discussing palliative care, expressing empathy, responding to family members who deny the seriousness of their child's illness, leading a family conference, responding to family members who desire treatments that may not be medically indicated, navigating decisional conflict among family members, discussing code status, discussing non-escalation of care, discussing withdrawal of support, and eliciting family concerns at the end of life. The family educators evaluated the fellows' performance during the simulations as well.
7	Ajayi et al, 2019	The sessions started with an overview of the PERSON (perception, explore, relate, sources of worry, outline the plan, notify) mnemonic and principles of goal of care (GOC) discussions, a case study, and simulation of GOC discussion with standardized patients. Residents started the simulation using the mnemonic with possibility of "time outs" & "time ins" to receive feedback from facilitators and colleagues around the communication strategies. Residents were able to "rewind" the simulation to integrate the feedback they got on their "stuck point". At the end of the session, more detailed feedback was provided to all residents attending that particular session.
8	Rusiecki et al, 2018	Residents were asked to record a minimum of one outpatient continuity consultation (with informed consent from patients) and hand in the recording prior to the curriculum. The curriculum was a four-hour session starting with didactics giving overview on key elements of SDM and its relation to patients' outcome. They were introduced to the 7-step circular model (ID the issue, equipoise, list options with pros/cons, explore patient's values and concerns, check patient's understanding, negotiate a decision, and review treatment/follow-up plan). The residents practiced the 7-step model with standardized patients with pre-established cases concerning statin therapy for prevention of cardiovascular disease. The consultation with the standardized patients allowed for iterative reflection through time-outs, self-reflection, and feedback from peers, faculty and SP. Residents either interviewed the SP or observed the encounter and were asked to identify "take home points". Residents were asked to record patient encounter from continuity clinic gain and bring it to the 2-hour

		SDM debrief session where both the pre-and post-sessions recording were compared and discussed for formative feedback in addition to guided small-group discussions around barriers to SDM in the clinic.
9	Kasper et al, 2017	The training consisted of: 1) providing doctors with a 40-page manual (would take approximately 2 hours of reading) consisted of comprehensive background on definition and research on SDM giving a reference framework and a set of 15 SDM skills with examples; 2) 20-minutes video tutorial showing real decision consultations that follow a structured approach drawing on the MAPPIN’SDM taxonomy being used in a good to excellent performance; 3) 15-minutes face-to-face interactive feedback session is based on a MAPPIN’SDM analysis of the consultation video of the participant.
10	Johnson et al, 2017	The training was designed for pediatric critical care medicine (PCCM) fellow (a three-day program that is held once every 2 years) that reviewed communication literature, included short didactic sessions, demonstration of core communication skills, and simulation with trained actors as patient parents (eight-hours simulation). The training included seven learning modules: fundamental communication skills, giving bad news, determining goals of care, talking about resuscitation preferences, conducting a family conference, forgoing life sustaining treatment, and navigating conflict with families. During the simulations, groups of 4–5 fellows were formed and were observed by 2-3 preceptors. Details of the patient’s medical course were provided, as well as the family’s social dynamics, religious beliefs, and emotional state, all prior to the simulation. During the three-day simulations, the fellows worked with the same trained actors (similar to the actual timeline for the ICU discussions in these clinical cases). Fellows were able to "time-out" for help and re-enactment. They received feedback on the last day they were allowed to address and issues through "open role play".

11	Geiger et al, 2017	In situ training module for physicians that included 3 educational components: 1. Training manual: Demonstrating transparency, doctors were provided with the manual, used by observers applying the MAPPIN'SDM coding (Multifocal Approach to the 'Sharing' in SDM). It included comprehensive background on the idea and state of research on SDM. Moreover, as a well-structured reference framework, the manual illustrated each of a set of 15 SDM skills using examples for different levels of performance. 2. Video tutorial: The tutorial lasted 20 minutes and presented a composition of sequences of real decision consultations from a broad variety of medical domains. The sequences were structured and edited according to the MAPPIN'SDM taxonomy. All examples showed good to excellent performance. 3. Face-to-face feedback: The 15-minute feedback session was based on a MAPPIN'SDM analysis of the consultation video provided by the participant. The feedback followed a generic structure but was applied in a highly individual and interactive way. Comments provided within the feedback session never referred to the general communication performance and did not relate to work samples other than the one given in this session. Participants were invited to use the manual and the tutorial as preparation for their individual training. They were told that these sources provide background about the SDM approach, and the particular system used, to structure the communication. The manual explicitly stated that it was written for both raters and clinicians and provided guidance indicating passages that were easy to read and others that were relevant to researchers only. In total, the manual had 40 pages; reading the entire text would have required approximately 2 hours *<u>MAPPIN'SDM (Multifocal Approach to the Sharing in SDM)</u> is a theoretical model that allows for a systematic mapping of the assessment of 15 indicators of SDM from three perspectives (physician, patient, trained observer). The 15 SDM indicators are: defining problems, equipoise statement, preferred communication approach, role attribution, listing options, pros & cons, expectations, indicating source of recommendations/evidence, doctors' evaluation of patient's understanding, patient's evaluation of doctor's understanding, opportunity of questions (from patient), opportunity of questions (from physician), supporting strategies of decision-making, indicate decision, follow up arrangement. (KASPER ET AL 2012). **<u>SDMmass (SDM meeting its concept's assumption)</u> is a compound measure of SDM that includes the perspectives of the physician, patient, and trained observer using MAPPIN'SDM into one index where the index ranges from 0 (no SDM) to 1 (perfect SDM). (GEIGER ET AL 2012, 2017)

12	Hauser et al, 2017	A one-week elective course at the Center of Pharmacology in Cologne medical curriculum offered to a maximum of 12 students that used paper cases of arterial hypertension to address communication around treatment and drug prescription taking into account SDM (criteria as described by Charles et al.), risk, adherence, patient's input, and drug application. The course consisted of three parts:(1) problem-based learning (PBL) through the paper case which students used to identify their learning goals (45 minutes). (2), didactic session on basics of antihypertensives treatment. (3) a second problem-based session after 2 days of initial PBL for discussing learning goals and a workshop is held with staff tutors to develop a guide for practical steps for medication conversation based on the students' individual learning goals. Optional 15-minutes simulation sessions were offered to participating students (only 6 simulations were offered per term). These simulations were videotaped, and the participating students had access to the recordings and were offered feedback by the observing staff tutors. Students were asked to fill in online portfolios their attitudes regarding the training content, self-perceived points of weakness and strength, and self-perceived learnt outcomes after two weeks of the training. At the end of the elective course, the students were to answer a 10-15 minute written test and received feedback.
13	Hagiwara et al, 2017	Fourth year medical students were given a mandatory palliative care course (2011-2013) for students to acquire concepts including communication and interdisciplinary-based care. Students were asked to first, complete a 60-minute online module on conducting a family meeting focusing on didactic information and review of the family meeting process with emphasis on patient's comfort and team approach. Second, students participated in 1-hour small group activity that allowed students to engage in role-playing leading a family meeting and applying the learned concepts from the online module with 2 preceptors leading the session. Third, all students completed a 15-minute Family Meeting Objective Structured Clinical Examination (FM-OSCE) where students were presented with a video of an intensive care unit case study and were asked to assume the role of the palliative care physician (with standardized family members) and lead the family meeting (focused on: prognosis, establishment of goals of care, and demonstration of conflict resolution skills when family members disagreed). Students received feedback from the standardized family members and faculty observer immediately after the encounter.

14	Simmons et al, 2016	Faculty who are experts in primary care and shared decision-making skills led workshops that lasted 1 hour for PGY-1 residents (49 residents) and 2 hours for PGY 2-4 residents (81 residents) (due to schedule constraints of students) which included: 1) An optional sample written case exercise where residents were asked to read a short case of a patient and answer seven questions about the content of their discussion with the patient about treatment options (e.g. “What questions will you ask him in order to assess his understanding of depression and his priorities in treatment decisions?” “What are some potential benefits of depression treatments that you may discuss?”). They were also asked to write a chart of the case study encounter. A total of 89 were completed and submitted. 2) Didactics, where students were given an overview of SDM, including background and rationale, discussion of risk communication techniques, and presentation of the “6 Steps to Shared Decision-Making” framework. 3) A demonstration role-play interaction between a patient and a doctor was presented to residents where the standardized instrument “Patient Health Questionnaire–9” and the “Decision Worksheet: Depression Treatment Worksheet” were used to discuss treatment decisions. Residents were then asked to assess the encounter using “6 Steps to Shared Decision-Making” framework. 4) Residents asked to join a role-play game where they were given the role of patient or doctor in an encounter focused on the assessment of a patient with high cholesterol. They were also provided with the Decision Worksheet: High Cholesterol Treatment Worksheet and asked to use it. 5) In the end, residents were asked about the utility of the Decision Worksheets for clinical implementation.
15	Price-Haywood et al, 2014	Clinics were randomized into 2 groups (communication training and chart audit vs. audit-only) at the practice level and the same SPs were used for both groups. Case scenarios were developed based on the experience of the SPs (who received 18 h training) with cancer screening and family history of cancer and the clinics and physicians were blinded to SPs visits, but then the communication intervention group was un-blinded after the SPs’ initial visit. At the end of the initial counseling session with the intervention physicians, the SPs reveal themselves and give feedback to the physicians verbally followed by a training intervention in cancer risk communication and SDM (from their 2010 publication (DOI: 10.1007/s11606-009-1211-6), the SDM models include: discuss cancer risks, check understanding of risks, discuss potential benefits/risks of screening options, explore preferences for screening, and negotiate plans) given after one week of the that initial counseling through a one-on-one didactic session with a study investigator. The physicians were then directed to review and track the SPs ratings of their communication skills through a web-portal. “All study physicians received two annual cancer screening status reports and aggregate baseline patient ratings of their communication measured using the Perceived Involvement in Care Scale (PICS; 13-item questionnaire

		measuring doctor facilitation of patient involvement, level of information exchange, and patient participation in decision-making).”
16	Yuen, et. al, 2012	The intervention was an online module covering topics of ICU decision-making including survival after resuscitation, discussion on no resuscitation, prognostics, and ethics around treatment for life-sustainment and the legal aspect of it. Following, a workshop (4h) was delivered on communication skills. The workshop comprised didactics (1h), a small group RPG with an SFM (2.5 hours, 6 interns, and 2 facilitators per group), and a short debrief (0.5 hours). Interactive large group sessions were conducted to focus on communication in leading family meetings, the goal of care, and a focus on SDM key elements (eliciting values and preferences from patients and their families, providing medical information, and reaching consensus around the treatment plan) through role modeling by the facilitators of the session. The role modeling session was carried out by 10 trained small group facilitators with previous training and 5 standardized actors with training in communication skills teaching. The scenario used were based on the experience of randomly selected residents in the ICU and the standardized actors were provided with these scenarios and the prompts beforehand. The participants took on the role of the resident and after their role-play, the residents discussed their performance and received feedback from other participants, SFM, and facilitators. The respondents then were asked to answer a questionnaire on the demographics, learnt skills, open-ended question on the most important learnt skills, and finally a retrospective pre- and post-intervention assessment of comfort level of seven skills about the ICU communication.

17	Smith et al, 2013	The training was given to residents on inpatient rotations at three hospital sites during their teaching sessions and consisted of two lunch conferences (one hour each) and six-morning reports (one hour each). The training consisted of didactic slides and role-play scenarios covering topics on end-of-life communication and conflict resolution and role-play experience. The reports focused on cases faced by residents that presented challenging communication around life-sustaining interventions, goal of care, conflicts with/between patients and their families in end-of-life. Residents were encouraged to hold discussions throughout the training duration and to have a systematic approach when it comes to resolving problems from their cases.
18	Morrow et al, 2011	Students started by participating in a pre-assessment of their SDM knowledge through participation in a simulated patient experience that is video-taped, and the students receive faculty feedback, and they do self-evaluation (15-20 min). Participants then attended interactive seminar provided by the course director providing information on SDM background, components, and skills (1.5h). Students then reviewed the video recordings of the simulations considering what they have learned about the SDM, and this was facilitated by the faculty members, and in this session, faculty and peer observation, group discussion and feedback were carried out (1.5h). Next, participants practice SDM skills through role-play as either a physician or a patient using decision aids and assessment is done through student reflection, discussion, peer-feedback, and written evaluation of the session (30 min). Students then report on their clerkship interactions through videoconferences and discuss the case presentations focusing on issues with SDM (2h per week done 3 times). The students participated in online forum to virtually discuss with faculty about made-up cases involving a family and responding to the patients' issues and the students received feedback from the faculty through the forum. In the end, students underwent a post-training simulation (35-40 min) followed by faculty feedback and participants' self-evaluation.
19	Goelz et al, 2011	41 participants were randomly assigned to the control, or the intervention group (receiving the COM-ON-p training) and all 41 participants took part in 2 video-recorded consultations with actor patients. Participants received the COM-ON-p training which started with a pre-assessment simulation with SP (1h) and determined their learning goals through a video analysis. They then participated in a 1.5-day workshop (11 hours), led by two experienced facilitators, offering practice with SPs accompanied by a significant other and using case studies from participants (8-9 participants per group). During the workshop, facilitators helped participants achieve their learning goals and the transition from curative to palliative care through providing information to the patients, tuning into patient's emotional needs (showing empathy), involving the significant other in the conversation (11h). After 2 weeks, participants received face-to-face coaching session with a facilitator to

		discuss the implementation of the learned goals into their clinical practice (0.5h) and then the participants were asked to participate in a post-assessment simulation with SPs (1h).
20	Legare et al, 2010	33 FPs underwent a CPD program, DECISION+, where they were randomized into an experimental and control groups for the timepoint at which they received the training, at the start of the study vs at a delayed timepoint, respectively. DECISION+ includes a series of four interactive workshops (3h to allow for the reimbursement of FPs according to CPD regulations) that aimed to address scientific information about encountering bacterial and viral ARIs and their different treatment options, techniques to communicate risk to patients, and the strategies for SDM with the patient. Each workshop was recorded, and it included 4-6 participants who were FPs and/or residents in family medicine, and their feedback was incorporated into the design of the next workshop. Each workshop started with a video simulation of a consultation designed specifically for the training showing presence/absence of SDM. During the workshops, participants discussed with facilitators the barriers and facilitators to adopting an SDM approach and participants were provided with and trained on using decision support tools for the ARIs and they also received booklets with the content of the workshop and the decision tools. DECISION+ training included two reminders where the first is a letter with information on the decision tool and other relevant information on the disease and the treatment, and the second was a postcard that a physician documented on it what to implement in their practice as a self-reminder. The letters were mailed between workshop sessions and the postcard were mailed to the participants 6-7 weeks after the last workshop. Patients were also recruited at the same time to the DECISION+ training and they rated the physicians using the decisional conflict scale, and so in the last component of the training, the participating physicians were informed of the level of agreement of scores of their individual scale rating and those of the patients. They were also informed of the level of performance of colleagues for the same scale and the information was given to them as a letter by mail.

Table 5. The main results reported in the included studies

No.	First author, year	Main Results				
		Prior knowledge of and training on SDM	*Impact of the training on SDM skills of the participants*	Impact of the training on the confidence of the participants in practicing SDM	Impact on knowledge of and attitudes towards SDM	Perceptions of the participants on the training received
1	Leblang et al, 2022	NA	NA	NA	The majority of the students (96%) answered correctly to knowledge questions regarding SDM. They also found the training to add to their knowledge about SDM (81%). The majority of participating students reported that SDM can be practiced even with time constraint (96% of students) of clinical encounters and any education level of patients (84%). All participating students reported the helpfulness of decision aids and other resources to explain treatment options to patients.	The participating students reported satisfaction of the training approach involving both didactics and practical exercise. They suggested including standardized patients to future iterations of the training.

2	Hoffmann et al, 2021	The participants were assessed for their prior knowledge of the topic and the results were reported in comparison to their post-modules answers.	NA	The participants showed an increase in confidence after the end of the course (mean summed score increased by 3.7 units, 95% CI 2.9 to 4.6, p<0.0001, n=210). The greater experience was shown to be a covariate associated with the increase (0.09 units, 95% CI 0.01 to 0.17, p=0.035). No association was observed between previous training and the post-course scores.	No change was reported on knowledge about mortality vs 5-year survival rates (p=0.09, McNemar's test). Observed increase in knowledge about documentation of SDM (p=0.013) and communicating risk verbally rather than numerically (p<0.0001) was reported. Participants factual knowledge was found to be high post-course (>85% correct) except for two questions; legal necessity of SDM (54% correct answers) and a question on risk communication (68% correct answers). No significant change was found for numerical questions pre- and post-course.	NA
3	Jacklin et al, 2021	NA	NA	NA	Participants (13 out of 22 participants) were "likely" or "high likely" to shift their clinical practice towards incorporating SDM. Participants also ranked	All participants rated the training either "very accessible" or "accessible". Most participants (19 out of 22 participants) found the training to be "enjoyable" or

					"respecting patient choices" higher in priority post-intervention.	"very enjoyable". Participants found that taking the course helps in transitioning from preclinical to clinical training and that it allowed them to train and repeat the consultation training as many times as they needed.
4	Lawani et al, 2021	NA	NA	NA	Participants reported high intention to adopt SDM post-training. Intentions remained high across the three rounds with a mean level of 6.8 (scale 1: low intention - 7: high intention). Participants reported high intention to use DB to communicate health options to patients and that remained the same across all three rounds with a mean value of 5.7 (scale 1: low intention - 7: high intention).	Participants appreciated the e-learning activity both in terms of the design and the content and especially the narrations, quizzes, film depictions of simulated clinical encounters showcasing SDM. They also gave their feedback on some of the weaknesses of the approach such as clarity, usability, technical issues, and some parts of the content. The participants reported their satisfaction with the overall training with a mean value of 4.2

						(scale 1: low satisfaction - 5:high satisfaction)
5	Mitchell and Goldenberg, 2020	NA	Students showed a significant increase in agreeing that they could name important elements of PCE (3.0 vs 4.2, and 5.4, respectively).	Students showed a significant increase in confidence in their ability to deliver PCE (3.4 vs 3.9 and 4.1, respectively)	Students strongly agreed that PCE delivery is an important skill and there was no significant change in the response in the pre- and post-session surveys (4.9 pre-session (N=27), 4.9 post session 1 (N=27), and 4.9 post-session 2 (N=30). Students showed a significant increase that they had the opportunity to practice delivering PCE (3.6 vs 4.5 and 4.6).	From the survey results, Students indicated that the role-plays were an effective tool for learning PCE (4.3 post-session 1 and 4.4 possession 2). For the qualitative analysis of the free-response portion of the survey, it has shown that students found the role-play part of the session to be interactive and engaging and to provide different points of view. They recommended adjusting the allotted duration for the exercise and getting instant feedback on the performance

						through having more observers present during the role-play exercise.
6	Parham et al, 2019	Pre-curriculum mean responses for self-assessment were lowest for responding to decisional conflict when it occurs amidst family members (2.06 (0.18)), responding to family members who deny the seriousness of their child's illness (2.29 (0.14)), leading a family conference (2.29 (0.18)), and discussing withdrawal of support (2.35 (0.23))	Difference between pre-curriculum and 1-month post-curriculum were the largest for navigating decisional conflict when it occurs amidst family members (+1.48), responding to family members who deny the seriousness of their child's illness (+1.48), leading a family conference (+1.48), and eliciting family concerns at the end of life (+1.47). Between pre- and post-curriculum self-assessment ratings, there was a statistically significant increase for all 12 core competencies. The increase in the mean responses was sustained at the 1-month post-curriculum.	NA	NA	NA

			Evaluation from family educators showed that the fellows scored the highest for empathetic listening (7.5/8 (0.85)), then nonverbal communication (9.0/10 (1.03)), and then verbal communication 9.7/12 (1.87)). Both fellows and family educators reported highest satisfaction with the curriculum.			

7	Ajayi et al, 2019	NA	NA	Increase in confidence in all the variables of the mnemonic. Residents started with 63% indicating low confidence levels pre-sessions, increasing to 93% (p < 0.01) indicating higher level of confidence post-session and then further increase to 97% (p < 0.01) indicated sustained increases in their confidence levels at the 7 months post-session.	Perceived utility of the mnemonic post-baseline was high where 28/30 residents felt it was practical for clinical use and 26/30 residents felt the same 7-months post-sessions (p=0.67). Comprehensions of the mnemonic post-session was reported by 29/30 residents and 28/30 residents maintained their comprehension 7 months post-sessions (p=1). For remembering what the mnemonic stood for 7-months post-intervention, 13.33% (n=4/30) of the residents remembered its different components, 40% (n=12/30) did not remember the mnemonic components, and 46.67% (n=14/30) remembered parts of it. Resident's knowledge about the mnemonic was at poor-to-fair knowledge (for 60% of the residents) pre-intervention and then changed to	NA

					good/excellent (for 100% of the residents) post-intervention (p<0.01) which was also sustained at 7-month post-intervention. knowledge about the perception portion of the mnemonic was reported more at 7-month post-intervention than immediately after it (p<0.001)	
8	Rusiecki et al, 2018	There was a significant increase in the median knowledge scores from 75% to 100% correct answers between the pre-and post-curriculum surveys (interquartile range = [75%, 100%], p<0.01). Improvements in the residents' ability to define equipoise (37% - 84% correct answers) and in	For Change in SDM communication skills using the OPTION scale: Nonsignificant overall improvement in total OPTION score was reported post-curriculum (mean score pre 17.29, post 19.13, p=0.27). Stratifying for US residents vs International Medical Graduate (IMG) residents showed	NA	Significant improvements were also reported for residents’' understanding of the importance of SDM to the practice of high-value care (median score pre 3.0, post 4.0, p=0.02), in overall perceived confidence (median composite score pre 2.87, post 3.0, P<0.01), and overall	NA

		identifying essential elements of SDM (76% - 96% correct answers).	significant improvements for eliciting decisions from patients (mean score 0.74, p=0.01) and discussing pros and cons with patients (mean score = 0.74, p=0.04) whereas for IMG there was no significant improvement in the total score (mean difference -3.3, p = 0.13).		importance of SDM (median composite score pre 3.14, post 3.50, p<0.01). Nonsignificant improvement was reported for the understanding of SDM as related to the practice of evidence-based medicine (median score pre 3.0, post 3.5, p=0.23).	
9	Kasper et al, 2017	NA	Observation showed that before and after training the consultations showed poor patient involvement (mean MAPPIN-O_{doctor}=1.2, SD=0.4, MAPPIN-$O_{patient}$=0.7, SD=0.3, MAPPIN-O==1.4, SD=0.4; range 0 to 4), while the same communication was evaluated better by the parties directly involved (mean MAPPIN-Q_{doctor}=2.7, SD=0.7; MAPPIN-$Q_{patient}$=3.3, SD=0.6). The communication improved during training from the first to the fourth consultation according to observers rating the performance of doctors (MAPPIN-O_{doctor}: P=.056) and doctor–	NA	Feedback from the participants showed that for most of them had positive attitudes towards SDM which did not change significantly, and they pointed that the face-to-face interactive feedback was most supportive in the training.	NA

			patient–dyads (MAPPIN-O_{dyad}:P=.065) and to doctor questionnaires rating the dyads' performance (MAPPIN-Q_{doctor}: P=.023). No improvement was observed in the patients' active involvement (MAPPIN-$O_{patient}$: P=.109); Patients' evaluation did not indicate improvement of the communication during SDM training (MAPPIN-$Q_{patient}$: P=.145). Mean scores on all MAPPIN'SDM scales except for the two patient scales ascended continuously over the four measurement points.			
10	Johnson et al, 2017	Less than half of the fellows reported training in areas pertaining to SDM such as: explaining the severity of a child's illness, conducting a family conference, eliciting a family's emotional reaction to their child's illness, discussing various treatment options including palliative care,	Across all four years of the course, the self-perceived preparedness of fellows in carrying out difficult conversations for 10 specific goal skills improved after undergoing the PC3 communication course. The questions asking about the 10 goals were "How well prepared are you to: 1) give bad news to a family about their	Significant improvement in perceived preparedness of first and second year fellows from 'Pre-course' to 'Post-course' in carrying out difficult conversations in the PICU.	NA	97% of all fellows would recommend the training course to other fellows and 95% believed that the course should be a required component of PCCM training. All learning tasks (didactic, role play, and simulation scenarios) were found to be

		describing the range of possible outcomes, discussing code status and discussing hospice referrals. Only 57% of fellows were previously formally taught 'expressing sympathy or empathy' and 54% of fellows in 'giving bad news'. Fellows' experience conducting care conferences varied significantly (between 0% and 70%) in a given year, demonstrating variability in receiving training from year to year.	child's illness?; 2) conduct a family conference?; 3) Elicit a family's emotional reaction to their child's illness?; 4) Express empathy?; 5) Discuss various treatment options, including palliative care with families?; 6) Respond to families who deny the seriousness of their child's illness?; 7) Respond to family members who want treatments that you believe are not indicated?; 8) Discuss code status with a family member?; 9) Discuss religious or spiritual issues with families?; and 10) Discuss a family's hopes for their child in the ICU?			moderately useful to very useful by all trainees (results from daily surveys).
11	Geiger et al, 2017	Competency in SDM was checked through self-rating by the participants and the score was 1.1 on a 5-point scale from "none" to "excellent"	Significant increase in SDM_{mass} was reported for the intervention group compared to the controls (effect size 0.58; p = 0.05; t-test). After the first feedback session, the physicians self-reported increased SDM level (MAPPIN'SDM - Q_{doctor} effect size 0.36; p = 0.02). The patients and observers did not observe that increase in the	NA	NA	NA

			physicians' SDM (effect sizes MAPPIN'SDM -$Q_{patient}$ 0.09 and MAPPIN'SDM-O_{dyad} 0.10; both not significant). After the second feedback session, the physicians did not claim to have further increased the SDM level (MAPPIN'SDM Q effect size =0.02; p = 0.44). AN increased level of physicians' SDM level was reported by the patients (effect size MAPPIN'SDM -$Q_{patient}$ 0.71; p=0.01) as well as the observers (effect size MAPPIN'SDM-O_{dyad} 0.17; p = 0.15). After the control group received the full training, it showed larger effect size than the intervention group (pre-post comparison) (effect size 0.72).			

12	Hauser et al, 2017	NA	Deficits were observed with certain components such as “initiation of patient participation at the beginning of the conversation”, “the desire for participation”, “inquiry of individual circumstances that might affect the course of a treatment”, “weighing up treatment options together with the patient and thereby considering patient’s lifestyle and personal situation”. This was attributed by the authors to a probable willful decision by the students since they were responsible for choosing their own learning goals. Other components were observed more often such as “description of the different treatment options”, “explanations of several drug-related information”, and “bringing about a stipulation regarding the realization of the treatment decision”.	NA	13 out of 18 students stated that they got over their initial uncertainty about “prescription talk” through the course and that with additional training, it leads to better future medication communication. Answers on the question “What did I pick up from this course?” showed “an enhanced awareness of the impact and potential of physicians’ communication in terms of communicating purposefully and strengthening patients’ self-determination by explaining and engaging was indicated”.	The first problem-based learning session was changed to include emphasis on the “student-centered character” of the elective. The 2013-2016 students’ evaluation (Using German system where 1 is best and 5 is worst grade) was 1.3 for “lecture”, 1.4 for “small-group teaching”, and 1.6 for “assessment”. Written feedback from students showed favoring the different approaches and especially the simulations. Students found the checklist to be useful for obtaining feedback.

13	Hagiwara et al, 2017	Students expressed that they did not have previous experience with giving bad news and conflict resolution.	Results from the analysis of 612 students out of a total 674 students who completed the PCC curriculum and the faculty assessment checklist showed that the students met 70% of possible points for each checklist item. Students' performance was lower (P < .0001) for the questions: (1) asking about how much medical information family members want explained to them by the physician, (2) asking about spiritual/religious beliefs of the patient, and (3) assessing family member's level of education to better assess their level of understanding.	NA	NA	Students had a positive overall perception of the OSCE experience since it's realistic and they get feedback on performance.
14	Simmons et al, 2016	Of the 89 completed pre-assessments (case of depression), almost all respondents indicated discussing medication and counseling with patients, however, discussing behavioral treatments (e.g., exercise, light exposure therapy, positive activity	The uptake of Decision Worksheets from the hospital intranet was used as a measure of using SDM skills in the clinic. It was found that an average of 146 downloads of the Decision Worksheets were downloaded per month equivalent to one download per month per resident who attended	In their debrief on the utility of the "Decisional Worksheet", 93.5% of participating residents reported that they would change their practice based on what they learned. At the end of the workshop, 76.3% of	NA	NA

		scheduling) was mentioned less (29%), and no one would discuss the option of not treating the depression. In their charts, 40% of the residents documented that they presented an option other than medication, 62% documented discussion of risks of medications, and 35% documented discussion of benefit of medication. Only 14% documented patient's goal or preferences and 37% documented a joint decision (e.g., "We decided to start with medication" or "The patient wishes to try counseling"). The sample chart submitted by residents documented prescription for an antidepressant medication.	the workshop (130 total participants). This rate of downloads was found comparable to that of patient education materials stored on the intranet (deemed as high use). A limitation is that the downloads cannot be tracked to individuals, and that after 8 months, tracking downloads was limited and affected the accuracy of the follow-up. Another approach to measure the use of SDM is by observation of the trained residents using the Decision Worksheets in the clinic. The observation was done for 8 weeks and only one resident was reported to have used a Decision Worksheet and found it useful.	respondents were more confident in their ability to explain what shared decision-making entails and 74.2% were more confident in their ability to frame decisions with patients to improve quality. However, only 40.2% were more confident in their ability to discuss evidence regarding benefits and risks with patients for common screening and treatment decisions.		

15	Price-Haywood et al, 2014	At baseline, no significant differences were found between the two groups from the SPs' ratings of general communication about cancer risks and SDM about CRC screening or colorectal cancer screening, however, significant differences were found for the intervention group at 6 months and remained to 12 months ratings. At baseline, no significant differences in screening between the two groups were found, only a higher proportion of patients completed screening at follow-up with only significant between-group differences in mammography (associated with insurance status (insured vs. uninsured (OR [95 % CI]: 2.9 [1.3–6.4])). No association was found between the follow-up cancer screening rates and the length of PCP relationship, family history of cancer, patients' cancer screening knowledge, or clinic use of strategies to promote screening. Patients' knowledge about screening did not change over the 12 months period and there was no significant difference in their knowledge between the two groups. Patients were not asked to rate or give feedback on the physicians communication and SDM skills in this study.	NA	NA	NA

16	Yuen et.al. 2013	NA	From the questionnaire responses, most of the residents learned skills that lie in one of 3 domains: communicating bad news, discussing goals of care and preferences for life-sustaining treatment, and determining code preferences. 100% of the respondents reported learning skills on learning the family's understanding of the patient's condition and understanding the patient's and family's perspective and values. The most important learned skills as reported by the residents were found to lie under the following themes: Importance of expressing empathy, learning about the patient's life and baseline functional status prior to hospitalization, assessing the family's perspective (understanding the patient's condition, knowledge of patient's end-of-life wishes, ,and their goals and expectations), provide	There was significant improvement ($p < 0.05$) in the composite comfort level score of practicing all skills assessed: discussing goals of care, code status preferences, preferences for life-sustaining treatment, explaining the role of surrogate decision maker, responding to emotions of patients and their families, and facilitating decision-making with surrogates.	NA	Participants rated the workshop to be good to excellent (mean score 4.45 on a five-point scale; SD = 0.62).

			prognostic information and recommendation for an approach to care based on the patient/family's values and goals, and decision-making is an iterative process.			
17	Smith et al, 2013	Pre-intervention survey results show that most of the residents (96%) reported a need for supervision during family meetings, and that they received feedback following those meetings (95%). They also reported the importance for training on communicating GOC (97%) and in EOL care (96%).	Most respondents to both surveys were comfortable with specific topics in end-of-life care, with a greater proportion of respondents in the postintervention group indicating comfort with discussions of prognosis. Residents reported that they did less talking during the family meetings discussing EOL care post-intervention. There was a significant improvement in residents' comfort discussing code status, advance care planning, and confidence dealing with unexpected events during a family meeting, as shown from their answers to the pre-	Residents reported more confidence post-intervention answering questions about death and dying and responding to patients or family becoming emotional during the family meeting.	NA	NA

			and post-intervention surveys. “Out of a possible 24 points on the summary self-efficacy scale, intervention participants demonstrated an improvement from a preintervention survey score of 16.5 to a post-intervention survey score of 17.6 (p=0.03).”			
18	Morrow et al, 2011	NA	Analysis of participants feedback showed that because of the training, they have both a better understanding of and a better view on SDM, their ability to observe their clinical interactions through “stepping outside themselves”, more confidence using SDM, and that there is a gap between clerkship and preceptorship training interventions.	NA	NA	Students reported that the most useful points learned from the training is to know what SDM is, learning how to use the Ottawa Personal Decision Guide (OPDG) for SDM, and the ability to see the videorecorded simulation sessions. They also reported that the didactics were long and that the RPG was not as helpful as they needed. Due to participation in the simulation for teaching SDM, the participants reported that the most useful points were learning

						how to provide support for the patient’s choice, how to connect with the patients, recognizing the patient’s needs for more information in terms of “knowledge, skills, and direction”, learning more about SDM and having favorable views on adopting it, and how to elicit the preference of the patients.
19	Goelz et al, 2011	NA	Significant improvements in all sections of the COM-ON-Checklist were found between participants of the intervention over those in the control group and the effect sizes were found to be medium to large. These checklist items that showed significant improvements were namely: 1) content-specific skills on transition to palliative care covering topics: explaining the transition (p=0.0024) and assuring continuity of care (p=0.0057); 2) General communication skills such as appropriate beginning (p=0.005), nonverbal	NA	NA	NA

			communication (p=0.0197), and structure consultation (p=0.0027); and 3) involvement of significant others: asking about concerns (p=0.0016). Although not all individual items showed significant improvement, the overall average score of all items showed a significant improvement in all skills (p=0.0007).			
20	Legare et al, 2010	NA	The outcomes measured included the “patients who decided to use antibiotics immediately (%)”, “mean proportion of patients who filled a prescription (%)”, “correlation of FP’s and patient’s DCS scores (Pearson’s r)”, “mean scores of the quality of the decision for: FPs and patients”, “Mean score of the intention for: FPs to engage in SDM, FPs to comply with guidelines, and patients to engage in SDM”, “patients with decisional regrets (%)”, and “Patients who felt they had stable, a little better, or much better health at 2 weeks (%)”.	NA	NA	NA

			No statistical significance was found for any of the measured outcomes between the experimental and control groups. The magnitude difference showed a positive effect in the experimental group. Clinical significance was found in the reduction of immediate use of antibiotics (16% reduction compared to a 6% reduction as calculated from the Quebec's public drug insurance plan). Only a slight increase was observed for the patients consulted by the experimental group on their positive perception of health status. No difference was found in all other measured outcomes between the experimental and control groups. When the DECISION+ training was re-introduced, it had less effect where it was found that only 8% less patients decided to use antibiotics immediately.			

SUPPLEMENTARY MATERIAL

Database: Ovid MEDLINE(R) ALL <1946 to April 20, 2021>

Search Strategy:

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1 exp Models, Educational/ or education models.mp. (10482)

2 medical students.mp. or exp Students, Medical/ (55883)

3 exp "Internship and Residency"/ or medical residents.mp. (52593)

4 exp Education, Medical, Graduate/ or exp Education, Medical, Undergraduate/ or clinical medical education.mp. (94797)

5 decision making.mp. or exp Decision Making/ (336616)

6 shared decision making.mp. or exp Decision Making, Shared/ (10083)

7 patient participation.mp. or exp Patient Participation/ (28643)

8 exp Physician-Patient Relations/ or physician-patient participation.mp. (73779)

9 curriculum.mp. or exp Curriculum/ (108804)

10 curriculum development.mp. (2452)

11 exp Physicians/ or exp Physicians, Women/ or exp Physicians, Primary Care/ or Physicians.mp. or exp Physicians, Family/ (444362)

12 clinicians.mp. (201852)

13 decision making.mp. or exp Decision Making/ (336616)

14 shared decision making.mp. or exp Decision Making, Shared/ (10083)

15 patient participation.mp. or exp Patient Participation/ (28643)

16 exp Physician-Patient Relations/ or physician-patient participation.mp. (73779)

17 exp Education, Continuing/ or continu* professional development.mp. (63442)

18 continuing medical education.mp. or exp Education, Medical, Continuing/ (27845)

19 lifelong learning.mp. (1441)

20 continuing health education.mp. (44)

21 self-directed learning.mp. (1777)

22 point of care learning.mp. (24)

23 1 or 2 or 3 or 4 (140768)

24 5 or 6 or 7 or 8 (419496)

25 9 or 10 (108804)

26 11 or 12 (630168)

27 13 or 14 or 15 or 16 (419496)

28 17 or 18 or 19 or 20 or 21 or 22 (68530)

29 23 and 24 and 25 (3895)

30 26 and 27 and 28 (1144)

31 29 or 30 (4988)

32 limit 31 to (yr="2011 -Current" and english) (2183)

PsycInfo

Database: APA PsycInfo <1806 to Week 1 2021>

Search Strategy:

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1 medical education.mp. or exp Medical Education/ (26922)

2 exp Educational Programs/ or educational model*.mp. (93440)

3 exp Medical Students/ or medical student*.mp. (18450)

4 exp Medical Residency/ or medical resident*.mp. (4923)

5 exp Graduate Education/ or graduate medical education.mp. (35137)

6 exp Decision Making/ or shared decision making.mp. (126796)

7 patient participation.mp. (5836)

8 physician-patient relation*.mp. (13602)

9 curriculum.mp. or exp Curriculum/ (155594)

10 curriculum development.mp. or exp Curriculum Development/ (8036)

11 exp Physicians/ or Physician*.mp. (99129)

12 exp Clinicians/ or clinician*.mp. (100395)

13 exp Decision Making/ or shared decision making.mp. (126796)

14 patient participation.mp. (5836)

15 physician-patient relation*.mp. (13602)

16 continuing education.mp. or exp Continuing Education/ (7755)

17 exp Professional Development/ or continuing professional development.mp. (65237)

18 lifelong learning.mp. (1781)

19 continuing health education.mp. (8)

20 self-directed learning.mp. (1275)

21 point of care learning.mp. (1)

22 1 or 2 or 3 or 4 or 5 (137643)

23 6 or 7 or 8 (142437)

24 9 or 10 (155594)

25 22 and 23 and 24 (1080)

26 11 or 12 (192265)

27 13 or 14 or 15 (142437)

28 16 or 17 or 18 or 19 or 20 or 21 (74166)

29 26 and 27 and 28 (1562)

30 25 or 29 (2534)

31 limit 30 to (english and yr="2011 -Current") (847)

SCOPUS – April 13, 2021

1344 results

(TITLE-ABS-KEY ("medical education" OR "educational model" OR "medical student*" OR "medical resident*" OR "clinical medical education" OR "undergraduate medical education" OR "graduate medical education") AND TITLE-ABS-KEY ("shared decision making" OR "shared decision-making" OR "decision making" OR "decision-making" OR "patient participation" OR "physician-patient relation*") AND TITLE-ABS-KEY ("curriculum" OR "curruclu*" OR "curriculum development")) OR (TITLE-ABS-KEY (physician* OR clinician*) AND TITLE-ABS-KEY ("shared decision making" OR "shared decision-making" OR "decision making" OR "decision-making" OR "patient participation" OR "physician-patient relation*") AND TITLE-ABS-KEY ("continuing medical education" OR continu* AND medical AND education OR "continuing professional development" OR continu* AND professional AND development OR "lifelong education" OR "self-directed learning" OR "point of care learning")) AND (LIMIT-TO (PUBYEAR , 2021) OR

LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011)) AND AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "MEDI")) AND (LIMIT-TO (LANGUAGE , "English"))

ERIC (EBSCO)

April 13, 2021

#	Query	Limiters/Expanders	Results
S9	**S7 OR S8**	**Limiters** - Date Published: 20110101-20211231; Language: English **Expanders** - Apply related words; Apply equivalent subjects **Search modes** - Boolean/Phrase	**78**
S8	S4 AND S5 AND S6	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	13
S7	S1 AND S2 AND S3	Expanders - Apply related words; Apply equivalent subjects	384

		Search modes - Boolean/Phrase	
S6	(MM :Continu* medical education") OR continu* professional development OR lifelong education OR self-directed learn* OR point of care learn*	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	13,228
S5	(MM "shared decision making") OR decision making OR decision-making OR patient-participation OR physician-patient relation*	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	59,126
S4	Physician* OR clinician*	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	12,227
S3	(MM "Curriculum") OR Curricul* OR curricul* development	Expanders - Apply related words; Apply equivalent	242,914

		subjects Search modes - Boolean/Phrase	
S2	(MM "shared decision making") OR decision making OR decision-making OR patient-participation OR physician-patient relation*	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	59,126
S1	(MM "medical education") OR medical education OR educational model* OR medical student* OR medical resident* OR clinical medical education OR undergraduate medical education OR graduate medical education	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	36,153

CHAPTER 5: STUDY 2 - UNDERSTANDING THE PROCESSES OF ROLE ADOPTION IN PEDAGOGICAL ROLE PLAY GAMES: A NARRATIVE DRAMATURGICAL PERSPECTIVE ON GAMES IN HEALTH PROFESSIONS EDUCATION

(Completed Manuscript 2 to be submitted to *journal Simulation & Gaming*)

Preface

From the results of the scoping review, it became clear that further investigation and understanding of the use of pedagogical RPG for medical education was needed. This chapter reports on the second study of this doctoral thesis that sheds the light on the processes involved in role adoption in pedagogical RPG.

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Keywords

Serious Games, Role Play, Medical Education, Narrative Dramaturgy

Abstract

Health professional training interventions based on role-playing games (RPGs) have been shown to be an increasingly popular way to advance health professional students' skills in communication and empathetic engagement with patients and colleagues. However, role adoption itself is largely assumed, with little research focusing on how students come to engage, or fail to engage, in role play. This study aimed to identify the processes by which healthcare professionals and trainees (HCP/Ts) adopt roles in role-based serious games designed for health professions education (HPE). The theory of narrative dramaturgy informed this qualitative study, to illuminate the relationship between the participant and the role. Four focus groups were conducted at the conclusion of four iterations of an RPG, in which different groups of healthcare professionals participated, focused on joint deliberation over a case in pediatric oncology. The data were analyzed thematically, and four themes were developed that characterize the process of role adoption: role commitment; simultaneous evocation of front and back stages; reflexivity; and visceral lingering. Our findings contribute to delineating the processes of role adoption that suggest specific conditions under which role play may or may not be beneficial, and how it can be taught and enhanced in health professional education.

Introduction

The use of serious games has garnered increasing attention in research and practice in health professions education (HPE) [1]. Serious games are games developed with a pedagogical purpose and they can be conducted either in-person or online [1–5]. They have been shown to lead to higher satisfaction for learners by allowing them to learn new skills in a safe and interactive environment [1,3–6]. Such an approach has been taken to teach communication skills in medical education, and other skills that focus on relating to others [7,8]. Serious games vary in design and one particular design that is gaining more attention is the role-playing game (RPG) [7,8]. RPG is defined as a serious game that puts emphasis on the interactions between the participants and the different roles each participant represents in different game settings [8]. RPGs are designed to foster a safe space that allows the participating healthcare professionals and trainees (HCP/Ts) to learn an array of medical skills through first-person interactions [9–12]. The medical skills that are targeted by RPG-based training interventions vary from being specific, such as interviewing patients, to being more general, such as engaging emotions as well as communication skills with patients, families, and other HCP/Ts [9–12]. RPGs have been reported to be used especially in teaching communication skills to HCP/Ts [8]. Although this approach to medical education has been gaining increasing interest, little is known about the processes by which HCP/Ts participating in RPG actually adopt roles or seek to adopt roles. Such knowledge is important to understand how learning occurs through role play games in order to provide specific educational guidance to optimize their use in health professions education (HPE).

Researchers have increasingly recognized that simulated activities provide dynamic settings that require participants to assume roles, create their narratives, improvise, and interact around a main plot or multiple plots [13–15]. This structure resembles the essence and elements of drama and theatre [13,14]. As such, some researchers have advocated for the use of a dramaturgical approach as the simulated activities in healthcare and healthcare education [13,14]. Dramaturgy comes from the Greek words dramatourgos where drama means "action" and dramaturgy means "to create action" [14]. Dramaturgical theory comes primarily from the work by the sociologist Erving Goffman, [16] who argued that when a person enters any social setting, they consciously or unconsciously put into effect information about their roles in that setting as well as information about the roles of others [16,18]. Goffman suggests that a person consciously or unconsciously presents themselves in a social setting according to the social norms and expectations of the role they are taking in that setting and they adjust their behaviors accordingly [16,18]. This "presentation of self", according to what is dictated by the expectations from that social role (front stage), can be different of how the person actually behaves in a more relaxed setting (back stage) [16,18]. In this paper, we are using the phrase "narrative dramaturgy" to emphasize the fact that the participants are seeking to develop, through their talk, a particular and believable role [13]. In narrative dramaturgy, the focus is not only on the enacting of the roles, but also on the narrative created by the participants experience of an RPG, its structure and order, to better understand the scenario design and experience of a simulated activity [13].

Previous research drawing on dramaturgy in simulated activities in healthcare has placed most emphasis on the performative aspect of the drama – what Goffman would have called the “frontstage”[13]. However, for Goffman, the “frontstage” – what other people witness – is intertwined with, and not fundamentally separated from, the “backstage” – what is individually and subjectively experienced. An important assumption in this view is that thought does not always precede action, as is often assumed; indeed, shared beliefs and experiences can influence thought, suggesting a dynamic interplay between thought and action, or between frontstage and backstage [13,14]. Because role-playing, for example, involves the mutual engagement of mind and body, it can be said to be an “embodied” activity [19]. Separating the two implies an artificial distinction between the cognitive aspects of one’s subjective, individual experience, and the publicly available aspects which others are able to see and hear. Overlooking the interplay of one’s engagement with a role, for example, and how it is presented publicly, has limited the insight which can be gained into the processes by which participants adopt their assigned roles in medical education settings. This is important knowledge to gain in order to advance the specific design and assessment of the use of RPGs as a pedagogical approach in HPE to enable future HCPs to “step in to others’ shoes” and empathize with them, whether they be patients or colleagues. Therefore, in this study, we aimed to identify the processes by which HCP/Ts who participate in pedagogical RPG adopt, or fail to adopt, their assigned roles.

Methods

The role-playing game setting

Following human research ethical approval, and written consent from individual participants, qualitative research was engaged to understand participants’ engagement with roles, the setting being a specific RPG. This RPG was adapted to simulate a pediatric oncology clinical encounter that involves clinicians, a sick child, and the child's parents. Participants were randomly assigned one of those roles (clinician, parent, or child). To maximize the range of role interactions, four separate RPGs were staged drawing on the scenario of a sick child. At the start of each RPG session, participants were instructed to undertake a 10-minute warm-up exercise to allow them to explore and understand their assigned roles. The first round of the RPG commenced by presenting the participants with the child's diagnosis of neuroblastoma as well as five different treatment options. The participants were then instructed to individually make decisions on the treatments to be administered. The participants were then instructed to come to a conclusion on the treatment to be administered to the child. Emphasis was put on the child having the final say about the treatment to be administered. The second round of the RPG commenced by introducing pharmacogenetic information on the child's risk of developing adverse drug reactions associated with each treatment. The participants were then asked again to come to a conclusion about treatment. This design was deliberate to help the participants be engaged in the RPG experience and especially the conversations for a longer period (the session lasting for 2 hours), and hence become more immersed in the experience.

Participants

Healthcare professionals and trainees [20] were recruited. This involved a combination of purposive sampling in the form of maximum variation, whereby HCP/Ts were recruited based on variation in their areas of specialty, and convenience sampling, in which participants within each professional group were approached from the professional network of the researchers [21,22]. A total of 19 HCP/Ts participated. There were seven general practitioners, four pharmacists, two residents, one undergraduate medical student, one pediatrician, one pediatrics nurse, one occupational therapist, one kinesiologist, and one family doctor. The majority of participants were females (n=15). Although the overall logic of sampling was purposive, recruitment continued until data saturation was reached, saturation only being applied within each purposive sampling category. Themes generated in the analysis became repetitive and no new themes were generated [21].

Data Collection and Analysis

The RPG sessions were all recorded including the post-game debrief sessions which took the form of open-ended focus groups. The focus groups, convened by SA, were held immediately following the RPGs and drew on participants' perspectives and experiences of the RPG by asking "How did you feel taking part in this role-playing game?" [23]. The recordings were transcribed verbatim and an inductive thematic analysis was systematically undertaken [24–27]. Initial codes were generated for each of the participants and then similar codes from participants with similar assigned roles were agglomerated. The process was applied systematically and any data the diverged from the identified pattern were reported in separate codes. Researchers gathered multiple times to discuss the codes and conceptualize the emerging major themes [28].

Findings

Our findings show that embodied immersion into roles involves four particular dimensions: i) role commitment; ii) simultaneous evocation of front and back stages; iii) reflexivity; and iv) visceral lingering. These are elaborated and exemplified below.

Role Commitment

Role embodiment requires participants to develop a commitment to a role they have been assigned. The immersive nature of this RPG experience, over a two-phase and extended period of time, facilitated the role adoption of the different participants. Participants reported that they perceived other participants in the RPG session to be convincingly "in-role", which in this interactive environment, influenced them to engage deeply with their roles.

> "I mean, for me, I think it is a great exercise because I liked how Wendy [the assigned name of a clinician in the RPG] played her role, how they thought about the priority of the kid in general and how they [children] think. And like also David [the assigned name of a male parent character in the RPG] – I think men are more … numbers people in general [in my opinion]." [Participant in parent role, post-RPG focus group]

Whether one agrees or not with the proclivity of men to engage with numbers, this participant was impressed with the role engagement of others, even referring to them by their role names. An implicit criterion of such engagement was to be able to convey entry into a shared world with other participants, showing them empathy.

One participant who was assigned the clinician role related their own work to how they felt uneasy observing the "parent" pressuring the "child" into agreeing to particular treatment decisions that the child character did not favor:

> "Even in the context of the game, he [the child role in the RPG] even [seemed to feel] pressured by the characters playing his parents and he [the child role in the RPG] did not really make the decision. He [seemed to feel] that he was pressured even in the context of the game. And so, [the whole RPG] was an interesting experience." [Participant in clinician role, post-RPG focus group]

Such immersion through role commitment contributed to participants' minds and bodies mutually engaged in a shared understanding of the situation, because the role embodiment of others were believable and the participants shared the adoption of roles in which they could imagine themselves and others engaging.

Simultaneous evocation of front and back stages

Role engagement involved evidence that participants were engaged in believable public displays of role, while being able to reflect on role engagement – at the same time. The active construction of narrative is evident in role development being a consciously effortful process. The participants shared reflections on how they had to make a conscious effort in order to assume their roles. They were exposed to vastly different perspectives on the decision-making process than what they were used to through their training and clinical practice. This led the participants at one point in time during the role play experience to have their front and back stages meet, meaning that, at one point in time, engaging in the role play experience, the participants reflected on and changed their normal behavior (back stage) to that of the role they are portraying (front stage) as is shown by the following quotes:

> "I think one of the things that I was thinking about is how much I was reflecting on myself at the same time. It was very hard. I thought I will take (down) numbers. I thought I am a numbers person [in real life], but when I was thinking about my kid [in the role of a parent], it (was) weird. I thought … "no, I want her to live like a kid, I do not want these numbers. It does not make [a] huge [amount of] sense". It's not like 50% versus, like, 90% [risk level associated with the different treatment options presented to the participants during the RPG]. So, I was very surprised, because I thought I would go with the numbers [risk percentages], and I could not [while I was assuming the role]." [Participant in parent role, post-RPG focus group]

The significance of the dramaturgical character of the front and backstage interaction here is that they happened simultaneously, and not in a linear fashion by which thought / cognition necessarily precedes public action. A sense of role adoption is evident in the above participant seeing their decisions as "naturally" differing from their "real" function, such that their new decisions appeared to be the natural way of laying out the treatment options.

Reflexivity

Participants conveyed the indispensability of reflexivity in role engagement – that is, reflection on the influence of their own circumstances, roles backgrounds and beliefs, on the roles they adopted, which they recognized. Participants pointed out that adopting the roles, especially the more vulnerable ones, such as the sick child, was not an easy task. They shared reflections on how "heavy" the experience of adopting that role was. The participants' experiences of the "heaviness" of their roles enabled them to recognize vulnerabilities in their own practice, and participation itself prompted reflections on participants' real lives as HCP/Ts:

> "It was heavy, but interesting, and it gives you, like, another perspective [from your role in real life] when you are dealing with people of all sorts of vulnerabilities. So, it was interesting. Also, at the beginning, I felt a bit like it was my fault, everything that was happening, you know, like everyone was here because of me. So, I felt like this kind of blame, but then at the end I felt like [the other participants taking other roles in the RPG session] were all helping me, you know – that we were all part of the same team, trying to figure out some things with my life [as the child role in the RPG]. So, it was interesting."
> [Participant in child role, post-RPG focus group]

The participant indicated that the RPG provided the opportunity to bring genuine emotion from their real world. The heavy emotional load that the participant carried enabled them to reflect deeply on the genuine empathy for the child character that they felt as a participant in the RPG.

Another participant recognized that their real-life role as an HCP/T can involve a lack of empathy for the patient, but the emotional commitment that participation in the RPG involved enabled them, in the role of the parent, to empathize with the child.

> "This is actually definitely a very interesting exercise, because I am usually not on this side of the conversation. I am usually on the other side of the conversation. So, I had to think

> about it and then for me, you know – super busy consulting numbers – [being assigned the role of the] father – or at least that is the persona that I had tried to play [during the RPG] – it seems, like, in my head, well, obviously this should be the natural way of, like, you know, putting the options [decisions on treatment] in this order. Like, this is just so obvious. Like this is the most logical way of approaching the situation. Then you come into the discussion [about the clinical decision] and then you see drastically different opinions. And you are like, 'Oh, I did not realize that what was obvious to me in my mind and how I processed it actually wasn't as obvious and clear to Melanie [the name of the sick child character in the RPG] or to Ann [the name of the mother character in the RPG] in the same situation'. And then, the process of trying to figure out, okay, so how can we balance these very different priorities that each of us have, in a way that we can come to a consensus where we can all feel like we're all on the same team and that we're going to be on [the treatment journey of the sick child] together and that everybody is at least at a certain level of feeling like we're giving [the treatment decision] the best shot, valuing each of our values of what this family holds dear, basically with each individual person. So that's what I would say." [Participant in parent role, post-RPG focus group]

Upon reflecting on their RPG experience, the participants who took on roles of the parent or the child themselves expressed surprise that they were able to resort to different strategies in their decision-making process than those they normally used in "real life" as clinicians in a professional setting. This goes to show that, although HCP/Ts are trained to think and make decisions according to apparently "factual" information, such as risk factors and survival rates, they were, at the same time, able to adopt a more empathic parental tone and take broader quality of life aspects into account more than they did in real life.

This shows that the context of the RPG, in which all participants taking on the roles of the different stakeholders and are asked to have discussions around treatment decisions, allows the participants to make particular observations about the inter-stakeholders' narratives and dynamics, in this case the parents pressuring the child to agree to their treatment decision. These observations led the participants to be reflexive in terms of the relationship between the RPG and in real-life.

Visceral lingering

The data showed that however foreign were the roles to the "real lives" of the participating HCP/Ts, either professional or personal, participants were still able to feel the emotional load to the extent that it left a lasting effect after the end of the game. We call this "visceral lingering". The following quote shows an example of the visceral lingering experienced by a participant who took on the role of a parent:

> "So, putting my feet in [the sick child's] parents' shoes was interesting – like, not a nice thing to feel. Actually, even though in my [actual] profession, I do not work with oncology at all because I feel it is overwhelming for everyone, for the parents, for the child, and even for the healthcare team. So, I think [that] overall, oncology in general is overwhelming, and being a parent [in the RPG] who loves her kid, [I] cannot even imagine that someone… from a medical background… can put a poison into his body. … As a cautious person, [in the role

> of the mother, I was] very concerned about harming [my] child, [and I was not as much concerned as I would be in my real-life as an HCP about] … making the "best (clinical) decision" [inverted commas added]. So, ... it was interesting to know how people in this position would feel like. Awesome." [Participant in parent role, post-RPG focus group]

Thus, going through the experience of an RPG that is designed to be immersive for the participants helped the participants to connect to the experience on an emotional level that lasted beyond the time frame of the RPG. The experience for this HCP of playing the role of the parent evidently influenced the way they thought about the impact of parenthood on their current clinical role.

Discussion

This study contributed to understanding processes involved in role adoption in HPE, taking a narrative dramaturgical approach. The existing literature on the topic has paid relatively little attention to the processes by which role play participants can engage with their roles [8,29,30]. Such a process must account for the simultaneous engagement of front (publicly performed) and backstage (individual, private) dimensions of social life, characterized by dramaturgy [13]. Through thematic analysis, and emerging simultaneously as themes, we identified four processes of role engagement (role commitment, simultaneous evocation of front and back stages, reflexivity and visceral lingering). As such, our findings advance the literature beyond advocacy for role-playing-based serious gaming, demonstrations of the efficacy of RPGs, and even recommendations to engage a dramaturgical perspective. This study engaged a dramaturgical perspective to show processes of role engagement and reflects a qualitative research approach that could be applied to other HPE and clinical research settings.

The first dimension of the role adoption process that we identified was commitment to role. Taking a dramaturgical approach to our analysis, we treated the RPG as a drama piece of characters moving through a story plot [13]. Our findings showed that assigning the participants to the roles of the different stakeholders of a pediatrics clinical encounter and allowing them to dialogue their way around medical decisions through the story plots (the diagnosis and pharmacogenetics results) allowed the participants to create their own narratives within their assigned roles. This process of narrative creation showed to have allowed the participants to "step out" of their "real-life" roles as healthcare professionals and trainees and adopt their assigned roles of other stakeholders of the clinical encounter (the sick child or the parents). This was found to be contingent on each of the participants to their assigned roles.

As a part of the process of role adoption, we found that at one point in time, there was overlap and coherence in the participants' presentation of themselves and behavior in their assigned roles (front stage), and with their own beliefs of their real-life roles as HCP/Ts and their clinical practices and training (back stage). This was brought by the opportunity they had, through the RPG experience, to make observations on their roles as clinicians as well as the roles of other stakeholders of the clinical encounter (sick child and parent). Emotion was shown to be a feature of displays of reflexivity. The emotional engagement – turmoil, in some cases – experienced and reported in the RPG, accompanied observations around the weight of clinical encounters and medical decision on the patients, especially if they were children, as well as their parents. Relatively strong emotion also accompanied compulsions of the child role to yield to treatment decisions with which they may not have been comfortable. This resonates with ethical questions in relation to allowing children to have a say in their treatment decisions [31].

Having an immersive, though transient, experience was found to be another factor that contributes to narrative creation and hence the process of role adoption. Although reflexivity is considered to involve the impact of one's real life on research or practice, this study showed how research involvement can also prompt reflection on one's real life. Furthermore, participants showed that there was an abiding influence, which we called "visceral lingering", to their role engagement and the empathy it was intended to impart as an educational intervention. Building future interventions based on the understanding of the processes of role adoption will allow for improvement in the way roles are encouraged or taught in RPGs, and hence foster deeper role engagement to maximize the chance that the experience will have a lasting effect, or "visceral lingering", as we call it.

Conclusion

Beyond advocacy for, and descriptions of, uses of RPGs in HPE, this study elaborated four processes that contribute to role engagement in RPGs. Roles do not merely involve thinking about engaging in such a role, and then enacting the role, in such a strict causal and temporal order. Narrative dramaturgy gave effect to the bi-directionality and shared impact of front stage and back stage in engaging with roles. This manifested in role commitment, simultaneous displays of front stage and back stage, reflexivity and visceral lingering. RPGs have been seen as an ideal way to enable health professional learners to step into the shoes of another and to empathize with them, whether they are patients or colleagues. Since the intention of RPGs has been to help develop communication skills, leadership, professionalism, and empathy in health professional learners, among others, the four processes elaborated in this study can be used as guides to teach, foster, and assess non-technical skills to help ensure that future healthcare practitioners and systems are better equipped to handle the complex social and bio-social challenges of the future.

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CHAPTER 6: STUDY 3 - LEARNING RECIPROCAL ADAPTATION IN PEDIATRIC ONCOLOGY ROLE PLAY GAMES: PRACTICING EMPATHETIC REASONING TO STRENGTHEN THE PATIENT VOICE

(Completed Manuscript 3 to be submitted to *Journal Advances in Health Sciences Education*)

Preface

From the findings of the previous study, a deeper understanding on the processes involved in a genuine role engagement within an RPG experience was attained. It was then important to gain a better understanding of how the participants of this RPG were able to engage in joint decision-making regarding the treatment options they were presented with. This chapter reports on the third study of this thesis that sheds the light on teaching empathy-based communication skills such as SDM.

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Keywords: Reciprocal adaptation, role play games, shared decision-making, empathy, healthcare professions education.

Abstract

There has been increasing interest in healthcare professions education (HPE) interventions that aim to teach healthcare professionals and trainees (HCP/Ts) empathy-based concepts. Empathy is an under-recognized foundation of the increasingly important teaching of learning shared decision-making (SDM). Studies have focused primarily on methods of teaching concepts related to empathy, or proposed checklists of best practices against which empathy can be assessed. There has been relatively little attention to understanding the process and factors supporting and inhibiting the way empathy-based concepts are learned. The aim of this paper was to conceptualize joint decisions as a process from one's self to combining empathy and aligned thinking with others. In order to achieve that, we engaged the theory of reciprocal adaptation to analyze role adoption in a role-playing game in a pediatric oncology setting where participants, who are HCP/Ts, could make decisions around treatment options. Our findings showed that participants engage in different levels of a three-part continuum, generally progressively, to achieve empathetic reasoning: [individualism, empathy, and empathetic reasoning]. The paper shows that role-playing games (RPGs) support reciprocal adaptation to enable participants to engage deeply with roles with under-recognized depth, and hence recommend RPGs as a powerful method to teach empathy, and hence shared decision-making skills for health professional trainees.

Introduction

Several studies report on the use of particular training approaches to teach health professional students and trainees about being empathetic to patients and each other [1–5]. Empathy levels have been shown to stagnate or even decrease over the course of medical training [1]. Empathy in a clinical setting is regarded as the ability of healthcare professionals and trainees (HCP/T) to recognize and understand another's emotional state and concerns. It includes conveying that understanding to the other and then, for example, proceeding with the therapeutic course according to that understanding [6]. Some definitions of empathy convey the perceived importance not merely of understanding of the patient's emotions and concerns, but also to transiently approximating closely the experience of emotions associated with such concerns [7]. Such greater depth in understanding the patient's experience and feelings is believed to strengthen the relationship between the HCP/T and the patient leading to higher satisfaction of the clinical encounter for both parties as well as leading to a better therapeutic adherence for patients and so, better health outcomes [8–11].

Researchers, practitioners, and educators have increasingly emphasized the importance "shared decision-making" (SDM) with patients [12–15]. SDM in a clinical setting involves conversations between the HCP/T and the patient around the diagnosis, the possible treatment options, taking into account the patient's feelings, values, and priorities, and then reaching a treatment decision with the patient [12–15]. Any form of joint decision-making relies on all parties involved engaging in an interactive cognitive process whereby, to some extent, they enter into and share each other's perspectives [16]. However, studies show that in many training interventions and clinical encounters, SDM is applied in a tokenized and technical way, with little genuine understanding and engagement of patient perspectives [17,18]. Furthermore, there is little support in the literature for guiding SDM training and interventions. Studies of SDM tend to focus on SDM as a checklist of “do’s” and “don’ts” [17,18].

What has been less recognized in the literature is that empathy must be central to the process of SDM. Practicing SDM needs to be considered as a process, rather than merely an outcome, in which empathy is learned and developed. After all, decisions are usually made in live, interactive environments, requiring attention to cultural and role-based considerations [16]. Such an approach is captured in a concept called “reciprocal adaptation”, which is defined as “the procedure ... where each participant gradually learns to adapt and to enter into the other’s frame of reference.” [16,19]. It is only with understanding of this process that appropriate and systematic educational interventions can be offered to HCP/Ts regarding empathy-based clinical concepts. Therefore, the objective of this study is to understand how participants in an educational activity engage with processes of shared decision-making. We use reciprocal adaptation as the theoretical underpinning of our work to qualitatively understand and describe the process by which HCP/Ts can learn empathy.

Methods

Setting

The SDM activity for this study took the form of a role-playing game. A role-playing game, as a means to investigate joint dialogue over clinical decisions, has the particular empirical advantage of setting a higher bar for the quality of decision-making than "real-life" dialogue, because participants are merely in role. This is what has been called an "extreme case", in which whatever trends are evident in role-playing processes are likely to be exaggerated, and thereby deliver stronger and more transferable lessons [20].

We adapted and used a role-playing game (RPG) to collect the data. Briefly, four RPG sessions were held, and each session involved 4-5 adult participants. Prior to the start of the RPG session, participants were randomly assigned roles of either a clinician, a parent, or a sick child. During the RPG session, participants were provided with an ice-breaking activity to allow them to "step into" their respective assigned roles. The first round of the RPG commenced, in which participants were presented with a medical case corresponding to the clinical diagnosis of the child as well as five possible treatment options for that clinical case. Participants were then asked to make treatment decisions individually, after which they were asked to discuss this with each other to try to come to a conclusion regarding the treatment to be administered to the child. Importantly, the term "conclusion" was used. Participants were not told that they needed to reach "consensus" or "agreement" around the final treatment decision.

In the second round of the RPG, participants were presented with additional pharmacogenetic information about the child's risk of developing adverse effects as a result of the different treatment options, and they were asked to repeat the individual and group decision-making exercises. This repetition served to further immerse the participants in the role-playing experience. At the end of the second round, the participants were asked to "step out" of their roles and share their reflections on the RPG experience. All sessions were held virtually using the Zoom online platform. Informed consent was obtained from all participants prior to the session and all sessions were audio and video recorded. In each session, there was a moderator and an observer from the research team.

Participants

A total of 19 participants were recruited for this study. A purposive sampling approach was adopted, using maximum variation, where HCP/Ts were invited to participate in the study, and represented varied professional roles and disciplines [21,22]. In addition, convenience sampling strategies were used, where participants were from the professional network of the researchers [21,22]. Participants were all healthcare providers (according to the definition of the Canadian Institute for Health Information [23]), accredited kinesiologists, medical residents, trainees, or students. This ensures that all participants were undergoing either undergraduate education or continuous professional development education related to healthcare. Participants were recruited with varying gender, years of practice, academic year (for residents and students), country or province of most recent practice, and current geographic location. Participants were recruited regardless of whether they were currently practicing because they were still part of the Canadian healthcare education system.

Recruitment was achieved through drawing on the professional network of the researcher through sending e-mails to participants who met the eligibility criteria. Recruitment was continued until data saturation was reached and themes generated in the analysis became repetitive and no new themes were generated [21].

Data Collection and Analysis

All four RPG sessions were audio and video recorded. The recorded sessions were transcribed verbatim. Themes were generated systematically with an iterative inductive-deductive approach [24–27]. At first, segments of data from each participant were identified and coded across particular RPG sessions by the first author. Next, similar codes that stemmed from participants who were assigned the same character were grouped. This process was done in a consistent “line by line” manner to ensure rigor, and any divergence found to the observed patterns prompted the creation of new codes or categories. Final major themes were discerned following input from multiple research team members [28].

Findings

Analyses of the sessions demonstrated that the process of interacting with others in the direction of a joint outcome lies on a continuum from focus on one’s own perspective, to engagement with others’ perspectives. We found this continuum to have three identifiable points, representing differing degrees of progressive engagement with others’ perspectives. Organized as the three central themes from our analysis, we present these points on the continuum as: individualism, empathy, and empathetic reasoning. Furthermore, the data show that the expression of these different levels of engagement with others’ perspectives tended to occur progressively in phases, commencing with relatively strong commitment to one’s individual priorities, followed by greater empathy for others’ perspectives, and finally, in a process of mutual intellectual alignment grounded inextricably in empathy, which we call “empathetic reasoning”. As participants transitioned between the phases, they seemed to make their way to reconciling what were apparently incompatible needs exhibited by the different assigned roles (clinician, parent, and child) and moving in the direction of harmonizing those needs to reach a joint conclusion.

Individualism

The participants commenced the game with a strong focus on their individual perspectives, i.e., they each had relatively fixed opinions on the best treatment decision. Even in a role-playing scenario, the apparent values and priorities of particular role positions were strongly evident early in the game. The following quotation shows how powerful the impulse is to commence a joint decision-making encounter with fixed positions, at the expense of other potential positions. The participant played the role of clinician, and later reflects on the perceived importance of numerical values to the position of a clinician:

> "For me, … [during the RPG, when taking on the role of clinician, I really wanted] to put the patient's values into [my] consideration, you know. [But it was very difficult. I thought:]. … these are the numbers that I have. [The information provided during the RPG] says there is a concern for the side effect [which would affect the patient], but I do not have numbers about that, so I am not going to think about it. I am going to think about what I think is right [from a clinician's perspective, based on the numbers]. So, I think that is how most clinicians think and that is how I used to think." [Participant in clinician role, post-RPG focus group]

As an example of individualism in joint decision-making, one can see how clinicians' unilateral decisions based predominantly on the numerical values can be made with the "best" of intentions, with a lesser degree of accounting for the priorities and values of patients or their caregivers.

Those who took on roles of parents in the RPG also displayed individualistic, role-based perspectives. These participants also defaulted to the numerical values and were fixated on their decision to the point of attempting (and in multiple instances) succeeding to pressure the child character to change their decision because the parent "knows what is best"' for the child. This is shown by the following two quotes, also based on subsequent reflection, by participants who took on the roles of parent and a child respectively:

> "And [in the parent role] I also felt a pressure, I guess, because I was the mom, and then I saw that "Anthony" [name of the child character in the RPG] was making what I thought

> was a bad decision, right? So, I was struggling a lot to think: how can I make “Anthony” change his mind? And I would try to ask the doctor [in the RPG] and ask “Anthony” and ask my husband [in the RPG] to see if we could influence, the three of us, “Anthony”, and thank God, “Anthony” was a very, very good child and very thoughtful and understanding and that made things very easy.” [Participant in parent role, post-RPG focus group]
>
> “[In the child role] I felt this pressure at the same time from my parents [in the RPG]. To be honest, at the end, I changed the decision, but I was not a hundred percent sure. I changed the decision because of my parents [in the RPG] and because everything that they [the parents’ roles in the RPG] were saying, so I also felt that kind of pressure of being a child and that [my parents in the RPG] were looking forward to me changing my decision.” [Participant in child role, post-RPG focus group]

Thus, the tendency to espouse fixed positions, based on the priorities of one’s own position can also manifest as the disempowerment of others. In this case, the quotes show a power struggle that is evident when the adult roles try to form a united front to pressure the child out of their decision, and how this can lead to perceived distress and dissatisfaction from another’s perspective, in particular the child patient.

Empathy

As participants were confronted with others’ perspectives, they started to posit to others their own perspectives, with each respective point of exchange taking more and more account of the other’s perspective. In some cases, this simply took the form of acknowledgement of the other’s perspective, including acknowledgement of the benevolence of the other's intentions. Sometimes it took the form of a search for common ground, such as shared goals. Furthermore, participants posited increasingly more detailed or more sophisticated accounts of the reasons behind their perspectives.

> "No, I understand that you both [parents] love me and want me to be here [still alive] before thinking of anything else, but I cannot imagine myself not being myself as I know I was before this whole pain started. So, when I look at the numbers … I do not want to go through more of this pain and more of this abnormal life that I'm going through right now." [Participant in child role, RPG group decision]

With such a stepwise progression of the dialogue, there was increasing recognition of shared and benevolent goals: in particular, the good of the patient. This point in the discussion opened doors for further explanations, reassurance, support and sometimes compromise, as the following quotes show:

> "So, I understand your concerns. These are very valid concerns. Unfortunately, we [clinicians] cannot predict who from the patients will develop hearing problems will not with the treatment. So, unfortunately, we [clinicians] cannot predict it. We [clinicians] will be very closely following up for [potential hearing side effects] after the end of the treatment. So, … because we [clinicians] are aware of these side effects, so we actually do follow it [adverse effects on hearing] very closely." [Participant in clinician role, RPG group decision]

> "'Melanie' [name of the child role in the RPG], you know what the doctor is saying? She is saying that, like, I hear you because I also thought maybe we should do that, take that option five [among the treatment options presented] that you want. But when I hear now, because I know how much you are active and I know how much all of that means so much to you, but I also know that the doctor knows about that much better. She's treated many other kids. So, she [the clinician] probably knows which is the best option." [Participant in parent role, RPG group decision]

The quotes above show the presence of empathy even when there is relatively little shift in one's position. There is at least an apparent compulsion in a setting where mutual dialogue is expected and facilitated, to justify one's perspectives. Such empathy affords respect to others as being owed at least a justification for one's view.

Empathetic Reasoning

To be able to justify one's view, in response to what another has said, as seen in the previous section, requires a degree of cognitive engagement. What one has said is processed cognitively by another. A process of joint reasoning is becoming evident. As evident, empathy among the participants was shown to build trust, which facilitates further and deeper sharing of perspectives. As such, in the last step of the continuum, empathetic reasoning was witnessed, where different stakeholders of the decision-making process have a more comprehensive understanding of the views, values, and concerns of the different stakeholders in the decision-making process.

A feature of empathetic reasoning that was highlighted in the data was that interpretations of information was still firmly role-based. This was evident in differences in how new information was interpreted even after agreement on a course of action among participants. One participant's reflection showed that even when the participants had gone through the conversations leading to building empathy and they arrived at the step of empathetic reasoning, different stakeholders can still interpret different pieces of information differently, as they need to take several factors into account.

> "Everyone is interpreting it [the medical information provided during the RPG] differently for the boy [the child role in the RPG]. It is interesting just to see how such a thing goes in real life with a more complicated case and more emotions." [Participant in clinician role, post-RPG focus group]

In other words, reaching a point of empathetic reasoning does not mean necessarily completely shared perspectives. The significance of this finding is that it underpins the importance of distinctive roles in shared decision-making.

Empathetic reasoning seems to be affected by the interplay of what one might consider as "subjective" reasoning, relating to the feelings, values, and concerns of the individual, and "objective" reasoning, relating to the "dry" data and numbers. The findings show that in particular instances, the subjective and objective reasoning are highly integrated due to the participant's previous lived experience which leads to the participant holding fast to their opinions. This is shown in the quote below:

> "Actually, just thinking of all of this, and that is part of the assumptions that I made as a child [taking the child role in the RPG]. From my observations as a nurse who works with pediatric patients specifically, I had reflections now of the patients who would come back after a disease, or [after] cancer has come back to them. So, the trauma that they would go through, the depression that they would be in, how it would be hard to get them to smile sometimes or to get up and take the treatment, or eat, or whatever it is, and it is not always related to the disease. It is more about the emotion and just the overall trauma that they are going through. So, that is probably what got me even more stubborn as a [child] character to say 'no, I do not want it [the treatment]', but it is different when you are in the same unit and, like, you are experiencing it day to day and sometimes the same patient comes back." [Participant in child role, post-RPG focus group]

In this case, having witnessed, in real life, the pain and the suffering of the sick children in the clinical setting, the participant felt more adamant about their choices, when given the chance to take on the role of a child. As such, this clinician, in the role of a child, applied subjective reasoning rather than pure adherence to numerical clinical indicators. This served to portray the complexity of the situation to the other participants taking on the roles of clinicians or parents, and how empathetic reasoning can integrate real-life personal experience with a role being played.

The findings also show that progression beyond empathy to empathetic reasoning involves perceived legitimacy of participants in particular roles to persuade other roles to change their minds. This is shown in the following quote:

> “I was going to say that we are on the same line. Like, when you are practicing [clinically], you always tend to say, ‘okay, the decision is from the patient’, and sometimes it will be uncomfortable as a doctor when you see the pressure that the family members give that person who is sick. But, when you try to see from a point of view of parents – if I were the mother of a kid who is suffering from cancer and he does not want to do it anymore – I am sure that I will, kind of like, support his decision. But, I cannot take the position of not pressuring him toward something that will be most beneficial for him as his parent. So, it was difficult to make that distinction as a parent – yeah, when you are a parent and a healthcare professional.” [Participant in parent role, post-RPG focus group]

Evidently, empathy earns one the legitimacy of being able to persuade another. This excerpt shows that empathetic reasoning does not eliminate the complexity or subjectivity of different interpretations of one’s needs. Needs are still subjectively defined. Nevertheless, the data showed that there was a mutually reinforcing effect that an empathetic demeanor had on moving towards a decision that accounted for multiple perspectives.

Discussion

Our findings advanced understanding of shared decision-making education by illuminating the processual aspects of invoking empathy. The article builds on previous research on outcomes and descriptions in relation to SDM [1,3,17,18]. The reported HPE training interventions on SDM, and other concepts that seek to advance mutual understanding of patient and different interprofessional perspectives in the literature report mainly on quantitative outcomes or self-reported outcomes, with lack of guidance on how the learning process takes place [1,3,17,18]. We delineated the process by which HCP/Ts learn reciprocal adaptation through the use of an RPG to practice empathy-based concepts required for deep and genuine engagement, beyond tokenistic engagement, with SDM. The process of entering others' frames of reference is not only a cognitive process, but also communicative, cultural, and emotive [16]. We found that the learning process of HCP/Ts takes participants in an educational intervention through a continuum of three phases, which formed the three themes of this study.

An early, but distinctive point on this continuum is individualism, in which the HCP/Ts are espousing views that reflect a focus on their specific and unique position. As a second stage on the continuum, and theme of the study, exposure to others' values and perspectives, where there is a context of mutual will to understand others, was evident in documented reflection back of others' espoused perspectives, elaboration of reasons for one's own perspective, and the search for common ground – in other words, empathy for others' perspectives.

Empathetic reasoning was displayed in the data, as the most sophisticated collaborative point on a continuum spanning a relatively self-oriented focus to genuine dialogue – the high bar we are proposing for shared decision-making [28]. At the stage of empathetic reasoning, HCP/Ts demonstrated a deeper understanding of other stakeholders' positions on decisions being made as well as the ability to empathize with them. As a further original contribution to understanding the processes and practices of decision-making – in the direction of shared decision-making – participants apparently earned the legitimacy, having gone through the empathy stage, to try and persuade other stakeholders to accommodate to their position.

What is significant about the three themes illuminated in this article, and forming a three-part continuum, is not merely the point that people progress from being self-focused to other-focused in joint decision-making. It is that the data showed three distinctive and cohesive patterns of behavior that were thus able to be categorized as three distinct themes. This followed from a thematic analysis that was conducted systematically across the purposively and maximally-varied sample of participants as well as four game sessions with varied levels of medical case severity to optimize variation, and in which deviant cases were sought and not found to contravene this three-way mode [28]. In addition, and although participants came from the researchers' network, this did not seem to influence the results since the study was not evaluative, therefore, providing no incentive for the participants to lean in any particular direction of the results.

The adoption of roles in this study showed its empirical value in emphasizing the dynamics of collaborative activity. Health professional educators ought to make greater use of role-playing games. Previous research had shown how reliably and consistently participants can uphold roles in role-playing educational activities [28]. Our findings suggest that it is important in health professions education to have structured activities of taking into account the roles of the different stakeholders of a clinical encounter, patients and caregivers, and design it in a way that allows the participants to dialogue around the clinical encounter.

Conclusion

This paper shed light on the process by which HCP/Ts learn empathy-based concepts. It highlighted the importance of having activities that allow the HCP/Ts to enter the frame of reference of different stakeholders in a clinical encounter, as well as dialogue to reach joint medical decisions. The three stages of SDM discerned in this study can be used to evaluate learner performance in education concerning SDM. These findings can apply across a range of clinical contexts, not merely the setting of the present study, and could be especially valuable where there are marginalized, vulnerable or disadvantaged patients, of whom children are an example. We herein also advocate for more use of RPG as an approach that facilitates the learning process of reciprocal adaptation, practicing and role-modeling empathy-based concepts such as SDM. Future research should focus on designing more structured activities for health professional education as well as a follow up through longer time frame to better understanding the effectiveness of educational interventions such as those employed in the present study.

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CHAPTER 7: DISCUSSION

Introduction

Through its three studies, this thesis presented novel work that sheds light on the processes by which HCP/Ts experience embodiment through role engagement. This is how participants can learn empathy-based skills related to SDM. Educational researchers have followed the increasing emphasis on patient engagement in medical decision-making, and the greater account given to patient and care-givers priorities [1–8]. This has included tracking the increasing imperative to regard factors, knowledge or skills required for SDM, such as communication skills, and even empathy, to be treated as competencies, and to be explicitly taught and assessed [1,4–9]. Much of this research has taken the form of commentary articles about particular local experiments in teaching SDM or communication skills, for example, or outcomes studies of the effectiveness of this training, or interview studies on views about teaching SDM [4,25–29,31–33,36,37].

Such accounts of training interventions and suggestions for educational approaches of SDM in HPE are important, laying a foundation for understanding SDM and priorities that have underpinned its increasing presence in medical education. However, the research literature has lacked studies which provide insight into the processes by which students engage in simulated activities in efforts to advance the empathy and communication skills believed to be needed for genuine and effective SDM. Only providing a description along with the lack of concepts as the basis for these accounts hinders their transferability to other settings other than the local description. Only by understanding the stages or factors by which students do or do not adopt roles that impel one to empathize with another person (be it a patient or an interprofessional colleague) can educators discern lessons about how to teach and assess SDM.

Accordingly, this thesis had three objectives, which were to: 1) explore the current methods and approaches to teaching HCP/Ts, including RPG (study 1); 2) identify the processes by which HCP/Ts engage in their roles specifically in role play-based serious games designed for HPE (study 2); and 3) identify factors involved in shaping the way HCP/Ts engage in collective problem-solving through RPGs (study 3). Study 1 showed that there is heterogeneity in the approaches taken to educate and assess HCP/Ts on SDM. It also showed that one approach that holds potential for teaching SDM in medical education is RPG. However, there is no clear understanding of the processes in which participants succeed or fail to become engaged in role-playing. Study 2 showed that engaging in roles during an RPG involves four factors, which are role commitment; simultaneous evocation of front and back stages; reflexivity; and visceral lingering. Study 3 showed that learning of SDM can be conceptualized in a continuum of three distinct parts which are individualism, empathy, and empathetic reasoning.

How have researchers understood education for empathy and effective communication?

The findings from study 1's review showed that role-playing games are generally well-perceived by HCP/Ts who take part in training interventions that feature RPGs. In addition, the findings showed that RPGs present a promising approach to teaching communication skills in the healthcare field, seen to be foundational to SDM.

Through conducting this scoping review, 12 possible approaches were identified that were used in teaching SDM in medical education. These approaches were: literature, didactics, simulations, RPGs, video tutorial, in-person feedback, case studies, pre-/post-assessment, online forums, online modules, and decision boxes. The findings from this scoping review showed that there is a high heterogeneity in the approaches taken to teach SDM in medical education, as well as heterogeneity in the outcomes of interest and the approaches taken for the assessment. These findings are in line with previous studies that were conducted that focused either on quantitative findings or on medical and biomedical journals only [36,37]. Our findings have also shown that RPGs were, in fact, well-perceived by the participating HCP/Ts, attesting to their potential as an approach to teach SDM.

Findings from study 1 show that skill-oriented teaching interventions, such as RPGs, have been used in medical education without a broad understanding of whether or not, or how, the participating HCP/Ts are engaging with their roles and the roles of others, and hence actually learning the targeted skills. Knowledge of the underlying processes of role engagement is an important foundation for the curriculum design and assessment of empathy-based skills or activities, such as SDM. In addition, findings from the first study came to show that, thus far, the focus of the provided training interventions on SDM has been on the theoretical understanding of the meaning of SDM, as well as a number of associated tasks to be done, such as eliciting information, values and priorities from the patients. While these are important features of SDM, a component that is missing in education and assessment of SDM is the association with empathy as a skill, and how RPGs could play a role in teaching skills that invoke empathy. This begged for a deeper investigation and understanding of the processes by which the participants of an RPG are able to take on roles and potentially engage authentically with the RPG experience. The subsequent qualitative inquiry, featuring studies 2 and 3, and using an RPG, shed light on these processes and thus provided empirical qualitative evidence that supports RPGs as an appropriate approach to teaching communication skills relating to SDM to HCP/Ts, as is being advocated in the literature [4].

How do participants engage with roles?

The findings from the first RPG study (study 2) showed that embodiment of the participating HCP/Ts in their assigned roles was contingent upon four processes: role commitment, simultaneous evocation of front and back stages, reflexivity, and visceral lingering. Role commitment involves either an intrinsic and an extrinsic motivation, meaning that the participants' willingness and commitment to take on the role is a factor in role engagement. Attending to participant understandings of their engagement with the assigned role allowed insight into what processes are involved bringing together the participants' minds and bodies in the shared experience of the activity.

Simultaneous evocation of the front and back stages was one of the indicators of role engagement that was found in this study. In this process, the participants exhibit the features of the role to the public (front stage) while reflecting on their role (back stage) at the same time and with influence on the other level. This finding, in fact, adds to our understanding of how the concept of dramaturgy has been used in relation to simulated activity in medical education, which had previously emphasized a distinction between thoughts (back stage) and public action (front stage) in a linear fashion, rather than as simultaneous and multi-directional influence, as indicated by its conceptual roots in Sociology [117]. Despite the importance of the backstage of cognition in guiding behavior (which in turn guides cognition), people only have access to behavior as it is publicly performed, and people align their behavior in relation to the perceived expectations of others around them in shared activity [116,117,196].

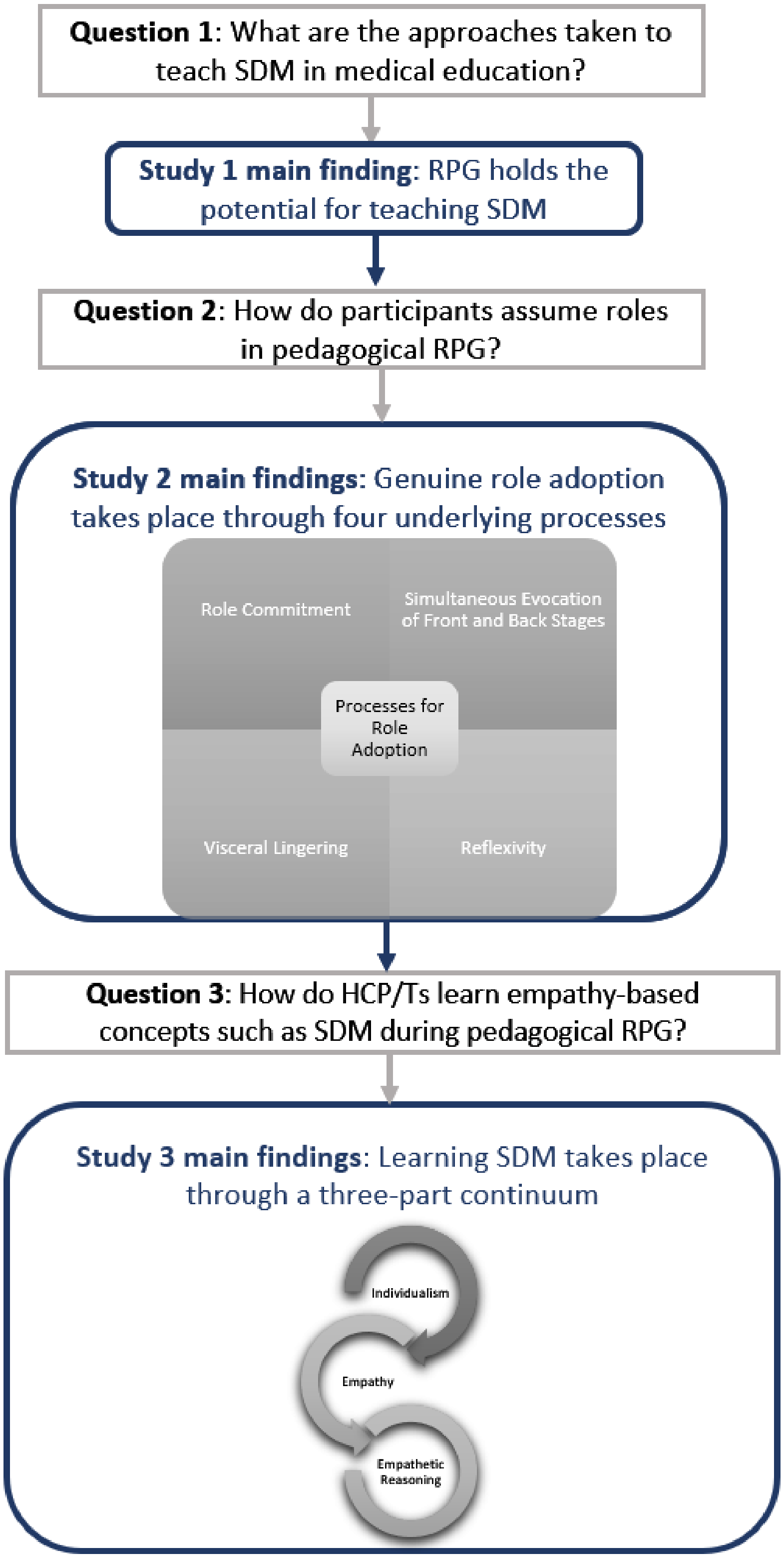
The display of reflexivity is another factor in the processes underlying role adoption. In this process, the participants showed reflection on, and orientation to action based on, their own social and professional backgrounds, as well as personal beliefs, and the roles that they were assigned during the RPG. Reflexivity brought to bear a degree of "heaviness" in the experience and emotions involved in the RPG session. Finally, role adoption was a function of visceral lingering. That is a lasting emotional experience beyond the time frame of the RPG experience. This was found to be a by-product of the immersive experience and the emotional load that the participants were exposed to during the RPG experience. The literature on role-playing in HPE provides recommendations and guidelines to follow in designing and conducting RPGs, such as prior preparation for the role, creating characters and enacting them, debriefing and receiving feedback on the experience [38,197,198]. To the best of our knowledge, however, no empirical studies have been conducted to break down the processes of role engagement as a guide to understanding or assessment of RPG participation and learning empathy. For example, a recent review including studies that report on training interventions for teaching communication skills showed that engaging in role-playing leads to increased reflections of the participating HCP/Ts on clinical scenarios, however, with no clear indication of the processes for achieving the increased reflection through role-playing [175].

How might we conceptualize the learning of shared decision-making through role-playing games?

Quantitative studies reporting on training interventions that include RPGs and that focus on teaching communication skills have shown that in certain interventions there is an increase in empathy [199–203]. The results varied depending on the training intervention with no clearly reported factors that affect learning empathy-based concepts through RPGs. In contrast, the findings from the final study (study 3) showed how RPG participants can exhibit reciprocal adaptation and the ability to engage in joint decision-making through a three-part continuum: individualism, empathy, and empathetic reasoning. These components are generally progressive. First, individualism, early in an RPG, participants sees participants' tendency to hold fixed positions on the treatment decision as they try to "find their feet" in the joint discussion, and which involves basing their decisions on their own perspectives of what is the "best" option. As participants exchange ideas about their treatment decisions and priorities, they become more likely to display empathy, whereby they acknowledge others' intentions, perspectives, and beliefs. Participants also increasingly articulate a shared goal that they are working towards. Finally, the participants evince empathetic reasoning, evincing a deeper understanding of others' values, concerns, and priorities. Although at this stage, the participants are still interpreting the information based on their own roles, they also display both “subjective” reasoning which is based on feelings and values and “objective” reasoning that is based on external evidence, such as clinical readings or results.

A central feature of empathetic reasoning is the implied belief on the part of participants that they have earned the legitimacy to persuade others to adopt a different perspective from the one they might originally have held in the absence of reasoned discussion of different viewpoints.

The new knowledge delivered by this thesis is conveyed in figure 2 below.



Question 1: What are the approaches taken to teach SDM in medical education?

Study 1 main finding: RPG holds the potential for teaching SDM

Question 2: How do participants assume roles in pedagogical RPG?

Study 2 main findings: Genuine role adoption takes place through four underlying processes

Question 3: How do HCP/Ts learn empathy-based concepts such as SDM during pedagogical RPG?

Study 3 main findings: Learning SDM takes place through a three-part continuum

Figure 2. Overview of the contribution to knowledge from the three studies.

A dramaturgical perspective on role-playing game processes

Taking the findings from all three studies together, an RPG as an approach to teach empathy-based concepts such as SDM is promising. The findings reported in this thesis are the first, to my knowledge, to shed the light from a qualitative empirical research approach on the processes involved in role engagement in pedagogical RPG for HPE. The research was informed by concepts from Goffman's theory of dramaturgy. Dramaturgy places the emphasis on responses that people give to communication cues in shared interactive situations, to advance their shared activity. The emphasis is less on cognition as a discrete entity that precedes human action. The emphasis is on human interaction itself as a combination of cognition and publicly observable behavior, on the way human beings influence each other, and on how a person (actor) is perceived by another in social interaction. The actor is seeking to align their communication to the expectations of the other, with the aim that the other perceives them as the actor would want to be perceived [117,196].

As a contribution to the way the concept of dramaturgy is engaged in research on simulation for medical education, study 2 showed that the front and back stages revealed, through exposure of interactive processes, the mutual interaction of front and back stages necessary for role participants to adjust their presentation of selves and views to others in mutual discussion. Such an engagement with dramaturgy responds to a purely metaphorical use of the ideas of front and back stage, which separates them, implying that the back stage (thought and beliefs) had to causally precede the front stage (public actions), as opposed to dynamic adjustment of one's public presentation to others in live interaction. In this way, the thesis has contributed to deepening the understanding of the processes involved in role engagement.

The contribution of study 3 was to elicit particular stages towards which participants of RPGs can learn empathy-based concepts, such as SDM. Its three-part continuum was witnessed to have commenced with participants taking a fixed position on the treatment decision to be made, based relatively exclusively on their own perception of the patient's good (individualism). An advance on this stage is to progress to the evocation of empathy, with demonstrable evidence of listening, sharing, and eliciting of emotions, values, and priorities. Even further development towards shared decision-making is the stage of empathetic reasoning, in which HCP/Ts demonstrate a deeper understanding of other's perspectives, at which point, interactively, they have earned a legitimacy to try to convince others with a different perspective or initial decision.

The literature has shown a lack of theoretical underpinning when it comes to training interventions designed for teaching communication skills such as RPG [115]. The findings from this thesis have found grounding in the idea of narrative dramaturgy, and the findings from the studies have contributed theoretically to furthering understanding of role engagement for learning empathy-based skills, including SDM in the form of reciprocal adaptation. Taking the findings together, a theoretical model for teaching SDM using an RPG approach – or simulation, to put it more broadly – in HPE, can be proposed (see figure 3). The theoretical model outlines processes of role adoption, increasingly evident through stages of learning SDM and empathy for patients and colleagues in general.

This theoretical model comes from the findings of qualitative inquiry that sought to gain a deeper understanding of the processes of role engagement and learning empathy-based concepts such as SDM through qualitative data of the perspectives and interactions of HCP/Ts. The findings from the studies serve to provide a language by which simulation-based training interventions, and more specifically those that aim to teach empathy-based concepts such as SDM, have a framework of factors and stages against which teaching and assessment can be benchmarked (see figure 3). In this framework, there are certain themes that need to be achieved, observed and assessed to deem the training intervention to be effective and to deem that the HCP/Ts participating in it have indeed engaged with their roles and have demonstrated empathy-based concepts and skills (see figure 3).

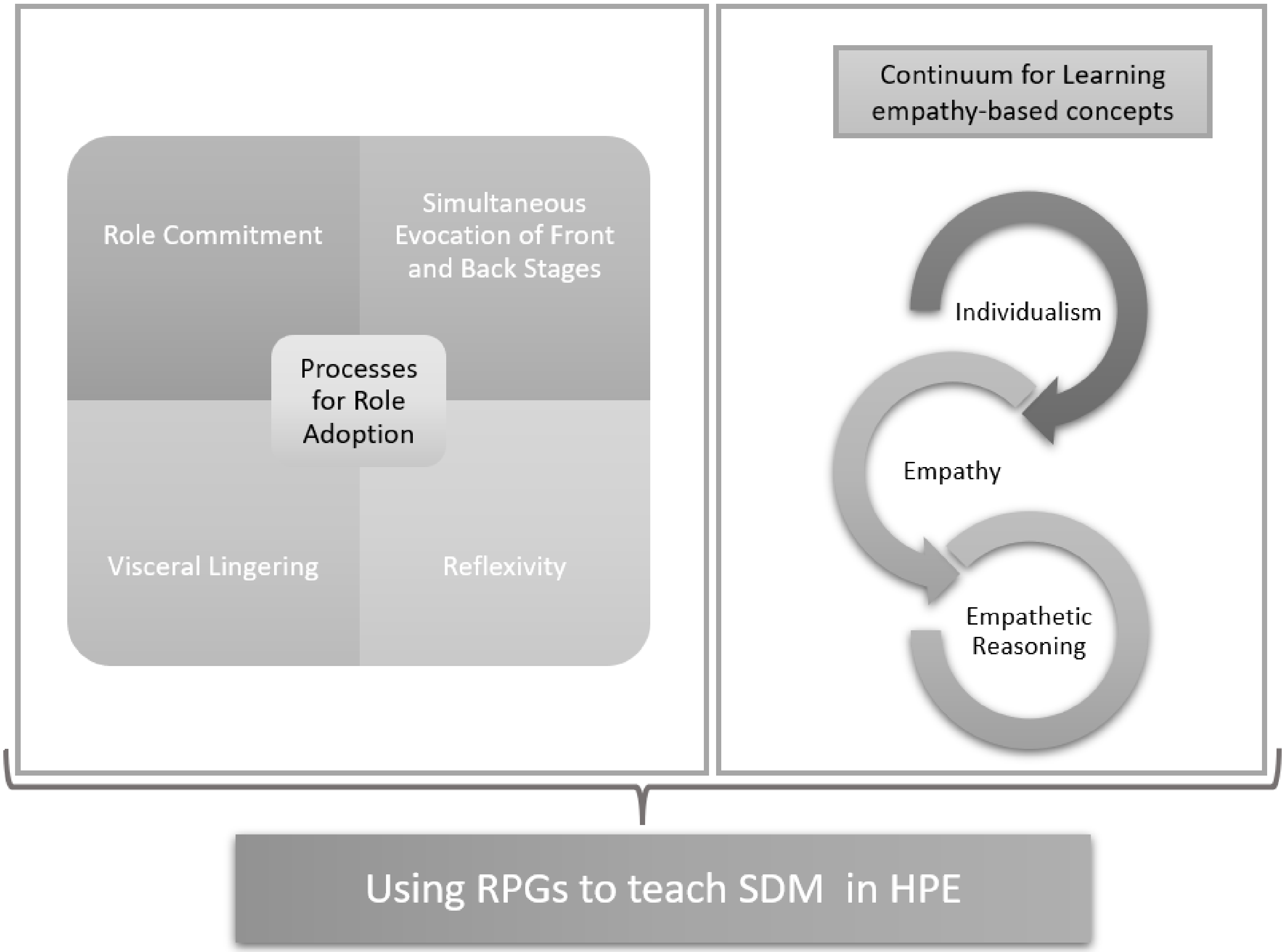


Figure 3. A suggested framework for teaching SDM through a pedagogical RPG

Limitations

One limitation of this thesis is that recruitment for the RPG sessions was carried out using convenience sampling. This possible weakness was offset by a commitment to recruit diverse participants, in terms of HPE background, gender and years of practice. In the four sessions, a total of 19 participants (15 of whom were females, reflecting healthcare workforce patterns), including seven general practitioners, four pharmacists, two medical residents, one undergraduate medical student, one pediatrician, one pediatrics nurse, one occupational therapist, one kinesiologist, and one family doctor. As such, the participants were representing their professional roles, rather than personal interests, roles which are standard and familiar in healthcare settings worldwide. This diversity, understood in terms of shared roles, helps make the observations and conclusions more transferable to other settings.

Another limitation to this thesis is that all the RPG sessions were online, limiting the interaction between the participants. For qualitative inquiry, interactions and body language are important to be observed and included in analysis. To lessen the impact of this limitation, significant time and effort was spent adapting the RPG experience to an online setting. This involved ensuring maximum time for interactions and optimizing the use of a virtual communication platform for the purposes of the study. The participants' feedback on the experience was incorporated in an iterative process until we arrived at the final version of the RPG experience that was used for the data collection. Post-RPG unstructured focus groups contextualized the RPGs with participant perspectives. This captured participants' reflections and decisions during and post the experience in order to better understand how they learn empathy throughout the entirety of an RPG experience.

The work reported in this thesis serves as a stepping stone to future work in the field of HPE research. Further exploration and understanding of how principles of equity, diversity, and inclusion (EDI) are to be considered and implemented in the design, conduct, analysis, and reporting of pedagogical RPGs in HPE is crucial. The reason for the need of an understanding of the principles of EDI in RPGs in HPE is that shared norms are automatically biased towards people who are already from dominant groups and whose beliefs and behaviours define what is considered “normal” [204]. In addition, learning empathy-based concepts such as SDM has been shown to vary according to factors such as age and gender [125,137,140–142]. It has been reported in the literature that empathy is affected by the aforementioned factors among others. However, what is missing is an understanding of how to factor this into curricula of HPE. This is an important avenue of future research, in terms of the relationship between curriculum theory and educational practice.

Another direction that is yet to be explored is the effectiveness of RPG by time. As shown by the work reported in this thesis, RPGs can be valuable activities to promote empathetic engagement with others. Nonetheless, randomized controlled trial study designs could be used in order to investigate and assess outcomes, in terms of applying the concepts to clinical practice. Another question to be answered is the timeline after which the HCP/Ts adopt the learned SDM skills "organically" in their practice, or if there is a need for "refresher" RPG sessions after a certain period. Therefore, there is knowledge to be gained from researching the design, adaptation, and implementation of RPGs in medical education, and more specifically for empathy-based concepts such as SDM.

Conclusion

This thesis this has shown how collective meaning in a clinical decision is not merely derived from individual cognition, but that it is defined by the responses of participants to the expression of others' opinions in the experience of attempting to undertake shared decision-making. Thus, simulated medical education activities, such as RPGs involve a dynamic interaction of the front stage of performance and the backstage of thought, as they adjust and align meanings in search for shared interpretations.

The thesis contributed to understanding education for empathy through role-playing in medical education by framing it as reciprocal adaptation. This was inspired by study 1's demonstration that previous literature had paid insufficient attention of role-engagement processes. Study 2 showed the factors of role engagement to include: role commitment; simultaneous evocation of front and back stages; reflexivity; and visceral lingering. The findings from study 3 of this thesis, in particular, came to show that learning empathy-based concepts through practicing reciprocal adaptation within the context of a pedagogical RPG happens through a continuum that has distinctive three parts that happen in a processual fashion: through individualism, empathy, and then empathetic reasoning. A major implication of these findings is that empathetic reasoning is a possible indicator of learning empathy that deserves to be a major goal in medical education.

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APPENDIX

Appendix 1. Detailed guide to participation in Anthony's World

Participant

4-6 participants are to be present per RPG session. The participants are to take on one of the following roles: a child, a parent, or a clinician. A game master is present in all sessions and is a member of the research team.

RPG pieces

This RPG includes 7 patient character cards, 4 parent character cards, 4 clinician character cards, cancer scenarios, players note pads in fillable PDF format, and post-game survey in fillable PDF format.

Character Cards

Character cards are cards that assign roles to participants. This role can be a young patient, a parent or a clinician. Once a participant is given a character card, they participate in the RPG assuming the character described in that character card. Each character card has information on the name of the character, the role &/or occupation, the age, a brief description of the character's lifestyle, personality and goals in life (the last part is for the young patient's character cards). This information is provided to help participants assume their roles and make decisions during the RPG as these characters. An assumption made here is that taking on another character or identity decreases the level of discomfort discussing certain points or making decisions regarding the treatment options.

Clinician character cards. Anthony's World contains four possible clinician character cards: a medical geneticist, an oncologist, a pediatrician, and a nurse, who vary by sex and age. The time dedicated for clinical work versus research also varies. Finally, the extent to which clinicians rely on parents versus children's choices and priorities when making treatment recommendations and decisions varies.

Parent character cards. Anthony's World contains four possible parent character card roles (two mothers and two fathers). These character cards vary by age, occupation, as well as other characteristics such as the time it takes them to commute to the hospital, their level of worry and sadness and their comfort level around other people.

Patient character cards. Anthony's World contains seven possible child patient character cards. These pediatric patients differ in age, sex, interests and life goals and ambitions. The character cards also include indicators of HRQoL based on the EQ-5D-Y standardized measure of HRQoL [205,206]. These include the level of comfort around others, level of energy, ability to carry out usual activities, frequency feeling sad, frequency feeling worried, and the level of independence in making decisions.

Cancer Clinical Scenarios

Four clinical scenarios for neuroblastoma stages from 1 to 4 are described. The clinical scenarios are written from the child's perspective, as in the following example:

> *"I started feeling tired all the time and would complain about pain in my stomach. After a while I wasn't feeling as hungry anymore, I wasn't even in the mood for my favourite foods. We visited my doctor a few times when they noticed swelling in my belly. We were sent to the Children's Hospital to see a specialist and get some tests done. After waiting for test results, the doctor from the hospital said I have a cancer called stage-1 non-metastatic neuroblastoma (nur·ow·blas·toe·ma) — they explained to me it was a rare cancer that caused a tumour to grow in my belly."*

Treatment Options

Each treatment option contains a description of the number of medications administered, their names, side effects, estimated survival and survival rate with the treatment combination as well as the way of delivery of the drugs. There are four treatment options in addition to a fifth palliative care option that participants can choose from. All four treatment options consist of a combination of chemotherapeutics, including Cisplatin and Doxorubicin. The treatment options vary in the presence or absence of the protectants: Sodium thiosulfate and Dexrazoxane. The palliative care option also contains the estimated survival as well as the type of palliative care introduced and how it is delivered.

Pharmacogenetics Results. There are four possible pharmacogenetics results that alternate between having a combination of baseline, low, or high risk for developing Cisplatin-induced ototoxicity &/or Doxorubicin-induced cardiotoxicity.

How it works

The participants are assigned the different character cards.

Step 1: Welcome to Anthony's World, the game master is to describe the RPG experience and the goal behind Anthony's World.

Step 2: Character Introductions, is for all participants to introduce themselves and to have character cards assigned to them by the game master. The game master will read the characteristics of each given card aloud to the whole group, in order to introduce that character. The game master will also advise the participants to build their own personality within the boundaries of each given character card and allow participants to take the time to read the cards in order to better immerse themselves into the characters.

Step 3: Warm Up Exercise, this is to be done with all participants. In this exercise, the participants are asked to stay within their character persona boundaries and make-up scenarios to get them more immersed into their character persona. Participants assuming patient and parent characters are asked to collaboratively make up a scenario about a family vacation experience and explain that experience and its highlights in detail. Participants holding the clinician character cards will be asked to create a scenario where they are treating a terminally ill cancer young patient and they have to deliver to the patient and the parents the information that the treatment is not working. They are asked to highlight the most important points to communicate and explain why that is the case. Once all stories are set, the participants are asked to share their stories with each other.

Step 4: Round 1: Individual Decision-Making, wherein the game master tells the participants that the patient has a poor prognosis and gives the scenario booklets (which contain the scenarios and treatment options) to participants. The participant with the patient character reads the scenario on the first page. Other participants use the booklets to view two panels containing four treatment options and they are asked to choose between them in order of what they think is best according to their characters. They are also asked to document their choices in the player score cards. When all participants are ready, those with the patient characters are asked first to share their primary treatment plan of choice and underlying reasoning with the group. The same is then asked of participants assigned to parent character.

Step 5: Round 1: Group Discussion. In this step of the RPG, participants are asked to reach consensus on treatment rankings. During these discussions, the game master takes observation notes on the group dynamic as well as the initial and final decisions made and how the latter were reached. These discussions are to be reached naturally among participants, allowing them to ask questions. If consensus is not reached collaboratively, the participant with the patient character makes the final decision and presents their reasoning. The next step,

Step 6: Genetic Test Results Introduced. In this step, the game master introduces the results of PGx test conducted for treatment with cisplatin and doxorubicin. There are four chance cards that show either low or high risk of toxicity due to treatment with either one of these drugs. These cards are placed face down by the game master and the participant with the clinician character is asked to pick one, read it to the rest of the group and place it back on the table face up. Players check off the option on their score sheets.

Step 7: Round 2: Individual Decision-Making. In this step participants are asked to repeat step 4 taking into consideration the PGx test results.

Step 8: Round 2: Group Discussion where participants are asked to use the final panel of the scenario booklet and repeat step 5, focusing on the side effects of the treatment.

Step 9: Closing Statements. This is the final step of the RPG experience. The game master reveals the final choice to all participants, thanks them and tells them Anthony's story.

Step 10: Reflections. This is an open-ended focus group conducted right after finishing the RPG session in order to capture the participants reflections on the RPG experience.

Score sheet. In the score sheet, participants indicate their feelings within their character after the disease scenario was read and after the PGx test results were announced. They are also to note their individual ranking of treatment choices and to justify their ranking. This is carried out for both rounds of the RPG.

Following are samples from the character cards used in Anthony's World:

DAVID Age: 52 Parent

SERIOUS, DISCIPLINED, LIKABLE

I travel a lot for work because as a consultant I'm always needed somewhere in the world for my expertise. You can see me often on my cell phone or on my laptop finishing up my work after I have left the office. It is high stress and long hours to do the work I do, so I jog to help clear my mind and to keep me healthy.

I AM MOST COMFORTABLE...

in a group — on my own

SOMETIMES I FEEL WORRIED...

never — often

SOMETIMES I FEEL SAD...

never — often

HOME TO HOSPITAL...

30-minute — 2+ hours

Figure 4. Sample parent card

MELANIE Age: 12

BRAVE, COMPETITIVE, AMBITIOUS

Baseball is my life! Most of my close friends are my team mates. I love the sound of people cheering and clapping when I hit the ball right on. I practice two, maybe three times a week, and during the off season you will find me at the batting range working on my swing. I want to see how far I can take my sports career. Maybe one day I'll be a pro and can do it for a living.

I AM MOST COMFORTABLE...
in a group — on my own

SOMETIMES I FEEL SAD...
never — often

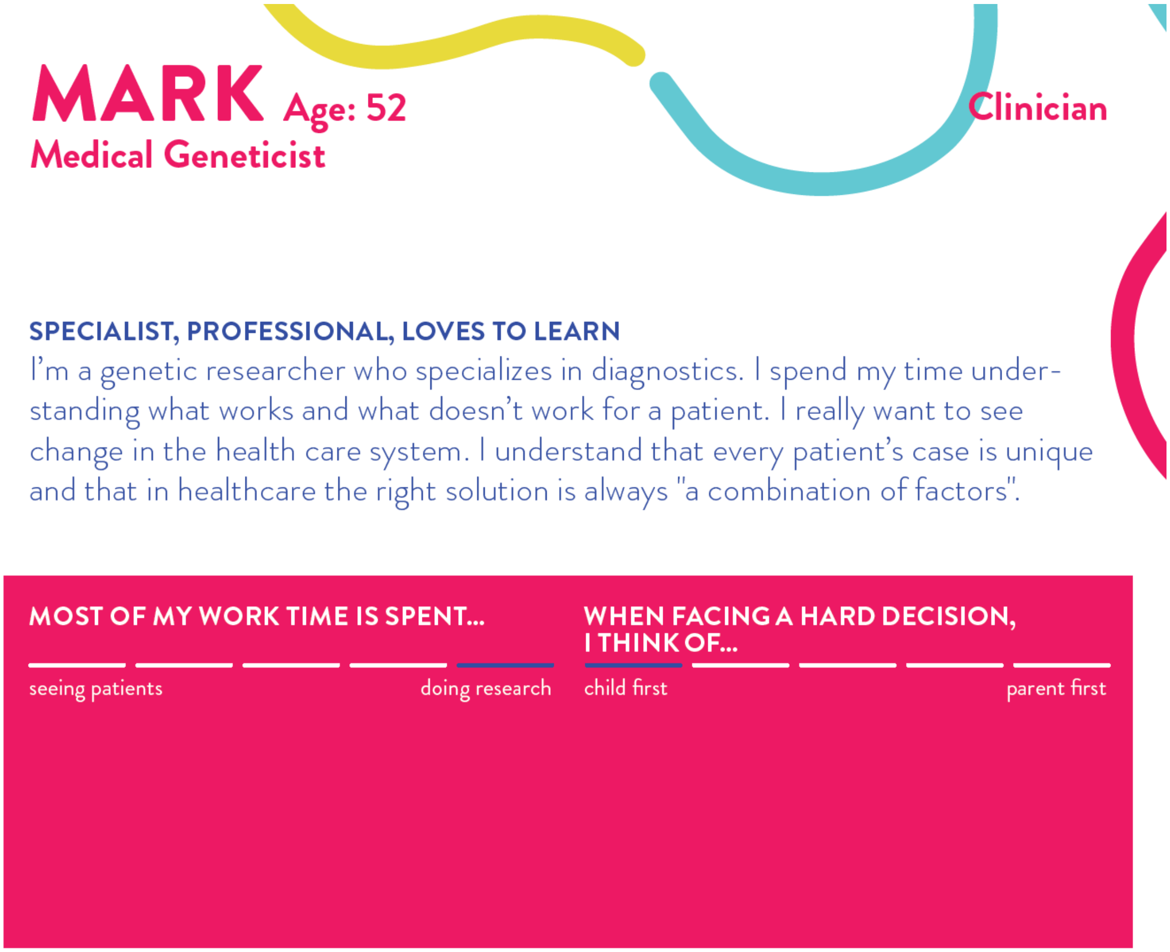
I HAVE A LOT OF ENERGY...
never — often

SOMETIMES I FEEL WORRIED...
never — often

IT'S EASY TO DO MY USUAL ACTIVITIES...
never — often

I MAKE DECISIONS BY MYSELF...
never — often

Figure 5. Sample child card



MARK Age: 52

Medical Geneticist

Clinician

SPECIALIST, PROFESSIONAL, LOVES TO LEARN

I'm a genetic researcher who specializes in diagnostics. I spend my time understanding what works and what doesn't work for a patient. I really want to see change in the health care system. I understand that every patient's case is unique and that in healthcare the right solution is always "a combination of factors".

MOST OF MY WORK TIME IS SPENT...

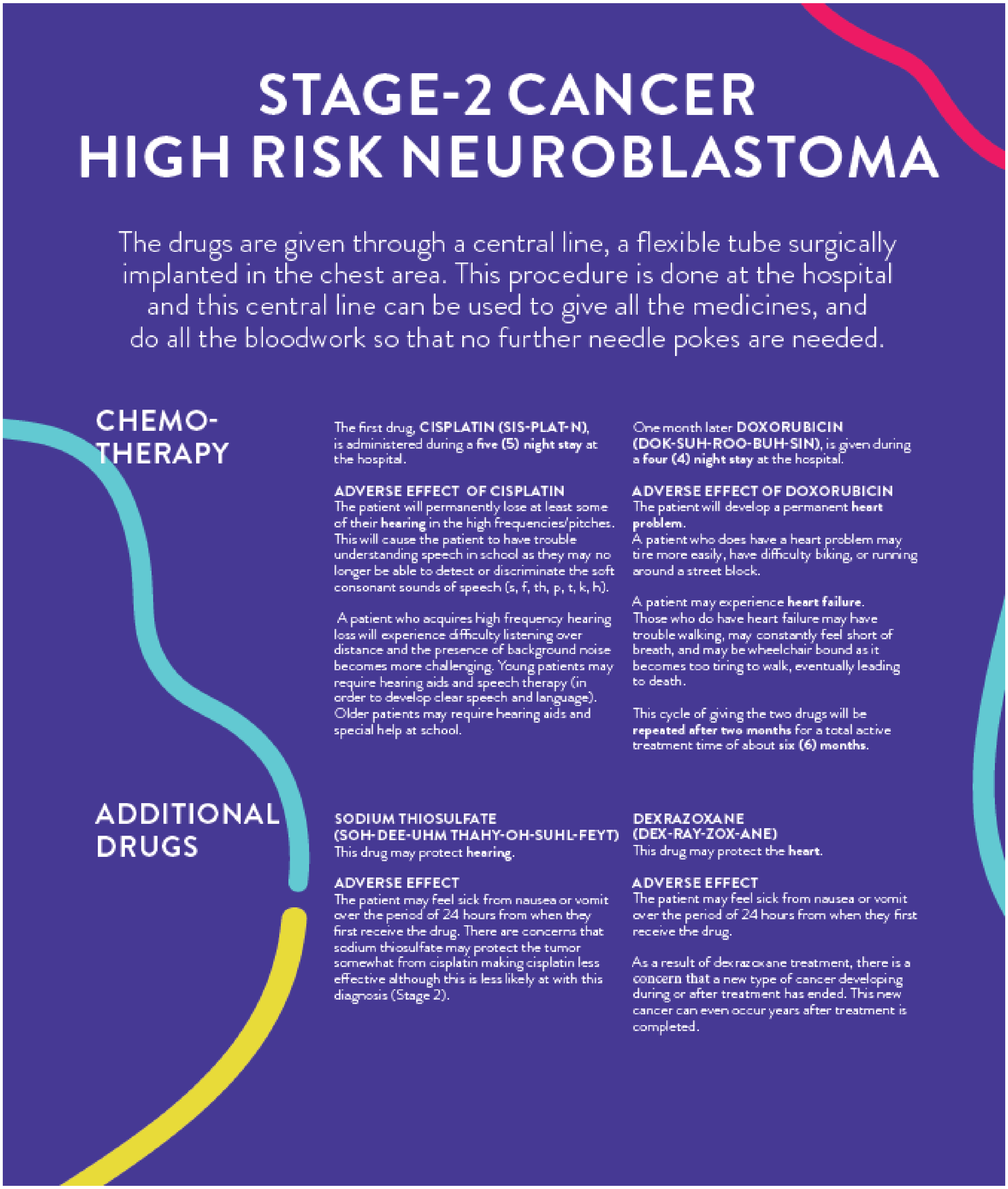
seeing patients — doing research

WHEN FACING A HARD DECISION, I THINK OF...

child first — parent first

Figure 6. Sample clinician card

Following is a sample of the treatment cards:



STAGE-2 CANCER
HIGH RISK NEUROBLASTOMA

The drugs are given through a central line, a flexible tube surgically implanted in the chest area. This procedure is done at the hospital and this central line can be used to give all the medicines, and do all the bloodwork so that no further needle pokes are needed.

CHEMOTHERAPY

The first drug, **CISPLATIN (SIS-PLAT-N)**, is administered during a **five (5) night stay** at the hospital.

ADVERSE EFFECT OF CISPLATIN
The patient will permanently lose at least some of their **hearing** in the high frequencies/pitches. This will cause the patient to have trouble understanding speech in school as they may no longer be able to detect or discriminate the soft consonant sounds of speech (s, f, th, p, t, k, h).

A patient who acquires high frequency hearing loss will experience difficulty listening over distance and the presence of background noise becomes more challenging. Young patients may require hearing aids and speech therapy (in order to develop clear speech and language). Older patients may require hearing aids and special help at school.

One month later **DOXORUBICIN (DOK-SUH-ROO-BUH-SIN)**, is given during a **four (4) night stay** at the hospital.

ADVERSE EFFECT OF DOXORUBICIN
The patient will develop a permanent **heart problem.**
A patient who does have a heart problem may tire more easily, have difficulty biking, or running around a street block.

A patient may experience **heart failure.**
Those who do have heart failure may have trouble walking, may constantly feel short of breath, and may be wheelchair bound as it becomes too tiring to walk, eventually leading to death.

This cycle of giving the two drugs will be **repeated after two months** for a total active treatment time of about **six (6) months.**

ADDITIONAL DRUGS

SODIUM THIOSULFATE (SOH-DEE-UHM THAHY-OH-SUHL-FEYT)
This drug may protect **hearing.**

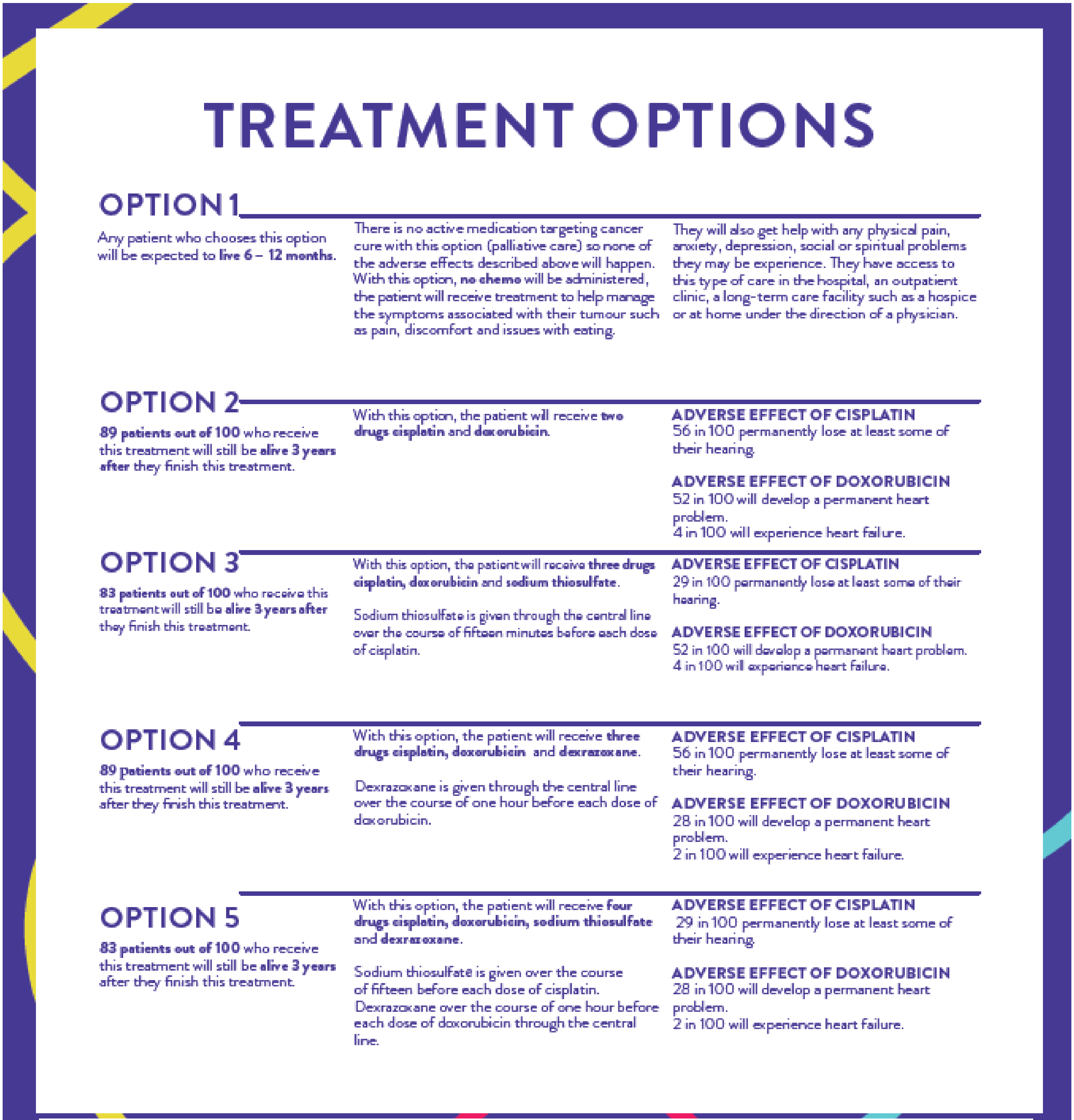
ADVERSE EFFECT
The patient may feel sick from nausea or vomit over the period of 24 hours from when they first receive the drug. There are concerns that sodium thiosulfate may protect the tumor somewhat from cisplatin making cisplatin less effective although this is less likely at with this diagnosis (Stage 2).

DEXRAZOXANE (DEX-RAY-ZOX-ANE)
This drug may protect the **heart.**

ADVERSE EFFECT
The patient may feel sick from nausea or vomit over the period of 24 hours from when they first receive the drug.

As a result of dexrazoxane treatment, there is a concern that a new type of cancer developing during or after treatment has ended. This new cancer can even occur years after treatment is completed.

Figure 7. Sample treatment card - page 1/2



TREATMENT OPTIONS

OPTION 1

Any patient who chooses this option will be expected to **live 6 – 12 months.**

There is no active medication targeting cancer cure with this option (palliative care) so none of the adverse effects described above will happen. With this option, **no chemo** will be administered, the patient will receive treatment to help manage the symptoms associated with their tumour such as pain, discomfort and issues with eating.

They will also get help with any physical pain, anxiety, depression, social or spiritual problems they may be experience. They have access to this type of care in the hospital, an outpatient clinic, a long-term care facility such as a hospice or at home under the direction of a physician.

OPTION 2

89 patients out of 100 who receive this treatment will still be **alive 3 years after** they finish this treatment.

With this option, the patient will receive **two drugs cisplatin** and **doxorubicin.**

ADVERSE EFFECT OF CISPLATIN
56 in 100 permanently lose at least some of their hearing.

ADVERSE EFFECT OF DOXORUBICIN
52 in 100 will develop a permanent heart problem.
4 in 100 will experience heart failure.

OPTION 3

83 patients out of 100 who receive this treatment will still be **alive 3 years after** they finish this treatment.

With this option, the patient will receive **three drugs cisplatin, doxorubicin** and **sodium thiosulfate**.

Sodium thiosulfate is given through the central line over the course of fifteen minutes before each dose of cisplatin.

ADVERSE EFFECT OF CISPLATIN
29 in 100 permanently lose at least some of their hearing.

ADVERSE EFFECT OF DOXORUBICIN
52 in 100 will develop a permanent heart problem.
4 in 100 will experience heart failure.

OPTION 4

89 patients out of 100 who receive this treatment will still be **alive 3 years** after they finish this treatment.

With this option, the patient will receive **three drugs cisplatin, doxorubicin** and **dexrazoxane**.

Dexrazoxane is given through the central line over the course of one hour before each dose of doxorubicin.

ADVERSE EFFECT OF CISPLATIN
56 in 100 permanently lose at least some of their hearing.

ADVERSE EFFECT OF DOXORUBICIN
28 in 100 will develop a permanent heart problem.
2 in 100 will experience heart failure.

OPTION 5

83 patients out of 100 who receive this treatment will still be **alive 3 years** after they finish this treatment.

With this option, the patient will receive **four drugs cisplatin, doxorubicin, sodium thiosulfate** and **dexrazoxane**.

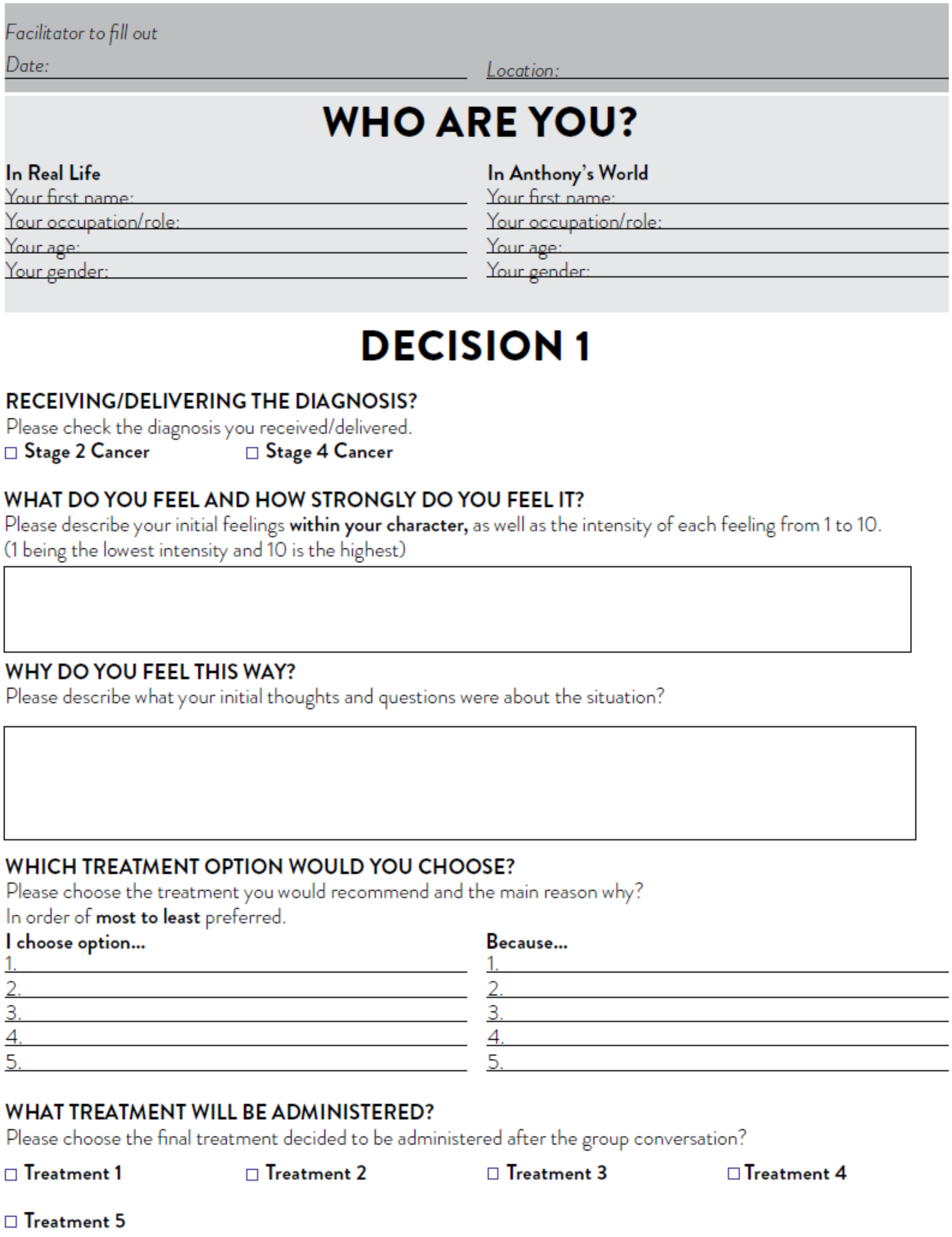
Sodium thiosulfate is given over the course of fifteen before each dose of cisplatin. Dexrazoxane over the course of one hour before each dose of doxorubicin through the central line.

ADVERSE EFFECT OF CISPLATIN
29 in 100 permanently lose at least some of their hearing.

ADVERSE EFFECT OF DOXORUBICIN
28 in 100 will develop a permanent heart problem.
2 in 100 will experience heart failure.

Figure 8. Sample treatment card - page 2/2

Following is the game notepad:



Facilitator to fill out

Date: ________ *Location:* ________

WHO ARE YOU?

In Real Life	**In Anthony's World**
Your first name:	Your first name:
Your occupation/role:	Your occupation/role:
Your age:	Your age:
Your gender:	Your gender:

DECISION 1

RECEIVING/DELIVERING THE DIAGNOSIS?

Please check the diagnosis you received/delivered.

☐ **Stage 2 Cancer** ☐ **Stage 4 Cancer**

WHAT DO YOU FEEL AND HOW STRONGLY DO YOU FEEL IT?

Please describe your initial feelings **within your character,** as well as the intensity of each feeling from 1 to 10. (1 being the lowest intensity and 10 is the highest)

WHY DO YOU FEEL THIS WAY?

Please describe what your initial thoughts and questions were about the situation?

WHICH TREATMENT OPTION WOULD YOU CHOOSE?

Please choose the treatment you would recommend and the main reason why?

In order of **most to least** preferred.

I choose option...	**Because...**
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

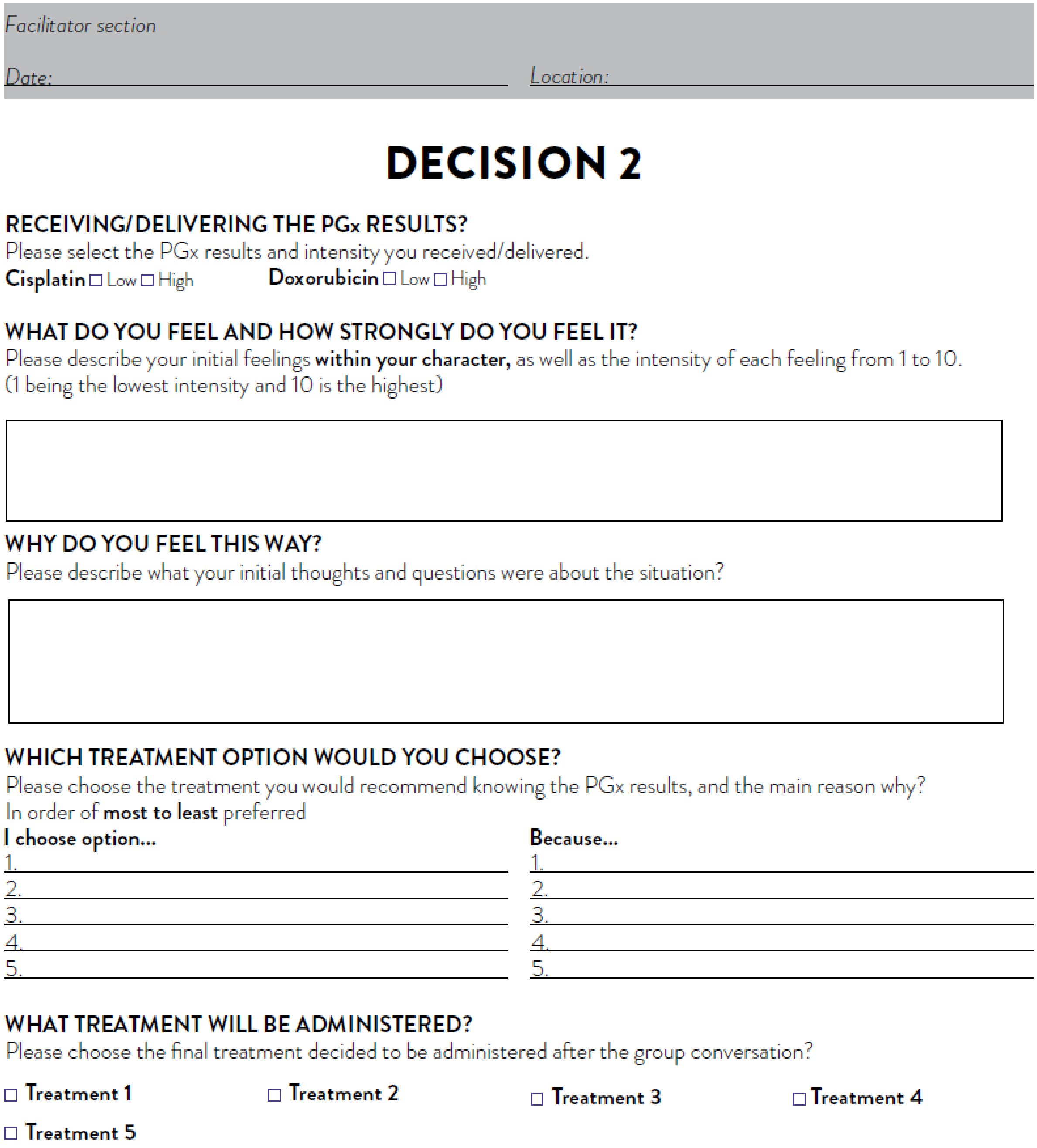
WHAT TREATMENT WILL BE ADMINISTERED?

Please choose the final treatment decided to be administered after the group conversation?

☐ **Treatment 1** ☐ **Treatment 2** ☐ **Treatment 3** ☐ **Treatment 4**

☐ **Treatment 5**

Figure 9. Game notepad - page 1/2



Facilitator section

Date: ______________________ *Location:* ______________________

DECISION 2

RECEIVING/DELIVERING THE PGx RESULTS?

Please select the PGx results and intensity you received/delivered.

Cisplatin ☐ Low ☐ High **Doxorubicin** ☐ Low ☐ High

WHAT DO YOU FEEL AND HOW STRONGLY DO YOU FEEL IT?

Please describe your initial feelings **within your character,** as well as the intensity of each feeling from 1 to 10.
(1 being the lowest intensity and 10 is the highest)

WHY DO YOU FEEL THIS WAY?

Please describe what your initial thoughts and questions were about the situation?

WHICH TREATMENT OPTION WOULD YOU CHOOSE?

Please choose the treatment you would recommend knowing the PGx results, and the main reason why?
In order of **most to least** preferred

I choose option...	**Because...**
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

WHAT TREATMENT WILL BE ADMINISTERED?

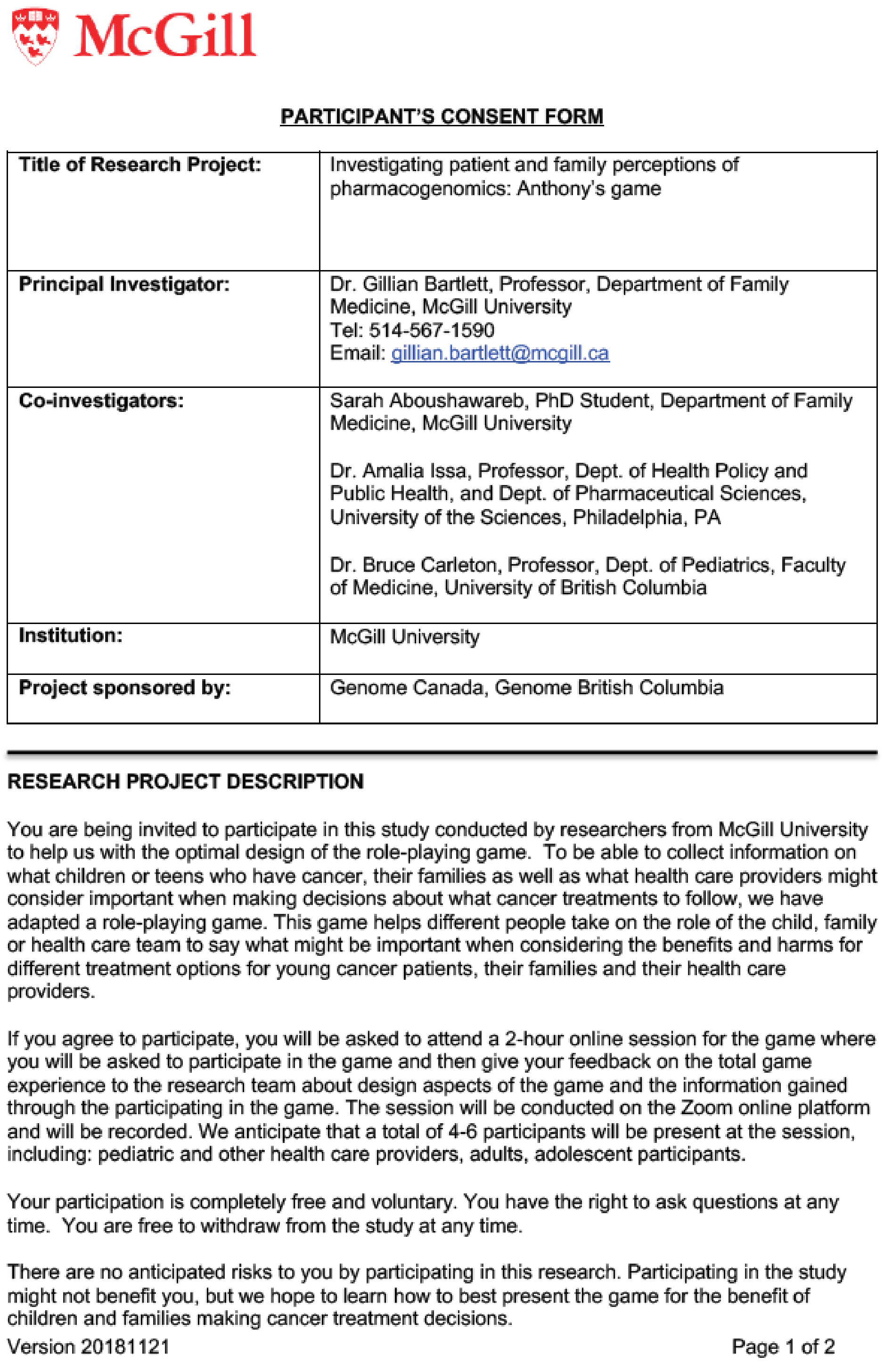
Please choose the final treatment decided to be administered after the group conversation?

☐ **Treatment 1** ☐ **Treatment 2** ☐ **Treatment 3** ☐ **Treatment 4**

☐ **Treatment 5**

Figure 10. Game notepad - page 2/2

Appendix 2. Consent form for participating in the RPG sessions



McGill

PARTICIPANT'S CONSENT FORM

Title of Research Project:	Investigating patient and family perceptions of pharmacogenomics: Anthony's game
Principal Investigator:	Dr. Gillian Bartlett, Professor, Department of Family Medicine, McGill University Tel: 514-567-1590 Email: gillian.bartlett@mcgill.ca
Co-investigators:	Sarah Aboushawareb, PhD Student, Department of Family Medicine, McGill University Dr. Amalia Issa, Professor, Dept. of Health Policy and Public Health, and Dept. of Pharmaceutical Sciences, University of the Sciences, Philadelphia, PA Dr. Bruce Carleton, Professor, Dept. of Pediatrics, Faculty of Medicine, University of British Columbia
Institution:	McGill University
Project sponsored by:	Genome Canada, Genome British Columbia

RESEARCH PROJECT DESCRIPTION

You are being invited to participate in this study conducted by researchers from McGill University to help us with the optimal design of the role-playing game. To be able to collect information on what children or teens who have cancer, their families as well as what health care providers might consider important when making decisions about what cancer treatments to follow, we have adapted a role-playing game. This game helps different people take on the role of the child, family or health care team to say what might be important when considering the benefits and harms for different treatment options for young cancer patients, their families and their health care providers.

If you agree to participate, you will be asked to attend a 2-hour online session for the game where you will be asked to participate in the game and then give your feedback on the total game experience to the research team about design aspects of the game and the information gained through the participating in the game. The session will be conducted on the Zoom online platform and will be recorded. We anticipate that a total of 4-6 participants will be present at the session, including: pediatric and other health care providers, adults, adolescent participants.

Your participation is completely free and voluntary. You have the right to ask questions at any time. You are free to withdraw from the study at any time.

There are no anticipated risks to you by participating in this research. Participating in the study might not benefit you, but we hope to learn how to best present the game for the benefit of children and families making cancer treatment decisions.

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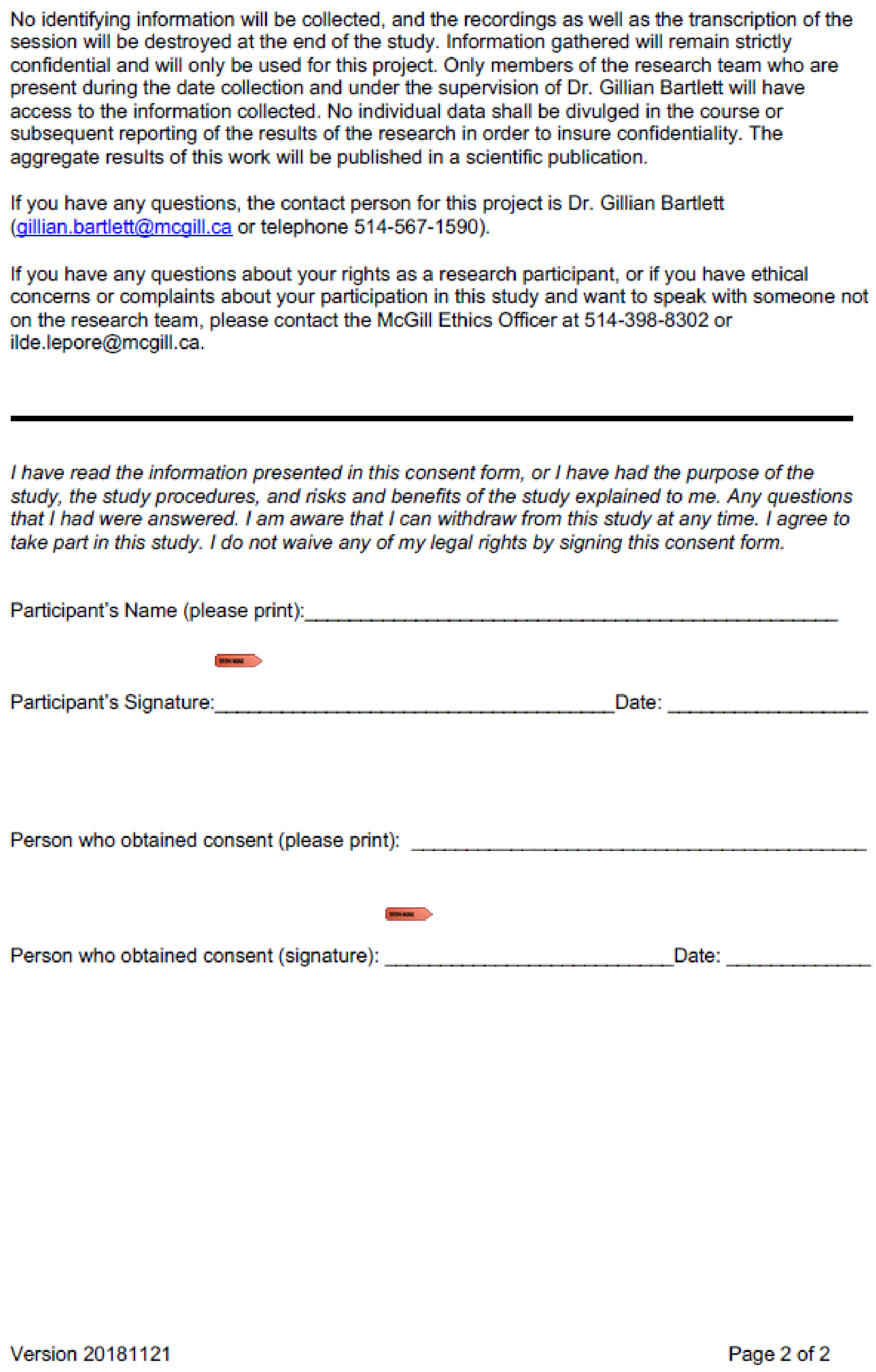
Figure 11. Consent form - page 1/2



No identifying information will be collected, and the recordings as well as the transcription of the session will be destroyed at the end of the study. Information gathered will remain strictly confidential and will only be used for this project. Only members of the research team who are present during the date collection and under the supervision of Dr. Gillian Bartlett will have access to the information collected. No individual data shall be divulged in the course or subsequent reporting of the results of the research in order to insure confidentiality. The aggregate results of this work will be published in a scientific publication.

If you have any questions, the contact person for this project is Dr. Gillian Bartlett (gillian.bartlett@mcgill.ca or telephone 514-567-1590).

If you have any questions about your rights as a research participant, or if you have ethical concerns or complaints about your participation in this study and want to speak with someone not on the research team, please contact the McGill Ethics Officer at 514-398-8302 or ilde.lepore@mcgill.ca.

I have read the information presented in this consent form, or I have had the purpose of the study, the study procedures, and risks and benefits of the study explained to me. Any questions that I had were answered. I am aware that I can withdraw from this study at any time. I agree to take part in this study. I do not waive any of my legal rights by signing this consent form.

Participant's Name (please print):____

Participant's Signature:________________________________Date: ______________

Person who obtained consent (please print): ______________________________________

Person who obtained consent (signature): _______________________Date: __________

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Figure 12. Consent form - page 2/2