A realist review of understanding how community-level oral health promotion programs for humanitarian migrants work, in which contexts, and why: initial program theories

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Abstract

Humanitarian migrants are people who are forced to move away from their habitual residence. Experiencing difficult migration trajectories leaves them in vulnerable conditions which can result in poor general health. They often experience oral health problems which can decrease their quality of life. Oral health is crucial for enabling humanitarian migrants to adapt to their new lives in their host countries. Thus, community organizations develop oral health promotion programs for humanitarian migrants in three categories of oral health education programs, dental service provision programs, and community oral health worker (COHW) programs. In order to optimize successful development and implementation of these programs, there is a need to evaluate how these programs work in practice and which factors helped or inhibited them to achieve their desired outcomes.

McGill's Migrant Oral Health Program (MOHP), led by Dr. Mary Ellen Macdonald and Dr. Belinda Nicolau, has designed a realist synthesis to understand how community-level oral health promotion programs for humanitarian migrants work, under which circumstances, and why (1). A realist review is an approach to develop causal explanation of observed outcomes in context-mechanism-outcome (CMO) configurations. CMOs explain how an outcome is caused by the mechanisms which are activated in a specific context. These CMOs form the basis for a program theory which will be evolved throughout the research.

Following Pawson's five stages for conducting realist reviews, the MOHP team led by MSc student Negin Eslamiamirabadi, clarified the scope of review and started developing an initial program theory (IPT) (1), beginning with oral health education programs. My thesis project follows, advancing the IPTs for dental service provision programs and COHWs, and

integrating all IPTs in order to set up the next step that is, sharing the IPTs with stakeholders and experts for feedback and finalizing.

This thesis explains realist review methodology and describes dimensions of initial theorizing. It illustrates how to create a set of IPTs. By identifying and reviewing 17 data sources in Google Scholar relevant to the oral health promotion programs for humanitarian migrants, this thesis presents 29 IPTs. In addition to highlighting some noteworthy aspects of contextual factors and mechanisms, I also discuss theories and assumptions which are novel and beneficial to enhance oral health promotion programs for humanitarian migrants.

This thesis contributes important work for MOHP's realist review process. The ultimate goal of our completed review is to advance a program theory for community-level oral health promotion programs for humanitarian migrants.

Résumé

Les migrants humanitaires sont des personnes contraintes de quitter leur résidence habituelle. L'expérience de trajectoires migratoires difficiles les laisse dans des conditions vulnérables qui peuvent entraîner un mauvais état de santé général. Ils éprouvent souvent des problèmes de santé bucco-dentaire qui peuvent diminuer leur qualité de vie. La santé bucco-dentaire est cruciale pour permettre aux migrants humanitaires de s'adapter à leur nouvelle vie dans leur pays d'accueil. Ainsi, les organisations communautaires développent des programmes de promotion de la santé bucco-dentaire pour les migrants humanitaires dans trois catégories de programmes d'éducation à la santé bucco-dentaire, de programmes de prestation de services dentaires et de programmes d'agents communautaires de santé bucco-dentaire (COHW). Afin d'optimiser le succès du développement et de la mise en œuvre de ces programmes, il est nécessaire d'évaluer comment ces programmes fonctionnent dans la pratique et quels facteurs les ont aidés ou empêchés d'atteindre les résultats souhaités.

Le Migrant Oral Health Program (MOHP) de McGill, dirigé par la Dre Mary Ellen Macdonald et la Dre Belinda Nicolau, a conçu une synthèse réaliste pour comprendre comment les programmes de promotion de la santé bucco-dentaire au niveau communautaire pour les migrants humanitaires fonctionnent, dans quelles circonstances et pourquoi (1). Une revue réaliste est une approche pour développer une explication causale des résultats observés dans des configurations contexte-mécanisme-résultat (CMO). Les CMO expliquent comment un résultat est causé par les mécanismes qui sont activés dans un contexte spécifique. Ces CMO forment la base d'une théorie de programme qui évoluera tout au long de la recherche.

Après les cinq étapes de Pawson pour mener des examens réalistes, l'équipe du MOHP dirigée

par l'étudiant à la maîtrise Negin Eslamiamirabadi, a clarifié la portée de l'examen et a commencé à développer une théorie initiale du programme (IPT) (1), en commençant par les programmes d'éducation à la santé bucco-dentaire. Mon projet de thèse suit, faisant progresser les IPT pour les programmes de prestation de services dentaires et les COHW, et intégrant tous les IPT afin de mettre en place la prochaine étape, à savoir le partage des IPT avec les parties prenantes et les experts pour les commentaires et la finalisation.

Cette thèse explique la méthodologie d'examen réaliste et décrit les dimensions de la théorisation initiale. Il illustre comment créer un ensemble d'IPT. En identifiant et en examinant 17 sources de données dans Google Scholar pertinentes pour les programmes de promotion de la santé bucco-dentaire pour les migrants humanitaires, cette thèse présente 29 IPTs. En plus de souligner certains aspects remarquables des facteurs et mécanismes contextuels, je discute également des théories et des hypothèses qui sont nouvelles et bénéfiques pour améliorer les programmes de promotion de la santé bucco-dentaire pour les migrants humanitaires.

Cette thèse contribue à un travail important pour le processus d'examen réaliste du MOHP. Le but ultime de notre examen terminé est de faire avancer une théorie de programme pour les programmes de promotion de la santé bucco-dentaire au niveau communautaire pour les migrants humanitaires.

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Contribution to original knowledge

This thesis provides a detailed and transparent account of the procedures followed to develop initial program theories associated with the realist review of advancing a programme theory for community-level oral health promotion programmes for humanitarian migrants. In the results, 29 ‘If-then’ statements (propositions) provide insight into how and why oral health promotion programs function by focusing on how humanitarian migrants respond to program resources within certain contexts. This thesis can help with the process of interpreting and making sense of the complexity across the entire realist review, which may be overwhelming for novice realist researchers. Future directions include consulting with stakeholders in order to finalize these initial program theories, the results of which will guide data extraction and data analysis in final steps of the review process.

Chapter 1: Introduction

Humanitarian migrants, a category which include refugees, asylum seekers, and internally displaced persons, are people who are forced to move away from their habitual residence due to reasons such as war, conflict, and violation of human rights (2, 3). Asylum seekers are people who have left their country and are requesting protection from serious human rights violations in another country, however, have not yet been legally recognized as refugees (4). The United Nations High Commissioner for Refugees (UNHCR) estimated that global forced displacement exceeded 89.3 million people at the end of 2021 (3). By 2022, this number had increased to over 100 million of which approximately 40% were below 18 years of age (3). This is a significant milestone that few would have predicted ten years ago: 1 in every 78 individuals on earth had been compelled to leave their home (5).

This thesis project has adopted the term "refugeed people" as recommended by Action Réfugiés Montréal to emphasize the humanity of the individual (6). This can signal the socio-political process that changed their position from citizens to refugeed people (6).

Experiencing difficult migration trajectories leaves humanitarian migrants in vulnerable conditions. Many experience socioeconomic problems and deficient nutrition, which can result in poor health (7). Trauma, stress, financial barriers, and unhealthy living conditions often compromise humanitarian migrants' health conditions (8, 9). After arrival in host countries, cultural and linguistic barriers, financial challenges, and legal status complicate their access to dental care (2, 8-10). These factors all may contribute to poor oral health and, consequently, poor oral health-related quality of life among humanitarian migrants. Therefore, oral health promotion is crucial and necessary for humanitarian migrants (7, 8). Thus,

community organizations develop and implement oral health promotion programs for these populations.

These programs have been categorized into three categories by Keboa et al. (7):

(i) Oral health education programs

(ii) Dental service provision programs

(iii) Community oral health worker (COHW) programs.

Desired outcomes of oral health education programs are to improve the oral health knowledge of humanitarian migrants to be able to practice oral health self-care and to guide them to seek dental services (2, 7). Dental service provision programs provide humanitarian migrants with basic dental services, such as restorations and extractions. Volunteer dentists, dental students, and non-governmental organizations (NGOs) are involved in dental service provision programs (11-13). Community oral health worker (COHW) programs are designed where the available dental workforce might be inadequate (2, 7). COHWs are individuals from refugeed populations who are trained in oral health care education and basic dental services to be able to manage oral health services among their own community (7, 12). Training oral health workers from the same community in oral health promotion programs increases the acceptability of the interventions (2), as they share the same language and cultural background (14).

The way that humanitarian migrants process and respond to the oral health promotion program's resources will determine whether these programs improve their oral health (2, 15). The contextual factors surrounding these programs, such as the characteristics of participants

and staff, their connections with one another, the infrastructure of systems, and how a program is executed (i.e., mandatory versus optional), influence how recipients respond to program resources (2, 15-17). Therefore, the same program may lead to different outcomes in different contexts. So, implementing a program that can effectively improve humanitarian migrants' oral health conditions requires a deep understanding of how contextual factors impact humanitarian migrants' reasoning in response to the program, leading to the outcomes. With this knowledge, community actions may be able to modify the milieu and social surrounding to improve health (18, 19). Therefore, McGill's Migrant Oral Health Program (MOHP), led by Dr. Mary Ellen Macdonald and Dr. Belinda Nicolau, has designed and launched a knowledge synthesis to understand how community-level oral health promotion programs for humanitarian migrants work, under which circumstances, and why.

MOHP's project uses a realist review methodology. Realist review is a theory-driven program evaluation methodology used in evidence-based policy (16). Realist review is an approach to develop causal explanation of observed outcomes in context-mechanism-outcome (CMO) configurations (20). CMOs explain how an outcome is caused by the mechanisms which are activated in the specific context (21). These CMOs form the basis for a program theory which will be evolved through the research (22, 23).

MOHP's realist review is titled, "Understanding how community-level oral health promotion programs for humanitarian migrants work, in which contexts, and why." (1) The outcomes of the entire realist review research will contribute to the development of community-level oral health promotion programs that will maximize their effectiveness for humanitarian migrants. In order to get the optimum results, interventions would need to be modified in accordance

with their specific contexts (2). The realist philosophy recognizes that all social programs are context dependent (2); as a result, the theory that emerges from a realist review will help program designers, implementers, and managers modify programs in accordance with the contexts in which they are situated, increasing the likelihood of achieving optimal results (2).

The protocol for this review has been published (1). The realist review process is non-linear and iterative; hence the protocol will evolve as the review progresses (2, 16). A flexible research design is necessary for a realist review, and researchers should be prepared to deal with any difficulties or unknowns that may arise while doing the review (2, 24). Realist researchers can feel overwhelmed by the task of explaining and making sense of heterogeneity and complexity throughout the review (2, 24). One method to overcome the problem is to narrow the study's scope by creating an initial program theory (IPT) (2, 24-26). IPTs is a tool for mapping potential context components and underlying mechanisms. IPT are causal explanations for how the various parts of the program under review operate. (25, 27, 28).

MOHP team member, Negin Eslamiamirabadi, who completed a Master's in Dental Sciences under the supervision of Dr. Macdonald, in the Faculty of Dental Medicine and Oral Health Sciences at McGill University, developed some IPTs for oral health education programs. My thesis project begins where Eslamiamirabadi finished, developing initial program theories for dental service provision programs and community oral health worker (COHW) programs, which are two other categories of interventions in Keboa et al's list. Further, my task was to work with Eslamiamirabadi to modify her initial assumptions into if-then statements, as well as to integrate all the initial theories for all three categories to prepare a document for the stakeholder consultation, which is the next step in our project.

This thesis includes the following chapters. The literature review chapter involves introducing the main concepts used in this thesis, according to the current literature on oral health promotion programs for humanitarian migrants. The methodology chapter introduces the realist review methodology and terminology. It also describes the dimensions of initial theorizing and strategies to develop a set of IPTs. Finally, the method for developing the IPTs in this thesis will be explained. Then, the results chapter presents the IPTs across three categories of oral health education programs, dental service provision programs, and community oral health worker (COHW) programs. Finally, in the discussion chapter, I present reflections on the process of developing IPTs, including limitations, and a discussion of the areas I believe are the most innovative and useful for improving oral health promotion programs for humanitarian migrants. A final chapter summarizes and concludes this thesis with an outline of the future directions.

Chapter 2: Literature Review

This chapter introduces and defines the concept of humanitarian migrants, which include refugeed people, asylum seekers, and internally displaced persons. Then, oral health will be defined and the oral health for humanitarian migrants will be discussed according to the literature. Finally, the problem and the aim of this study will be stated.

2.1 Humanitarian migrants

Migrants as an umbrella term is not defined in international law. It is a lay term applied to people who move away from their habitual residence for any reason. International migrants are migrants who move to and live in another country, while those who move within their own country are called internal migrants (29).

The term humanitarian migrant refers to both internal and international migrants who are forcibly displaced from their own place of residence. Humanitarian migrant populations include refugeed people, asylum seekers, and internally displaced persons (4).

Who is a refugeed person?

A refugeed person is a person who has moved away from their original country to another country as they are at risk of serious human rights violations due to war, conflict, climate change, or ethnic, tribal, and/or religious violence (2, 30). The United Nations High Commissioner for Refugees (UNHCR) estimates that global forced displacement has exceeded 89.3 million people at the end of 2021 and 27.1 million of them are refugeed people (3).

Who is an asylum seeker?

An asylum seeker (asylum claimant is the term used in Canada) is a person who has left their country and is requesting protection from serious human rights violations in another country, however, has not yet been legally recognized as a refugeed person and is waiting to receive a response from the host countries' immigration office on their claim. Every recognized refugeed person was initially an asylum seeker (4).

Who is an internally displaced person?

Internally displaced persons are people who are displaced within their own country because of conflict and violence (2, 30).

2.2 Oral health

Oral health is an important criterion of overall health, well-being, and quality of life (31). Oral disease includes dental caries, periodontal disease, oral cancer (31). According to the estimation of oral disease prevalence by the Global Burden of Disease Study (2019), 3.5 billion people in the world are affected by oral diseases (31). So, oral diseases are highly prevalent and have a significant impact on individuals and society. Some of the consequences of oral health problems are pain, discomfort, sleepless nights, impaired eating, which results in poor nutrition, and missing school or work (32). Oral diseases can negatively affect quality of life and psychosocial wellbeing (33). However, oral health disease is preventable (31, 32). Some measures, such as community water fluoridation, oral health education to develop personal skills, smoking prevention, and reducing dietary intake of sugars, in addition to supportive environments and community actions to empower local people, can have an

important role in oral disease prevention (2, 29, 32, 34).

2.3 Oral health promotion

For many decades, oral health professionals have used preventive and educational actions evolved from a biomedical model of disease (32). In biomedical model of disease, the focus is on biological reasons such as bacteria in the mouth. This approach, which includes education regarding decreasing sugar intake and increasing oral health care, aims to alter causal behaviour of dental diseases in people's lifestyle (32). The theory behind this viewpoint is that if individuals obtain the appropriate knowledge and skills to prevent oral disease, then they will be able to change their behaviour to achieve good oral health status. However, human beings have complex behaviours (32, 35). Sustained alteration in behaviour cannot be attained by just knowledge. Further, people do not always choose their lifestyle of their own volition. People's behaviours are also shaped by their socio-economic living condition. This broader context, which is explained in a social model of health, dictates various patterns of behaviour and now, social science and public health research have realized the socio-economic conditions as causes of the causes (32).

The World Health Organization conducted an international conference on health promotion in 1986, which led to the development of the Ottawa Charter for Health Promotion, the most popular health promotion framework today. This framework takes into account all the factors that affect health rather than only focusing on the absence of disease (36). The Ottawa Charter Health Promotion framework described health promotion as: "The process of enabling individuals and communities to increase control over the determinants of health and thereby improve their health. Health promotion represents a mediating strategy between people and

their environment, combining personal choice and social responsibility for health to create a healthier future" (32).

Health promotion actions which are outlined in the Ottawa Charter include the five following domains:

- Promoting health through public policy which aims to expand attention beyond only the health sector.
- Creating supportive environments.
- Developing personal skills, which is not just limited to giving information regarding health. It means developing personal, social, and political skills that equip individuals to independently take the initiative to improve their health.
- Strengthening community action by helping individuals to determine their priorities and design strategies to reach better heath (32).

2.4 Oral health in humanitarian migrants

According to worldwide evidence, oral disease and conditions are prevalent among humanitarian migrants (7, 37). Humanitarian migrants are in perilous situations as a result of challenging migratory paths. Trauma, stress, financial constraints, and bad living situations are all factors that can wreak havoc on their health (8, 9). During often unsafe and treacherous migrant journeys, many are required to live in temporary accommodation, such as in refugee camps, where unhygienic living conditions are prevalent, clean food and water can be inadequate, and health services can be limited (2, 9, 10).

Further, once they arrive in their host country, cultural and linguistic difficulties,

socioeconomic challenges, and legal status can hinder their access to dental treatment once they arrive in host countries (8-10). Access to oral health care is a determining factor in individual and population oral health. Health insurance has a key role in accessing oral health care. The extent of insured services for humanitarian migrants is determined by the host country's or administrative region's health care policy (31). Also, according to Keboa et al, newcomers' inability to navigate the health care system contributes to delays in receiving required care for humanitarian migrants. Financial constraints have emerged as the most significant impediment to receiving timely dental care by humanitarian migrants (37). Also, prior to their move, migrants from less developed countries may have had limited access to health promotion programs and periodic health checkups, so this might be another reason that oral diseases are prevalent among humanitarian migrants (2, 38). Additionally, some humanitarian migrants may be fearful of deportation, prejudice, or previous trauma and torture experiences, making dental treatments another source of anxiety for them (9, 39). Further, humanitarian migrants may be in desperate need of food, water, and resettlement, which make their oral health a lower priority and prevent them from seeking oral health care (2, 9).

All of these above explanations may have a role in poor oral health and, as a result, low quality of life and wellbeing among humanitarian migrants. Importantly, research in Canada has shown that humanitarian migrants, themselves, believe that good dental health can influence their overall health and life. According to a study by Keboa et al. (40), the importance of good teeth and gums was emphasized by all humanitarian migrants who participated in their study, as they outlined the link between good oral health and overall health. Two participants who were missing incisors mentioned discomfort when engaging and socializing in public and believed that their dental condition hampered their employment opportunities. This quote from

a 23-year-old asylum seeker from Sub-Saharan Africa encapsulates the consensus on the significance of good dental health: “The teeth are like the mirror to one’s body. Having nice teeth is good for an individual’s appearance and self-image. Someone with a good look has a better chance of getting employed in certain jobs such as the television (broadcasting) industry” (40 p98). Therefore, oral conditions have a variety of negative effects on participants' daily activities and social lives (40).

For this vulnerabilized population, implementing oral health promotion interventions is necessary to address their oral health needs and prevent further deterioration of their oral health status. A person’s quality of life and oral health are strongly associated. Dental caries, for instance, may affect eating, decrease appetite, disrupt sleep, and result in subpar academic and professional performance (41). Therefore, oral health promotion interventions can improve the health and wellbeing of humanitarian migrants and also may facilitate their preparation for starting a new life and integrating into the host society (8, 10).

2.5 Community-level oral health promotion programs for humanitarian migrants

To enhance the oral health of humanitarian migrants, community organizations develop and implement oral health promotion programs in refugee camps and in host countries. According to the review by Keboa et al., these programs involve (i) oral health education programs; (ii) dental service provision programs; and (iii) community oral health worker (COHW) programs (7).

2.5.1 Oral health education programs

Oral health education programs provide oral health knowledge for humanitarian migrants so that they can practice oral health self-care behavior and know when and how to seek dental services (2, 7). These programs provide information on the importance of oral health (2, 42, 43), the main causes of oral diseases, their implications, and ways to prevent them (2, 42-45), healthy diet (2, 42, 44), oral care behaviors (2, 42, 44, 45), importance of dental visits (2, 44), and advice and information for navigating the dental services of the host country (2, 42).

2.5.2 Dental service provision programs

Dental service provision programs are supported by governmental and non-governmental groups and entail the provision of free or reduced-cost dental care by volunteer or remunerated dentists, dental students, and dental hygienists (2, 11, 46, 47). These programs strive to address humanitarian migrants' oral health issues and provide them with the dental care they require. Preventive care (e.g., sealants, Silver Diamine Fluoride (SDF)), restorative care (e.g., fillings, dental prostheses), and emergency care (e.g., tooth extractions) are among the interventions available (2, 46-48). Complex problems that cannot be handled using the approaches indicated above are frequently directed to other centers that provide free or reduced-cost assistance (48).

Dental service provision programs implemented in resource-limited environments, such as refugee camps, may differ from those implemented in resource-rich situations. Non-invasive dental techniques which do not require specialized equipment, such as the Hall technique, Silver Diamine Fluoride (SDF), and Atraumatic Restorative Treatment (ART), are commonly used in resource-limited cases (2, 12). The Hall procedure uses prepared metal crowns as a minimally invasive way to treat caries in primary molar teeth (2, 49). ART is a non-invasive caries management procedure that entails removing decaying tissue from teeth with just hand

devices and filling the cavity with adhesive materials. For example, ART may be appropriate in situations where there is no electricity (12).

2.5.3 Community Oral Health Worker (COHW) programs

Htoon and Mickenautsch (12) classified oral health programs for refugees in camps under three phases of emergency, stability, and repatriation for practical reasons. The primary goals of oral health programs at the emergency stage are to reduce pain by tooth extraction or medication, to offer preventive treatment, and to enhance self-care through oral hygiene instruction and the use of fluoridated toothpaste. Additionally, they offer referrals and restorative care to refugees. Volunteers who are not refugees offer the majority of the care during the emergency phase. It is more possible that the oral health care staff who were externally recruited in the program won't be available if it is determined that the refugee's condition has stabilized. Thus, at the stability stage, oral health promotion programs emphasize the training of community oral health workers (COHW) (12). COHW are individuals from refugee populations and trained in oral health care education and basic dental services to be able to manage oral health services among their own community (7, 12). Training dental professionals from the same community in oral health promotion programs enhances the acceptability of the interventions for patients since they have a common language and cultural background (14). Language and culture are potential impediments in treating a patient from different culture (14).

COHWs in refugeed people’s camps may be responsible for: (i) managing equipment and infection control; (ii) assessing oral health status and taking patient histories and medical records; (iii) performing simple extractions, prescribing medications, and non-invasive

curative procedures like ART and dental cleaning; and (iv) promoting oral health through oral health instruction and education (12). COHWs can also refer patients to dental clinics outside of camp for more sophisticated treatments that are beyond their scope of practice (12, 50, 51).

The use of trained refugeed people may lead to the provision of culturally appropriate treatment while also eliminating the need for interpreters (50). In low-resource situations, training available health care staff in refugee camps to do preventative activities is a cost-effective strategy to ensure the population's oral health. This can help benefit the whole health system by establishing trust between health staff and refugeed people (52). Furthermore, as COHWs are trusted in their communities, they can contribute to fostering sustained oral health behaviors and self-management to prevent and treat oral health problems, encouraging people to take care of their own oral health (52). In a Ghanaian camp, for example, the oral health workers planned events including oral health awareness weeks, which included singing by students, as well as workshops for parents and teachers. Participants were given the information and knowledge necessary to improve their own dental health and to regularly check on their children while they were at home. All young people under the age of 12 received free dental care during these events (50).

The dentist's supervisory and supporting roles can improve COHWs programs' acceptance and increase the COHWs' sense of security. Additionally, it gives COHWs the chance to ask about any concepts or methods of therapy that may not have been clear to them during the training (50).

2.6 Statement of the problem

As described above, humanitarian migrants, which include refugees, asylum seekers, and internally displaced persons, are people who are forced to move away from their habitual residence due to reasons such as war, conflict, and violation of human rights (2, 3). Due to difficult migration journeys, humanitarian migrants are in vulnerable situations. Many of them struggle with socioeconomic issues, poor nutrition, trauma, stress, and unsanitary living circumstances, which can have a negative impact on their level of health (7-9). According to worldwide evidence, oral diseases are prevalent among humanitarian migrants (7, 37). Oral diseases can negatively affect their quality of life and psychosocial wellbeing (33). Once humanitarian migrants arrive in host countries, socioeconomic obstacles, legal status, and cultural and linguistic barriers prevent them from receiving dental care (9). So, implementing oral health promotion programs is required to address their oral health needs, promote their oral health, and stop further deterioration of their oral health status. Oral health and people's overall quality of life are closely related. For instance, dental caries can impair eating, suppress appetite, disturb sleep, and lead to poor academic and professional performance (41). Oral health promotion programs can enhance humanitarian migrants' health and wellbeing as well as help them be prepared to start a new life and integrate into the host society (8, 10).

Community oral health promotion programs are complex interventions used in intricate and dynamic environments (2). The circumstances in which these programs are implemented (context), such as people's preferences, personality characteristics of individuals, organizations, and service infrastructure, affect people’s reasoning and decision making (2, 22, 53). Therefore, the same program may lead to different outcomes in different contexts as

the contextual factors in the background of the program may affect human responses and reasoning to program resources (14, 16, 28, 53).

A deep understanding of how contextual factors affect humanitarian migrants' reasoning in response to the program is necessary to implement a program that would effectively enhance humanitarian migrants' oral health conditions. Therefore, it is necessary to assess how these programs function in practice and what factors aid or hinder them from achieving their intended objectives, to optimize the successful implementation. So, McGill's Migrant Oral Health Program (MOHP), led by Dr. Mary Ellen Macdonald and Dr. Belinda Nicolau, has designed a knowledge synthesis to understand how community-level oral health promotion programs for humanitarian migrants work, under which circumstances, and why. This project is using a realist review methodology.

The reason behind choosing a realist synthesis approach for this project is that social programs are conducted in a complex social reality, and it is not possible to isolate and control all potential variables, each of which have roles in explanations of how programs function (20, 54). Instead of reducing complexity, trying to control the situation, and considering contextual factors as confounding variables (e.g., in a systematic review methodology), realism emphasizes the understanding of how complex context affects causal mechanisms (16, 20, 54). Realist reviews are interdisciplinary and align with the Ottawa Charter Health Promotion framework by considering not only factors relating to health (in this thesis: oral health) but also factors from other fields (e.g., political, social, economic, cultural) that may have an impact on the success of programs promoting oral health (2). Therefore, a realist approach is the most suitable one for the aim of evaluating social interventions operating within complex

social reality. In this approach, it is assumed that motivations and intentions of people are crucial to the success or failure of an intervention (55).

The protocol for this review has been published by Eslamiamirabadi et al. in 2022 (1). This realist review protocol uses Pawson's five stages for conducting a realist review, which are as follows: (i) clarifying the review's goal and the research question, as well as developing an initial program theory; (ii) identifying relevant studies; (iii) appraising the quality of those studies and extracting relevant data; (iv) data synthesis; and (v) disseminating findings. The reviewers move back and forth between the phases during these iterative steps (1).

The task of interpreting and making sense of complexity throughout the review can be overwhelming for novice realist researchers (2, 24). One proposed solution is to focus the investigation by developing IPT. IPTs are causal explanations of how the various components of the program under review work (27, 28). This process was begun by MOHP team member, Negin Eslamiamirabadi, who completed a Master's in Dental Sciences under the supervision of Dr. Macdonald, in the Faculty of Dental Medicine and Oral Health Sciences at McGill University by developing IPTs for oral health education programs. My thesis project begins where Eslamiamirabadi finished, developing initial program theories for dental service provision programs and community oral health worker (COHW) programs, which are two other categories of interventions in Keboa et al's list. Further, my task was to work with Eslamiamirabadi to modify her initial assumptions into if-then statements, as well as to integrate all the initial theories for all three categories to prepare a document for the stakeholder consultation, which is the next step in our project.

2.7 Purpose of study

The aim of the realist review is to understand how community-level oral health promotion programs for humanitarian migrants work, under which circumstances, and why. The aim of my thesis was to develop IPTs to propose hypotheses explaining how community-level oral health promotion programs for humanitarian migrants work, under which circumstances, and why. These results will be shared with stakeholders and experts for feedback and finalizing the initial program theories for testing against evidence in the next stages and ultimately building a robust program theory for community-level oral health promotion programs for humanitarian migrants.

Chapter 3: Methodology

This chapter briefly explains the realist philosophy of science, then introduces the realist review methodology and terminology. Following, it describes the dimensions of initial theorizing and strategies to develop a set of initial program theories. Finally, the method for developing the initial program theories in this thesis will be explained.

3.1 Understanding realist philosophy of science

Realism lies between the paradigms of positivism and constructivism. On the one hand, a research methodology embedded in a positivist paradigm, can focus on theory testing and deductive reasoning, by using experimental or quasi-experimental design (25, 26). Positivists have this assumption that if they conduct a rigorous study, they may get to the truth and reality of things (25, 26). On the other hand, a research methodology within constructivism can be characterized by a theory-building inductive approach. They promote the idea that there is no singular truth to the world. There are multiple truths based on different perspectives. The reality is what people construct it to be. (25, 26, 56).

There is an acknowledgement within realism that there is a singular reality, i.e., there is a universal truth in the world (25, 26). At the same time, there is an acknowledgement that understanding the universal truth is only possible through the subjective understanding of things (25, 26). Therefore, realism takes from both positivist and constructivist paradigms. In constructivism, there may not be a search for clear lines of causation. A researcher tries to understand a rich description of a phenomenon and tries to present a picture of the reality, not necessarily pursuing causal relationships and elaboration on causation, and that is where

realist methodology has its focus (25, 26).

Realists critique the positivistic view for its reduction of complex reality and the assumption that variables remain stable and consistent, whereas reality is constantly changing. Therefore, reductionism, which is taking complex reality and reducing it to variables in order to achieve research output, is problematic from a realist point of view (25, 26). Social programs are carried out amid a chaotic and dynamic social reality, and it is not possible to isolate and control all the potential variables which have roles in the explanation of program functioning (54).

Ontological depth is a key concept in the philosophy of realism. It refers to reality being stratified in layers: empirical, actual, and real (21, 57, 58). . The empirical layer is a field that may be observed, perceived, experienced, described, and commonly measured. The actual layer combines activated but non-empirical mechanisms with the empirical realm. The real layer contains latent (non-manifest but still real) mechanisms in addition to the actual and empirical (57).

Jagosh uses an iceberg metaphor to help in understanding realist philosophy (21). An iceberg has two parts: the part above the surface of the water, which corresponds to the empirical reality that can be seen, and the parts underneath the water which include the actual and real layers, the underpinning mechanisms and generative cause of the empirical reality (21).

3.2 Introducing realist methodology

Realist methodology is a theory-driven approach that can be used to understand and evaluate the implementation of policies, programs, services, and interventions (20). There are two main

types of realist research: Realist evaluation is a type of primary research in which the researchers generate data to be analyzed. In contrast, realist review is secondary research which reviews primary data originated from empirical studies and related documents (59).

Programs will work differently for different people in different contexts, at different time points. Realist methodology aims to answer the questions: What works, for whom, under what circumstances, and how?. Instead of asking does the intervention works, in realist studies researchers seek to uncover what resources the interventions offer and how people respond to those resources. This approach assumes that interventions do not create change, it is the people who create the change (25, 26). It is assumed that the motivations and intentions of people are crucial to the success or failure of the intervention.The development of program theories is the main goal of realist research. Program theories provide reasonable explanations concerning how and why a program works or does not work in a specific context (60). The realist approach is the scrutiny of theory against evidence and also the inclusion of theory when there are gaps in the evidence (25). According to Kerlinger, theory is "a set of interrelated constructs, definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting phenomena" (60 p3).

The realist approach aims to develop a causal explanation of observed outcomes in context-mechanism-outcome (CMO) configurations (20). CMOs explain how an outcome is caused by the mechanisms which are activated in the specific context (21). These CMOs form the basis for program theory, which will be evolved through the research (61).

There are some limitations in this realist approach. Through reviewing realist studies,

researchers found that realist methodology is often challenging and time consuming (60, 62). Another limitation is dealing with an infinite array of factors (60, 62). There is also no definitive approach to the synthesis or to the evaluation; it is not as simple as following a step-by-step process. Researchers encountered a lack of methodological guidance; further, regarding the definitions of mechanisms and context, more clarity is needed (60, 62).

The most common mistakes in realists' reviews have been using the context-mechanism-outcome configuration as a descriptive tool rather than to explain causality in CMO configurations. The realist methodology is mostly concerned with understanding context in relation to underlying mechanisms of actions. It was observed that distinguishing between contexts and mechanisms or mechanism and intervention was also challenging (27, 60, 62).

Given these challenges, below are the definitions that I used to extract data and label data during this review process to develop initial program theories.

Mechanism

Mechanisms are made up of underpinning causal forces (63), which include resources and how people respond to them (21). Pawson and Tilley have defined mechanisms as the interaction between program resources and people's reasoning in response to the resources (55). Lacouture et al. (64) build on Astbury and Leeuw (65) to suggest their own definition of the concept of mechanism: "A mechanism is an element of reasoning and reactions of (an) individual or collective agent(s) in regard of the resources available in a given context to bring about changes through the implementation of an intervention."

According to Dalkin et al. (66), interaction of program resources and people's reasoning forms

the program mechanism. Westhrop believes that mechanisms depend on interactions or relationships between components, some of which may be observable and others not (2, 63). The reasoning/response aspect of a mechanism is always cognitive or emotional and may not be obvious (26). All interventions provide resources, which might be either material or emotional. Tools, equipment, and materials are examples of material resources. Cognitive resources include knowledge, ideas, information, and guidance. Social and psychological resources are other examples of resources (2).

In order to hypothesize mechanisms, the ontologically deep aspects of the program resources are imagined. Uncovering mechanisms requires retroduction, an analytic technique that uses induction (theory generation), deduction (theory testing), and abduction (imaginative thinking) (57). Retroduction is the activity of unearthing the causal mechanisms (26). It should be noted that mechanisms are not easy to understand at the surface level view of things. They may also be latent, meaning that they are not manifested at all times (25, 26).

Context

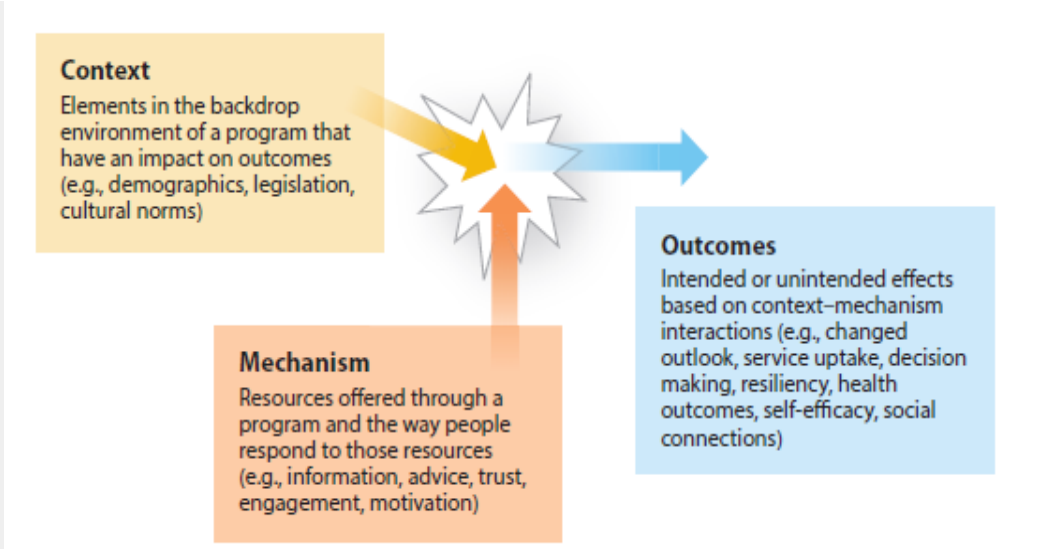
Context refers to the distinctive qualities of the conditions in which a program operates and can influence the activation of mechanisms (2, 28). In other words, what can transform or prohibit the transforming of causal potentials into outcomes is the contextual conditioning of underlying causal mechanisms (2, 55). Context is the background environment of a program that has impact on outcomes—for example, demographic information such as age, sex, class, gender. It could be legislative, such as policies that have an impact, cultural norms, or anything in the background (26). In other words, context is the landscape in which a program is being implemented. What researchers need to do is to find the key elements and the most important

aspects of that landscape that really make a difference in achieving the outcomes (21, 26). Context helps to explain why people do or do not respond well to interventions. Contextual aspects have causal impact beyond the parameters of the formal program architecture. Individual characteristics, interpersonal interactions, service infrastructure, and features of the way the program is implemented are all examples of contexts (2, 28, 54, 67). For instance, whether an implemented program is mandatory or optional is part of the context, and may influence how people respond to the resources (26).

Outcomes

Outcomes are the result of various causes, which can be expected or unexpected. Outocmesdepend on mechanisms and the context in which an intervention is carried out (53). In realism, outcomes are entities or events that are observable or perceivable, or at least can be made observable using measures such as quantitative indices (15). Outcomes can be intended or unintended (16).

Figure 3-1: The Context-Mechanism-Outcome Configuration (21)



From: Jagosh (2019) Realist Synthesis for Public Health: Building an Ontologically Deep Understanding of How Programs Work, For Whom, and In Which Contexts. *Annual Review of Public Health*: Vol. 40. (21) Adapted from Pawson, R and Tilley N (1997) Realistic Evaluation. SAGE: London

The aim of a realist review is to explain the interactions between the elements of context, mechanism, and outcome in CMO configurations (Figure 3-1) (26). Other configurations include ICAMO, for which the acronym stands for interventions, context, actors, mechanisms, and outcomes. In ICAMOs, the intervention element includes the resource (26) whereas in CMO, resource and response are in the mechanism. According to a workshop by Jagosh (An Introduction to Realist Methodology) by the Centre for Advancement in Realist Evaluation and Synthesis (CARES), CMO configurations are already complex. Further, within CMOs, the intervention and the actor are included; the "I" is the title of the CMO, and the actor is written into the description of the mechanisms, e.g., either the service provider, the service user, the family, or other (26). Further, De Weger et al. believe that while adding additional explanatory elements is possible, this could alters the depth and details of the mechanism (68). Therefore, we decided to use a CMO configurations.

3.3 Initial program theory

Initial program theories are tools to develop causal statements and hypotheses about the functioning of the components of programs under investigation (25, 26). They provide reasonable explanations concerning how and why a program works or does not work in a specific context (59). At the beginning of a project, realist researchers can prepare an initial program theory (2, 20, 69) a task known as clarifying or narrowing the study's emphasis. This task can serve as a strategy for dealing with overwhelming amounts of data and the complexities of realist research (2, 22, 24). Since it is impossible to evaluate every aspect of

a program in a single study, focusing the review allows realist researchers to predetermine the set of hypotheses that they would like to test (2, 24). One goal of realist review then is to gather evidence to support, disprove, or refine the program's initial theories (2, 22).

The activity of developing initial program theories is for more than the purposes of subsequent theory testing. It also helps develop theoretical sensitivity for the inquiry. All the theorizing done for IPTs help sharpens the researchers' thinking, even if not all taken forward for testing (25).

3.3.1 Dimensions of realist program theorizing

Realist program theorizing has various dimensions including *causation, granulation, clustering, and articulation.* In realist program theorizing, generative causal theory is used, which are statements about how an underlying force generates empirical reality. If-then statements need to hypothesize a causal relationship. Not all if-then statements describe a generative causal relationship. In other words, just using the terms 'if' and 'then' does not guarantee the generative causation (25).

Granulation of theories means that they can explain details at various levels. Program theories can be clustered, which means theory statements showing an implementation chain, or can be not clustered, in which the theory statement shows a single level of causation (25).

3.3.2 Strategies to develop initial program theories

One of the strategies to help create useful initial program theories is developing rival theories. Rival program theories are pairs or groups of causal statements that display how the same

resources may result in opposite or different effects. Rivalry decreases bias (70) in program theorizing (25). Developing rivalries requires viewing a reality from other perspectives; this can be achieved by working in an interdisciplinary team, and by consulting experts such as stakeholders (25). Rivalry exposes elements of context that matter to change the causality (25). Rivalry emerges through granulation; that is, drilling into vague concepts (25). Rivalry improves hunch-driven theorizing by challenging biased views. Theories that appear to rival each other initially may ultimately prove to be complementary upon careful theorizing or may reveal important differences in context (25).

(25). In this thesis, rival theories have been created through team discussions. Further, we will seek stakeholder consultation in our next step of the review, sharing IPTs with stakeholders and other experts to receive feedback.

3.4 Method for developing the initial program theory

Identifying relevant studies

To identify data sources of empirical and grey literature relevant to oral health promotion programs, we conducted searches in Google and Google Scholar. For the search, the following terms were used in search strategy: ("refugee" OR "internally displaced" OR "internal displacement" OR "asylum seeker" OR “refugee claimant” OR “migrant” OR "humanitarian migrant") AND ("oral health" OR "dental" OR “dentistry” OR “teeth” OR “tooth”) AND ("program*" OR "intervention" OR "outreach") (2).

We used backwards citation tracking from a recent scoping review on the oral health of refugeed people and asylum seekers conducted by MOHP (7). This step meant going back to

an article's reference list to find older papers that may also be relevant. Furthermore, complementary searches were undertaken iteratively to uncover other relevant papers that may not have been found in previous search but could reveal aspects of contexts or mechanisms (2, 71). To do so, I tried to find other data sources regarding mechanisms and contexts that I could use during theorizing, such as trust, self-care, or contexts like post-traumatic stress disorder (PTSD), by manually searching in Google and Google Scholar and adding the related terms to previous search strategy's terms. The following terms were used:

("refugee" OR "internally displaced" OR "internal displacement" OR "asylum seeker" OR "refugee claimant" OR "migrant" OR "humanitarian migrant") AND ("oral health" OR "dental" OR "dentistry" OR "teeth" OR "tooth") AND ("trust" OR "acceptance"). ("refugee" OR "internally displaced" OR "internal displacement" OR "asylum seeker" OR "refugee claimant" OR "migrant" OR "humanitarian migrant") AND ("self-care" OR "oral self-care"). ("refugee" OR "internally displaced" OR "internal displacement" OR "asylum seeker" OR "refugee claimant" OR "migrant" OR "humanitarian migrant") AND ("PTSD" OR "post-traumatic stress disorder" OR "mental health" OR "anxiety disorder" OR "depressive disorders"). ("trust" OR "acceptance") AND ("language barrier").

Google Scholar is a good choice for realist review because it searches terms in the full text of data sources rather than just the title and abstract (71). Following the original protocol, there were no restrictions in terms of date of publication. Only data sources in English were included. Similarly, purposeful sampling of data sources was done with respect to the target population (refugeed people, asylum seekers, and internally displaced persons) and age (children, adults, elderly) to find possible contexts and mechanisms. According to Westhorp's

comment on Eslamiamirabadi's unpublished manuscript, "searches to develop the initial theory are usually much less intensive than searches for whole review to test and refine the initial theory (in fact there's often no search at this stage)" (71).

One reviewer chose and screened the complete text of the qualified papers, which then were checked by a second reviewer (71). To explain more specifically, I read each article completely and took notes. Then, I went back to the beginning and read specifically looking for relevant elements of context, mechanism and outcome to configure CMO to explain how oral health promotion programs work. After extracting what I thought was meaningful, I met with another team member (Eslamiamirabadi) (weekly) to discuss my findings. Following, we met with the larger team, including my supervisor (Professor Macdonald) (bi-weekly) to discuss and finalize the findings and seek consensus on our initial program theories.

Relevance (whether articles are relevant to our phenomenon of interest or at least have data fragments that can contribute to theory development) and richness (whether they provide thick and detailed information regarding elements of context, mechanism, and outcome, and their interrelationships) were the inclusion criteria for studies and data fragments (72, 73). Relevant studies that did not provide information about these features or merely provided descriptive data regarding outcomes were eliminated. The bibliographic information of the selected articles has been charted in Table 3-1, which includes: (i) study title; (ii) authors; (iii) journal; (iv) year of publication (71).

Appraisal

Appraising is an assessment of relevance, as well as rigor of the evidence. Relevance is about

how relevant the paper is to the program under investigation (16, 22, 72). Rigor in realist reviews relates to the validity and plausibility of the methods used to produce data fragments (2, 69). It is difficult to evaluate the rigor of the methods used to generate data fragments because they can be generated using a variety of approaches and can be taken from any section of a manuscript (2, 22). Therefore, realist researchers have recommended against providing such a judgement (2, 69).

Realistic appraisal does not require a systematic approach to appraise the whole paper. Appraisal can be a loose ranking. Seventeen resources deemed relevant to oral health promotion programs. An appraisal process was done to rank the papers in terms of which of those papers seemed to be the most relevant (25).

For developing initial program theories, the questions for unpacking the assumptions of the interventions were:

- What is the intervention? What is it about the strategy that makes it work? What does this offer? What were the resources of the program? How did they work? What were the mechanisms? How did people respond to those resources?
- What is the context that can explain why people did/did not respond well to interventions? (25)

In this way, by finding resources, mechanisms were theorized creatively or based on the data in the literature to know how oral health promotion programs work. Meanwhile, trying to find different contexts that a program has been implemented in helped to understand why the program leads to different outcomes (25).

After literature review of 17 resources, 29 IPTs (and rival IPTs) were created, which are presented in the next chapter (Results)., To state and articulate theories, we used a formula introduced by Dalkin et al. (66) : **M(Resource) + C(Context) → M(Reasoning) = O**. In other words, If M(Resource) is being introduced to C(Context), then M(Reasoning), leading to O. This formula highlights that resources must be introduced into a pre-existing context, which in collaboration induces an individual's reasoning, leading to an outcome. In this formula, M(Resource) stands for resource, which is considered as a part of the mechanism, and M(Reasoning) shows the reasoning, which is another part of the mechanism (66).

As described above, mechanism is a theory which spells out the potential of interaction between resource and reasoning (55). Although Pawson and Tilley considered the distinction between resources and reasoning in the definition of the mechanism, one of them is often being emphasized or sacrificed in mechanism. Therefore, Dalkin et al. proposed this alternative operationalization of the CMO configuration formula: "Intervention resources are introduced in a context, in a way that enhances a change in reasoning which alters the behaviour of participants and leads to outcomes" (66 p4). Separating resource and reasoning can be a practical way to facilitate differentiation between mechanism and context, which has been a common challenge in realist research (66). In addition, identifying the reasoning prevents the issue of confusing program strategy (which offers resource) with mechanism (interaction between resource and reasoning) (66).

To be transparent in presenting results, it should be clear what is the researcher's voice in the analysis (IPT and CMO configuration) versus what is from the resources. Therefore, first, in the result section, there are data fragments from bibliographic sources followed by the related

IPTs.

Prioritization

The next step after developing IPTs will be prioritizing which of the IPTs are most important to take forward for testing in the review. Realist reviews often involve stakeholders, such as policymakers and service providers, for this prioritization step inviting them for informal consultation, or more formal interviews (74).

Further, in some realist reviews, contributors, such as service receivers, the public, content experts and advisory panels, have been engaged in various steps of the process, such as in the creation of study questions, sharing of relevant material, and data extraction and analysis (74). Griffiths et al. illustrated how thorough consultation with stakeholders, including service recievers with dementia, yielded crucial insights that significantly influenced the creation of their program theory (75).

We will include multiple stakeholders and experts in our IPT prioritization step. Our team began identifying potential contributors by brainstorming answers to the following question: Who may be able to positively impact the implementation of oral health promotion programs for humanitarian migrants? We will endeavor to including the following categories:

(i) international advocacy: for instance, an FDI's expert in the field of migrant oral health who support international awareness and implementation of the FDI's Oral Health Advocacy Guide for refugees. FDI represents more than one million dentists globally. They work to increase awareness about the value of good dental health and how crucial it is to maintaining overall health and wellbeing. They are committed to preserving human

health on a global scale through enhanced oral disease prevention, management, and control (76); or WHO dental health officer as WHO is crucial in strengthening health systems and directing the global response to potential health risks. They support governments to guarantee that everyone, everywhere has an equal chance to live a safe and healthy life (77).

(ii) a community-level oral health promotion program manager

(iii) a service provider (a dental professional, an oral health educator and/or a COHW)

(iv) a service user (a migrant who is in need of humanitarian assistance)

(v) a migrant oral health researcher of global importance

(vi) a realist researcher

A list of potential contributors and the email draft for contacting them have been prepared. In the first email, they will be asked if they are willing to participate, and in the next step, our IPTs will be shared for feedback and comments. We will ask them to prioritize our IPTs using the following criteria: clarity, testability (that can be scrutinized against evidence), relevance, consolidation (identifying repetitive or overlapping IPTs) and innovation potential (most useful for guiding program development and improvement). We will ask questions to help identify other resources that can aid in diminishing the challenges in oral health promotion programs for humanitarian migrants and modifying the context to achieve intended outcomes (75). To further finalize our initial program theory, we will take into account the views and opinions we have received from all these contributors. Ultimately, we aim to have up to 10 CMOs for testing in our realist review process, using these final IPTs as the framework for data collection and analysis (1).

After developing initial program theories, we will know some of the mechanisms or contexts we are going to look for in MOHP's realist review. The CMOs in initial program theories, after finalization through consultation, will help to modify our current proposed search strategy in the protocol to be more focused.

This chapter explained the realist review methodology and described the dimensions of initial theorizing and the method for creating the initial program theories in this thesis. It also explained the next step of prioritization with stakeholders and experts to finalize our initial program theories. The next chapter presents the results of this thesis, the initial program theories for oral health promotion programs for humanitarian migrants, divided into the three categories: oral health education programs, dental service provision programs, and community oral health worker (COHW) program.

Chapter 4: Results

The following 17 papers (Table 4-1) were retained and reviewed for this project. The first three papers in the table were the most relevant: that is, they included the most information regarding causal insights to create CMO configurations to explain how and why community-level oral health promotion programs work. It should be noted that this ranking is not about methodological quality; in realist methodology, the focus is on relevance (72).

Table 4-1: The bibliographic information of the selected articles and their ranking based on their relevance.

Study Title	Authors	Journal/Publisher	Year of Publication
A collaborative community-based oral care program for school-age children	Melvin CS	Clinical Nurse Specialist	2006
Oral health care in camps for refugees and displaced persons	Htoon H, Mickenautsch S	World Health Organization	2000
Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis	Henkelmann J-R, de Best S, Deckers C, Jensen K, Shahab M, Elzinga B, et al.	The British Journal of Psychiatry	2020
Stress, mental health, and self-care among refugee teachers in Malaysia	Gosnell NM, O'Neal CR, Atapattu R	Asian American Journal of Psychology	2021
Promoting oral health for refugees : an advocacy guide	Kateeb E, Zaheer K, Fisher J, Abd El Ghani A, Williams D, Dartevelle S	FDI World Dental Federation	2020
Refugee and asylum seekers in Canada: barriers to health care services	Saberpor T	Glendon Journal of International Studies	2016
Barriers to care: the challenges for Canadian	McKeary M, Newbold B	Journal of Refugee	2010

refugees and their health care providers		Studies	
Oral health care in refugee situations: Liberian refugees in Ghana	Ogunbodede EO, Mickenautsch S, Rudolph MJ	Journal of Refugee Studies	2000
Treatment of a culturally diverse refugee population: dental hygiene students' perceptions and experiences	Capozzi BM, Giblin-Scanlon LJ, Rainchuso L	American Dental Hygienists' Association	2018
Leave no one behind: a quick guide to improving the oral health of refugees	FDI- World Dental Federation		2021
The impact of language barriers on trust formation in multinational teams	Tenzer H, Pudelko M, Harzing A-W	Journal of International Business Studies	2014
Dental restorations for Dinka and Nuer refugees: a confluence of culture and healing	Fox SH, Willis MS	Transcultural Psychiatry	2010
Home dental care education for refugee background adults in the United States	Kamimura A, Booth C, Sin K, Pye M, Chernenko A, Meng HW, Harris T, Stoddard M, Hagerty D, Al-Sarray A, Erickson L	Diversity and Equality in Health and Care	2017
Oral healthcare experiences of humanitarian migrants in Montreal, Canada.	Keboa MT, Hovey R, Nicolau B, Esfandiari S, Carnevale F, Macdonald ME	Journal of Public Health	2019
Impact of oral health education for migrants and refugeed people by community health workers: what do Participants Retain?	Ponce-Gonzalez I, Cheadle A, Parchman M	Research square (note: preprint platform,)	2020
Teeth Tales: a community-based child oral health promotion trial with migrant families in Australia	Gibbs L, Waters E, Christian B, Gold L, Young D, de Silva A, et al.	British Medical Journal Open	2015
Oral health status of immigrant and refugee children in North America: A scoping review	Reza M, Amin MS, Sgro A, Abdelaziz A, Ito D, Main P, et al.	Journal of the Canadian Dental Association	2016

In the previous chapter, the process of developing initial program theories has been explained. Just to recap, it should be mentioned that initial program theories provide a tool to map potential context elements and underlying mechanisms and represent the realist understanding of causation (27, 28, 53). The following initial program theories provide insight into how and why oral health promotion programs function by focusing on how humanitarian migrants respond to program resources within certain contexts.

The results in this chapter include data fragments from bibliographic sources in italics followed by the related IPTs developed from the data fragment and the author's interpretation. This format helps with transparency in presenting results and to clarify what is the researcher voice versus what is from the sources.

As already stated above, for humanitarian migrants in a host country, community organizations develop and implement oral health promotion programs, which have been categorized into three categories by Keboa et al. (7):

(i) Oral health education programs

(ii) Dental service provision programs

(iii) Community oral health worker (COHW) programs

Thus, the initial program theories are divided into these three domains. Finally, CMO table 4.2 organizes the elements of contexts, mechanisms and outcomes in IPTs.

4.1 Initial program theories for oral health education programs for humanitarian migrants

This section draws heavily from Eslamiamirabadi work (71). I tried to separate different theories from each other and changed the format of sentences in a way that each theory would be in one sentence including context, mechanism and outcome.

Language, cultural barriers, and a lack of knowledge about proper oral health practices are significant factors that can affect oral health amongst refugeed people (44).

Intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior (78).

1. If oral health education programs offer oral health knowledge (M(resources)) to humanitarian migrants who lack oral health knowledge (C), , then humanitarian migrants' attitude towards oral health practices may be changed and may trigger intention to improve oral health (M (reasoning and response)), which may lead to improved oral health (O) (71).
2. If oral health education programs offer oral health knowledge (M(resources)) to humanitarian migrants who already have a good level of oral health knowledge (C), then they may be more motivated to practice oral health (M (reasoning and response))as it works as a reminder for them,(44), which may lead to improvement in humanitarian migrants' oral health (O) (71).

Oral health education programs aim to improve humanitarian migrants' oral health through improving their self-efficacy in taking care of their own oral health (44, 71).

3. If oral health education programs offer oral health knowledge (M(resources)) to humanitarian migrants (C), then they may learn how to practice oral health and may gain more confidence in their own ability to take care of their oral health (M (reasoning and response)). So, their improved self-efficacy in performing oral health care behavior leads to improved oral health in humanitarian migrants (O).

Some oral health education programs provide oral health tools and resources (e.g., toothbrush, toothpaste, dental floss) so that humanitarian migrants can use them to do oral health self-care behavior (44, 71).

4. If oral health education programs provide oral health tools and resources (e.g., toothbrush, toothpaste, dental floss) (M(resources)) for humanitarian migrants (C), then humanitarian migrants do not need to spend time and finances to buy these resources for themselves. Thus, they will use these readily available resources (M (reasoning and response)) to improve their own oral health (O).

Humanitarian migrants often have competing demands or priorities that can relate to their financial constraints, legal status, resettlement, etc. Humanitarian migrants may perceive these competing demands as more urgent and important than oral health and thus oral health would be of lower priority for them (71).

5. If oral health education programs provide oral health tools and resources (e.g., toothbrush, toothpaste, dental floss) (M(resources)) for humanitarian migrants who have competing demands or priorities to attend to (C), then they may not use the readily available resources (M (reasoning and response)), So, this may not lead to improved self-care and no improvements in their oral health may occur (O). (M).

Oral health education programs for humanitarian migrants often use interpreters (oral information) or translated materials (written information). This assumes that language barriers may reduce the effectiveness of oral health education interventions (9, 71, 79).

6. If oral health education programs use interpreters or translated materials (M(resources)) for humanitarian migrants who have language barrier (C) then humanitarian migrants will understand the message better, with more accuracy and fewer misunderstandings (M(reasoning and response)), leading to improved learning of oral health information and, consequently, improved oral health (O).

"*The changes in their environment after migration to the US such as unfamiliarity to dental health practice and the addition of sugary food/drinks to their lives should be considered in oral health education" (44).*

7. If oral health education programs offer oral health knowledge and tools (M(resources)) to humanitarian migrants who have greater access to sugary and cariogenic foods which are cheaper and more available than healthy foods in some destination countries (C), then despite having received oral health education and tools , humanitarian migrants may consume more cariogenic and sugary foods and less healthy meals compared to their home countries (M(reasoning and response)), leading to worsened oral health conditions (O) (71).

Some programs employ a member of the humanitarian migrant community to conduct peer oral health education for the community members (14).

It is assumed that peer educators selected from the humanitarian migrant community would render the oral health education intervention more culturally appropriate (71).

8. If oral health education programs employ a member of the humanitarian migrant community to conduct peer oral health education (M(resources)) for the humanitarian migrant (C), then oral health education intervention will be more culturally appropriate, leading to higher acceptance of the oral health information by humanitarian migrants (M (reasoning and response)) and consequently leading to improved oral health (O).

Humanitarian migrants often have mental health issues or undergo psychosocial trauma because of their experiences of war, conflict, and persecution (9, 71). There is a high prevalence of post-traumatic stress disorder (PTSD) among humanitarian migrants caused by war, conflict, and difficult migration trajectories and knowing that is important for the development of public health policies (80).

"*One participant stated that there were cultural norms regarding brushing teeth: they believed that girls shouldn't brush their teeth until she got married.' Some participants explained the cultural ideas surrounding gender and tooth brushing. One female participant from South Sudan mentioned that back home she had heard that single girls shouldn't brush teeth as that is considered as a bad omen. Another Sudanese participant mentioned that they check girls' teeth before men proposed to them. The majority of participants did not floss their teeth before migrating to the US. For example, one participant said 'I brush mostly, but I don't use it (floss) up...When I was back home, we use the, like a small uh what they call... the white sand you put to your teeth...Then you wash it out. And then you take another wood to again and clean your teeth" (44 p280).*

9. If oral health education programs offer oral health knowledge (M(resources)) to humanitarian migrants who had different oral health norms and practices in their host

countries (C), then as they might have been under the influence of their homelands' oral health norms, beliefs, and practices for a lifetime, they may distrust the program and be resistant to learning new information, rejecting the oral health beliefs and practices of the host country (M(reasoning and response)), which leads to no improvement in oral health (O) (71).

4.2 Initial program theories for dental service provision programs for humanitarian migrants

In oral health promotion program planning, the emphasis is on improving self-care, as oral health problems such as dental caries and gingivitis can be managed by self-care (12). Oral health instructions and providing oral care products such as fluoridate toothpaste and toothbrushes are resources that community-level oral health promotion programs offer for the objective of improving self-care to improve oral health (12).

"The majority of participants struggled to maintain oral health habits, but they seemed eager to diligently care about their oral health more after the class. Participants gave positive feedback on the oral health class: For example, one participant said, "We think it's very helpful to teach refugees about oral hygiene and how to consult dentists," and "Nobody taught us before." They expressed that the information which they learned from the class was useful for their future practice: "We just know things but we don't practice regularly, which can affect us in the future, but as we get those information from you (the instructor of the class) maybe we can just have more practice," and "if I follow the right way, I don't have any problem in the future because I have learned how to do some because I didn't know how to do before" (44 p280).

10. If community-level oral health promotion programs educate humanitarian migrants on preventive measures and offer individual oral health instructions (M(resources)) to humanitarian migrants who lack oral health knowledge or have oral health beliefs not aligned with current evidence-based practice (C), then humanitarian migrants may gain knowledge of oral disease prevention, understand the importance of self-care in prevention and learn how to brush and floss properly (M(reasoning and response)). That leads to improved self-care, which results in improved oral health and managing oral health problems (O).
11. If community-level oral health promotion programs offer oral care products (M(resources)) to humanitarian migrants who have no access to oral care products or have other priorities that prevent them from seeking and buying these supplies (C), then migrants have more intention for oral health self-care through using these readily available oral care products (M(responses and reasoning)), which leads to improved self-care, improved oral health, and managing oral health problems (O).

There is a high prevalence of post-traumatic stress disorder (PTSD) among humanitarian migrants caused by war, conflict, and difficult migration trajectories, and knowing that is important for the development of public health policies (80).

According to Gosnell et al., "refugee teachers reported significantly higher rates of mental health and stress, but lower rates of self-care, compared with nonrefugee teachers" (81 p176).

12. Rival theory for IPT #10, 11: If community-level oral health promotion programs offer individual oral health instructions and oral care products (M(resource)) to humanitarian migrants who might suffer from post-traumatic stress disorder (PTSD) caused by war,

conflict, and difficult migration trajectories (C), then due to the self-neglect accompanying PTSD, they may not follow oral health instructions and may not use readily available oral care products (M(reasoning and response)). Consequently, they may not be able to improve their self-care and manage their oral health problems (O).

ART (atraumatic restorative treatment) is a low-cost treatment for dental caries in situations where there is poor access to electricity and dental equipment. With ART, humanitarian migrants can have satisfactory restorations (12). ART is not only a low-cost approach but also does not use drilling; note: drills produce noises which can be triggering for people with anxiety disorders. "Many humanitarian migrants may fear oral health professionals and invasive treatments due to previous experiences or trauma involving injury from torture" (9 p12). Kateeb et al. mentioned that fear and distrust of oral health professionals, as one of the barriers to accessing oral health care among humanitarian migrants, are the consequences of trauma that humanitarian migrants experienced (9).

13. If oral health promotion programs use ART (M(resource)) for humanitarian migrants who might suffer from post-traumatic stress disorder (PTSD) caused by war, conflict, and difficult migration trajectories (C) , then they will not be triggered by the noise (M(reasoning and response)), leading to increased use of dental services and improved oral health of humanitarian migrants (O). In order to further explain the context, it should be noted that humanitarian migrants with PTSD may not seek medical and dental attention, because they may fear and distrust oral health professionals, as being in medical settings and interactions with medical staff can trigger feelings of anxiety and memories of trauma

One of the systemic barriers for many humanitarian migrants to oral health care services is unavailability of health care services (82). ART (atraumatic restorative treatment) is a low-cost treatment for dental caries in situations where there is poor access to electricity and dental equipment. With ART, humanitarian migrants can have satisfactory restorations (12).

14. If oral health promotion programs use the low-cost ART approach (M(resource)) in shortage of financial resources (C), service providers are more able to offer oral health curative care as they can overcome the shortage of sophisticated equipment, electricity, and financial resources (M (reasoning and response)) (12), leading to increased availability of oral health care provision and satisfactory restorations for humanitarian migrants (O).

"Availability does not necessarily mean accessibility" (82 p11).

"Language difficulties and the need for interpretation is one of the most significant barriers to accessing health care services for refugees" (82 p9).

15. If oral health promotion programs offer dental services (M(resource) to humanitarian migrants who have language barriers and there are no translation services (C), then humanitarian migrants may not understand oral health messages or may not be able to navigate the dental services of the host country (M (reasoning and response)). Migrants may not understand what is being asked of them or told to them by the service providers. They also may not understand the services and social benefits available for them (M (reasoning and response)). Therefore, they will not be able to use the dental services available to them (low rate of utilization) (O), dental service provision may be delayed

(O) or incorrect treatment may be given (O) and humanitarian migrants will have less access to oral health care (O).

For oral health care planning, one of the crucial requirements of human resources is to be able to communicate in the language of the humanitarian migrants (12).

16. If there are personnel who are able to communicate in the language of humanitarian migrants (M(resource)) or an interpreter (M (resource)) who can assist in communication with health care professionals when humanitarian migrants have a language barrier and PTSD which may lead to fear and distrust of oral health professionals (9) (C), then humanitarian migrants will understand the oral health messages better and fewer misunderstandings will happen. So, humanitarian migrants realize the needs for dental health recommendations (M (reasoning and response)), which leads to increased oral health care uptake (O). Also, the linguistic and cultural affinity can foster trust (M(response)) (83), leading to increased uptake of oral health care provided by the program (O).

In working with vulnerable groups, much of the functioning of intervention relies on trust, respect, empathy, and valuing (25).

"Language barriers can negatively impact refugee's health literacy, limiting their understanding of what services they are eligible for and what social benefits they qualify for" (9 p12).

"There *are other risks and issues associated with having an interpreter present, such as client confidentiality. When medical information is no longer just between the health professional*

and the patient, the presence of an interpreter may further stress trust relationships" (82 p10).

17. If oral health promotion programs have interpreters(M(resource)) instead of personnel who are able to communicate in the language of the humanitarian migrants when there is a language barrier (C), oral health-related information may no longer be just between the health professional and the patient, and patient confidentiality issues may occur. This may influence trust in the relationships, which is a crucial mechanism in functioning of oral health promotion programs (M (reasoning and response)). Consequently, this might not lead to an increase in oral health care uptake (O).

"Interpretation and interpretation services are also problematic and affect health care accessibility. Provincial health care coverage does not cover translation services, so it is the responsibility of the patients, or community health centers to pay for the translation costs. For the social service community health care agencies, this causes many difficulties concerning their budgets and limited resources, in order to ensure interpreters are available to accompany patients to mainstream medical centers. This lack of translation services may also delay care when the need for it is serious" (82 p10).

When health care coverage does not cover translation services, then it would be the responsibility of the patients or community health centers to pay for the translation costs. For the social service community health care agencies, this causes many difficulties concerning their budgets and limited resources, to ensure interpreters are available to accompany patients (82).

"It should be stressed again that for most oral health activities, expensive and sophisticated

equipment is not necessary. During treatment, patients can be placed on a padded table or similar surface, or on a locally made bed" (12 p5).

Accessing health care is not just finding a provider (82).

Availability cannot guarantee the accessibility.

For refugees one of the aspects of accessibility is finding a provider who can understand them (82). "According to Mckeary and Newbold (84), many medical centers do not offer specialized knowledge and the dominance of Western biomedicine fails to acknowledge social and cultural basis of health (79 p11)."

18. If dental services (M(resource)) provided in a context where there is a dominance of Western biomedicine which fails to acknowledge a social and cultural basis of health (84) (C), then migrants would be less likely to intend to use oral health care services although they are available to them, as they prefer finding a provider who acknowledge social and cultural basis of health (M(reasoning and response)) and may not lead to oral health promotion in humanitarian migrants (O).

"Drawing upon disciplinary expertise as suggested by the refugees in describing the impact of missing teeth on their U.S. experience, including limitations in food processing ability and sound production, a lack of understanding about dental traditions, and an impact on self-esteem, we restored teeth for individuals of the majority ethnic groups from Sudan in Nebraska, Dinka and Nuer, approximately five years into U.S. resettlement" (11 p456).

"The results indicate that participants reported significant improvement in a variety of

symptoms that encompass somatic, emotional, and cognitive expressions of distress that could be classified under the rubric of anxiety and depression. Furthermore, significant improvement was reported for a host of symptoms associated with the specific Western diagnostic construct of PTSD. These results strongly indicate that dental implants for this group of resettled Sudanese refugees have meaningfully contributed to an increased sense of well-being" (11 p461).

"It was therefore reasoned that the SRQ would serve well as both an initial screening instrument and as a measure of general distress for this sample of Sudanese refugees. The item content is such that it should be sensitive to changes in distress associated with situational phenomena. This would include a decrease in reported distress associated with improved self-esteem and social functioning brought about by dental restoration" (11 p459).

"Five general themes emerged among the common responses and included a heightened sense of belonging and interpersonal connectedness, decreased need to explain facial appearance, improved sound production ability, increased self-esteem associated with improved self-image, and improved ability to eat or process the same foods much like other Americans. A synopsis of the overall findings suggests that this sample of refugees from Sudan is experiencing a greater comfort or fit within U.S. American culture which brings with it a more positive emotional experience, improved cognitive and physical functioning, and a lessening of distress associated with exposure to traumatic events and circumstances" (11 p461).

19. If dental restoration (M(resource)) offered to humanitarian migrants who have low self-

esteem due to the appearance of their teeth or suffering tooth pain (C), then it can significantly influence self-confidence, reduce pain, and decrease general distress, depressive symptoms, and post-traumatic stress disorder (PTSD) symptoms in humanitarian migrants (M(reasoning and response)) (11) which can contribute to an increased sense of well-being (O).

As of the end of 2020, about 35 million (42%) of the 82.4 million forcibly displaced people are children below 18 years of age (3).

Many school-age children (migrants) have poor oral hygiene practices. Children often do not have access to dental care and lack fundamental hygiene supplies such as toothbrushes (48).

"Poor oral health has been related to decreased school performance as children endure distraction from chronic toothache, pain from dental abscesses, dysfunctional speech, and eating difficulties. Children experiencing pain are distracted and unable to concentrate on schoolwork. In addition, children with poor oral health may be embarrassed and humiliated by how they appear to others" (48 p18).

20. If school-based dental service programs offer oral hygiene supplies and education (M(resource)), screenings, and referrals (M(resource)) for children, who often do not have access to dental care and lack fundamental hygiene supplies (C), then these children will gain more knowledge regarding oral health (M (reasoning and response)) and can use those readily available oral care products (M (reasoning and response)). Their oral health problems can also be identified at early stages and can be treated by community dentists (M (reasoning and response)), which can lead to improved oral health among poor

children (O) (48). This can also lead to increased school performance as children experience less pain and have less distraction from chronic toothaches, pain from dental abscesses, dysfunctional speech, and eating difficulties (O). Also, improved oral health may help children be less embarrassed and less humiliated by how they appear to others (O) (48).

Not all dentists have the skills and equipment to provide care for toddlers and young children. The number of dentists who are available to treat the pediatric population is limited (48). Most of the time, children who are referred to community dentists have extensive dental needs (48). Therefore, community-based dentists might be often reluctant to treat them.

"Community-based dentists are often reluctant to treat Medicaid recipients, one of the single most significant barriers to dental services for children living in poverty. Low rates of reimbursement from Medicaid are cited as the reason many dentists are reluctant to see children on Medicaid. Cumbersome Medicaid-related paperwork is another reason. Missed appointments are a problem because dentists are not permitted to bill Medicaid for missed appointments" (48 p19).

21. Following referral (M(resource)), where there are low reimbursement rates from insurance companies and cumbersome insurance-related paperwork (C), and where dentists are not reimbursed for missed appointments while humanitarian migrants often miss their appointments due to various challenges (C), community-based dentists are often unwilling to treat humanitarian migrants' children (M), which means humanitarian migrants' children may not benefit from dental services after referral. (O)

"According to Mckeary and Newbold (84), refugees often miss their appointments due to transportation challenges or other factors" (82 p13).

"Many parents have several young children and are without reliable transportation or childcare for siblings. Using public transportation can lead to arriving very early for the appointment or arriving late because of the bus schedule and perhaps weather conditions that affect the posted bus schedule. Persons in more rural areas lack access to public transportation and rely on relatives and friends for transportation. When patients arrive before or after the scheduled appointment, excessive wait times are created, adding the additional challenge of potentially missing transportation back home from the appointment. Frustrations may build until interactions with the office staff or dentist cause the parent to be reluctant in seeking dental care" (48 p19).

22. If dental services (M(resource)) offered by oral health promotion programs to humanitarian migrants who have transportation challenges and must rely on public transportation, which can be impacted by weather conditions and their language and financial barriers (C), then they may be reluctant to go through the frustrating hassle of transportation to access dental services for themselves and their children (M(reasoning and response)) which lead to increased missed appointments and may not able to use the services (O).
23. If dental services (M(resource)) offered by oral health promotion programs to humanitarian migrants (parents) who do not have access to childcare for their children (C), then they cannot attend their dental appointments and often miss their appointments (M(reasoning and response)), which results in reduced utilization of dental services (O).

In the Tooth Tutor Program, the dental hygienist assisted patients with transportation and translation arrangements where necessary (48). In a school-based dental clinic, all transportation to the school-based dental clinic from area schools was paid for by Medicaid (48).

24. If oral health promotion programs assist with transportation (such as providing transportation) (M(resource)) when migrants have transportation challenges (C), then migrants may less miss their appointments (M (reasoning and response)) which can increase accessibility to oral health care for humanitarian migrants and lead to higher rates of utilization and improving oral health (O).

"The program offered free skating at the local ice rink during school vacation. The plan included the distribution of information available on dental health and the Tooth Tutor Program with free toothbrushes and toothpaste" (48 p21).

25. By using creativity for distribution of information and oral health tools (M(resource)) when there is a lack of interest or intention to learn about oral health among humanitarian migrants (C), then humanitarian migrants can be more motivated to take up oral health promotion programs (M(response)), meaning that humanitarian migrants' oral health status can be improved (O).

Oral health promotion programs try to make oral health care services available and accessible for humanitarian migrants. But health care access is affected by the complexities and challenges of health insurance for humanitarian migrants. As a result of not having good insurance, humanitarian migrants will face greater financial barriers to accessing health care

services and thus, they will become more vulnerable (82).

4.3 Initial program theories for community oral health workers (COHW) programs for humanitarian migrants

"Use of trained humanitarian migrants enabled the provision of culturally responsive care and the elimination of interpreters, a common bottleneck in refugee communities" (50 p333).

"The interaction between the COHWs and the patients was usually very friendly and co-operative. The advantages of sharing the same cultural background and understanding each other's problems were evident" (50 p332).

"Culturally Competent (CC) health care providers are described as respectful and responsive to individual health beliefs, culture, and language preferences" (46 p50). "Language and culture were equally reported as possible obstacles or barriers in the treatment of a culturally diverse patient" (46 p53).

One of the oral health care worker's responsibilities in their job descriptions is that they should "be aware of the need to provide a positive role model. Respect for patients and positive attitude to preventive oral health care are essential" (12 p9).

26. If oral health promotion programs train humanitarian migrants as community oral health workers (M(resource)) when there is a lack of intention or interest in using dental services (C), then positive role modeling of community oral health workers and the provision of culturally responsive care by them may lead to more motivation in humanitarian migrants (M (reasoning and response)). Consequently, this can lead to increased use of dental

services and improved oral health (O).

"Interactions were generally friendly and co-operative, which helped to build trust between the COHWs and the wider community. The language barrier was broken." Also, this program led to "better availability and accessibility to oral health care" (85 p8). This can also "establish trust between health workers and refugees and strengthen the overall health system" (85 p7).

There is a high prevalence of post-traumatic stress disorder (PTSD) among humanitarian migrants caused by war, conflict, and difficult migration trajectories, and knowing that is important for the development of public health policies (80). According to Gosnell et al., "refugee teachers reported significantly higher rates of mental health and stress, but lower rates of self-care, compared with nonrefugee teachers" (81 p176).

27. If oral health promotion programs use trained humanitarian migrants who have the same culture and the same language as other humanitarian migrants in oral health promotion programs (M(resource)) for humanitarian migrants who may experience PTSD and may be afraid and distrustful of oral health professionals (C), then humanitarian migrants feel more trust in their relationship (M(reasoning and response)), which consequently leads to an increase in acceptability of the interventions and oral health promotion programs uptake among humanitarian migrants (O).

"A Community Oral Health Workers (COHWs) program was set up to encourage a refugee community to take care of their own oral health. Intensive training courses on basic oral health care were provided to selected refugees, who then became COHWs" (85 p8).

There is a high prevalence of post-traumatic stress disorder (PTSD) among humanitarian migrants caused by war, conflict, and difficult migration trajectories, and knowing that is important for the development of public health policies (77).

28. If oral health promotion programs use COHWs (M(resource)) for humanitarian migrants who may have PTSD and can be accompanied by self-neglect and can reduce intention for self-care (C), then the friendly and cooperative interaction and trustworthy relationship between COHWs and humanitarian migrants can provide support to help humanitarian migrants develop the skills needed for effective oral disease management (86) and encourage them to take care of their own oral health and foster self-care among humanitarian migrants (M(reasoning and response)). This can result in oral health improvement among humanitarian migrants (O).

It is more possible that the oral health care staff who were externally recruited in the program won't be available if it is determined that the refugee's condition has stabilized (12).

29. If oral health promotion programs train humanitarian migrants as community oral health workers (M(resource)) when personnel who were externally recruited in the program will no longer be available and there is a concern regarding functioning of the program (C), then trained humanitarian migrants could learn skills, feel more valued (87), and experience autonomy, competence, and relatedness (M (reasoning and response)). Then they might be more motivated (M (reasoning and response)) and engage more in programs than externally recruited health workers (O).

Table 4-1 shows all the contexts, mechanisms and outcomes in above 29 if-then statements.

This table is to organize and separate the elements of contexts, mechanisms and outcomes that has been extracted from data resources or has been theorized by Eslamiamirabadi and Keshani. For the references, please refer to texts above.

Table 4-2: Contexts, mechanisms and outcomes in initial program theories

#	Context	Mechanism	Outcome
CMOs in initial program theories for oral health education programs for humanitarian migrants			
1	Humanitarian migrants lacking oral health knowledge	Resource: oral health knowledge Reasoning and response: change of attitude, intention to improve oral health	Improved oral health
2	Humanitarian migrants who already have an adequate level of oral health knowledge	Resource: oral health knowledge Reasoning and response: more motivated to practice oral health	Improved oral health
3	Humanitarian migrants	Resource: oral health knowledge Reasoning and response: learn how to practice oral health and may gain more confidence in their own ability to take care of their oral health leads to self-efficacy	Improved oral health
4	Humanitarian migrants	Resource: oral health tools and resources (e.g., toothbrush, toothpaste, dental floss) Reasoning and response: Humanitarian migrants spending less time and finances to provide oral health tools for themselves	Practicing oral health self-care using the tools
5	Humanitarian migrants who have competing demands or priorities to attend to	Resource: Offering oral health tools and resources by oral health education programs Reasoning and response: Humanitarian migrants lack the intention to improve their oral health and may not use the readily available resources offered by oral health	Not improved self-care and no improvements in oral health

		education program	
6	Humanitarian migrants who have language barrier	Resource: Interpreters or translated materials Reasoning and response: understanding the message better, with more accuracy and fewer misunderstandings	Improved learning of oral health information and, consequently, improved oral health
7	Where cariogenic foods are more accessible than healthy food and healthy foods are unavailable or hard to get and expensive	Resource: oral health knowledge and tools Reasoning and response: Higher consumption of cariogenic and sugary foods and lower consumption of healthy foods	Deterioration of oral health conditions
8	Humanitarian migrants	Resource: Oral health education conducted by peer educators from their own community Reasoning and response: Oral health education intervention will be more culturally appropriate	Higher acceptance of the oral health information by humanitarian migrants Improved learning
9	Oral health norms and practices conflicting with those of their home countries	Resource: oral health knowledge Reasoning and response: Rejection of the oral health beliefs and practices of the host country—distrust in the program	Not adopting the oral health practices of the host country
CMOs in initial program theories for oral health care provision for humanitarian migrants			
10	Humanitarian migrants lacking oral health knowledge or having oral health beliefs not aligned with current evidence-based practice	Resource: Individual oral health instructions Reasoning and response: Intention for oral health self-care as migrants learn how to practice oral health self-care behaviours after gaining knowledge of oral health prevention	Improved oral health self-care leading to improved oral health and managing oral health problems
11	Humanitarian migrants having no access to oral care products or having other priorities that prevent them from	Resource: Oral care products such as fluoridate toothpaste and toothbrush Reasoning and response: Intention for self-care through using these readily available oral	Improved oral health self-care leading to improved oral health and managing oral health problems

	seeking oral care supplies	care products	
12	Humanitarian migrants who may suffer from PTSD caused by war, conflict, persecution, and difficult migration trajectories	Resource: Individual oral health instructions and oral care products Reasoning and response: Migrants may not follow oral health instructions and do not use readily available oral care products due to the self-neglect accompanying PTSD	No improvement in self-care leading to no improvements in oral health
13	Humanitarian migrants who may suffer from PTSD caused by war, conflict, persecution, and difficult migration trajectories	Resource: Using atraumatic restorative treatment (ART) which removes the annoying noise of drilling Response and reasoning: Reduction of the anxiety and trauma experiences of humanitarian migrants	Increased uptake of dental services Improved oral health
14	Shortage of financial resources	Resource: Using ART, which is a low-cost approach Reasoning and response: Service providers are more motivated to offer oral health curative care as they can overcome the shortage of sophisticated equipment, electricity, and financial resources	Increased availability of oral health care provisions and fairly satisfactory restorations for humanitarian migrants
15	Humanitarian migrants who have a language barrier	Resource: dental services Reasoning and response: humanitarian migrants may not understand oral health messages or may not be able to navigate the dental services of the host country. Migrants may not understand what is being asked of them or told to them by the service providers. They also may not understand the services and social benefits available for them	Humanitarian migrants will not be able to use the dental services available to them (low rate of utilization)
16	Humanitarian migrants who have a language barrier and may suffer from PTSD which may lead to fear and distrust of	Resource: The personnel and interpreters who are able to communicate in the language of the humanitarian migrants and can assist humanitarian migrants in understanding and absorbing the information regarding dental	Increased learning of oral health information Increased oral health care uptake

	oral health professionals	health Reasoning and response: Humanitarian migrants then understand the oral health messages better and fewer misunderstandings happen. They realize the needs for oral care. Also, the linguistic and cultural affinity can foster trust	
17	Humanitarian migrants having a language barrier	Resource: Having an interpreter instead of the personnel who are able to communicate in the language of the humanitarian migrants Reasoning and response: patient confidentiality issue may happen which may influence trust in the relationships	Oral health promotion programs cannot function well. No increase in oral health care uptake and less improvement in oral health status.
18	Where there is the dominance of Western biomedicine, which fails to acknowledge a social and cultural basis of health	Resource: dental services Reasoning and response: Humanitarian migrants would be less likely to intend to seek and use oral health care although it is available to them, as they would like to find a provider who acknowledge social and cultural basis of health	Less usage of oral health promotion program and so less improvement in oral health status
19	Humanitarian migrants who have lost their self-esteem due to the appearance of their teeth or are suffering tooth pain	Resource: Dental restoration Reasoning and response: humanitarian migrant's self-confidence may significantly be influenced, pain is reduced, general distress may be decreased as well as the depressive symptoms, post-traumatic stress disorder (PTSD) symptoms, and anxiety	Increased sense of well-being
20	Humanitarian migrants' children, who often do not have access to dental care and lack fundamental	Resources: Oral hygiene education Oral hygiene supplies	Oral health improvement among poor humanitarian migrants' children, which

	hygiene supplies	Screening and referral Reasoning and response: Children will gain more knowledge regarding self-care and prevention Can use the readily available oral care products Their oral health problems can be identified in an early stage and can be addressed by community dentists	leads to increased school performance, experiencing less pain and less distraction from chronic toothache, and less difficulty in eating. Children might feel less embarrassed and less humiliated by how they appear to others.
21	Low reimbursement rates from insurance companies, cumbersome insurance-related paperwork, and not being reimbursed for missed appointments while humanitarian migrants often miss their appointments due to various challenges	Resource: Offering referral Reasoning and response: Community-based dentists are often unwilling and reluctant to visit and treat refugees on such insurances	Humanitarian migrants and their children may not benefit from dental services
22	Humanitarian migrants who have to rely on public transportation, which can be impacted by weather conditions, their language and financial barriers, and the probability of missing transportation back home	Resource: dental services Reasoning and response: Humanitarian migrants are reluctant to go through the frustrating hassle of transportation to access dental services for themselves and their children	High missed appointment rates Reduced access to dental services Less improvement in oral health
23	Humanitarian migrants (Parents) who do not have access to childcare for their children	Resources: dental services Reasoning and response: migrants cannot attend their dental appointments and often	High missed appointment rates, which result in reduced access to dental services and no

		miss their appointments	improvement in oral health
24	Migrants who have transportation challenges	Resource: Assisting with transportation by oral health promotion programs Reasoning and response: Migrants have more access to oral health care provided by oral health promotion programs and benefit from them.	Higher rate of utilization improving oral health in humanitarian migrants
25	When there is a lack of interest and intention to learn about oral health among humanitarian migrants	Resource: Using creativity for distribution of information and oral health tools Reasoning and response: Humanitarian migrants can be more motivated to take up oral health promotion programs	Improved oral health by increasing the uptake of primary preventive care.
CMOs in initial program theories for community oral health workers (COHW)			
26	When there is a lack of intention or interest in using dental services, probably due to the self-neglect accompanying PTSD among humanitarian migrants	Resource: Training humanitarian migrants as community oral health workers Reasoning and response: Positive role modeling of community oral health workers who are also humanitarian migrants can lead to more motivation in humanitarian migrants	Increased uptake of dental services Improved oral health
27	Migrants who mostly suffer PTSD and may be afraid and distrustful of oral health professionals	Resource: Training humanitarian migrants of the same culture and the same language as other humanitarian migrants as community oral health workers Reasoning and response: Migrants feel more trust in their relationship with COHWs	Increased acceptability of the interventions and uptake of oral health promotion programs
28	Humanitarian migrants who may suffer from PTSD, which is accompanied by self-neglect and interference with intention for self-care	Resource: COHWs (the friendly and cooperative interaction and trustworthy relationship between COHWs and humanitarian migrants) Reasoning and response: This can provide support to help humanitarian migrants develop	Oral health improvement

		the skills needed for effective oral disease management and foster self-care	
29	When personnel who were externally recruited in the program will no longer be available and there is a concern regarding functioning of the program	Resource: Training of humanitarian migrants as community oral health workers Reasoning and response: COHWs can learn skills, they feel more valued, and experience autonomy, competence, and relatedness; then they might be more motivated	COHWs might engage more in programs than externally recruited health workers, which leads to enhanced performance

Chapter 5: Discussion

Being forced to leave their homes and experiencing difficult migration trajectories leaves humanitarian migrants in vulnerable conditions (7). Trauma, stress, financial barriers, and unhealthy living conditions often compromise their health conditions (8, 9). Many factors may contribute to poor oral health and, consequently, poor quality of life among humanitarian migrants. Therefore, oral health promotion is crucial for humanitarian migrants (9). Community organizations develop and implement oral health promotion programs for these populations in host countries.

In reality, the same program may lead to different outcomes in different contexts as the contextual factors in the background of the program may affect human responses to program resources (15-17). Implementing a program that effectively improves the oral health of humanitarian migrants necessitates a deep understanding of how contextual factors influence humanitarian migrants' reasoning and response in reaction to the program. In this thesis, I contributed to develop IPTs for MOHP's realist review. This involved developing initial program theories for dental service provision programs and community oral health workers programs, as well as modifying initial program theories for oral health education programs which already had been developed by Negin Eslamiamirabadi. These initial program theories have explained how and why oral health promotion programs work or do not work in a specific context.

In this discussion chapter, I will reflect on the process of developing initial program theories

and discuss some of the IPTs which more innovative and useful to improve oral health promotion programs for humanitarian migrants.

Challenges

During the process of developing initial program theories, I faced the following challenges. The main difficulty for developing the initial program theories was lack of practical guidance. Although various articles and books mentioned the steps of undertaking realist evaluation and synthesis, the how to has not been explained (60); From the perspective of Pawson and Tilley, realist inquiry is considered as a *logic of inquiry,* not a research technique or a method. They intentionally aimed not to provide a rigid instruction to do realist research. In this way, researchers/evaluators can use their own specific methods that are more suitable for their projects (16, 60). According to Pawson and Tilley (16, 60), formulating program theories needs "sustained thinking and imagination" and is an iterative process. Realist synthesis entails creativity. However, as Fick and Muhajarine stated in their reflections on the process of developing their initial program theory, this does result in doubts and uncertainty, specifically for those new to the field (60). Our group also encountered these challenges while developing IPTs. There is a need to have practical examples to be able to conduct more rigorous research, however some leeway still is required to allow researchers to find the best way for their specific aim and specific field of research (60).

A question which realist researchers have reflected on gets at the issue of bias: how would IPTs be written by a different person (60). In order to contend with bias, I used rival theories in this thesis. To develop these theories, I envisioned and searched for situations under which the same resource might result in different reasoning and response and lead to different

outcomes. Also, I meet with another realist researcher and exchanging perspectives while developing IPTs, which was very helpful. In addition, the next stage will be stakeholder consultation, in which various people with different backgrounds and roles in oral health promotion programs will give their feedback on this work.

Another question to is whether or not the IPTs well reflect the programs. During the next steps, which include testing and refining the theories, scrutinizing the evidence will help us understand to what extent it supports, refutes or refines our prioritized IPTs. There is no such thing as arriving at an absolute truth from a realist perspective. The process of putting knowledge together is done progressively. Although realism acknowledges that there is one truth, it does not claim that it is ever possible to understand that truth with certainty (59).

For collection and analysis of the data to test the prioritized and selected theories, there are few guidelines concerning how to use QDAS (NVivo) in realist research. Bergeron and Gaboury, who examined the "challenges related to the analytical process in realist evaluation," described a technique to facilitate the use of a QDAS (NVivo) to develop CMO configurations (27). Although according to them, their technique still has some challenges and might be time consuming, they believed QDAS can smooth the way for identification of patterns in data and improve "rigor and transparency" in the analytical process (27). Dalkin et al. (88) also suggested that when using several data sources simultaneously, NVivo can assist structure the iterative and messy process of developing, refining, and testing program theories. Therefore, our research team is going to learn this proposed technique to increase the rigor and transparency in the next stages of testing the theories in this realist synthesis.

Context-Mechanisms (CMs)

The ultimate purpose of MOHP's review is to create a middle-range theory about how intended and unintended outcomes of oral health promotion programs for humanitarian migrants are achieved in different contexts. One of the CMs (Context Mechanisms) among initial program theories that has attracted my interest is the mechanism of trust and the context of post-traumatic stress disorder. Humanitarian migrants are often from areas with major conflicts, and they may be traumatized and suffering from post-traumatic stress disorder (PTSD) which then can be understood as a component of the context. Kateeb et al. mentioned that fear and distrust of oral health professionals as barriers to accessing oral health care among refugees, may be the consequences of trauma that humanitarian migrants experienced (9). The mechanism of trust may be activated when a program adapts to this context and becomes more sensitive to the specific needs of humanitarian migrants. For instance, IPT #27 suggests that by use of trained humanitarian migrants who have the same culture and the same language as other humanitarian migrants in oral health promotion programs, they can feel more trust in their relationship, which consequently leads to an increase in acceptability of the interventions and oral health promotion program uptake among humanitarian migrants.

On the other hand, Fox and Willis raised an interesting point in their study (11). They mentioned that refugeed people experience cultural bereavement throughout the resettlement process, which is defined as "a form of distress associated with loss of a sense of belonging, social cohesion, connection with land and ancestors, and culture and traditions" (11 p454). Cultural bereavement symptoms are improperly identified as PTSD, pathologizing what should have been considered normal (11). If these symptoms would be considered as a normal or a constructive response rather than a psychiatric illness, and health workers are educated in this regard, they can better sympathize with this vulnerable population and understand their

needs.

IPT #18 also proposes that if oral health care is provided in the context where there is a dominance of Western biomedicine which fails to acknowledge a social and cultural basis of health (84), then it may not lead to oral health promotion in humanitarian migrants. This is because migrants may be less likely to intend to use oral health care services, although they are available to them, as they prefer finding a provider who acknowledge social and cultural basis of health. Therefore, in implementing oral health promotion programs for humanitarian migrants, educating health workers regarding the specific context of PTSD or cultural bereavement symptoms among humanitarian migrants is essential to achieve the intended outcomes.

Another CM that I found interesting was the association of the context of PTSD and the mechanism of encouragement and intention for self-care. In oral health promotion program planning, the emphasis is on improving self-care, as oral health problems such as dental caries and gingivitis can be greatly managed by self-care (12). Drawing on Ajzen's theory of planned behavior (78), some programs carry the assumption that by learning oral health knowledge, humanitarian migrants' attitude towards oral health practices will change, which will then trigger intention to improve oral health (44, 71, 78). IPT #10 proposes that if community-level oral health promotion programs educate humanitarian migrants on preventive measures and offer individual oral health instructions, then humanitarian migrants may gain knowledge of oral disease prevention, understand the importance of self-care in prevention, and learn how to brush and floss properly. That leads to improved self-care, which results in improved oral health and managing oral health problems.

IPT #11 refers to the point that if community-level oral health promotion programs offer oral care products, then migrants have more intention for oral health self-care through using these readily available oral care products, which leads to improved self-care, improved oral health, and managing oral health problems. IPT #12 shows how PTSD, as an element of context, may violate these causal claims in theories #10 and 11 and proposes that if community-level oral health promotion programs offer individual oral health instructions and oral care products to humanitarian migrants who might suffer from PTSD, then they may not follow oral health instructions and do not use readily available oral care products. This can be due to self-neglect accompanying PTSD, and hence, they may not be able to improve their self-care and manage their oral health problems.

Oral health problems such as dental caries and periodontal disease are classified as chronic disease. It might be a good option to offer social support in oral health promotion programs through social prescribing. Social workers can encourage and support humanitarian migrants to develop the skills needed for effective oral disease management. IPT #28 also points out the mechanism of friendly and cooperative interaction and trustworthy relationships (perceived support and encouragement from COHWs) that fosters self-care among humanitarian migrants. This initial theory proposes that when humanitarian migrants have PTSD, which can be accompanied by self-neglect, leading to having less intention for self-care, the friendly and cooperative interaction and trustworthy relationship between COHWs and humanitarian migrants can provide support to help them develop the skills needed for effective oral disease management (85, 86). This can encourage the humanitarian migrants to take care of their own oral health and improve self-care, resulting in oral health improvement among humanitarian migrants.

Other important obstacles in achieving intended outcomes by oral health promotion programs are listed in IPT # 21, 22, 23, and 24. Oral health promotion programs sometimes offer screenings and referrals, however there are specific contexts that do not allow humanitarian migrant adults or children to benefit from dental services after referral. Sometimes, community-based dentists do not have the skills and equipment to provide care for young children. Therefore, they might be reluctant to visit and treat young children.

Also, low reimbursement rates from insurance companies, cumbersome insurance-related paperwork, and not being reimbursed for missed appointments (since humanitarian migrants often miss their appointments due to various challenges) are other reasons why dentists might be unwilling to visit humanitarian migrants (48). Dental service provision programs (referral intervention) for humanitarian migrants may not achieve the intended outcome for children when parents do not have access to childcare and parents may have difficulty in missing their work to accompany the child to the dentist. In these situations, parents are unmotivated to seek dental care for their children. Also, many humanitarian migrants encounter transportation challenges. Humanitarian migrants have to rely on public transportation, which can be impacted by weather conditions and their language and financial barriers (48). Therefore, they might be reluctant to go through the frustrating hassle of transportation to access dental services for themselves and their children, which leads to less utilization of oral health care provided for humanitarian migrants by oral health promotion programs. These contextual factors lead to high number of missed appointments and then dentists might be unwilling to visit humanitarian migrants, as explained above. This can exacerbate the issue and prevent achieving the intended outcomes. So, as it is proposed in IPT #24, if oral health promotion programs assist with transportation, migrants can have more access to oral health care

provided by oral health promotion programs and can benefit from them. This can, consequently, result in higher rates of utilization and improving oral health in humanitarian migrants.

IPTs #4 and 5 reveal another noteworthy point regarding the functionality of the oral health promotion programs. According to IPT #4, there is an assumption that if oral health education programs provide oral health tools and resources (e.g., toothbrush, toothpaste, dental floss) for humanitarian migrants, then they do not need to spend time and finances to buy these resources for themselves and thus they will use these readily available resources to improve their self-care and their own oral health. However, humanitarian migrants often have competing demands or priorities that can relate to their financial constraints, legal status, resettlement, which may be perceived more urgently and importantly than oral health and thus oral health would be of lower priority for them (71).

Another contextual factor which might interfere with achieving intended outcomes has been introduced in IPT #7. In places where cariogenic foods are more accessible than healthy food and healthy foods are unavailable or hard to get and expensive, then higher consumption of cariogenic and sugary foods and lower consumption of healthy foods can lead to deterioration of oral health conditions. Therefore, there is a complex set of various contextual factors which affect the function of oral health promotion programs.

The next step in our review process will be prioritizing which of the initial program theories are the most important to take forward for testing against collected data. For this aim, initial program theories will be given to stakeholders and experts who will be asked to rank and critique our IPTs.

The criteria for prioritization can include the *clarity*, *testability* (that can be scrutinized against evidence), *innovation potential* (that are most useful for guiding program development and improvement), and *refined scope* (25). Their feedback focuses on what theories to prioritize and what other fields they might be interested in including in our projects.

Limitations

As with any research approach, and research output, our study has limitations. Researchers have found that the realist methodology can be challenging and time consuming (60, 62). For example, there is no definitive approach to the synthesis method, nor a step-by-step process to follow. In our work, we encountered this lack of methodological guidance and found that developing the initial program theories with 'if-then' statements was not straight-forward; this challenge hampered our progress rate. Another limitation of our study was that we included only articles in English and therefore literature in other languages would have been missed. In addition, we only included published articles and therefore missed any grey literature.

Notwithstanding these limitations, our study has many strengths. As our study is a continuation of Eslamiamirabadi's work (2), we were able to produce a more advanced product. In addition, working with an interprofessional team with diverse backgrounds (dentistry, public health, and social science) enabled us to approach our work from multiple perspectives. Finally, by understanding how oral health promotion programs work for humanitarian migrants in practice and revealing the factors that helped or inhibited them to achieve their desired outcomes, this study can help the successful development and implementation of these programs in communities and help achieve desired outcomes in various contexts.

Chapter 6: Conclusion

This thesis provides a set of IPTs as a part of MOHP's realist review project, titled 'advancing a programme theory for community-level oral health promotion programmes for humanitarian migrants. These IPTs are causal statements about the functionality of the various aspects of community-level oral health promotion programs to explain how and why these programs work or do not work effectively. This thesis revealed interesting elements of contextual factors and mechanisms. By identifying various CMOs, which explain how and why oral health promotion programs work, this thesis can assist with the task of interpreting and making sense of the complexity of the realist review process (2, 24).

To further finalize our initial program theory, we will share our results with stakeholders, experts and advisory group and take into account the views and opinions we will receive from all these potential contributors. Then, we will choose up to 10 CMOs for testing in our realist review process, depending on the time and resources we have available for this project. The review process will use the final initial program theories as a framework for data collection and analysis (1). It should be restated that the activity of developing initial program theories is not just for the purpose of subsequent theory testing. It fosters theoretical sensitivity in the area of inquiry. Even if not all of the initial theorizing is used for testing, it is still valuable, worthwhile, and helps researchers think more clearly (25).

References

1. Eslamiamirabadi N, Nurelhuda NM, Nicolau B, Macdonald ME. Advancing a programme theory for community-level oral health promotion programmes for humanitarian migrants: a realist review protocol. British Medical Journal open. 2022;12(2):e049923.

2. Eslamiamirabadi N. Understanding how community-level oral health promotion programs for humanitarian migrants work, for whom, in which contexts, and why: A realist review protocol [Masters thesis]. Montreal: McGill University; 2021.

3.UNHCR. Refugee Data Finder. [Internet]. [Last update 2022 June 16]. Available from: https://www.unhcr.org/refugee-statistics/.

4. International Organization for Migration (IOM). Key migration terms. [Internet]. Geneva, Switzerland. 2022; Available from: https://www.iom.int/key-migration-terms/.

5.UNHCR. Global Trends. [Internet]. [Last update 2022 June 16]. Available from: https://www.unhcr.org/globaltrends/.

6. Action Réfugiés Montréal Community organization. Why do we say “refugeed person”? [Internet]. Montreal. 2017; Available from: https://actionr.org/why-do-we-say-refugeed-person/.

7. Keboa MT, Hiles N, Macdonald ME. The oral health of refugees and asylum seekers: a scoping review. Globalization and Health. 2016;12(1):1-11.

8. Macdonald ME, Keboa MT, Nurelhuda NM, Lawrence HP, Carnevale F, McNally M, et al. The oral health of refugees and asylum seekers in Canada: A mixed methods study protocol. International Journal of Environmental Research and Public Health. 2019;16(4):542.

9. Kateeb E, Zaheer K, Fisher J, Abd El Ghani A, Williams D, Dartevelle S. Promoting oral health for refugees: an advocacy guide. 2020.

10. Keboa MT. Understanding oral health and dental care pathways of refugees and asylum seekers in Montreal [PhG Thesis in Craniofacial Health Sciences]. Montreal: McGill University; 2018.

11. Fox SH, Willis MS. Dental restorations for dinka and nuer refugees: a confluence of culture and healing. Transcultural Psychiatry. 2010;47(3):452-72.

12. Htoon H, Mickenautsch S. Oral health care in camps for refugees and displaced persons. World Health Organization; 2000.

13. Singh HK, Scott TE, Henshaw MM, Cote SE, Grodin MA, Piwowarczyk LA. Oral health status of refugee torture survivors seeking care in the United States. American Journal of Public Health. 2008;98(12):2181-2.

14. Gibbs L, Waters E, Christian B, Gold L, Young D, de Silva A, et al. Teeth Tales: a community-based child oral health promotion trial with migrant families in Australia. British Medical Journal open. 2015;5(6):e007321.

15. Westhorp G. Realist impact evaluation: an introduction. London: Overseas Development Institute. 2014:1-12.

16. Pawson R, Greenhalgh T, Harvey G, Walshe K. Realist synthesis: an introduction. ESRC Research Methods Program. University of Manchester RMP Methods Paper. 2004;2.

17. Pawson R, Manzano-Santaella A. A realist diagnostic workshop. Evaluation. 2012;18(2):176-91.

18. Wagemakers A, Vaandrager L, Koelen MA, Saan H, Leeuwis C. Community health promotion: a framework to facilitate and evaluate supportive social environments for health. Evaluation and Program Planning. 2010;33(4):428-35.

19. Thompson B, Coronado G, Snipes SA, Puschel K. Methodologic advances and ongoing challenges in designing community-based health promotion programs. Annual Review of Public Health.2003;24:315-40.

20. Pawson R, Greenhalgh T, Harvey G, Walshe K. Realist review-a new method of systematic review designed for complex policy interventions. Journal of Health Services Research and Policy. 2005;10(1_suppl):21-34.

21. Jagosh J. Realist synthesis for public health: building an ontologically deep understanding of how programs work, for whom, and in which contexts. Annual Review of Public Health. 2019;40:361-72.

22. Wong G, Westhorp G, Pawson R, Greenhalgh T. Realist synthesis. RAMESES training materials London: The RAMESES Project. 2013.

23. Tierney S, Wong G, Roberts N, Boylan A-M, Park S, Abrams R, et al. Supporting social prescribing in primary care by linking people to local assets: a realist review. BMC Medicine. 2020;18(1):1-15.

24. Marchal B, Kegels G, Van Belle S. Theory and Realist Methods. Doing Realist Research, 1st ed. Los Angeles: SAGE Publications. 2018:79-90.

25. Jagosh J. Constructing excellent initial programme theories, Centre for Advancement in Realist Evaluation and Synthesis (CARES). Online workshop; 2022.

26. Jagosh J. Introduction to realist methodology, Centre for Advancement in Realist Evaluation and Synthesis (CARES). online workshop; 2021.

27. Bergeron DA, Gaboury I. Challenges related to the analytical process in realist evaluation and latest developments on the use of NVivo from a realist perspective. International Journal of Social Research Methodology. 2020;23(3):355-65.

28. Greenhalgh T, Pawson R, Wong G, Westhorp G, Greenhalgh J, Manzano A, et al. What realists mean by context; or, why nothing works everywhere or for everyone. The RAMESES II Project. 2017.

29. International Organization for Migration (IOM). About migration. [Internet]. Geneva, Switzerland. 2022 [Cited 2022 Jul 19]. Available from: https://www.iom.int/about-migration.

30. UNHCR. Who is a refugee? [Internet]. Washington, DC. USA. 2022 [Cited 2022 Jul 19]. Available from: https://www.unrefugees.org/refugee-facts/what-is-a-refugee/.

31. World Health Organization. Oral health. [Internet]. 2022 [Cited 2022 Jul 19]. Available from: https://www.who.int/health-topics/oral-health#tab=tab_1.

32. Watt RG. Strategies and approaches in oral disease prevention and health promotion. Bulletin of the World Health Organization. 2005;83:711-8.

33. Sheiham A. Oral health, general health and quality of life. SciELO Public Health; 2005. p. 644-.

34. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization. 2005;83:661-9.

35. Sprod AJ, Anderson R, Treasure ET. Effective oral health promotion: literature review. Database of Abstracts of Reviews of Effects (DARE): Quality-assessed Reviews [Internet]. 1996.

36. Online learning with Dan. The Ottawa Charter as an effective health promotion framework. [Internet]. 2022 [Cited 2022 Jul 19]. Available from: https://pdhpe.net/better-health-for-individuals/what-strategies-help-to-promote-the-health-of-individuals/the-ottawa-charter-as-an-effective-health-promotion-

framework/.

37. Keboa MT, Hovey R, Nicolau B, Esfandiari S, Carnevale F, Macdonald ME. Oral healthcare experiences of humanitarian migrants in Montreal, Canada. Canadian Journal of Public Health. 2019;110(4):453-61.

38. Gushulak BD, MacPherson DW. The basic principles of migration health: population mobility and gaps in disease prevalence. Emerging themes in Epidemiology. 2006;3(1):1-11.

39. Mattila A, Ghaderi P, Tervonen L, Niskanen L, Pesonen P, Anttonen V, et al. Self-reported oral health and use of dental services among asylum seekers and immigrants in Finland—a pilot study. The European Journal of Public Health. 2016;26(6):1006-10.

40. Keboa M, Nicolau B, Hovey R, Esfandiari S, Carnevale F, Macdonald ME. A qualitative study on the oral health of humanitarian migrants in Canada. Community Dental Health. 2019;36:95-100.

41. Oral health and quality of life [ADOPTED by FDI General Assembly September, 2015 in Bangkok, Thailand]. [Internet]. Geneva-Cointrin, Switzerland. [Cited 2022 Jul 19]. Available from: https://www.fdiworlddental.org/oral-health-and-quality-life.

42. Gibbs L, Waters E, De Silva A, Riggs E, Moore L, Armit C, et al. An exploratory trial implementing a community-based child oral health promotion intervention for Australian families from refugee and migrant backgrounds: a protocol paper for Teeth Tales. British Medical Journal open. 2014;4(3):e004260.

43. Hamid S, Dashash M, Latifeh Y. A short-term approach for promoting oral health of internally displaced children with PTSD: the key is improving mental health—results from a quasi-randomized trial. BMC Oral Health. 2021;21(1):1-7.

44. Kamimura A, Booth C, Sin K, Pye M, Chernenko A, Meng H-W, et al. Home dental care education for refugee background adults in the United States. Diversity and Equality in Health and Care. 2017;14(6):277-82.

45. Muller R. Does an oral health education program increase oral health literacy and access to dental care in a refugee population? [Masters thesis] Eastern Washington University, 2016.

46. Capozzi BM, Giblin-Scanlon LJ, Rainchuso L. Treatment of a culturally diverse refugee population: dental hygiene students' perceptions and experiences. American Dental Hygienists' Association.

2018;92(2):50-6.

47. Koleilat A. Effectiveness of a school-based community health care program for Syrian refugee children [Master of Science thesis]: State University of New York at Buffalo ProQuest Dissertations Publishing, 2021. 28499417.

48. Melvin CS. A collaborative community-based oral care program for school-age children. Clinical Nurse Specialist. 2006;20(1):18-22.

49. Altoukhi DH, El-Housseiny AA. Hall technique for carious primary molars: a review of the literature. Dentistry Journal. 2020;8(1):11.

50. Ogunbodede EO, Mickenautsch S, Rudolph MJ. Oral health care in refugee situations: Liberian refugees in Ghana. Journal of Refugee Studies. 2000;13(3):328-35.

51. Roucka TM. Access to dental care in two long-term refugee camps in western Tanzania; programme development and assessment. International Dental Journal. 2011;61(2):109-15.

52. Ponce-Gonzalez I, Cheadle A, Parchman M. Impact of oral health education for migrants and refugees by community health workers: what do participants retain?, Research Square, 2020;

53. Pawson R. The Science of Evaluation: A Realist Manifesto: SAGE; 2013.

54. Pawson R. Evidence-Based Policy: A Realist Perspective: SAGE; 2006.

55. Pawson R, Tilley N, Tilley N. Realistic Evaluation: SAGE; 1997.

56. Sayer A. Realism and Social Science: SAGE; 1999.

57. Jagosh J. Retroductive theorizing in Pawson and Tilley's applied scientific realism. Journal of Critical Realism. 2020;19(2):121-30.

58. Bhaskar R. A Realist Theory of Science: Routledge; 2013.

59. Greenhalgh T, Pawson R, Wong G. Realist evaluation, realist synthesis, realist research—what's in a name?The RAMESES II project, 2017 retrieved from https://www.ramesesproject.org/media/RAMESES_II_RE_RS_RR_whats_in_a_name.pdf

60. Fick F, Muhajarine N. First steps: creating an initial program theory for a realist evaluation of healthy start-Départ Santé intervention in childcare centres. International Journal of Social Research Methodology. 2019;22(6):545-56.

61. Wong G, Westhorp G, Greenhalgh J, Manzano A, Jagosh J, Greenhalgh T. Quality and reporting standards, resources, training materials and information for realist evaluation: the RAMESES II project. Health Services and Delivery Research. 2017;5(28).

62. Marchal B, Van Belle S, Van Olmen J, Hoerée T, Kegels G. Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. Evaluation. 2012;18(2):192-212.

63. Westhorp G. Understanding Mechanisms in Realist Evaluation and Research. Doing Realist Research London: SAGE. 2018.

64. Lacouture A, Breton E, Guichard A, Ridde V. The concept of mechanism from a realist approach: a scoping review to facilitate its operationalization in public health program evaluation. Implementation Science. 2015 Dec;10(1):1-0.

65. Astbury B, Leeuw FL. Unpacking black boxes: mechanisms and theory building in evaluation. American Journal of Evaluation. 2010;31(3):363–81.

66. Dalkin SM, Greenhalgh J, Jones D, Cunningham B, Lhussier M. What's in a mechanism? Development of a key concept in realist evaluation. Implementation Science. 2015;10(1):1-7.

67. Greenhalgh J, Manzano A. Understanding 'context'in realist evaluation and synthesis. International Journal of Social Research Methodology. 2021:1-13.

68. De Weger E, Van Vooren NJ, Wong G, Dalkin S, Marchal B, Drewes HW, Baan CA. What's in a realist configuration? Deciding which causal configurations to use, how, and why. International Journal of Qualitative Methods. 2020 Nov 30;19:1609406920938577.

69. Wong G. Data Gathering in Realist Reviews: Looking for Needles in Haystacks. Doing Realist Research London: SAGE. 2018:131-45.

70. Reiss J, Sprenger J. Scientific objectivity. [Internet]. Stanford Encyclopedia of Philosophy, USA. 2014 Aug 25 [updated 2020 Oct 30; Cited 2022 Jul 18]. Available from: https://plato.stanford.edu/entries/scientific-objectivity/

71. Eslamiamirabadi N. How do oral health education programs for humanitarian migrants work? Developing and testing an initial realist program theory. [This is an unpublished manuscript written by

Eslamiamiabadi as an assignment in realist workshop of Gill Westhrop she attended in 2021].

72. Booth A. Realist and Realistic! Searching: Where do I start and how far do I go? [webinar]. Nottingham Realism Group; 2020.

73. Booth A, Wright J, Briscoe S. Scoping and Searching to Support Realist Approaches. Doing Realist Research, London: SAGE. 2018:147-66.

74. Abrams R, Park S, Wong G, Rastogi J, Boylan AM, Tierney S, et al. Lost in reviews: looking for the involvement of stakeholders, patients, public and other non-researcher contributors in realist reviews. Research Synthesis Methods. 2021;12(2):239-47.

75. Griffiths S, Weston L, Morgan-Trimmer S, Wheat H, Gude A, Manger L, et al. Engaging stakeholders in realist programme theory building: insights from the prospective phase of a primary care dementia support study. International Journal of Qualitative Methods. 2022;21:16094069221077521.

76. FDI World Dental Federation. Leading the world to optimal oral health. [Internet]. Geneva-Cointrin, Switzerland. 2022 [Cited 2022 Jul 19]; Available from: https://www.fdiworlddental.org.

77. WHO. Organizational structure. [Internet]. 2022 [Cited 2022 Jul 19]; Available from: https://www.who.int/about/structure.

78. Ajzen I. The theory of planned behavior. Organizational Behavior and Human Decision Processes. 1991;50(2):179-211.

79. Reza M, Amin MS, Sgro A, Abdelaziz A, Ito D, Main P, et al. Oral health status of immigrant andrefugee children in North America: A scoping review. Journal of the Canadian Dental Association. 2016;82(g3):1488-2159.

80. Henkelmann J-R, de Best S, Deckers C, Jensen K, Shahab M, Elzinga B, et al. Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis. The British Journal of Psychiatry open. 2020;6(4).

81. Gosnell NM, O'Neal CR, Atapattu R. Stress, mental health, and self-care among refugee teachers in Malaysia. Asian American Journal of Psychology. 2021;12(3):176.

82. Saberpor T. Refugee and asylum seekers in Canada: Barriers to health care services. Glendon Journal of International Studies. 2016;9.

83. Tenzer H, Pudelko M, Harzing A-W. The impact of language barriers on trust formation in multinational teams. Journal of International Business Studies. 2014;45(5):508-35.

84. McKeary M, Newbold B. Barriers to care: The challenges for Canadian refugees and their health care providers. Journal of Refugee Studies. 2010;23(4):523-45.

85. FDI World Dental Federation. Leave no one behind: A quick guide to improving the oral health of refugees. [Internet]. Geneva, Switzerland. 2021 [Cited 2022 Jul 19]; Available from: https://www.fdiworlddental.org/sites/default/files/2021-07/Lnob_Final_0.pdf.

86. CDC (Centers for disease control and. prevention). Self-Management support and education. [Internet]. U.S. Department of Health and human services. [Last updated 2020 Jun 25; Cited 2022 Jul 19]. Available from: https://www.cdc.gov/dhdsp/pubs/guides/best-practices/self-management.htm

87. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist. 2000;55(1):68.

88. Dalkin S, Forster N, Hodgson P, Lhussier M, Carr SM. Using computer assisted qualitative data analysis software (CAQDAS; NVivo) to assist in the complex process of realist theory generation, refinement and testing. International Journal of Social Research Methodology. 2021;24(1):123-34.