

2023

Addressing the mental health needs of immigrants in primary care: prototyping an immigrant mental health program at Massachusetts General Hospital

<https://hdl.handle.net/2144/48202>

"Downloaded from OpenBU. Boston University's institutional repository."

BOSTON UNIVERSITY

ARAM V. CHOBANIAN & EDWARD AVEDISIAN SCHOOL OF MEDICINE

Thesis

**ADDRESSING THE MENTAL HEALTH NEEDS OF IMMIGRANTS IN
PRIMARY CARE: PROTOTYPING AN IMMIGRANT MENTAL HEALTH
PROGRAM AT MASSACHUSETTS GENERAL HOSPITAL**

by

SAIGE REIKO FONG

B.A., Boston University, 2021

Submitted in partial fulfillment of the

requirements for the degree of

Master of Science

2023

© 2023 by
SAIGE REIKO FONG
All rights reserved

Approved by

First Reader

Carl Franzblau, Ph.D.
Associate Professor of Biochemistry

Second Reader

Jafar Bakhshaie, M.D., Ph.D.
Assistant Professor of Psychology
Harvard University

**ADDRESSING THE MENTAL HEALTH NEEDS OF IMMIGRANTS IN
PRIMARY CARE: PROTOTYPING AN IMMIGRANT MENTAL HEALTH
PROGRAM AT MASSACHUSETTS GENERAL HOSPITAL
SAIGE REIKO FONG**

ABSTRACT

Objective. Immigrants to the United States represent a variety of ethnocultural backgrounds, experiences, and languages. They face stressors unique to migration that may exacerbate or cause mental health concerns. Despite this increased risk, immigrants access treatment at rates far below their native-borne counterparts. Structural and cultural barriers to mental health service utilization expound this disparity. The present thesis proposes a novel system to provide psychosocial support for US immigrants seeking treatment at Massachusetts General Hospital (MGH). **Methods.** Recognizing the need for a new paradigm of care, an Immigrant Mental Health Center prototype was conceptualized using a Human-Centered Design approach. The foundations for this prototype align with the Patient-Centered Medical Home approach to integrated primary and mental healthcare. Narrative reviews informed the theoretical basis of the prototype. A brief review of the existing literature yielded five integrated care themes, forming the basis for prototype evaluation criteria. Communication materials for stakeholder meetings and expert advisory panels were prepared as the next step in the Human-Centered Design approach. **Results.** The prototype extended care to a diverse spectrum of US immigrants within the MGH healthcare network. It involved a multidisciplinary team of specialists,

whole-patient orientation, a personal practitioner, increased accessibility, and viable internal (MGH) and external (community) linkages. **Conclusions.** The next steps in the Human-Centered Design approach include iteratively designing solutions to co-optimize the prototype for implementation at the MGH Center for Immigrant Health.

Recommendations for the iterative refinement stage include clarifying financial metrics and addressing structural barriers to treatment accessibility. A series of feasibility pilot trials and efficacy randomized-controlled trials precede implementation. Future directions include extending the target population to second or third-generation immigrants, attending to severe mental illnesses, and fostering inpatient mental healthcare linkages as a bridge to long-term care.

TABLE OF CONTENTS

ABSTRACT.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
LIST OF ABBREVIATIONS.....	x
INTRODUCTION.....	1
Immigration Demographics.....	1
Core Psychosocial Stressors.....	2
Psycho-Pharmacological Treatment.....	5
Resettlement.....	6
Acculturation.....	8
Trauma and Isolation.....	10
Mental Health Service Utilization.....	11
The Patient-Centered Medical Home.....	13
SPECIFIC AIMS.....	15
METHODS.....	16
RESULTS.....	18
Element 1.....	19
Referrals.....	19
Resettlement Resource Navigation.....	20
Preliminary Assessment.....	22

Element 2	23
Addressing Acculturation	23
Addressing Trauma and Isolation	24
Addressing Psycho-Pharmacological Treatment	26
Element 3	28
Center Coordinators	28
Volunteer Coordinators.....	29
Interfaith Counsellors.....	30
IT and EHR Programmers	30
PCMH Evaluation.....	31
Deliverable: IMHC Prototype.....	33
DISCUSSION.....	35
Evaluation of the IMHC Prototype.....	35
Strengths	35
Challenges.....	39
Communication Materials.....	42
CONCLUSION.....	43
APPENDIX.....	45
BIBLIOGRAPHY.....	47
CURRICULUM VITAE.....	55

LIST OF TABLES

Table 1. Common PCMH Themes.....	32
----------------------------------	----

LIST OF FIGURES

Figure 1. The Four Core Psychosocial Stressors.	4
Figure 2. The Human-Centered Design Process.	17
Figure 3. Element 1 of the IMHC Prototype.	19
Figure 4. Element 2 of the IMHC Prototype.	23
Figure 5. Element 3 of the IMHC Prototype.	28
Figure 6. Complete IMHC Prototype.	34-35

LIST OF ABBREVIATIONS

AAFP	American Association of Family Physicians
ACA	Affordable Care Act
CBT.....	Cognitive-Behavioral Therapy
GAD	General Anxiety Disorder
IMHC	Immigrant Mental Health Center (Prototype)
IT/EHR.....	Information Technology/Electronic Health Record
LISCW	Licensed Clinical Social Worker
MDD	Major Depressive Disorder
MGH	Massachusetts General Hospital
NCQA	National Committee for Quality Assurance
PCMH	Patient-Centered Medical Home
PTSD.....	Post-Traumatic Stress Disorder
SAMHSA.....	Substance Abuse and Mental Health Services Administration
PCMH-O.....	Original Patient-Centered Medical Home Model
US	United States of America

INTRODUCTION

Immigration Demographics

The scale of international migration has drastically increased over the past twenty years. The 2022 World Migration Report places the current estimate at 281 million international immigrants, or 3.6% of the world's population, representing a notable increase from 173 million (2.8%) international immigrants in 2000.¹ These global trends persist in the United States of America (US). Approximately 44.9 million immigrants live in the US, constituting around 13.7% of the total population.² The US Census Bureau projects that the immigrant population will grow exponentially faster than the native-born population, reaching 65 million (17.1%) of the US population by 2040.³ Indeed, immigrants compose a sizeable fraction of the country's population. The augmented pace of migration to the US necessitates a finer understanding of the specific composition of this rapidly-growing population.

Among adult immigrants in the US (≥ 18 years), 21.9 versus 20.3 million identify as female compared to male, respectively, and 2.5 million foreign-born children are present. Across the country, the median age of newly-arrived immigrants from their countries of origin is 31 - 49 years.² A majority of immigrants to the US have traditionally come from Latin America, the Caribbean, and Asia. However, there has been a significant diversification in geographical and ethnocultural origins over the years. Language trends mirror this increasing diversity. Approximately 22% of all immigrants (\geq five years) reported speaking another language at home, with a majority fluent in Spanish, Chinese, Tagalog (Filipino), Vietnamese, and Arabic. Of these immigrants,

approximately 25 million reported limited English proficiency.² It is also important to note the various immigration statuses of this population: The 2022 World Migration Report estimates that the US hosts approximately 341,000 refugees and 1 million asylum-seekers in total.¹ The Migration Policy Institute estimates 11 million unauthorized immigrants residing in the US as of 2019.⁴

Altogether, Data lends evidence towards a national immigrant population that (1) is rapidly growing, despite travel restrictions imposed by the COVID-19 pandemic, (2) has a median age of 31 - 49 years and a slightly higher ratio of females to males, (3) is increasing in geographical, cultural, and ethnic diversity, (4) speaks multiple languages, with a substantial proportion of individuals with limited English proficiency, and (5) varies in documentation status. Although immigrant profiles fluctuate across factors like gender ratio, racial and ethnic group, age, geographical origin, language proficiency, and migration status between US regions, the trends mentioned above persevere amongst immigrants who seek treatment with the Massachusetts General Hospital (MGH) healthcare network. Demographics from the MGH Center for Diversity & Inclusion's Health Equity Dashboard (2019 – 2022) show similar trends within the MGH Healthcare Network in Massachusetts, US.

Core Psychosocial Stressors

While the composition and experiences of this population are diverse, it is well-established that immigrants experience a host of complex structural, sociocultural, and psychological stressors that are critical in shaping their mental health. *Structural*

determinants of mental health are broadly defined as institutions and public policies that affect the whole population (e.g., legislature around immigration status and employment opportunities).⁵ For example, a recent systemic review of forty peer-reviewed articles found that anti-immigration policies were associated with mental health outcomes, including general anxiety disorder (GAD), major depressive disorder (MDD), and post-traumatic stress disorder (PTSD).⁶ Across documented and undocumented Latin(x) immigrants, living in US states with more anti-immigration laws decreased their odds of reporting optimal health, and increased their risk for mental health concerns.⁷

Sociocultural determinants of mental health include factors such as racial-ethnic discrimination and language barriers.^{5,8} A cross-control study found that the language barrier is one of the most important sociocultural stressors, with limited English proficiency significantly associated with three stress-related conditions (unhappiness, depression, anxiety) and dramatically elevated poor health.⁹ Finally, *psychosocial determinants* of mental health are broadly defined as characteristics that influence an individual psychologically and socially (e.g., acculturative stress and war-related trauma).⁵ Such a multitude of stressors and experiences, combined with the demographic diversity of immigrants to the US, underscores the reality that migration is a highly heterogeneous process.

It is also essential to note that migration is not a singular event. Researchers view migration as a trajectory spanning three phases: pre-migration, migration, and post-migration resettlement.¹⁰ Each phase of the migration trajectory is associated with specific stressors. The following section will introduce four core stressors across the

migration trajectory as they relate to immigrant patients seeking treatment at MGH. The four core stressors are as follows: resettlement, acculturation, trauma and isolation, and [lack of] adequate psycho-pharmacological treatment (**Figure 1**).

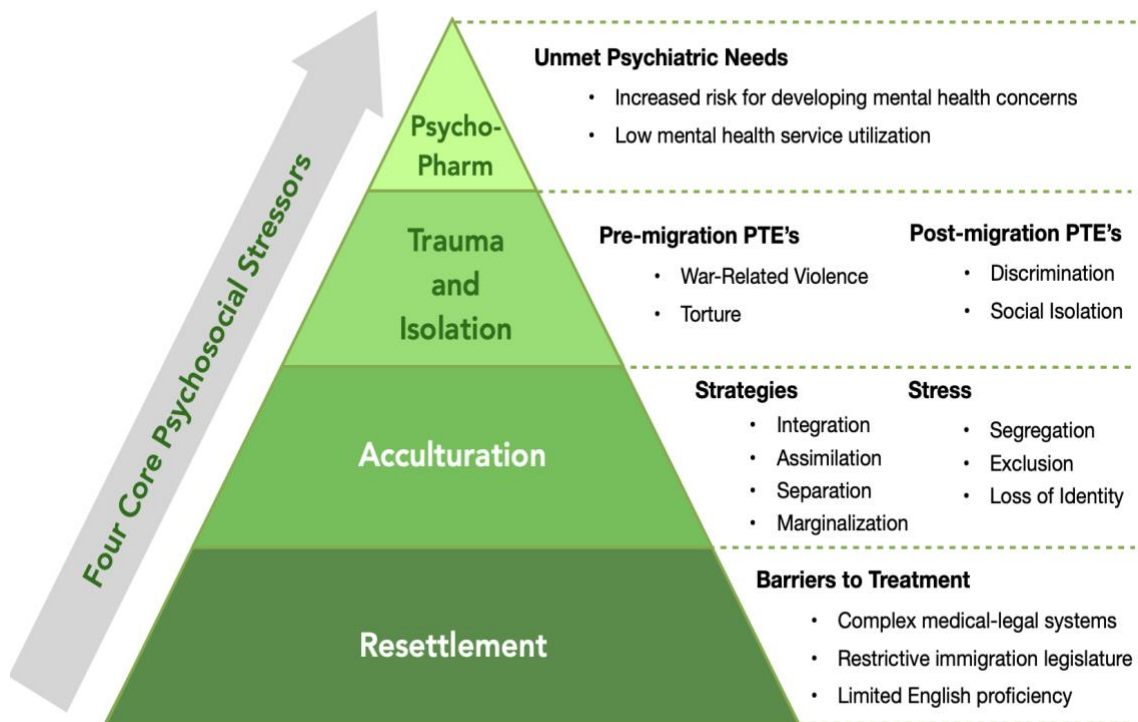


Figure 1. The Four Core Psychosocial Stressors. Resettlement, acculturation, trauma and isolation, and [lack of] adequate psycho-pharmacological treatment pose significant mental health stressors to many US immigrants within the post-migration resettlement phase of the migration trajectory. The Immigrant Mental Health Center (IMHC) prototype will target these core stressors.

Psycho-Pharmacological Treatment

The exact burden of mental illness among the US immigrant population is inconclusive. Methodological variations across studies, combined with the heterogeneity of experiences and backgrounds present, prevent accurate estimates.¹¹ Despite these limitations, one meta-analysis suggested that around one in ten refugees resettled in Western countries have PTSD, around one in twenty have MDD, and around one in twenty-five have GAD, with a high probability of comorbidity (**Appendix A**).¹² A similar systemic review highlighted a greater tendency for US immigrants to develop these mental illnesses than their native-borne counterparts.¹³ The same review cautioned, however, that the mere fact of being an immigrant does not presume a tendency to manifest mental illness. Traumatic experiences across the migration trajectory combined with individual vulnerability (i.e., the immigrant is not healthy, has a disability, or already has a mental illness before being subjected to migration-related stressors) contribute to the etiology of mental illness.^{10,13}

Despite methodological variations, reviews of the available literature strongly suggest that US immigrants may have increased risk for developing mental illnesses, yet access psychiatric treatment at lower rates than their native-borne counterparts.¹²⁻¹⁶ A glance at the statistics elucidates this gap in healthcare: service use among immigrants with a diagnosed mental illness range from 5% - 40%. Among immigrants without a diagnosis (i.e., without psycho-pharmacological evaluation), the service rates drop to 3% – 6%. These levels are well below the US standard— among native-born adults with any serious mental illness, the rates of service use are 59%. These rates increase to 71% for

native-born adults with MDD.¹⁴ The next section will introduce some critical barriers towards receiving mental healthcare treatment that influence these trends. Furthermore, even if some immigrants do receive psycho-pharmacological attention, a substantial proportion do not experience the benefits of a stable medication regimen. In a study of antipsychotic, antidepressant, and mood stabilizer usage among US Latin(x) immigrants, the mean rate of psychotropic medication non-adherence was 40-44%.¹⁷

Additionally, previous studies have noted that treatment attrition (dropout) rates may be higher amongst US immigrants. For example, Law et al. (2003)¹⁸ found that 41% of undocumented Chinese (Fuzhounese) immigrants attended less than half of their outpatient mental health appointments; Chavira et al. (2014)¹⁹ found that Latin(x) patients attended fewer sessions and have higher rates of cognitive-behavioral therapy (CBT) dropouts compared to non-Latin(x) Whites; Ouellet-Plamondon et al. (2015) found that immigrants with first-episode psychosis had more than three times the odds of attrition than non-immigrants. The COVID-19 pandemic has further decreased treatment attrition rates and follow-up psychiatric appointment compliance among US immigrants.²⁰ This clear disparity in psycho-pharmacological attention must be addressed in the IMHC healthcare system prototype.

Resettlement

A large body of literature suggests that stressors linked to the resettlement process pose significant risks for mental health concerns. Briefly, the Refugee Act of 1980 delineates the complex resettlement process for forced migrants and emphasizes, at its core, economic “self-sufficiency” via finding employment within a few months of

resettlement.²¹ Refugees obtain self-sufficiency if they earn a total income that supports themselves and their families without monetary assistance from the state. However, a critical review of the 1980 Refugee Act highlights the detrimental nature of emphasizing financial independence over supporting immigrants throughout their transitions into US mainstream culture.²¹ For one, English language training programs are marginalized in favor of finding jobs as quickly as possible. Numerous studies show that limited-to-no English proficiency is associated with high rates of mental health problems,⁹ lower health-related quality of life,²² and decreased treatment-seeking behaviors related to mental healthcare.^{14,15} The language barrier is a significant resettlement-related stressor that affects immigrant mental health and may impede an immigrant's ability to navigate complex healthcare and legal systems.^{9,23}

Even with English proficiency, navigating the US legal system is a complex endeavor for immigrants during and throughout the resettlement process. Legislature surrounding immigration has grown increasingly restrictive, involving extended processing times, long detention intervals, and an increase in temporary rather than permanent visas. Accordingly, immigrants must understand new legal proceedings to resettle in the US successfully. Research indicates this is a significant psychosocial stressor.^{7,24} One study of Iraqi asylum-seekers found that prolonged asylum (resettlement) legal proceedings predicted higher levels of GAD, MDD, and somatoform disorders.²⁵ A complementary study posited that exposure to cumulative living difficulties (e.g., family conflict, asylum application rejections, the threat of detention, and unstable living conditions) during the resettlement process mediated this trend.²⁶ Yet

another study concluded that immigrants without permanent visas experienced increased anxiety, depression, and psychological distress.²⁷ These investigations support the notion that mental health outcomes deteriorate alongside the complex, prolonged, and restrictive legislature surrounding immigration in the US.

It is also important to note that the interval of time spent in detention during resettlement contributes to the etiology of mental health concerns. The former study of Iraqi asylum-seeking groups also reported that individuals in detention experienced higher rates of PTSD, GAD, and MDD than those who did not experience detention. These higher disease rates were sustained ten months after detention, with traumatic experiences during detention likely mediating this trend.²⁵ While resettlement, akin to pre- and post-migration trauma, is a highly heterogeneous experience, evidence points to multiple stressors that detriment immigrant mental health.

Acculturation

Acculturation refers to how immigrants adapt their attitudes, behaviors, and identities when confronted with a new cultural landscape.²⁸ It is another highly heterogeneous process where immigrants choose different ways, or “acculturative strategies,” to navigate their cultural transitions. One model proposes four acculturative strategies: assimilation, integration, separation, and marginalization.²⁸ Although contention exists around this model, some evidence suggests that each strategy confers different amounts of acculturative stress, which is the mental distress experienced by an individual when attempting to adopt the beliefs, practices, and values of a new culture.²⁹ High levels of acculturative stress are robust predictors of poor mental health outcomes

for immigrants, such as MDD, GAD, PTSD, and suicidal ideation.^{30–32} The following section will introduce three acculturation strategies and their relationships with acculturative stress.

Immigrants who choose the integration strategy will retain valued features from their traditional culture while selectively adopting their new culture's behaviors, attitudes, and beliefs.²⁸ Research suggests this strategy confers the least risk of experiencing acculturative stress and developing mental health concerns. Contrarily, marginalization and separation strategies are associated with the highest levels of acculturative stress and increased risk of developing mental health concerns.²⁹ Marginalization occurs when an immigrant refuses to associate with their traditional culture and their host culture; separation occurs when an immigrant places value on holding their traditional culture and seeks little to no contact with the host culture.²⁸

It is important to note that marginalization and separation are not entirely individual choices—when the dominant ethnocultural group forces these strategies onto a minority, they are instead called “segregation” and “exclusion.”²⁸ These strategies also mediate the relationship between discrimination and worse mental health, in that immigrants who lean towards complete marginalization or separation may report a higher frequency of discriminatory experiences.³³ Indeed, acculturation strategies, acculturative stress, and stressors relating to adopting a new culture must be addressed alongside effective psychotherapy within the IMHC prototype.

Trauma and Isolation

Trauma is an event, series of events, or circumstances that have prolonged adverse effects on an individual's mental, physical, and social functioning.³⁴ Trauma may occur across all three phases of the migration trajectory, placing immigrants at risk for developing mental health concerns such as MDD, GAD, and PTSD at frequencies above their native-born counterparts.¹⁰ Pre-migration PTEs include experiences such as war-related injuries, natural disasters, and the deaths of loved ones.³⁵ A recent meta-analysis found that torture (in combination with other pre-migration traumas) was the most significant predictor of depression and PTSD among refugees.³⁶ Additionally, pre-migration trauma associated with witnessing or experiencing violence predicted positive screenings for mental health disorders within refugee populations.³⁷ PTEs during the migration phase are often linked to legal status—entry into the US without authorization may involve trauma relating to long journeys and extreme physical hardships.³⁸

Finally, evidence suggests that post-migration potentially traumatic events play a critical role in shaping immigrant mental health.^{30,35} Post-migration PTEs include experiences such as discrimination, family separation and conflict, violent neighborhood environments, and acculturative stress. These post-migration PTEs are associated with a heightened risk of MDD, PTSD, GAD, and increased self-rated psychological distress.³⁰ Although traumatic experiences vary in nature and frequency across the US immigrant population, evidence points to an excess risk of mental health disorders following exposure to trauma at each point on the migrant trajectory.

Trauma is only one of the many psychosocial stressors that detriment immigrant mental health. Research has long documented the detrimental effects of social isolation on mental health.³⁹ The migration process is intrinsically linked with social isolation. Immigrants often face the dissolution of their lifelong social networks when they leave their homeland for a new country.⁴⁰ A study of Latina women immigrants highlights the impact of social isolation on mental health: during participant interviews, many reported that loneliness, lack of communication, and a general feeling of being closed-in (“*encerrada*”) dominated their new lives in the US. Approximately half of the women in this study met the criteria for depression and PTSD, while nearly all reported at least one form of ongoing or past trauma.⁴⁰ Furthermore, middle-aged immigrants (40-59 years) with limited English proficiency may have an increased risk for social isolation.⁴¹ Along with trauma, social isolation is a critical psychosocial stressor that must be targeted through effective psychotherapy within an IMHC prototype.

Mental Health Service Utilization

Despite a significant need for mental healthcare services, US immigrants are half as likely as their native-borne counterparts to receive treatment⁴² and demonstrate lower per-capita medical utilizations and expenditures.⁴³ A multitude of barriers potentiates this inequality. Said barriers include cultural (e.g., stigma, attitudes) and structural (e.g., lack of insurance, transportation) factors. The most salient barriers to mental healthcare utilization, which the IMHC prototype will target, are introduced in the following section.

A review of the available literature surrounding cultural barriers to service utilization revealed two overarching themes.⁴⁴ First, individuals often turn to spiritual leaders,⁴⁵ traditional healers,^{46,47} or a mixture of family and community spiritual organization members⁴⁸ to support their mental health concerns rather than “Western” practitioners. These alternatives to the US standard model of care are not necessarily detrimental; instead, they afford explanations for mental health service underutilization. Second, many ethnocultural immigrant groups differ concerning their treatment-seeking attitudes. For example, many Asian immigrants to the US commonly endorse the belief that mental health services should only be sought when physical symptoms are present.⁴⁷ Many Sub-Saharan African immigrants believe that seeking treatment generally reinforces the notion that Eurocentric ideologies are erroneously superior (given the colonization histories of their native countries and the subsequent, complex racial relations).⁴⁶ Nevertheless, hesitancy surrounding Western models of care and varying treatment-seeking behaviors are just two of the many cultural factors influencing service utilization. An effective IMHC prototype must consider barriers to ensure equity of treatment accessibility.

Among the many institution-based impediments to mental healthcare accessibility, US health insurance eligibility predominates. Improving immigrant access to healthcare and health insurance could reduce disparities between immigrants and their native-borne counterparts by 14-29%.⁴⁹ Although rules about immigrants’ access to health insurance vary across states, all lawfully-residing immigrants may purchase

insurance through the Affordable Care Act (ACA) and are eligible for Medicaid coverage if they meet specific, need-based criteria.⁵⁰

Receiving comprehensive insurance coverage, however, is a much more nuanced ordeal. Factors such as legal status and limited ACA resource navigation underlie the growing number of uninsured US immigrants. A recent study highlights this disparity: in 2021, the US Census Bureau utilized data from the American Community Survey to estimate the extent to which health insurance coverage varies across race and documentation statuses. The US Census Bureau reported that higher proportions of non-citizens of every race and ethnicity were uninsured compared to their native-borne counterparts.⁵¹ Furthermore, studies show that only 50% of US immigrant full-time employees had employer-sponsored health insurance, compared to 81% of their native-borne counterparts.⁵² In addition to citing lack of insurance as the most influential barrier to receiving mental healthcare, a systematic review by Derr et al. (2016)¹⁴ also concluded that language differences, cost, long wait times, and a low supply of local providers were critical factors in service utilization rates. The IMHC prototype will address these structural barriers to adequate mental healthcare through an integrated health schematic outlined in the next section.

The Patient-Centered Medical Home

The Patient-Centered Medical Home (PCMH) is an emerging integrated behavioral healthcare model. In the PCMH model, a multidisciplinary team of specialists [rather than a single provider] collaborates to meet all patient needs, whether acute,

chronic, primary, secondary, or preventative.⁵³ The multidisciplinary care team is also responsible for engaging and educating patients throughout the duration of their treatment. Overall, the PCMH is a vehicle for primary care redesign. It includes elements that move healthcare away from volume-based services and emphasizes shared decision-making through stratifying the continuum of care between a team of specialists working in tangent with each other and their patients.⁵³

The PCMH has gained popularity in the US over the past four decades. Stakeholders, particularly insurance companies, are interested in this model for its ability to reduce overall cost and spending by reducing inpatient visits, emergency department use, and hospital readmission rates.⁵⁴ Federal agencies have also voiced support for the implementation of PCMHs across the nation. The Affordable Care Act (ACA) identified PCMHs as a viable way to reduce healthcare expenditures, hold providers accountable, and promote transparency to help eliminate medical waste.⁵³ Numerous studies demonstrate that leveraging ideas from this model into existing healthcare infrastructures improves patient outcomes and provider satisfaction.^{53,55} However, the literature surrounding its efficacy must be expanded because it is a nascent healthcare delivery model.

Although relatively nascent, the PCMH model represents a landmark innovation in integrated healthcare. We present an attenuated version of this model to address the unique mental health needs of immigrant patients who seek treatment within the MGH healthcare network. The resulting prototype, termed the Immigrant Mental Health Center (IMHC), will leverage ideas from integrated behavioral healthcare to address the four

core psychosocial stressors associated with migration (trauma and isolation, resettlement, acculturation, and psycho-pharmacological treatment). After a review of the conceptual basis of the IMCH prototype, we will utilize a Human-Centered Design framework to refine the model and then discuss possible barriers to implementation at MGH. We will conclude by evaluating the deliverable IMCH prototype as a PCMH. We will then prepare communication materials for future MGH Center for Immigrant Health stakeholder meetings.

SPECIFIC AIMS

We propose a novel way to address the core psychosocial stressors and barriers to treatment accessibility that affect mental health outcomes among immigrant patients seeking treatment at MGH within the post-migration resettlement phase of the migration trajectory. Using a Human-Centered Design approach, we will leverage ideas from a working model of integrated healthcare, the PCMH, to produce a prototype that considers this patient population's unique and diverse needs. The prototype will then undergo iterative adjustments and evaluations to fit within the existing healthcare delivery framework at MGH and to satisfy stakeholder requirements.

Aim 1. To present a conceptual model of the IMHC prototype. The prototype will be guided by Human-Centered Design principles and informed by a narrative review of each element and evidence-based intervention.

Aim 2. To discuss the extent to which the IMHC prototype fits the criteria of a PCMH. In doing so, we will investigate the extent to which the prototype shares common

elements with other national integrated healthcare initiatives and immigrant-focused behavioral health programs.

Aim 3. To identify potential stakeholders and prepare initial communication materials. Communication Materials include a deliverable IMHC prototype and its conceptual basis (i.e., how it addresses the four core psychosocial stressors of migration), a discussion of the IMCH prototype's strengths and weaknesses, a summary of key internal and external partnerships, and potential designation as a PCMH.

METHODS

Aim 1 approach. As the first step in the Human-Centered Design process, a collaborator at the MGH Center for Health Outcomes and Interdisciplinary Research conducted a needs-based analysis which informed the initial concept of the IMHC prototype (**Figure 2**). For the first aim, we will develop the framework of the IMHC prototype using qualitative data from this needs-based analysis. Next, we will conduct narrative reviews to isolate elements to include in the IMHC prototype. These elements will combat the four core psychosocial stressors (trauma and isolation, resettlement, acculturation, psycho-pharmacological care) as well as mitigate the aforementioned barriers to treatment accessibility. The resulting prototype will provide an integrated mental healthcare model that engages medicine, including psychiatry, psychology, social work, theology, law, and biostatistics, to improve the mental health outcomes of immigrant patients within the MGH healthcare network.

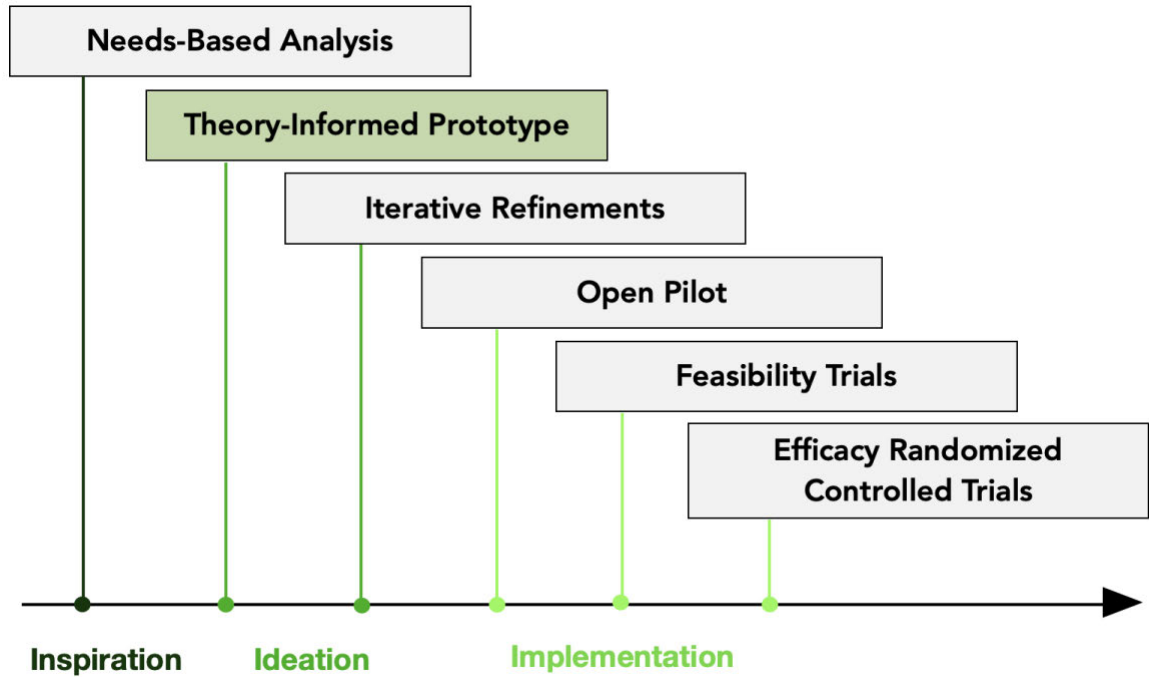


Figure 2. The Human-Centered Design Process. The IMCH prototype represents the second stage of development, which includes (1) combining and critiquing design ideas, (2) theoretically meeting the areas of needs determined in the preliminary needs-based analysis, and (3) producing a deliverable model for further iterative refinements. The next stage will be iterative refinements of the IMCH prototype.

Aim 2 approach. Second, we will conduct a brief literature review to isolate key elements of PCMH healthcare models. We will present a table which encompasses the central elements of a PCMH and aligns these elements with features of the IMCH prototype. We will then discuss the extent to which the IMCH prototype may perform at the level of other integrated care models using criteria set forth in a review of national programs.

Aim 3 approach. Third, we will summarize community partnerships, sponsors, and practitioners that may express vested interests in bringing the IMHC prototype concept to fruition. We will prepare communication materials for a proposal at the MGH Center for Immigrant Health, the institution which will house the IMCH prototype, after isolating these key stakeholders. Strengths and challenges associated with implementation of the IMHC within the MGH Center for Immigrant Health are included in the discussion section.

RESULTS

We modified an already established PCMH model for refugees to create our IMHC prototype (PCMH-O; original patient-centered medical home model).⁵⁶ This prototype works in concert with other services at the MGH Center for Immigrant Health. Essential modifications to the original model include addressing migration's four core psychosocial stressors and expanding the target population beyond refugees. The IMHC prototype additionally integrates MGH— and Massachusetts— specific resources into its continuum of care. The following section compartmentalizes the IMHC prototype into three elements: (1) Referrals, resettlement resource navigation, and assessment; (2) triage into mental health services; (3) allied health and interdisciplinary partnerships.

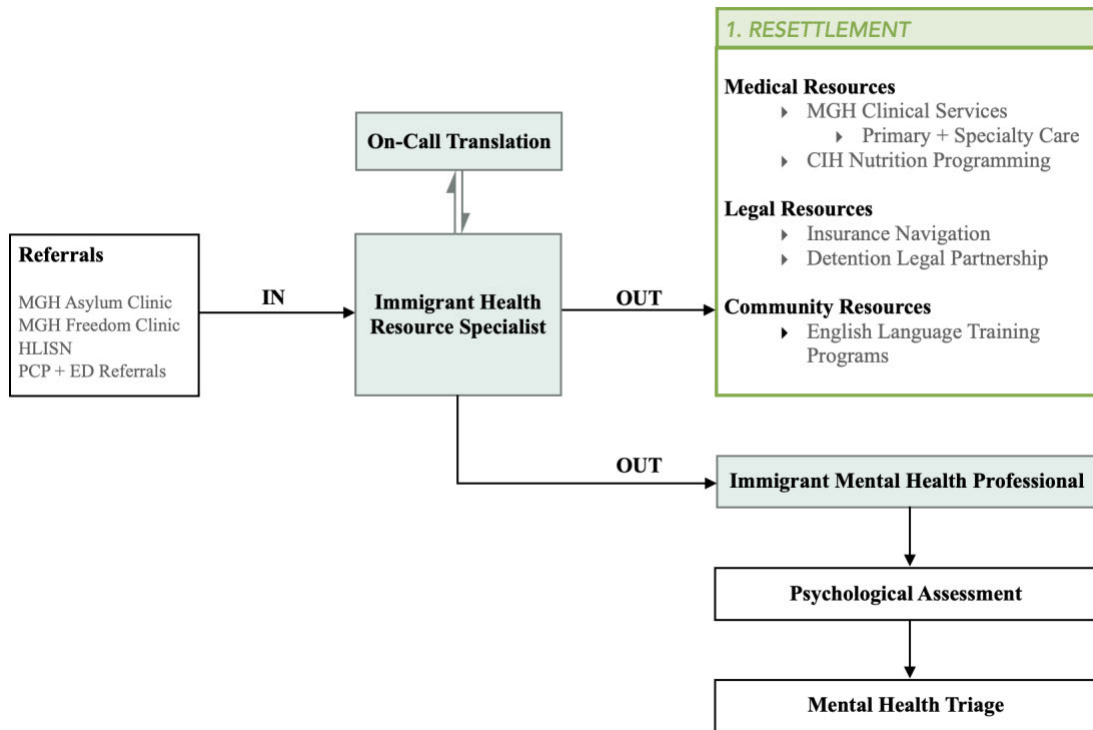


Figure 3. Element 1 of the IMHC Prototype. Following a preliminary psychological assessment, patients are triaged to specialists who address the core psychosocial stressors associated with migration. Either a Licensed Social Worker (LISCW), Clinical Psychologist, or Psychiatrist serves as the lead care provider. Suggestions towards targeting each psychosocial stressor are summarized within the green boxes.

Element 1

Referrals

The IMHC prototype considers US immigrants' heterogeneity by aligning with four referral sources (**Figure 3**). First, the MGH Asylum Clinic provides affidavits for asylum. They currently service individuals from over 70 nations and across 25

languages.⁵⁷ Referrals from the MGH Asylum Clinic allow the IMHC prototype to service geographically diverse asylum-seekers. Second, the Health & Law Immigrant Solidarity Network refers documented and undocumented immigrants to medical-legal resources.⁵⁸ Alignment with this institution allows our model to reach immigrants with varying legal statuses. Third, the IMHC prototype accepts referrals from MGH Satellite Clinics in Chelsea, Revere, and Everett and from the Emergency Department on the MGH Main Campus in Boston. Incorporating satellite clinics and the emergency department is critical to our model's integrated primary care element. Alongside medical treatment, immigrants with mental health concerns may immediately access mental health services through the IMHC prototype—thus shortening wait times and providing care across diverse socioeconomic and locational barriers to treatment accessibility. Fourth, the MGH Freedom Clinic provides free LGBTQ+ primary and preventative care for survivors of human trafficking.⁵⁹ Referrals from this broad network acknowledge the diverse experiences and backgrounds among US immigrants seeking mental healthcare.

Resettlement Resource Navigation

First contact occurs through the Immigrant Health Resource Specialist (**Figure 3**). Ideally, the IMHC includes three Resource Specialists representing the three most common languages. On-call Interpreters partner with the Resource Specialist for further language accommodations. The Resource Specialists in the IMHC prototype are analogous to Global Health Navigators in the PCMH-O model.⁵⁶ Global Health Navigators were former refugees with expertise in health education and outreach who were familiar with the cultural aspects of individual refugee groups. In turn, Resource

Specialists within the IMHC prototype are ideally immigrants themselves or pulled from an existing pool of MGH Community Health Workers. The MGH Community Health Workers Program consists of trained Medical Interpreters and Patient Navigators with expertise in patient advocacy and culturally-competent care.⁶⁰

The Resource Specialist's primary role is to address resettlement-related stressors by helping immigrant patients access and navigate various medical, legal, and community resources based on their needs. Regarding medical partnerships, if an immigrant patient presents with acute physical injury or illness, the Resource Navigator helps them access MGH Clinical Services (primary and specialty care services) in an expedited manner. To address nutrition deficiency or food insecurity, the Resource Navigator refers immigrants to the nutritional programming at the MGH Center for Immigrant Health.⁶¹ Regarding legal partnerships, the Resource Navigator refers immigrants to thoroughly-vetted legal services and health insurance options that consider the proliferous nuances of the migration experience. Regarding language partnerships, studies show that limited-to-no English proficiency is associated with three stress-related conditions (unhappiness, depression, anxiety) and dramatically elevated poor health status,⁹ lower health-related quality of life,²² decreased treatment-seeking behaviors,^{14,15} and increased risk for social isolation among US immigrants.^{40,41} It is also a significant barrier to mental health service accessibility.²³ Given that approximately 25 million US immigrants report limited English proficiency,² it is imperative to include English language training programs within the IMHC prototype. The Resource Navigator refers immigrants to these training programs as the final method for mitigating resettlement-related stressors.

Preliminary Assessment

Immigrants with needs outside of resettlement-related stressors refer to the second key personnel: The Immigrant Mental Health Psychologist (**Figure 3**). The Immigrant Mental Health Psychologist is a licensed practitioner who specializes in trauma-informed care. The principal responsibility of the Immigrant Mental Health Psychologist is to perform initial health and psychological evaluations. **Appendix B** includes a proposed assessment battery for evaluating mental health outcomes with US immigrants. The Immigrant Mental Health Psychologist is analogous to the “Assessment Specialist” in the PCMH-O model. In the PCMH-O model, placing a specialized psychologist early in the continuum of care expedited treatment times and effectively targeted specific mental health needs.⁵⁶ After the preliminary assessment, the Immigrant Mental Health Psychologist triages the patient into three service areas.

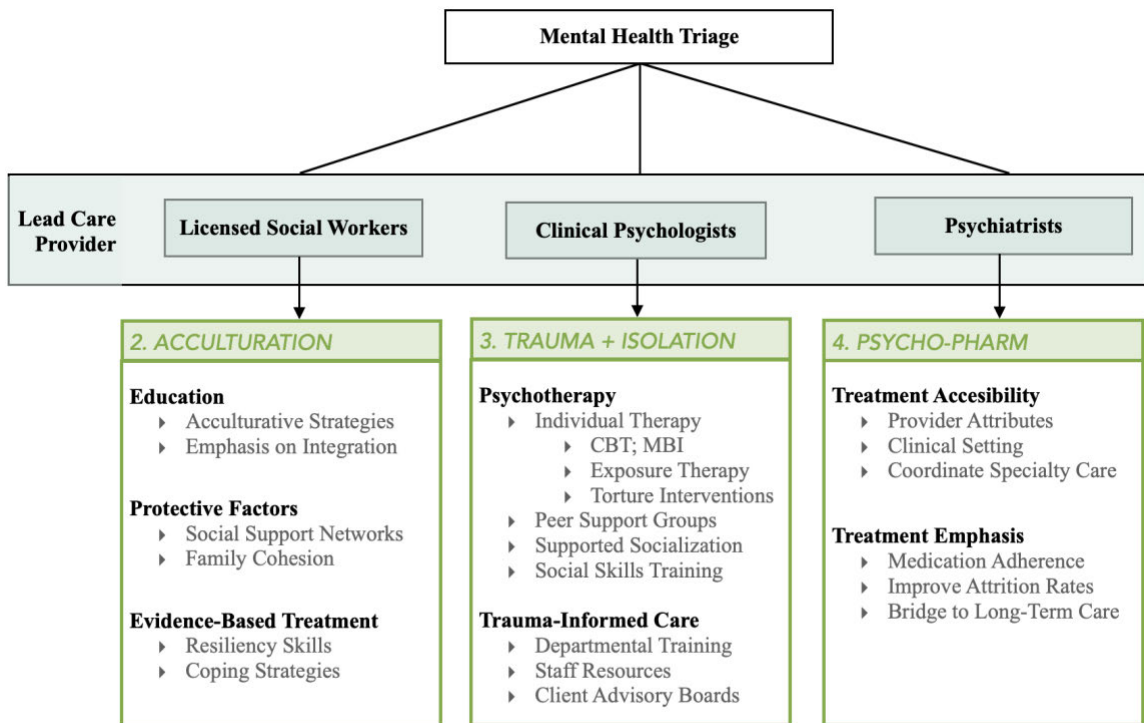


Figure 4. Element 2 of the IMHC Prototype. Following a preliminary psychological assessment, patients are triaged to specialists who address the core psychosocial stressors associated with migration. Either a Licensed Social Worker (LISCW), Clinical Psychologist, or Psychiatrist serves as the lead care provider. Suggestions towards targeting each psychosocial stressor are summarized within the green boxes.

Element 2

Addressing Acculturation

The fourth key personnel in the continuum of care are Licensed Social Workers (LISCW). These professionals serve as lead care managers for patients whose mental health concerns arise from pervasive acculturative stress (as determined by their

preliminary psychological assessment). LISCWs mitigate the effects of this core psychosocial stressor through (1) education about different acculturation strategies, (2) enhancing protective factors against acculturative stress, and (3) fostering resiliency skills and coping strategies (**Figure 4**). Education centers around clarification of the four acculturation strategies. Since integration confers less risk of experiencing acculturative stress than assimilation, separation, and marginalization strategies.²⁸⁻³⁰ the LISCW emphasizes integrative actions such as negotiating a balance between homeland and host country cultural norms. In addition to education, the LISCW targets protective factors against acculturative stress. Said factors include family cohesion⁶² and perceived effectiveness of social support.³² The LISCW organizes and maintains immigrant social support groups to bolster the latter protective factor.

In addition to support groups, the LISCW directs family unit meetings. These family unit meetings will address intergenerational conflicts between adolescents and their parents. Such conflicts arise when children adapt to US culture more quickly than their parents or if they adopt different acculturative strategies from their parents.^{62,63} As a final measure against acculturative stress, the LISCW partners with psychologists across the IMHC prototype to relay resiliency and coping skills in the face of acculturative stressors, such as perceived discrimination during integration.

Addressing Trauma and Isolation

The IMHC prototype follows the framework for trauma-informed care set forth by the Substance Abuse and Mental Health Service Association.³⁴ On a departmental level, the IMHC prototype includes provisions to ensure that all staff members

understand and practice the basic principles of trauma-informed care. Said provisions include, but are not limited to: ongoing training seminars, staff support (i.e., addressing secondary traumatic stress, staff handbooks and manuals, badge-backers with trauma-related resources), and annual client advisory boards in which trauma survivors inform improvements of the IMHC prototype (**Figure 4**). Given that perceived discrimination is a critical potentially traumatic experience during the post-migration resettlement phase,⁸ the IMHC prototype includes workshops on racial trauma⁶⁴ and culturally-competent healthcare practices⁶⁵ for all staff members.

The fifth key personnel in the continuum of care are Clinical Psychologists who specialize in trauma-informed care. These mental health practitioners serve as lead care managers for patients whose mental health concerns arise from trauma and social isolation. They utilize evidence-based and culturally-cognizant therapeutic protocols to address mental health concerns such as GAD, MDD, PTSD, and suicidal ideation.

Although there is a dearth of information surrounding empirical evaluations of therapeutic protocols for US immigrants,⁶⁶ a review of refugee-centered interventions found that CBT alone or in combination with pharmacological therapy was effective in reducing symptoms of traumatic and migration stress.⁶⁷ However, the six studies of CBT included in the review had small sample sizes and varying treatment effect sizes. Exposure Therapy and Mindfulness-Based Interventions are additional protocols with emerging evidence for combatting traumatic stress.⁶⁷ Finally, Clinical Psychologists within the IMHC prototype recognize the substantial impact of torture-related trauma on mental health. They understand the unique nature of treating torture survivors, such as

emphasizing the re-establishment of trust, addressing survivors' guilt, and helping patients recover from dehumanizing conditions over the course of psychotherapy.⁶⁸ These results provide a theoretical foundation for psychotherapy within the IMHC prototype **(Figure 4)**.

Trauma is one of the many stressors that Clinical Psychologists address in the present model. Social isolation relief is equally critical to comprehensive mental healthcare **(Figure 4)**. Because social isolation is caused by a complex mixture of individual, family, social, and structural factors,³⁹ any therapeutic protocol must extend beyond individual psychotherapy. To this extent, peer support groups are essential components of the IMHC prototype. Clinical Psychologists may choose to model their support groups after the “Terutulias” intervention developed by Page-Reeves et al. (2021).⁶⁹ Although this intervention is specific to female Mexican immigrants, it contains elements such as structured dialogue, peer-to-peer interactions, and storytelling that may be applicable across all immigrant demographics. Clinical psychologists may also target this core psychosocial stressor through implementing “supported socialization,” an activity in which immigrants with mental health concerns regarding social isolation are paired with community volunteers for 1:1 social engagement.⁷⁰ Clinical psychologists may also include evidence-based social skills training in treatment plans.⁷¹

Addressing Psycho-Pharmacological Treatment

Psychiatric treatment accessibility extends beyond finding a physician. It includes the attributes of providers, such as their ability to address immigrant-specific needs and provide culturally-tailored care. With this in mind, Psychiatrists included in the IMHC

prototype are recruited from the existing pool of board-certified MGH physicians. These medical professionals must demonstrate a vested interest in cross-cultural psychiatry and hold practice values that closely align with the IMHC prototype's holistic, integrated vision of mental healthcare. Immigrant patients with demonstrated psycho-pharmacological needs are referred to an IMHC psychiatrist after their preliminary mental health assessment (**Figure 4**).

Here, the clinical setting must be considered. The psychiatric clinical setting must (1) be accessible during times outside of regular practice hours to accommodate varying patient employment statuses; (2) include flexible scheduling to accommodate newly-arrived patients as they navigate the US healthcare system; (3) prioritize safety in that all treatments protect staff, practitioners, and their already vulnerable patient population; and (4) have a location that allows coordinated care (i.e., care that can address complex health conditions via collaborations with medical specialists) to be as efficient and seamless as possible. The PCMH-O model includes these clinical setting recommendations for psycho-pharmacological treatment.⁵⁶

Clinical recommendations for psycho-pharmacological treatment include targeting psychotropic medication adherence, decreasing attrition rates, and establishing bridges to long-term care. Specifically, bridges to long-term care include collaborations between IMHC psychiatrists and outpatient mental health practitioners who are able to provide stable, consistent, and culturally competent therapy while monitoring medication adherence.

	ACTION	OUTCOME
Center Coordinators	<ul style="list-style-type: none"> ‣ Educational Curriculum ‣ Training Workshops 	<ul style="list-style-type: none"> ‣ Health Promotion ‣ Sustain Training Efforts
Volunteer Coordinators	<ul style="list-style-type: none"> ‣ Supported Socialization ‣ University Partnerships 	<ul style="list-style-type: none"> ‣ Combat Social Isolation Stressor ‣ Community Engagement
Interfaith Counsellors	<ul style="list-style-type: none"> ‣ Spiritual Support 	<ul style="list-style-type: none"> ‣ Improvement of Spiritual Needs
Statisticians and Programmers	<ul style="list-style-type: none"> ‣ Electronic Health Record ‣ Quality and Safety Surveillance 	<ul style="list-style-type: none"> ‣ Optimal Client Follow Up ‣ Fulfill Integrated Care Standards

Figure 5. Element 3 of the IMHC Prototype. The IMHC prototype includes multidisciplinary partnerships to align with integrated care program standards, combat barriers to mental health treatment accessibility, facilitate community relationships, and ensure continuous monitoring and quality improvement.

Element 3

Apart from the provision of mental healthcare yet essential to the IMHC prototype are four allied health professions: Center Coordinators, Volunteer Coordinators, Interfaith Counsellors, Statisticians, and Electronic Health Record Programmers. Each allied health professional contributes to the prototype’s multidisciplinary vision of mental healthcare (**Figure 5**).

Center Coordinators

Center Coordinators manage an educational curriculum for IMHC staff and patients (**Figure 5**). Regarding staff, the curriculum addresses the four core psychosocial stressors. Beneficial topics may include Racial Trauma Theory,⁶⁴ Culturally-Competent Healthcare Systems,⁶⁵ Understanding the US Refugee Resettlement,²¹ or Acculturation, Acculturative Stress, and Integration Strategies.²⁸ Experts in these topics may be invited

from external organizations per the Center Coordinator's efforts. Regarding patients, the Center Coordinator aligns with the MGH Center for Immigrant Health to provide education on nutrition management and self-management of chronic diseases (for example, programs aimed at decreasing tobacco use and increasing exercise). The Center Coordinator additionally partners with IMHC Clinical Psychologists to host trauma-informed care workshops. Staff handbooks on trauma-informed care, badge-backers with referrals to secondary trauma resources, and client advisory boards to address trauma-related stressors (**Figure 4**) are also managed by the IMHC Center Coordinator.

Volunteer Coordinators

Volunteer Coordinators are the second administrative personnel in the IMHC prototype (**Figure 5**). The Volunteer Coordinators partner with the well-established MGH Volunteer Department to recruit students from universities across Massachusetts. They may also recruit volunteer medical interpreters from the MGH Community Health Workers Program. Student volunteers may assist IMHC staff with organizational needs outside of mental health treatment, such as partnering with the Center Coordinators to run the trauma-informed care workshops or helping the Statisticians with secondary data collection. Volunteer medical interpreters may partner with the Immigrant Health Resource Specialist to provide on-call interpretation (**Figure 3**). Both student and medical interpretation volunteers may also participate in "Supported Socialization" activities as a measure against social isolation. Although it is an ancillary service, establishing a volunteer department would strengthen the IMHC prototype's financial sustainability in a mental healthcare landscape with limited resources.⁷²

Interfaith Counsellors

Interfaith Counsellors connect spirituality and mental health within the IMHC prototype (**Figure 5**). As mentioned, the literature highlights significant associations between religiosity and attitudes toward mental health services across multiple US immigrant demographics.⁴⁵⁻⁴⁸ With this in mind, Interfaith Counsellors in the IMHC prototype attend to attitudinal barriers; specifically, they may provide support for patients who endorse higher levels of religiosity and less trust in professional mental health services. Existing integrated care models have successfully incorporated Interfaith Counsellors into their framework to provide culturally-tailored and individualized treatment.^{45,56}

IT and EHR Programmers

IT/EHR Programmers are the final administrative personnel involved in the IMHC prototype. They oversee the health information technologies components of three critical areas of integrated care: (1) Population health management; (2) Mechanisms to facilitate coordination of care; and (3) Systematic quality improvement (**Figure 5**).⁷³ Regarding population health management, IT/EHR programmers employ various systems for monitoring health statuses, tracking medication delivery, and scheduling follow-up appointments for patients. Regarding mechanisms to facilitate the coordination of care, IT/EHR programmers will employ strategies to support referral tracking, communication, and confidentiality of patient health information.⁷³ Finally, IT/EHR will support quality improvement efforts by collecting continuous feedback of results to providers, support

staff, and internal and external partners per the framework specified in the PCMH-O model of integrated care.⁵⁶

PCMH Evaluation

A brief review was conducted to isolate the characteristics of PCMH models in the US. In 2007, a consortium of primary care physician societies (The American Academy of Family Physicians) isolated six common principles of a PCMH. These include the assignment of a personal practitioner, whole-person orientation (i.e., attending to all needs of a patient), integration of healthcare services, the use of technology and client feedback to enhance quality and safety of care, increased accessibility, and a payment schedule that extends beyond traditional fee-for-service encounters.⁷⁴ In 2017, the National Committee for Quality Assurance (NCQA) published six additional “must-pass” elements for an institution to be considered a PCMH. These are access to care during office hours, using data for population management, care management, support of self-care processes, tracking of referrals and follow-up care, and implementing continuous quality improvement.⁵³ Additionally, a recent review isolated eleven shared elements of integrated behavioral care programs: multidisciplinary teams, population health management, access to routine and urgent care, decision support for measurement-based care, self-management support, ongoing care management, seamless referral processes, mechanisms to facilitate coordination of care, linkages with community and social services, systematic quality improvement, and sustainability strategies.⁷³ The rationales for measuring a PCMH vary across organizations, but some similar criteria

arise. **Table 1** summarizes the extent to which the IMHC prototype aligns with these key PCMH criteria.

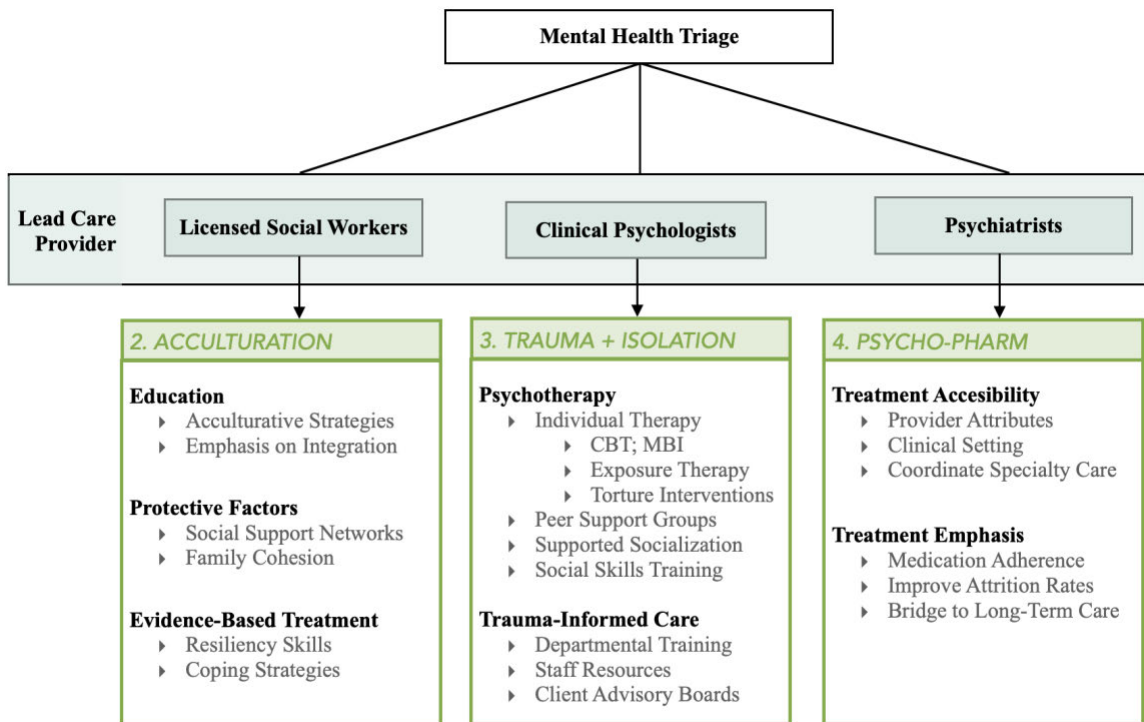
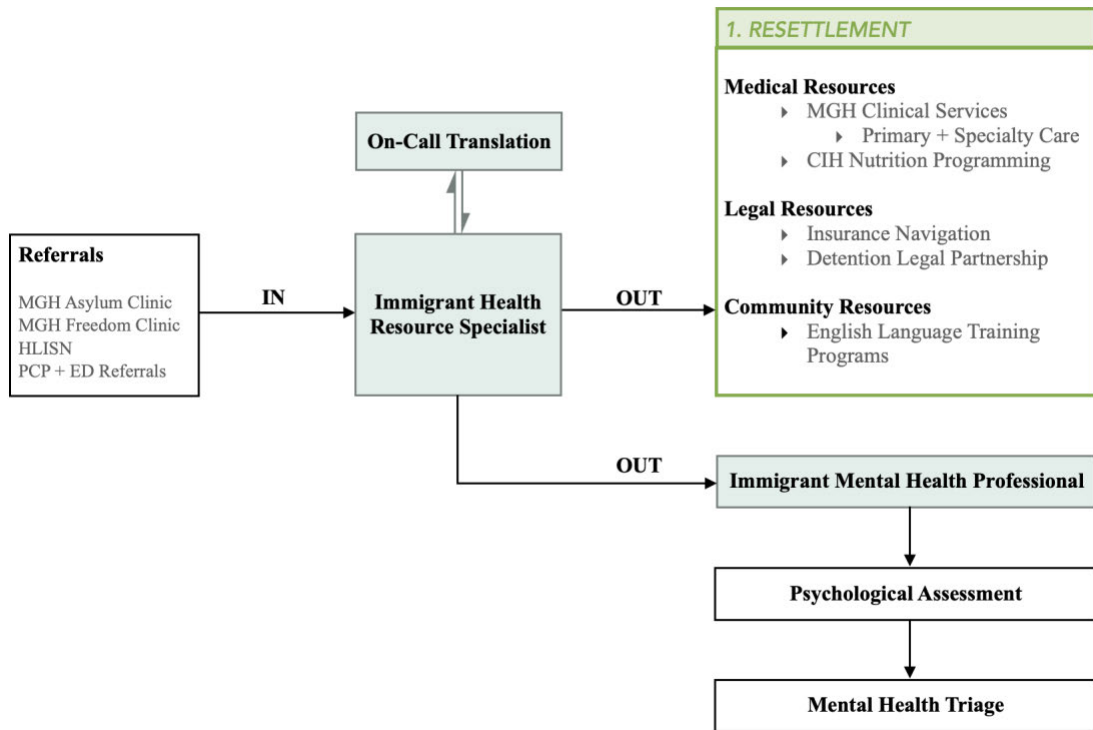
Themes	Sub-criteria	E1	E2	E3
Mutidisciplinary Teams	▶ Integration of care services.	✓	✓	✓
	▶ Mechanisms to facilitate coordination of care.	✓	✓	✓
	▶ Routine and urgent care provisions.	✓	✓	✓
	▶ Whole-person orientation.	✓	✓	✓
Personal Practitioners	▶ Decision support for stepped care.	✓	✓	✓
	▶ Ongoing care mangement.		✓	✓
Use of Data for Population Management	▶ Tracking referrals and follow-up care provided.	✓	✓	✓
	▶ Use of technology and client feedback to enhance quality and safety.			✓
Increased Accessibility	▶ Seamless referral processes.	✓	✓	✓
	▶ Access to care during office hours.	✓	✓	✓
	▶ Payment schedule extend beyond traditional fee-for service encounters.			
	▶ Support of self-care processes			
Administration	▶ Linkages with Community and Social Services	✓	✓	✓
	▶ Sustainability strategies.			
	▶ Systematic quality improvement			✓

Table 1. Common PCMH Themes. Criteria for PCMH set forth by the National Committee for Quality Assurance,⁵³ the American Association of Family Physicians,⁷⁴ and a review of national integrated healthcare programs⁷³ are stratified into five main themes. A checkmark is designated for each criteria that IMHC prototype theoretically fulfills, and specifies the element of the prototype where it is address. E1= Element 1; E2= Element 2; E3 = Element 3.

Deliverable: IMHC Prototype

US Immigrants face multiple psychosocial stressors as an intrinsic part of starting their lives in a new country. Some challenges they face include learning a new language, the health care system, and the overall adjustment to a new way of life and culture. Many immigrants also arrive with pre-migration trauma and face post-migration traumatic experiences, such as discrimination, family conflict, and social isolation, which further exacerbate mental health concerns. Although they must surmount a plethora of psychosocial stressors, US Immigrants access psycho-pharmacological services at lower rates than their native-borne counterparts, have lower rates of long-term care appointments, and demonstrate marked deficits in treatment adherence. These factors make the provision of immigrant mental healthcare challenging and necessitate an organized approach that addresses existing barriers to treatment accessibility.

In summary, the IMHC prototype represents an organized approach to providing mental health services and mitigating barriers to treatment accessibility, tailored explicitly for US Immigrant patients within the MGH Healthcare Network. Three elements of the IMHC prototype represent integrated, accessible, comprehensive, and culturally-tailored care. **Figure 6** illustrates the complete IMHC prototype.



	ACTION	OUTCOME
Center Coordinators	<ul style="list-style-type: none"> ▶ Educational Curriculum ▶ Training Workshops 	<ul style="list-style-type: none"> ▶ Health Promotion ▶ Sustain Training Efforts
Volunteer Coordinators	<ul style="list-style-type: none"> ▶ Supported Socialization ▶ University Partnerships 	<ul style="list-style-type: none"> ▶ Combat Social Isolation Stressor ▶ Community Engagement
Interfaith Counsellors	<ul style="list-style-type: none"> ▶ Spiritual Support 	<ul style="list-style-type: none"> ▶ Improvement of Spiritual Needs
Statisticians and Programmers	<ul style="list-style-type: none"> ▶ Electronic Health Record ▶ Quality and Safety Surveillance 	<ul style="list-style-type: none"> ▶ Optimal Client Follow Up ▶ Fulfill Integrated Care Standards

Figure 6. Complete IMHC Prototype. The continuum of care is segmented into three elements. Element 1 includes referrals, resettlement-related resource navigation, and preliminary health and psychological assessment. Element 2 includes triage into three core areas of service. Element 3 encompasses the allied healthcare professions that ensure quality and safety of healthcare provided.

DISCUSSION

Evaluation of the IMHC Prototype

Strengths

The predominant strength of the IMHC prototype is its emphasis on multidisciplinary healthcare. A patient’s medical, psychological, social, and spiritual needs are stratified across five specialists so that a single provider does not manage every aspect of wellness. Although the care itself is segmented between practitioners, the IMHC prototype assigns a “lead care provider” (**Figure 7**) based on a patient’s specific psychosocial need. The lead care provider spearheads treatment efforts and provides a contact point for a given patient. Indeed, an emerging body of research shows that

multidisciplinary mental healthcare models (such as the PCMH model) may improve health outcomes⁵⁵ and provider satisfaction.⁷⁵ Other benefits include fewer medical errors, test duplications, and better client-provider relationships.⁵⁴ Having a “lead care provider” also ensures accountability and prevents role-blurring—two significant criticisms of integrated healthcare models.⁷⁶ Overall, the IMHC framework achieves the triple aims of targeting core psychosocial stressors, facilitating multidisciplinary teamwork, and ensuring accountability for a patient’s health outcomes by allowing a single person to spearhead a patient’s recovery.

Another strength of the IMHC prototype is its strong internal (MGH) and external (community) relationships. Externally, community involvement begins with patient referrals from four diverse institutions. It continues through the resource navigation phase of Element 1 (**Figure 3**), where the Immigrant Health Resource Navigators partner with multiple community institutions to provide resettlement services. Of these community-based resettlement services, the English Language Training Programs take utmost importance given that limited English proficiency is a significant psychosocial stressor and barrier to treatment accessibility. In Element 2 (**Figure 4**), a Clinical Psychologist may involve the community by holding peer support groups or implementing supported socialization activities to mitigate isolative stress.

Similarly, a LISCW may target protective factors against acculturative stress by organizing community-based immigrant social support groups. In Element 3 (**Figure 5**), Volunteer Coordinators involve students from local universities in non-treatment IMHC

activities. University partnerships strengthen the IMHC prototype's community presence and afford immigration-related outreach and advocacy opportunities.

Internally, the IMHC prototype aligns with existing resources at MGH. In Element 1 (**Figure 3**), Immigrant Health Resource Navigators are recruited from the MGH Community Health Workers Program, and On-Call Translation measures currently exist for MGH institutions. The Immigrant Mental Health Psychologist, who conducts preliminary health and psychological assessments, may be recruited from the MGH Center for Immigrant Health. In Element 2 (**Figure 4**), any specialist may be sourced from the MGH healthcare network. Here it is essential to note the academic and clinical prowess of practitioners employed by MGH. Massachusetts General Brigham (representing the entire healthcare network) employs over 74,000 individuals, represents the largest private hospital recipient of National Institutes of Health (NIH) funding in the US, and offers one of the most robust medical education programs in the country through aligning with Harvard Medical School. Finally, in Element 3 (**Figure 5**), Center Coordinators may run their immigrant-focused educational curriculum in partnership with the Mass General Psychiatry Academy. This institution sponsors web-based seminars, satellite symposia, teleconferences, and live educational events.⁷⁷ On a macroscopic level, the IMHC prototype is not limited to Boston. MGH Satellite Clinics extend care to Chelsea, Everett, and Revere Massachusetts municipalities. This allows the IMHC prototype to circumvent locational barriers to service. Overall, partnering with MGH ensures a foundational set of essential services for mental health and general medical care provided by practitioners at the forefront of their respective fields.

Apart from strong internal and external relationships, the IMHC prototype excels at weaving the principles of trauma-informed care into its framework. Said principles consist of four key assumptions, as outlined in SAMHSA's trauma-informed care guidelines.³⁴ The first assumption is that all staff across all levels of the organization have a basic realization about how trauma affects the mental health of individuals, families, organizations, and the community as a whole. Mandatory trauma-informed care workshops provided by the IMHC prototype ensure this assumption. Second, the SAMHSA framework specifies that people across the organization recognize the signs of trauma. Placing an Immigrant Mental Health Specialist early in the continuum of care to assess patients for trauma-related mental health concerns partially fulfills this assumption. Third, a healthcare system should respond by applying the principles of trauma-informed care to the wellbeing of both staff and patients. Regarding staff, the IMHC prototype specifies the provision of resources for secondary trauma. Regarding patients, the IMHC prototype contains a Clinical Psychologist that specializes in addressing the core psychosocial stressors of trauma and social isolation. Finally, SAMHSA articulates that an effective trauma-informed healthcare system includes measures to resist re-traumatization. Although the physical location of the IMHC prototype is yet to be determined, the fact that organizations often create stressful and re-traumatizing environments that interfere with client recovery will be considered during the implementation process.

Challenges

Similar to the PCMH-O model, the tremendous heterogeneity of experiences, ethnocultural backgrounds, and spoken languages amongst the US immigrant population represents one of the most significant challenges to providing patient-centered care. Measures to accommodate language differences, such as on-call translation services and multiple bi-lingual Resource Specialists, only partially ameliorate the challenge of serving a population with approximately 67,802,000 individuals who speak languages other than English.² Furthermore, the goal of providing culturally-competent mental health services grows increasingly complex when the target demographic encompasses all US immigrants. For example, the preliminary psychological assessment in Element 1 is subject to cultural bias (**Figure 3**). Specifically, a primary barrier to any assessment or screening battery for minority populations is the lack of efficient, valid, and culturally-responsive instruments for detecting disorders⁷⁸ especially when considering that common mental illnesses (i.e., MDD) may present differently according to ethnocultural background and language.⁷⁹ The primary assessment is only one of the many elements within the IMHC prototype that may encounter difficulties in attending to the heterogeneity of the US immigrant population.

Theoretically, the IMHC prototype includes a multidisciplinary team of specialists for a single patient. A “lead care manager” spearheads treatment progress, while allied healthcare professionals address spiritual needs and facilitate administrative processes (**Figure 6**). Realistically, this prototype may encounter challenges in recruiting and financially sustaining such a sizable workforce. Although Mass General Brigham is

the largest employer in Massachusetts, recent epidemiological surveys have highlighted a shortage in psychiatrists that the COVID-19 pandemic has further exacerbated.⁹¹ To date, no studies report the frequency of LISCWs or Clinical Psychologists specializing in immigrant-focused mental health in Massachusetts, nor are there studies reporting the frequency of multi-lingual mental health professionals in the US. Recruiting providers with the training, motivation, and experience needed to address immigrant-related mental health concerns from an already marginalized resource pool may severely limit the efficacy of the IMHC prototype.

Furthermore, the financial metrics of the IMHC protocol are yet to be defined. As many immigrants seek coverage through Medicaid,⁵¹ reimbursement may be inadequate, especially when additional service costs, such as on-call interpretation, are necessary to provide care. Fee-for-service payment policies were inadequate to fund the PCMH-O model,⁵⁶ and out-of-pocket payments for mental healthcare services often exceed the financial capabilities of underserved populations.¹⁴ Of note, a reoccurring theme within integrated care models like the IMCH prototype is a misalignment between payment systems and integrated care goals; specifically, provider payment schemes remain linked to procedures and the volume of patient visits.⁵³ The financial incentive of seeing more patients, and billing for more hours, may outweigh the extra time and effort on behalf of the “lead care manager” in directing a single patient’s recovery. Indeed, methods to recruit and financially sustain the workforce included in the IMHC prototype need to be defined before the implementation stage in the Human-Centered Design workflow.

Additionally, the IMHC prototype would benefit from exploring sustainability strategies before implementation.

Sustainability strategies are related to the longevity and maturation of a healthcare model. They include elements such as diversification of funding, ensuring flexibility and institutional engagement with policy changes, and certifying that the healthcare model includes measures to make affordable healthcare available to all patients.⁷³ Preliminary sustainability strategies included in the IMHC prototype may include the provisions for patients with limited English proficiency and the emphasis on medical-legal navigation assistance in Element 1. However, the IMHC prototype would benefit significantly from further exploration of the diversification of funding and the specific ways it would acclimate to changes in hospital, legal, or general healthcare policies.

There are some critical structural barriers to mental health treatment accessibility that remain unaddressed. First, the IMHC prototype accepts referrals within a narrow geographical margin. Boston, Chelsea, Revere, Everett, and Charlestown represent four of three hundred and fifty-one municipalities in Massachusetts. Although positioned to improve the health and wellbeing of US immigrant patients seeking services at MGH, implementing the IMHC prototype may exacerbate existing discrepancies between metropolitan and rural mental health resources. Second, limited access to technology and transportation remain significant barriers to effective service provision within the IMHC prototype. Resource navigation, scheduling appointments, attending psychotherapy, follow-up checks, and even educational programming rely upon a given patients' access to technology and transportation. Potential solutions may include aligning the IMHC

prototype with complementary medical shuttles or initiatives such which provides access to technology. It is important to note that these structural barriers to treatment accessibility are not unique to the IMHC prototype. Across the US, limited transportation and access to technology provide monumental barriers to healthcare regardless of immigration status.⁸⁰

Communication Materials

Collaborating with stakeholders and aligning with Human-Centered Design principles, we will iteratively design solutions to co-optimize the IMHC prototype for eventual implementation within the MGH Center for Immigrant Health. This process begins with presenting communication materials to a panel of experts in immigrant mental health. Communication materials include the complete IMHC prototype (**Figure 6**), the proposed psychological screening battery (**Appendix B**), a discussion of the strengths and weaknesses of the IMHC prototype, and a list of potential internal and external stakeholder organizations. Once holding the expert advisory panels, we will refine the IMHC prototype through a series of feasibility pilot trials (up to three rounds of feasibility pilots with exit interviews for each patient) using patient and provider information on vital integrated health benchmarks. Said benchmarks include the key PCMH criteria isolated in **Table 1** from the literature, feasibility, acceptability of the prototype, and fidelity with current standards of care. After the feasibility pilot trials, we will conduct a pilot feasibility RCT among US immigrant patients seeking treatment within the MGH healthcare network. Here, we will determine whether the IMHC

prototype meets a priori set benchmarks necessary for successful implementation. We will also determine the feasibility and efficacy of the IMHC prototype compared to the current standard of mental healthcare for US immigrants and compared to other models of integrated mental healthcare.

CONCLUSION

Immigrants resettled in the US face many psychosocial stressors that are a part of rebuilding their lives in a foreign country. During resettlement, significant language barriers and learning to navigate increasingly complex medical-legal landscapes pose significant risks for psychological distress. Acculturation, or managing dissonance between traditional and host cultures, increases the risk of acculturative stress based on a given immigrant's strategy. Pre-migration traumatic events, such as war-related deaths and natural disasters, additionally increase the risk of developing or exacerbating mental health concerns. However, trauma does not end after resettling in the US. Post-migration traumatic experiences like discrimination, family separation, and social isolation may further detriment mental health. Despite this increased risk of developing mental illness, US immigrants receive psycho-pharmacological treatment at lower rates than their native-borne counterparts. The vast heterogeneity of the US population and the number of psychosocial stressors they may have encountered make the provision of immigrant healthcare challenging. It necessitates an organized, structured approach provided by a healthcare prototype such as the IMHC.

Theoretically, the IMHC prototype provides multidisciplinary healthcare with a whole-patient orientation by aligning with PCMH standards. While the IMHC prototype contains an adequate framework for the stratification of care across multiple professionals, financial metrics and provider motivation to practice within an integrated-care model must be further explored. Similarly, the IMHC prototype theoretically contains a strong referral network, internal partnerships, and external relationships with community institutions. However, definitive stakeholders must be identified and isolated as a critical measure before implementation. Future directions may include extending care to second- and third-generation immigrants, who may be at an even greater risk of developing mental health concerns.⁸¹ Provisions for acute mental health needs also need to be explored. To this extent, the IMHC prototype may be extended in future iterations to include partnerships with mental health hospitals and rehabilitation institutes. These may increase the ability of the IMHC prototype to create bridges to longer-term care for individuals with serious mental illnesses or substance use disorders. As this new IMCH prototype matures, it will continue to create stronger collaborations among other institutions providing immigrant-focused care. Further, this prototype may lead to the translation of integrated-care services for other vulnerable populations. The IMHC prototype sits at the forefront of primary care and behavioral health redesign, facilitating the ongoing paradigm shift in how healthcare is delivered.

APPENDIX

Appendix A. Most Prevalent Mental Illness Among US Immigrants. Data taken from APA Dictionary of Psychology (APA). MDD = Major Depressive Disorder; Major Depression. PTSD = Post-Traumatic Stress Disorder. GAD.= Generalized Anxiety Disorder.

Disorder	Definition
MDD	A disorder in which an individual has a persistently low or depressed mood, anhedonia or decreased interest in pleasurable activities, feelings of guilt or worthlessness, lack of energy, poor concentration, appetite changes, psychomotor retardation or agitation, sleep disturbances, or suicidal thoughts.
PTSD	A disorder that may result when an individual lives through or witnesses an event in which he or she believes that there is a threat to life or physical integrity and safety and experiences fear, terror, or helplessness.
GAD	A disorder characterized by excessive anxiety and worry about a range of concerns accompanied by such symptoms as restlessness, fatigue, impaired concentration, irritability, muscle tension, and disturbed sleep.

Appendix B. Proposed Health and Psychological Wellness Assessment Schedule.

Assessment Schedule	
Construct	Self-Report Measures
Health Screen	Refugee Health Screener 15 (RHS-15)
	General Health Questionnaire (GHQ)
Psychopathology	Patient Health Questionnaire (PHQ-9)
	Beck Depression Inventory (BDI)
	General Anxiety Disorder (GAD-7)
Trauma and Isolation	Beck Scale for Suicidal Ideation (BSI)
	Posttraumatic Diagnostic Scale (PDS-15) <ul style="list-style-type: none"> - Section I: Checklist of Traumatic Events - Section III: PTSD Reexperience, Avoidance, Arousal

	Posttraumatic Stress Disorder Self-Report Scale (PCL-5)
	De Jong Gierveld Loneliness Scale
	Multidimensional Scale of Perceived Social Support (MSPSS)
	Harvard Trauma Questionnaire
Acculturative Stress	SAFE Acculturative Stress Scale
	Bicultural Involvement Questionnaire (BIQ)
Other Measures	Profound & Multiple Learning Difficulties Scale (PMLD)
	Global Assessment of Functioning (GAF)
	Personal & Social Performance Scale (PSPS)
	Drug Abuse Screening Test (DAST)
	Health Data (Medical Records)*
Demographics	Age
	Language
	Sex assigned at birth
	Gender Identity
	Race
	Ethnicity
	Education level
	Income

BIBLIOGRAPHY

1. McAuliffe M, Triandafyllidou A. 1 Report Overview: Technological, Geopolitical and Environmental Transformations Shaping Our Migration and Mobility Futures. *World Migration Report*. 2022;2022(1):e00022. doi:10.1002/wom3.22
2. Batalova JBCE and J. Frequently Requested Statistics on Immigrants and Immigration in the United States. migrationpolicy.org. Published March 15, 2022. Accessed December 6, 2022. <https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states>
3. Colby SL, Ortman JM. *Projections of the Size and Composition of the U.S. Population: 2014 to 2060. Population Estimates and Projections. Current Population Reports. P25-1143*. US Census Bureau; 2015. Accessed March 17, 2023. <https://eric.ed.gov/?id=ED578934>
4. Hook RC Julia Gelatt, Ariel G Ruiz Soto, Jennifer Van. Unauthorized Immigrants in the United States: Stable Numbers, Changing Origins. migrationpolicy.org. Published December 16, 2020. Accessed March 5, 2023. <https://www.migrationpolicy.org/research/unauthorized-immigrants-united-states-stable-numbers-changing-origins>
5. McAllister A, Fritzell S, Almroth M, Harber-Aschan L, Larsson S, Burström B. How do macro-level structural determinants affect inequalities in mental health? – a systematic review of the literature. *International Journal for Equity in Health*. 2018;17(1):180. doi:10.1186/s12939-018-0879-9
6. Martinez O, Wu E, Sandfort T, et al. Evaluating the impact of immigration policies on health status among undocumented immigrants: a systematic review. *Journal of Immigrant & Minority Health*. 2015;17(3):947-70. doi:10.1007/s10903-013-9968-4
7. Vargas ED, Sanchez GR, Juárez M. The Impact of Punitive Immigrant Laws on the Health of Latina/o Populations. *Politics & Policy*. 2017;45(3):312-337. doi:10.1111/polp.12203
8. Joseph TD. “My Life was Filled with Constant Anxiety”: Anti-Immigrant Discrimination, Undocumented Status, and Their Mental Health Implications for Brazilian Immigrants. *Race and Social Problems*. 2011;3(3):170. doi:10.1007/s12552-011-9054-2
9. Ding H, Hargraves L. Stress-Associated Poor Health Among Adult Immigrants with a Language Barrier in the United States. *Journal of Immigrant and Minority Health*. 2008;11(6):446. doi:10.1007/s10903-008-9200-0

10. Bhugra D. Migration and mental health. *Acta Psychiatrica Scandinavica*. 2004;109(4):243-258. doi:10.1046/j.0001-690X.2003.00246.x
11. Davidson GR, Murray KE, Schweitzer R. Review of refugee mental health and wellbeing: Australian perspectives. *Australian Psychologist*. 2008;43:160-174. doi:10.1080/00050060802163041
12. Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *Lancet*. 2005;365(9467):1309-1314. doi:10.1016/S0140-6736(05)61027-6
13. Bas-Sarmiento P, Saucedo-Moreno MJ, Fernández-Gutiérrez M, Poza-Méndez M. Mental Health in Immigrants Versus Native Population: A Systematic Review of the Literature. *Archives of Psychiatric Nursing*. 2017;31(1):111-121. doi:10.1016/j.apnu.2016.07.014
14. Derr AS. Mental Health Service Use Among Immigrants in the United States: A Systematic Review. *PS*. 2016;67(3):265-274. doi:10.1176/appi.ps.201500004
15. Rodriguez DX, Hill J, McDaniel PN. A Scoping Review of Literature About Mental Health and Well-Being Among Immigrant Communities in the United States. *Health Promotion Practice*. 2021;22(2):181-192. doi:10.1177/1524839920942511
16. Abe-Kim J, Takeuchi DT, Hong S, et al. Use of Mental Health–Related Services Among Immigrant and US-Born Asian Americans: Results From the National Latino and Asian American Study. *American Journal of Public Health*. 2007;97(1):91-98. doi:10.2105/AJPH.2006.098541
17. Lanouette NM, Folsom DP, Sciolla A, Jeste DV. Psychotropic Medication Non-adherence Among United States Latinos: A Comprehensive Review of the Literature. *Psychiatric Services*. 2009;60(2):157-174. doi:10.1176/appi.ps.60.2.157
18. Law S, Hutton M, Chan D. Clinical, Social, and Service Use Characteristics of Fuzhounese Undocumented Immigrant Patients. *Psychiatric Services*. 2003;54(7):1034-1037. doi:10.1176/appi.ps.54.7.1034
19. Chavira DA, Golinelli D, Sherbourne C, et al. Treatment engagement and response to CBT among Latinos with anxiety disorders in primary care. *Journal of Consulting and Clinical Psychology*. 2014;82(3):392-403. doi:10.1037/a0036365
20. Aragona M, Barbato A, Cavani A, Costanzo G, Mirisola C. Negative impacts of COVID-19 lockdown on mental health service access and follow-up adherence for immigrants and individuals in socio-economic difficulties. *Public Health*. 2020;186:52-56. doi:10.1016/j.puhe.2020.06.055

21. Brown A, Scribner T. Unfulfilled Promises, Future Possibilities: The Refugee Resettlement System in the United States. *Journal on Migration and Human Security*. 2014;2(2):101-120. doi:10.1177/233150241400200203
22. Mui AC, Kang SY, Kang D, Domanski MD. English Language Proficiency and Health-Related Quality of Life among Chinese and Korean Immigrant Elders. *Health & Social Work*. 2007;32(2):119-127. doi:10.1093/hsw/32.2.119
23. Kim G, Aguado Loi CX, Chiriboga DA, Jang Y, Parmelee P, Allen RS. Limited English proficiency as a barrier to mental health service use: A study of Latino and Asian immigrants with psychiatric disorders. *Journal of Psychiatric Research*. 2011;45(1):104-110. doi:10.1016/j.jpsychires.2010.04.031
24. Li SSY, Liddell BJ, Nickerson A. The Relationship Between Post-Migration Stress and Psychological Disorders in Refugees and Asylum Seekers. *Current Psychiatry Reports*. 2016;18(9):82. doi:10.1007/s11920-016-0723-0
25. Laban CJ, Gernaat HBPE, Komproe IH, Schreuders BA, De Jong JTVM. Impact of a long asylum procedure on the prevalence of psychiatric disorders in Iraqi asylum seekers in The Netherlands. *Journal of Nervous and Mental Disease*. 2004;192(12):843-851. doi:10.1097/01.nmd.0000146739.26187.15
26. Laban CJ, Gernaat HBPE, Komproe IH, van der Tweel I, De Jong JTVM. Postmigration living problems and common psychiatric disorders in Iraqi asylum seekers in the Netherlands. *Journal of Nervous and Mental Disease*. 2005;193(12):825-832. doi:10.1097/01.nmd.0000188977.44657.1d
27. Steel Z, Momartin S, Silove D, Coello M, Aroche J, Tay KW. Two year psychosocial and mental health outcomes for refugees subjected to restrictive or supportive immigration policies. *Social Science & Medicine*. 2011;72(7):1149-1156. doi:10.1016/j.socscimed.2011.02.007
28. Berry JW. Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations*. 2005;29(6):697-712. doi:10.1016/j.ijintrel.2005.07.013
29. Choy B, Arunachalam K, S G, Taylor M, Lee A. Systematic review: Acculturation strategies and their impact on the mental health of migrant populations. *Public Health in Practice*. 2021;2:100069. doi:10.1016/j.puhip.2020.100069
30. Sangalang CC, Becerra D, Mitchell FM, Lechuga-Peña S, Lopez K, Kim I. Trauma, Post-Migration Stress, and Mental Health: A Comparative Analysis of Refugees and Immigrants in the United States. *Journal of Immigrant and Minority Health*. 2019; 21(5):909-919. doi:10.1007/s10903-018-0826-2

31. Revollo HW, Qureshi A, Collazos F, Valero S, Casas M. Acculturative stress as a risk factor of depression and anxiety in the Latin American immigrant population. *Int Review of Psychiatry*. 2011;23(1):84-92. doi:10.3109/09540261.2010.545988
32. Hovey JD, Magaña C. Acculturative stress, anxiety, and depression among Mexican immigrant farmworkers in the midwest United States. *Journal of Immigrant Health*. 2000;2(3):119-131. doi:10.1023/A:1009556802759
33. Araújo BY, Borrell LN. Understanding the Link Between Discrimination, Mental Health Outcomes, and Life Chances Among Latinos. *Hispanic Journal of Behavioral Sciences*. 2006;28(2):245-266. doi:10.1177/0739986305285825
34. Huang LN, Flatow R, Biggs T, et al. *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. Substance Abuse and Mental Health Services Administration (SAMHSA); 2014. Accessed March 20, 2023. <https://archive.hshsl.umaryland.edu/handle/10713/18559>
35. Kim I. Beyond Trauma: Post-resettlement Factors and Mental Health Outcomes Among Latino and Asian Refugees in the United States. *Journal of Immigrant and Minority Health*. 2016;18(4):740-748. doi:10.1007/s10903-015-0251-8
36. Steel Z, Chey T, Silove D, Marnane C, Bryant RA, van Ommeren M. Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: a systematic review and meta-analysis. *JAMA*. 2009;302(5):537-549. doi:10.1001/jama.2009.1132
37. Schlaut VA, Bosson R, Williams MT, et al. Traumatic Experiences and Mental Health Risk for Refugees. *International Journal of Environmental Research and Public Health*. 2020;17(6):1943. doi:10.3390/ijerph17061943
38. Perreira KM, Ornelas I. Painful Passages: Traumatic Experiences and Post-Traumatic Stress among Immigrant Latino Adolescents and their Primary Caregivers. *Int Migration Review*. 2013;47(4):10.1111/imre.12050. doi:10.1111/imre.12050
39. Beller J, Wagner A. Disentangling Loneliness: Differential Effects of Subjective Loneliness, Network Quality, Network Size, and Living Alone on Physical, Mental, and Cognitive Health. *Journal of Aging and Health*. 2018;30(4):521-539. doi:10.1177/0898264316685843
40. Hurtado-de-Mendoza A, Gonzales F, Serrano A, Kaltman S. Social Isolation and Perceived Barriers to Establishing Social Networks Among Latina Immigrants. *American journal of community psychology*. 2014;53. doi:10.1007/s10464-013-9619-x

41. Jang Y, Park J, Choi EY, Cho YJ, Park NS, Chiriboga DA. Social isolation in Asian Americans: risks associated with socio-demographic, health, and immigration factors. *Ethnicity & Health*. 2022;27(6):1428-1441. doi:10.1080/13557858.2021.1881765
42. Bauldry S. Immigrant-based Disparities in Mental Health Care Utilization - PMC. Accessed February 20, 2023. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5568671/>
43. Mohanty SA, Woolhandler S, Himmelstein DU, Pati S, Carrasquillo O, Bor DH. Health Care Expenditures of Immigrants in the United States: A Nationally Representative Analysis. *American Journal of Public Health*. 2005;95(8):1431-1438. doi:10.2105/AJPH.2004.044602
44. Galvan T, Lomeli-Garcia M, La Barrie DL, Rodriguez VJ, Moreno O. Beyond demographics: Attitudinal barriers to the mental health service use of immigrants in the U.S. *Current Opinion in Psychology*. 2022;47:101437. doi:10.1016/j.copsyc.2022.101437
45. Balboni MJ, Puchalski CM, Peteet JR. The Relationship between Medicine, Spirituality and Religion: Three Models for Integration. *Journal of Religion and Health*. 2014;53(5):1586-1598. doi:10.1007/s10943-014-9901-8
46. Saasa SK, Rai A, Malazarte N, Yirenya-Tawiah AE. Mental health service utilization among African immigrants in the United States. *Journal of Community Psychology*. 2021;49(6):2144-2161. doi:10.1002/jcop.22602
47. Clough J, Lee S, Chae DH. Barriers to Health Care among Asian Immigrants in the United States: A Traditional Review. *Journal of Health Care for the Poor and Underserved*. 2013;24(1):384-403. doi:10.1353/hpu.2013.0019
48. Moreno O, Nelson T, Cardemil E. Religiosity and attitudes towards professional mental health services: analysing religious coping as a mediator among Mexican origin Latinas/os in the southwest United States. *Mental Health, Religion & Culture*. 2017;20(7):626-637. doi:10.1080/13674676.2017.1372735
49. Chen J, Vargas-Bustamante A. Estimating the Effects of Immigration Status on Mental Health Care Utilizations in the United States. *Journal of Immigrant and Minority Health*. 2011;13(4):671-680. doi:10.1007/s10903-011-9445-x
50. Squires A, Thompson R, Sadarangani T, et al. International migration and its influence on health. *Res in Nursing & Health*. 2022;45(5):503-11. doi:10.1002/nur.22262
51. Branch B, Conway D. Health Insurance Coverage by Race and Hispanic Origin: 2021. <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acsbr-012.pdf>

52. Carrasquillo O, Carrasquillo AI, Shea S. Health insurance coverage of immigrants living in the United States: differences by citizenship status and country of origin. *American Journal of Public Health*. 2000;90(6):917-23. doi:10.2105/ajph.90.6.917
53. Budgen J, Cantiello J. Advantages and Disadvantages of the Patient-Centered Medical Home: A Critical Analysis and Lessons Learned. *The Health Care Manager*. 2017;36(4):357. doi:10.1097/HCM.000000000000178
54. Nielsen M, Langner B, Zema C, Hacker T, Grundy P. *Benefits of Implementing The Primary Care Patient-Centered Medical Home: A Review of Cost & Quality Results, 2012*. Patient-Centered Care Collaborative; 2012.
55. Garg A, Sandel M, Dworkin PH, Kahn RS, Zuckerman B. From medical home to health neighborhood: transforming the medical home into a community-based health neighborhood. *Journal of Pediatrics*. 2012;160(4):535-536.e1. doi:10.1016/j.jpeds.2012.01.001
56. Bosson R, Carrico R, Raghuram A, et al. Refugee-Centered Medical Home: A New Approach to Care at the University of Louisville Global Health Center. *Journal of Refugee & Global Health*. 2017;1(1). doi:10.18297/rgh/vol1/iss1/3
57. admin. MGH Asylum Clinic at the Center for Global Health. Center for Global Health | Mass General Hospital. Accessed March 5, 2023. <https://globalhealth.massgeneral.org/ourwork-items/asylumclinic/>
58. Health and Law Immigrant Solidarity Network. Health and Law Immigrant Solidarity Network. Accessed March 5, 2023. <https://www.hlisn.org>
59. Mass General Freedom Clinic. Massachusetts General Hospital. Accessed March 5, 2023. <https://www.massgeneral.org/emergency-medicine/divisions-centers-and-programs/mass-general-freedom-clinic>
60. Medical Interpreters and Community Health Workers. Massachusetts General Hospital. Accessed March 5, 2023. <https://www.massgeneral.org/community-health/cchi/programs/medical-interpreters-and-community-health-workers>
61. Center for Immigrant Health. Massachusetts General Hospital. Accessed March 5, 2023. <https://www.massgeneral.org/children/immigrant-health>
62. Vidal de Haymes M, Martone J, Muñoz L, Grossman S. Family Cohesion and Social Support: Protective Factors for Acculturation Stress Among Low-Acculturated Mexican Migrants. *Journal of Poverty*. 2011;15(4):403-426. doi:10.1080/10875549.2011.615608

63. Beckerman NL, Corbett L. Immigration and Families: Treating Acculturative Stress from a Systemic Framework. *Family Therapy*. 2008;35(2):63-81.
64. Comas-Díaz L, Hall GN, Neville HA. Racial trauma: Theory, research, and healing: Introduction to the special issue. *American Psychologist*. 2019;74(1):1. doi:10.1037/amp0000442
65. Anderson LM, Scrimshaw SC, Fullilove MT, Fielding JE, Normand J. Culturally competent healthcare systems: A systematic review. *American Journal of Preventive Medicine*. 2003;24(3, Supplement):68-79. doi:10.1016/S0749-3797(02)00657-8
66. Bernal G, Scharrón-del-Río MR. Are empirically supported treatments valid for ethnic minorities? Toward an alternative approach for treatment research. *Cultural Diversity & Ethnic Minority Psychology*. 2001;7(4):328-342. doi:10.1037/1099-9809.7.4.328
67. Murray KE, Davidson GR, Schweitzer RD. Review of refugee mental health interventions following resettlement: Best practices and recommendations. *American Journal of Orthopsychiatry*. 2010;80(4):576-585. doi:10.1111/j.1939-0025.2010.01062.x
68. Allodi FA. Assessment and treatment of torture victims: a critical review. *Journal of Nervous and Mental Disease*. 1991;179(1):4-11. doi:10.1097/00005053-199101000-00002
69. Page-Reeves J, Murray-Krezan C, Regino L, et al. A randomized control trial to test a peer support group approach for reducing social isolation and depression among female Mexican immigrants. *BMC Public Health*. 2021;21(1):119. doi:10.1186/s12889-020-09867-z
70. Davidson L, Shahar G, Stayner DA, Chinman MJ, Rakfeldt J, Tebes JK. Supported Socialization for People With Psychiatric Disabilities: Lessons From a Randomized Controlled Trial. *Journal of Community Psychology*. 2004;32(4):453-477. doi:10.1002/jcop.20013
71. Bellack AS. Skills training for people with severe mental illness. *Psychiatric Rehabilitation Journal*. 2004;27(4):375-391. doi:10.2975/27.2004.375.391
72. Bojdani E, Rajagopalan A, Chen A, et al. COVID-19 Pandemic: Impact on psychiatric care in the United States. *Psychiatry Research*. 2020;289:113069. doi:10.1016/j.psychres.2020.113069
73. Goldman ML, Scharf DM, Brown JD, Scholle SH, Pincus HA. Structural Components of Integrated Behavioral Health Care: A Comparison of National Programs. *Psychiatric Services*. 2022;73(5):584-587. doi:10.1176/appi.ps.201900623

74. Kellerman R, Kirk L. Principles of the Patient-Centered Medical Home. *American Family Physician*. 2007;76(6):774-775.
75. Oldham MA, Walsh P, Maeng DD, et al. Integration of a proactive, multidisciplinary mental health team on hospital medicine improves provider and nursing satisfaction. *Journal of Psychosomatic Research*. 2020;134:110112. doi:10.1016/j.jpsychores.2020.110112
76. Brown B, Crawford P, Darongkamas J. Blurred roles and permeable boundaries: the experience of multidisciplinary working in community mental health. *Health & Social Care in the Community*. 2000;8(6):425-435. doi:10.1046/j.1365-2524.2000.00268.x
77. Massachusetts General Hospital Psychiatry Academy. Massachusetts General Hospital Psychiatry Academy. Accessed March 5, 2023. <https://mghcme.org/>
78. Byrne BM, Campbell TL. Cross-Cultural Comparisons and the Presumption of Equivalent Measurement and Theoretical Structure: A Look Beneath the Surface. *Journal of Cross-Cultural Psychology*. 1999;30(5):555-574. doi:10.1177/0022022199030005001
79. Chang WC. A cross-cultural study of depressive symptomology. *Culture, Medicine and Psychiatry*. 1985;9(3):295-317. doi:10.1007/BF00048503
80. Lazar M, Davenport L. Barriers to Health Care Access for Low Income Families: A Review of Literature. *Journal of Community Health Nursing*. 2018;35(1):28-37. doi:10.1080/07370016.2018.1404832
81. Alegría M, Álvarez K, DiMarzio K. Immigration and Mental Health. *Current Epidemiology Reports*. 2017;4(2):145-155. doi:10.1007/s40471-017-0111-2

CURRICULUM VITAE

