

PHYSICAL AND MENTAL HEALTH DISPARITIES BETWEEN MIGRANT AND
NON-MIGRANT FAMILIES: THE CASE OF DEARBORN, MICHIGAN

By

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ABSTRACT

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Studies have shown that cultural changes can positively or negatively affect psychological, behavioral, and physical outcomes when different cultures come into continuous contact (Amer, 2007; Berry, 1992; Leopoldo, 2003). Most of the changes occur in the non-dominant group (migrants) due to the settlement in the dominant sub-group society (Berry, 1992). The majority of research done in the United States and North America has focused on these changes for larger immigrant and minority groups such as Hispanics/Latinos and Asians (Amer, 2007; Gerber, 2011). However, in the United States, there is sub-group that is largely understudied, resulting in misunderstood data in mental and physical health: Arab Americans (Abuelezzam, 2018; Amer, 2007). In fact, in the U.S. census, Arab Americans in the U.S. are categorized as “Caucasians or Whites”. This discrepancy leads to an oversight of a minority sub-group’s health problems and omits them from receiving proper social services and healthcare (Amer, 2007; Bertran, 2017). Using an online survey instrument, this study assessed mental health disparities and behavioral habits before, and since COVID-19 restrictions, and physical health disparities for 3xx residents in Dearborn, MI. Through inferential statistics and logistic regressions, results indicate that Middle Easterners experience higher mental health problems, are less likely to have healthcare coverage, have lower annual incomes, and lower educational attainment than non-Middle Easterners.

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1. INTRODUCTION

Studies have shown that cultural changes can positively or negatively affect psychological, behavioral, and physical outcomes when different cultures come into continuous contact (Amer, 2007; Berry, 1992; Leopoldo, 2003). Most of the changes occur in the non-dominant group (migrants) due to the settlement in the dominant sub-group society (Berry, 1992). These changes have been attributed to the acculturation process, socioeconomic status such as low literacy, low educational attainment, and poverty that affect mental, physical health, and behavioral habits. Acculturation differs between different ethnic communities as each process of accustoming to the new host is individualized. Migrants can face six different acculturations: physical, biological, political, economic, cultural, and social change that attribute to psychological, stress, and physical health changes (Berry, 1992; Ward, 2020). Economic, social, and cultural changes contribute to biological changes as access to social services stem from low-income, lower levels of education, racial discrimination, and language barriers to get the appropriate health care and food accessibility. Political changes also contribute to biological changes as immigration policies, especially in the United States, disadvantage immigrants from receiving proper health care and social benefits. Physiological changes such as negative mental health stressors rise from social and cultural acculturation as many migrants first and second-generation can face multiple pathways of discrimination (Amer, 2007; Berry, 1992; Phinney, 2001; Ward, 2020). Although there has been research done on migrants' (internal and external) physical and mental health, simultaneously, there are still very few studies confirming the magnitude of health risks. The bulk of research in the United States and North America has concentrated on broader immigrant and minority groups including Hispanics/Latinos, African-Americans, and Asians. (Amer, 2007; Gerber, 2012). In the United States, Arab Americans are largely understudied,

resulting misleading data for mental and physical health research (Abuelezam, 2018; Amer 2007). In the U.S. census, Arab American and Middle Easterners are grouped within a different sub-category that results in a lack of visibility in public healthcare data on the relationship between health and social inequalities. Arab American's in the U.S. are categorized as "Caucasians or whites," misleading the use of data for both sub-groups, "whites" and Middle Easterners. This discrepancy leads to misidentification, identity crisis, and an overlook on a minority subgroup that is facing critical health problems that omits them from receiving proper social services and the appropriate healthcare services (Abuelezam, 2018; El-Sayed, 2009). This study examines the health disparities between Middle Eastern migrants' that are often recognized to be associated with the living and working conditions, socioeconomic status, and social environment and how the pandemic, COVID-19, has affected these health outcomes. In this study participants are asked if they are Middle Easterners rather than Arab-American to capture their geological origins from Lebanon, Jordan, Saudi Arabia, Yemen, Palestine, Syria, Iraq and other countries since the U.S. census uses the term Middle Eastern to define Arab-American as Caucasians or whites. The implications of the research point towards recommendations for policies that can be enforced to improve the environments that surround Arab-American migrant families and understand the intensity of the stresses they face. These policies can be implemented if there is awareness of the structural barriers and difficulties migrants face when they are not recognized and have not been accounted for in earlier migration health related articles (Amer & Hovey, 2007). Further, this research examines the experiences of immigrant families with the effects of the recent Covid-19 pandemic. For years, the government has lacked preparation towards emergency planning and focused their energy towards illegal migration, transnational organized crimes like terrorism, and human trafficking. Although those

are all important and need preparation, COVID-19 is a reminder that immigration policies towards migration health also deserves attention (Igoye, 2020). The social and economic impact of the COVID-19 pandemic has sparked institutional and economic instability, including a potential change in opinion against migrants, as many serve as front-line critical workers, raising their risk of contracting the virus or losing their jobs with no alternative source of income (Fernández-Reino et al., 2020).

Through inferential statistics and logistic regressions, results indicate that Middle Easterners experience higher mental health problems such as greater feeling of restlessness, fear of physical health of ones or loved ones, less feeling of happiness, and other indicators of stressors before and since the COVID-19 pandemic. This study also found that Middle Easterners are less likely to have healthcare coverage than non-Middle Easterners coinciding with the findings of less likelihood to visit a doctor or health facility. Further, Middle Easterners earn much less in annual income and have much less educational attainment than non-Middle Easterners. However, the sample showed that Middle Easterners are less likely to be obese and have chronic illnesses than non-Middle Easterners, although there were no significant differences in eating habits or accessibility to foods. Applicable future policy and research implications and recommendations are given in hopes to benefit both subgroups through the acculturation process, destigmatizing negative mental health, and through immigration policies that advantage immigrants during the pandemic crises.

2. LITERATURE REVIEW

The process of acculturation; “culture change that results from continuous, first-hand contact between two cultural groups” (Mägi, 2018; Redfield, 1936), is not a new phenomenon as it has been part of the migration process study for over half a century (Berry, 1992). The cultural changes can have positive or negative psychological, behavioral, and attitudinal outcomes when different cultures come into continuous contact (Amer, 2007; Berry, 1992; Cabassa, 2003). Both sub-groups from the different cultures can experience changes but it is important to note that most of the changes occur in the non-dominant group (migrants) as a result from the settlement in a new host country (Berry, 1992).

The “healthy immigrant effect” is a known phenomenon that states the health of immigrants is better than their native-born counterparts upon arrival (Aplipay, 2012; McDonald 2004). Multiple literatures include the idea that the immigrants with better physical and mental health deteriorate over time in the new host. When immigrants arrive in a new society, they encounter distinct cultural changes that cause behavioral shifts and acculturative stress (Aplipay, et al., 2012). To be more specific, there are six changes, in theory (Berry, 1980 & 1992), that migrants face in acculturation and produce group level results: i) physical changes, including a new place to live, housing, population density, urbanization, and environmental changes such as pollution; ii) biological changes: nutritional status and exposure to new diseases; iii) political changes and having some loss of autonomy; iv) economic changes and new forms of employment; v) cultural changes such as alteration of original linguistics, religion, and education; and vi) social, wherein social relations become altered. Each of the six have numerous psychological changes and are referred to acculturative stress (Berry, 1980) or a psychological culture shock (Ward & Furnham 2020).

There are four strategies migrants can experience settling into a new society; integration, assimilation, separation, and marginalization which determine the adaptive outcomes for different individuals and sub-groups (Amer, 2007; Berry, 1997; Ward, 2010). According to research, marginalization is linked to the highest levels of acculturation stress, which is caused by factors such as foreign languages, traditions, practices, bias, and discrimination. (Amer; 2007, Berry, 1997; Phinney, 2001). These stressors tend to lead to mental health problems, identity confusion, alienation, anxiety, and depression (Phinney, 2001; Ward, 2020).

2.1 What We Know about Migrant Health

2.1.1 Physical Health

Several researchers argue that of acculturation has adverse effects on healthy behaviors and can potentially impact physical and mental health outcomes (Gerber, 2011; McKay, 2003; Unger, 2004). After settlement, migrants' morbidity and mortality rates either stay the same, increase, or decrease (McKay, et al., 2003). These patterns may be influenced by a combination of certain risk factors, such as migrants' diet, weight, and Body Mass Index (BMI) changes, smoking behavior and alcohol consumption in the duration of being in the new host country (McKay, et al., 2003). Having a background of ethnic minority status does not establish health risks alone; there are several hypotheses that present a linkage between migration and health risks: i) migrants might choose to emigrate with predisposed health problems such as coming from a poor country or running away from traumatic experiences, ii) the stress that comes after coping with migrating or acculturation in the new host, iii) The "healthy immigrant effect" holds that people who migrate have better health than those who do not migrate, iv) immigrants have better health than non-immigrants, and this better health deteriorates with time (a lengthy period of residency, language use, or increased status in generation) (Amer, 2011; Sam, 2006; Gerber, 2011). Empirical

evidence supports these four hypotheses because the circumstances under which migration an individual takes is different across different ethnic groups (Gerber, et al., 2011).

Acculturation and health behaviors have been shown to have a detrimental relationship in studies conducted in the United States (Amer, 2011; Gerber, 2011; Unger, 2004). Hispanic and Asian-American immigrants in the U.S. have implicated acculturation risks of unhealthy behaviors (Gerber, et al., 2011). For instance, among Mexican immigrants in the U.S., there are trends in substance misuse, tobacco use, eating disorders and unhealthy dietary activity among who are more acculturated (Amer, 2011; Gerber, 2011; Unger, 2004). The new environment serves dietary and lifestyle habits to the dominant group, which are not beneficial to maintaining the norm of the healthy lifestyle as back home (Mckay, 2003). One adapts to the western dietary habits that could lead to increased risk of obesity, diabetes, heart disease, and cardiovascular diseases (Creatore, 2010; Ebrahim, 2011; Gerber, 2011; Goel, 2004; Kaplan 2004).

Physical activity among migrant groups in high-income countries is hampered by cultural and religious factors, social relationships, socioeconomic factors, and environmental factors (Caperchione, 2009; Weiland, 2015). Migrating to a new host does not offer cultural standards that encourage physical activity leisure (Weiland, 2015; Singh, 2008). Social support is associated with physical activity and, as immigrants are poorly supported by a new host, physical activity is negligible (Weiland, 2015; Singh, 2008). It has been shown that in order to motivate people to lose weight and consider their diabetes risk, people are more likely to succeed if they have cultural and family social support and are well informed on the benefits of physical activity. (Marquez, 2006; Pinelli, 2011; Wolin, 2006). For example, Latina women in North Carolina who know positive physical activity role models in their community and see them to be more active were more likely to be physically active themselves (Weiland, 2015; Evenson, 2004).

Socioeconomic status such as low literacy, low educational attainment, and poverty are also associated with physical activity barriers (Evenson, et al., 2004). Poverty in a new country renders the economic barriers that contribute to environmental barriers for less physical activity (Lui, et al., 2009). Reasons for inactivity levels in youth may include poor neighborhood safety in low-income neighborhoods, lack of physical activity equipment, and low enrollment in organized sports (Gordon-Larsen, 2006; Hanson, 2006; Molnar, 2004; Weiland, 2015). These factors could explain why immigrant households, regardless of generational status, have low levels of physical activity.

Food insecurity is often linked to a variety of acculturation and sociodemographic factors. Food insecurity is specified as “a household-level economic and social situation characterized by inadequate or uncertain access to sufficient food” (US Department of Agriculture, Economic Research Service, 2018). Financial issues such as low-income occupations are common for migrants, and disposable income typically gets allocated in the family budget towards satisfying children’s necessities (Hadley 2007, Hersey 2001). Food insecurity risk are also attributed to poor economic conditions such as below poverty level income and low education attainment (Dharod, 2013; Hadley, 2007; Hersey, 200; Murthy, 2016; Vu 2020).

Immigrant and refugee families face financial constraints that limit food shopping decisions (Dharod, 2013; Hadley, 2007). They may seek out food products that are widely consumed in their home country, but the prices may be out of reach given their current financial condition (Jetter, 2006; Hadley, 2007). For example, since a meal without meat is not considered an appropriate dietary meal in their culture, in the U.S., Somali women refugees may prefer to reduce their fruit and vegetable consumption rather than meat (Dharod et al., 2013). The severity of food insecurity are also often related to acculturation actions such as shopping difficulty,

social insulating and language difficulty (Hadley, 2007; Himmelgreen, 2000; Kaiser, 2002; Vu, 2020). Food insecurity is a great indicator for health and well-being because of its association with poverty (Alaimo, 2002; Hadley, 2007; Himmelgreen, 2000), linking it to its effect on dietary intake patterns, obesity, physical inactivity, elevated depressive symptoms, and negative behavioral habits (Gucciardi, 2009; Fitzgerald, 2011; Kaiser, 2002; Lee, 2001).

In 2016, a Michigan health risk studies for Arab-Chaldean revealed that a psychiatrist stated that 12.4 percent of Arab adults in Michigan have diabetes (Neumayer et al., 2017). In addition, Southeast Michigan has a large and increasing Arab-American population, whose risk of cardiovascular disease is increasing (Hatahet, 2002; Jamil, 2007). However, the inconsistency of Arab's within Michigan reporting to have diabetes and cardiovascular diseases in this study also report to rarely or never have difficulties purchasing quality fresh fruits and vegetables (Neumayer et al., 2017). Although, Arab's in this report are both native and non-native, there is a disparity among Arab-Americans regarding the relationship to physical health and food accessibility. This suggests that there needs to be further investigation between native and non-native Arabs in the United States, and what other factors could lead to the increased prevalence of diabetes, obesity, and cardiovascular diseases for both sub-groups of Arab-Americans. Often, due to limited data on Arab-American communities, the knowledge of country-specific immigration groups is blurred, which results in limited knowledge of health determinants within ethnic groups (Amer & Hovey, 2007).

2.1.2 Mental Health

Migration can be a source of stress in many types of change. Migrants face social, political, and economic adversity upon migrating to the United State which are also the push-factors of leaving

their origin country (Torres & Wallace, 2003). Stressors related to these conditions can be from social and structural inequalities upon coming to the U.S., thus it is hard to determine if new norms are affecting mental health. Migrants face discrimination from language barriers, legal status discrimination, engendering to feel cross-border separation; having no one close-by for social support (Hunt, 2002; Torres, 2013; Viruell-Fuentes, 2012). Migrants who move from one location to another face a rapid shift in living and working conditions (Lu, 2010; Nauman, 2015). If migrants are committed to sending significant remittances to family members back home, or if there is a difference between commitment and achievement in new working environments, the stress level rises (Lu, 2010; Hashemi, 2019; Torres, 2013)

Older Hispanic and Asian migrants have a higher risk of depression and anxiety compared to nonimmigrants and those that remained in their native countries. (Du & Xu, 2016). The induced depressive symptoms can result from not having social support due to being away from family or discrimination (Du & Xu, 2016). The fact of being away from primary support addresses an issue that social support groups should be provided and accessible in areas of high migrant population. The lack of social support causes feelings of loss and isolation, and it can also exacerbate the negative effects of stress (Philbin, et al. 2018).

Many Middle Eastern immigrants who move to the United States and Europe come from war and conflict zones, exposing them to trauma and traumatic experiences (Abuelezam, et al., 2018). Iranian and Afghanistan refugees in Australia showed growing psychological disturbance over two-years (Steel, et al., 2011). Stress-related study found that migration and post-immigration experience examined for Arab immigrant women were positively correlated with depression and PTSD (Norris, et al., 2011). Arab Americans experienced more psychological distress in the years following September 11th, according to studies (Amer, 2012; Khawaja, 2016). Over the

last two decades, discrimination and stigmatization have risen in the United States (Abuelezzam et al., 2018). In Arab American populations, anti-Arab feelings were correlated with negative results in mental wellbeing, such as depression and stress (Abuelezzam, 2018; Amer, 2012; Khawaja, 2016).

The tragedy of the 9/11 terrorist attacks was another trigger for Islamophobia and discrimination towards Arab Americans for being associated with terrorism and radicalization (Amer, 2013; Khawaja, 2016). The option of acculturation strategy did not occur in isolation, as Muslim and Arab-American individuals faced alienation from culture, socio-cultural adaptation, and larger society discrimination (Khawaja, 2016; Kunst, 2013). People from the west have perceived Muslims with fear and suspicion for a long time (Khawaja, 2016). Subsequently, Muslims and Arab-Americans then perceive this as a “us versus them” situation (Blackwood, 2015; Bux, 2007; Khawaja, 2016), staying close within their Muslim communities. These cause various levels of vulnerability within different communities in the West versus Arab American/Muslims as to who is more accepting and not. Many who use the separation technique by strengthening relations with their own ethnic group have higher rates of depression and anxiety (Fassaert, 2009; Khawaja, 2016; Ünlü Ince, 2014).

Though there have been studies that show significant results of mental health inequalities, it becomes limited because results differ in different regions and ethnic groups.

As a result, they are unable to speak for all Muslims in the West (Khawaja, 2016). Depending on a person's cultural group, the ties between acculturation, family acculturation, and mental health can differ (Asvat, 2008; Khawaja, 2016). Arab Americans have recently identified 14% of Arab Americans with depression (Jaber et al., 2014) while another Arab-American survey showed that 50% of the people surveyed meet the depression criterion (Amer & Hovey, 2011). Depression has

been found to be more prevalent among older Muslim immigrants (Abu-Bader, et al. 2011).

Discrimination has been identified against Muslim youths in the United States, and they tend to be the most vulnerable (Sirin & Fine, 2007).

Stress expresses itself in a variety of ways, including psychiatric disorders, cardiovascular disease, a compromised immune system, and dysfunctional behavioral responses (Lu, 2010; Torres, 2013). Within the stress of also being a migrant and moving, stress is linked to physical well-being and unhealthy habits (Borrell, 2010; Du, 2016). Distress increases unhealthy habits like smoking and substance abuse that is detrimental to physical health (Borrell, 2010; Du, 2016). The less assimilated Arab Americans have been shown to have greater dependence on nicotine and cigarette products. (Abuelezam, 2018; Arfken ,2009). Prevalence of cardiovascular disease in the Arab Americans could be attributed in part to lifestyles of tobacco use and stress-induced behavioral habits.

Evidence suggests that Arab-Americans are hesitant to seek psychotherapy and treatment (Kira, et al. 2015). In Arab, Muslim, and many refugee/immigrant cultures, mental illness is often stigmatized (Kira, 2015; Nasser-McMillan, 2003). Individuals internalize that family biases prevent them from finding support because it would be embarrassing for them and their family (Kira, 2015; Soheilian, 2009). Self-esteem, self-efficacy, and functioning are all affected by stigmatization (Corrigan, 2004; Kira, 2015). Public stigma of minorities' mental health is already problematic, as it vexes internal stigma towards mental health treatment (Kira, et al., 2014).

When immigrants looked for treatment, clinicians documented a lot of intergenerational tensions and problems adapting to new hosts' cultural norms (Martin, 2012).

2.1.3 Access to Social Services

Foreign-born people have lower levels of schooling and are less likely to have healthcare coverage than native-born people (U.S. Census, 2007; Edward, 2015). These inequalities have been linked to immigrant status, which makes people less likely to use health and social services (Chen, 2011; Derosé, 2007; Edward, 2015). Migrants face multiple pathways that produce stress when accessing beneficial social services such as racism, education, health-related accessibility (health-care), the consequences of inequality, income, and geographical disbursement (De Santis, 1990; Fowler, 1998; Winn, 2018). Pathway of structural racism could plausibly reduce access to healthcare and detrimentally affect the conditions of peoples' lives (Simich 2005, Pinelli, 2011). This causes confusion between state and federal policies and immigrants on eligibility for services, and even leads to a spillover towards second generation immigrants (Arbona, 2010; Edward, 2015; Simich, 2005).

For racial and ethnic inequalities in insurance coverage and access to treatment, immigration status and length of residency are critical factors. Uninsured immigrants account for almost half of all immigrants, which is about three times the rate of native-born people (Ku, 2017). Since recent federal and state policies have limited some immigrants' access to health care, meeting the health care needs of immigrant communities is difficult. These initiatives have intensified already existing access disparities. When too many immigrants do not have health care, they face medical policy challenges and are likely to have to pay from pockets (Simich 2005, Ku 2017). Other obstacles to immigrants' access to and standard of medical care include language barriers, cultural beliefs toward accessing mental health treatment, and high levels of mistrust in physicians (Jimenez, 2012; Kim, 2011). Immigrants and refugees can avoid seeking treatment at public health care facilities that ask about immigration status and receipt of social benefits

because such inquiries can result in problems with immigration policies and officials (Ku 2017). As a result, immigrants are much less likely than natives to use medical facilities, hospitals, emergency medical services, and dental care (Du, 2016; Fowler, 1998; Ku, 2017; Jimenez, 2012).

Due to the lack of social support and network connections, immigrants' sense of identity may be corresponding to the level of acculturation, trust, and education sources to support immigrants over time, reducing inclinations for outreach. There has been little research reported on Middle Eastern immigrant parents' social networks and help in seeking related health care for families (Abuelezam, 2018; May, 1992). In 2016, an estimated 18.8% of adults in Michigan said that, because of financial limitations, they had not seen a doctor during the past 12 months (Neumayer et al., 2017). In Michigan, an estimated 29.2 percent of Arab American adults said they delayed treatment for reasons other than cost (Neumayer et al., 2017). According to studies, using social services to gain social support is critical to reducing tension, preserving wellness, and ultimately achieving self-sufficiency and well-being (Anderson, 1991; Simich, 2005).

For Arab-Americans, misunderstandings between healthcare professionals and clients could be caused by differences in culture, language, attitudes, and social behavior (De Santis, 1990; Simich, 2005; Stewartm 2008). Barriers to Arab Americans' breast cancer screening included immigration barriers, anxiety, lack of information and access problems (Abuelezam et al., 2018). The obstacles to Arab Americans' screening and recovery are lack of education, religious convictions or societal beliefs about illness, anxiety, humiliation of language differences, lack of cultural sensitivity from healthcare providers, lack of access to healthcare, and the desire to protect sickness or disease confidentiality (Abuelezam et al., 2018). Often, Arab immigrants do not meet their health care needs due to these misunderstandings (Amer, 2011; Laffrey, 1989).

2.1.4 Policies and COVID-19 Impact

This paper further explores how Arab-American families in Dearborn, Michigan have adjusted through a recent global pandemic: the coronavirus. COVID19, a newly identified virus, was first confirmed in late 2019 in Wuhan, China, and “thought to have originated from snakes, bats, and pangolins at the Wuhan wet markets” (Ji, et al. 2020). The virus has quickly spread around the world, infecting a large number of people and resulting in many deaths (Centers for Disease Control and Prevention, 2020; Ji, 2020; Usher, 2020; Wang, 2020). The COVID-19 first case in the U.S. was roughly confirmed in late January of 2020 (World Health Organization, 2020). However, quickly after, human to human transmission escalated the spread of COVID in the U.S. and state after state announced emergencies including Michigan; declaring stay-at-home orders, shutting down of restaurants, gyms, restricting grocery store hours, and all nonessential workers had to either be laid-off or work remotely from home (Executive Order No. 2020-4, 2020). On March 13, President Donald Trump declared a national emergency and initiated a travel ban for any non-American who visited any European country within the past 14-days to not be allowed back in the U.S (World Health Organization, 2020). The everyday impacts of COVID-19 include our public health systems preparation, how families spend time together, friends, our entertainment activities, losses of jobs, and family. As a mass quarantine was imposed, social isolation, increased anxiety and fear of becoming trapped, a sense of lack of control, and fear of being ill all increased rapidly (Usher, 2020; Rubin, 2020). The pandemic's implications are both real and anticipated, namely fear and isolation of those who are sick, disruptions in the social support networks, disruptions to everyday life and mental health effects on healthcare workers (Usher, et al., 2020).

Regardless of the shut-down, many people were still traveling in other areas of the world, since travel restrictions differed in every country every day. Immigration policies have shifted during the pandemic as it was unclear which migrants would be let in from abroad during the pandemic (Moroz, et al., 2020). Immigration policy facilitates typically determine which migrant workers are allowed in based on skill-level and education attainment and what type of labor force is needed in the nation (Leighton, 2015).

With immigration restrictions in the United States becoming more restrictive over time, immigration programs tend to choose applicants who have a higher level of education or who are more likely to earn higher wages on a daily basis. Because of government and immigration policies that give them work permits for longer periods of time, higher-skilled or higher-paid immigrants experience less stress (Leighton, 2015). COVID-19, on the other hand, has raised public consciousness of the economy's daily reliance on low-wage jobs. Many of the lower wage workers listed as essential during an emergency rely on migrant work (Fernández-Reino et al., 2020). In some ways, migrants should not only be considered for short-term measures to satisfy peak labor demand, but immigration policies should also adjust for evolving demands for low-skilled migrant workers in the long run to provide vital goods and services when an emergency arises (Fernández-Reino, 2020; Moroz, 2020).

In February 2020, the federal government extended visa refusal or green cards implementations to immigrants who are expected to become financially reliant on welfare (Cholera et al., 2020). The changes expanded the program's consideration of being a “public charge” in social service determinations, including Medicaid for adult immigrants (Cholera, 2020; Raphael, 2020). If any individual is receiving one or more benefits from the government, they are considered to be a public charge. If an individual becomes a public charge, the denial of visas or green cards is

plausible (Raphael, et al., 2020). Furthermore, by March 2020, in reaction to the economic consequences of this pandemic, the Government passed the Coronavirus, Relief and Economic Security Act of about \$2 billion. However, everyone in a household that uses a taxpayer ID number, common in immigrant families, were not allowed to get additional capital benefits (Cholera, et al., 2020). The pandemic exacerbates current inequities while creating new ones for immigrant families that lack health care and do not receive other social services such as unemployment insurance. This "chilling effects" will discourage immigrant families from applying for Medicaid and other services, including WIC and SNAP, exacerbated by the ongoing immigration policies (Raphael, et al., 2020). In abstaining for evaluation or treatment from these policies, immigrant families may also risk virus transmission and receive inadequate access to healthcare (Cholera, et al., 2020).

With the economic hardships of COVID-19 among all demographic groups, food and housing insecurity rose and studies have shown immigrant families faced higher risks because of prejudiced policies broadening inequalities (Cholera, 2020; Endale, 2020; Tai, 2020).

Researchers discovered that many parents in the Kovler Center Child Trauma Program (KCCTP), which serves immigrant children and families, were laid off and had a hard time obtaining services like unemployment insurance, resulting in food and housing insecurity (Endale, et al., 2020). Ethnic minority groups are already facing mental health inequalities before the pandemic and have only increased since the pandemic (Smith, et al., 2020). In terms of psychological effects, clinical staff observed an increase in worry and anxiety among families (Endale, et al., 2020). Social distancing measures, the closing of schools, and places of work also meant increased boredom, isolation, loss of social support, as well as reduced daily structure, negatively affecting overall functioning (Endale, 2020; Smith, 2020; Tai, 2020).

There is evidence of Arab-American immigrants encountering numerous mental health problems in the United States but disparities among this group stays obscured as there is no clear inferences of linkage between Middle Easterner sub-groups and their relation to socioeconomic statuses, barriers to social services, and physical health. Studies have shown that Arab-Americans have an increasing prevalence of cardiovascular disease, diabetes, signs of depression and anxiety, but contradict the correlation between food accessibility's attribution to physical and mental well-being. Between these studies, they have yet to discover correlations or links for these adverse explanations. This study hypothesizes that Middle Easterners/Arab-American in Dearborn, Michigan face higher risk of mental and physical health than their counter-parts, non-Middle Easterners.

Further, this study's data collection period occurs during a world-wide pandemic, COVID-19. COVID-19 does not discriminate from foreign-born or native individuals nor does it improve any measures for immigrants' lifestyles. It is expected that during these times, immigrant families will face further physical and mental health hardships as they are already included in public health data, but the impact is uncertain as policies and political agendas change receiving adequate health care and social services benefits. This study recognizes a second hypothesis that COVID-19 impacts Middle Easterners mental health than their counterpart, non-Middle Easterners.

3. METHODOLOGY

3.1 Study Area

Known as the “birthplace of Henry Ford”, the City of Dearborn is the headquarters of research, engineering, and manufacturing of the Ford Motor Company (Britannica, 2013). The territory of Dearborn is 24.5 sq mi, of which 25.4 sq mi (99.6%) is land, and 0.1 sq mi (0.4%) is water (U.S. Census, 2019). The city is situated in Wayne County, southeast of Michigan, adjacent to the city of Detroit. It holds the second largest population in Wayne County and 9th largest in Michigan with a population of 93,927. Since 2015, the population of Dearborn has decreased by a slight 1.3%, following a similar population decline as Wayne County which is projected to decline 3% by 2023 (SEMCOG, 2018).

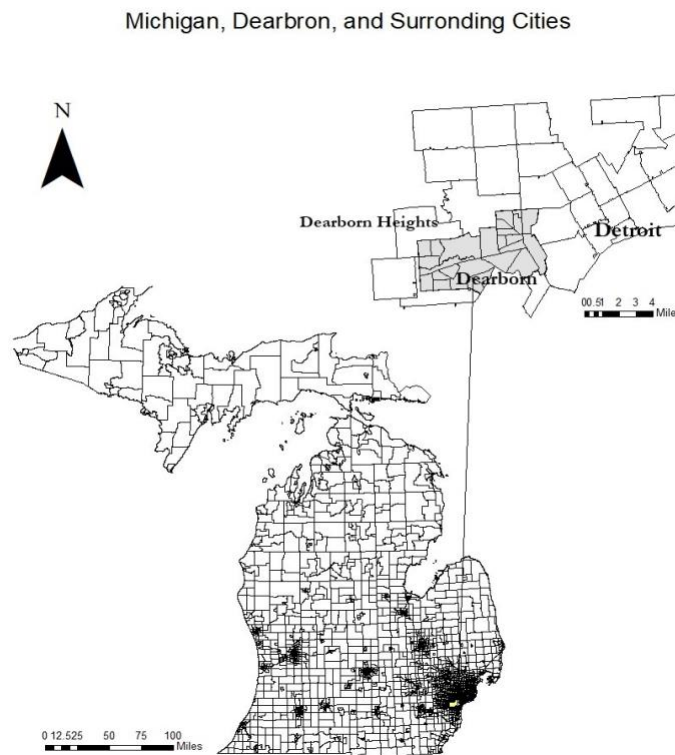


Figure 1. Produced in ArcGIS: Michigan, Dearborn, and Surrounding Cities

Dearborn has had a long history of the greatest concentration of population of Arab descent in the United States (Abdallah-Hijazi et al., 2019). Many of them immigrated during the World Wars to work in the Ford factory. Dearborn has done considerable work to cultivate the Arab descent culture within the city with street and shop signs posted with both English and Arabic language. It is self-conscious in cultural representation by providing cultural prominence through businesses, mosques, churches, and other forms of social clubs (Abraham & Shryock, 2000). Dearborn hosts over 50 grocery stores that are recognized as “Arabic grocery stores” and generic stores such as Kroger and Save-a-Lot supply groceries that are suitable for Arab-Americans like halal meats (Yellow Pages, 2021). Around 10 Muslim religious organizations, including mosques, two Islamic Schools, four advocacy groups for Arab-Americans, and 30 Christian religious organizations, including churches occupy particular regions in Dearborn (Yellow Pages, 2021; Shryock, 2014).



Figure 2. "Arab Market, Dearborn Michigan" by sharghzadeh is licensed under CC BY-NC 2.0



Figure 3. "Arab Book Store, Dearborn Michigan" by sharghzadeh is licensed under CC BY-NC 2.0

Although, on foot there is cultural representation and inclusion, there is no acceptance of Arab-Americans through census data, making it difficult to track Arab immigrant trends. Dearborn is characterized as being 90% white (U.S. Census, 2010). In actuality, about 30% of the residents were Arab in Dearborn in the U.S. Census 2000 briefing; in which the briefing suggested further research should be done in order to identify Arab-American's for future censuses (U.S. Census, 2003). Although there have been multiple confrontations and pushes to include Middle Eastern as a race option, in the Census 2020, the questions still exclude Middle Eastern and are left to be part of the "White" category (U.S. Census, 2020).

3.2 Data Collection

The original plan was to do a random sampling of households that were of Middle Eastern ethnicities (Arab - immigrant households) and non-immigrant households so as to get a representative sample for the quantitative analyses. A commercial mailing list firm was contracted to provide addresses for all households in the city of Dearborn. There are about 31,440 households out of which 25% are Arab-origin and 75% are non-Arab. In order to get a representative sample, households would have to be selected randomly based on this population split, however, knowing that Arab participation would be lacking in the study, Arab and non-Arab households were sampled equally. Typically, a 20% response rate is considered normal for surveys, however, knowing that online survey participation in minority population groups is much lower (closer to 10%), it was decided to pick a random sample of 4,000 households (1,000 Arab and 3,000 non-Arab ethnicities) to aim for a 10% response rate and get about 400 participants in the study. Based on a sample calculator, in order to get a confidence level of 5% and an interval of 5, it was determined that a sample size of 380 was needed (Survey System - Sample Size Calculator) and in hopes for a rounded figure of 400 participants, and at a 10% response rate, 4,000 households were selected at random to get invitations to participate in the study. Once the random sample was chosen (representing Arab and non-Arab households), a postcard was sent out to all the households informing them of the study and encouraging participation in the study. As an incentive, those that participated in the study and completed the survey were offered to be entered into a random drawing to win one of two gift cards for \$50. The survey instrument was developed on the Qualtrics survey platform, and included questions on socio-demographic characteristics and both sub-groups' physical and mental health before and after the COVID-19 pandemic, allowing for a comparative study (before and after) with the

pandemic restrictions as the event. The aim of the study was to assess whether a crisis, such as the pandemic, has disproportionate effects on a marginalized population. The study was approved by the Michigan State University Institutional Review Board (IRB) as exempt (STUDY00004367).

With the data collection using the above methods underway in April 2020, it was apparent that the responses and participation rates were laboriously low. There was about a 1.2% response rate by June 2020. Understanding that there needed to be a change in the approach for the project to be successfully completed, it was decided that contracting with and purchasing responses through Qualtrics would be attempted to get more participants. This was successful as the study ended up with a total of about 398 survey responses by September 2020. All statistical analysis was conducted through Stata/IC software for descriptive, t-tests, and regression analyses.

3.3 Questionnaire

Before proceeding to send out the postcards attached with the survey, measures were taken to develop a questionnaire to focus specifically on physical and mental health disparities. The questionnaire contained general socioeconomic status, weight and height to measure BMI, food habits, and behavioral habits. The questions were broadly based on other general health-status measures found in other online questionnaires that have been widely distributed from The National Institute of Environmental Health Sciences (NIEHS) and The Demographic and Health Surveys Program (DHS) (DHS, n.d.; NIEHS, 2013) Our physical health questions centered around weight and height; whether the participant is under/overweight, food habits; whether they are eating fresh foods or eating more fried, and tobacco and alcohol consumptions. Food and alcohol consumption questions are on a 5-point Likert scale from daily to once a month. The

mental health questions focused on the feeling of lack of sleep, productivity, stress, and worry. These questions were on a scale of 0 to 100 for intensity based on perceptions of wellbeing to mental health concerns. Majority of the physical and mental health questions followed with the general feeling before COVID-19 and since COVID-19. Table1 displays the number of questions for each focus and number of responses.

Table 1: Questionnaire Variables and Types				
Type	# of questions	Variable	Numeric/Categorical	Before-COVID-19 & since-COVID-19 change
Socioeconomics	14			
		Age	Numeric	
		Ethnicity	Categorical	
		Middle Eastern	Categorical	
		Gender	Categorical	
		Religion	Categorical	
		Education Attainment	Ordinal	
		Household Number	Numeric	
		Household Number Under 18 Years Old	Numeric	
		Marital Status	Categorical	
		Employment Status	Categorical	X
		Owner/Rental	Categorical	
		Duration in House	Numeric	
		Duration in Dearborn	Numeric	
		Median Household Income	Ordinal	X
Mental Health	10			
		Concentrate During Tasks	Likert scale	X
		Felt Restless	Likert scale	X
		Loss of Sleep	Likert scale	X
		Not Overcome Difficulties	Likert scale	X
		Reasonably Happy	Likert scale	X
		Felt Afraid	Likert scale	X
		General Bad Mental Health	Numeric	X
		Poor Health – slowing you down	Numeric	X
		Fear of Physical Health	Numeric	X
		Fear of Access to Health Care	Numeric	X
Physical Health	21			
		Weight	Numeric	
		Height FT	Numeric	
		Height IN	Numeric	
		Doctor Visit Within !2 months	Categorical	

Table 1 (Cont'd)				
Type	# of questions	Variable	Numeric/Categorical	Before-COVID-19 & since-COVID-19 change
		Health Care Facility Visit	Categorical	
		Covered by Health Insurance	Categorical	
		Type of Health Insurance	Categorical	
		Weekly/Monthly Milk Intake	Ordinal	
		Weekly/Monthly Beans Intake	Ordinal	
		Weekly/Monthly Vegetables Intake	Ordinal	
		Weekly/Monthly Fruits Intake	Ordinal	
		Weekly/Monthly Eggs Intake	Ordinal	
		Weekly/Monthly Meat Intake	Ordinal	
		Weekly/Monthly Fried Foods Intake	Ordinal	
		Cigarette User	Categorical	
		Cigarette Habits Change	Categorical	
		Other Tobacco Form	Categorical	
		Tobacco Habits Change	Categorical	
		Alcohol Consumer	Categorical	
		Drink per week	Numeric	X
		Drink per month	Numeric	X

Specific variables were chosen to understand the disparities, so questions that were not necessary were omitted before the posting of the survey. This was intended so the survey did not take longer than 5 to 10 minutes to complete. In general, the 10 minutes mark seemed to be the average amount to complete the survey online. Overall, 360 consented to continue taking the survey.

4. RESULTS

A total of 360 participant's responses were included in the analysis, however, not every participant answered every question as they were given the right to not answer any question if they choose not to. Questions that came later in the survey have the least response back than the questions that appeared earlier; these questions were the socio-economic related questions. In table 2, the descriptive statistics shown are for the continuous variables. These statistics helped identify any outliers before analysis. For example, as for age, there were five respondents that were below the age of 18 years old that could not be included for further analysis. As observed in Table 2, the mean age of all the respondents is approximately 36 years old. The mean age for Middle Easterners in our sample is 27 years old and for non-Middle Easterners is about 41 years old, a difference of 14 years. The mean household size in our sample is about 3 people, for Middle Easterners it is about 5 people in a household and for non-Middle Easterners it is about 3 people. The average duration that respondents have lived in Dearborn is about 11 years, for Middle Easterners the average is about 9 years while for non-Middle Easterners it is about 12 years. All other variables in Table 2 are best used to compare differences with T-tests to see statistical significance.

Table 2: Descriptive Statistics for Continuous Variables

Variable	Obs	Mean	Min	Max	Std. Dev.
Age	343	36.4	18	84	15.5
Household size	332	3.5	1	10	1.9
Weight	176	172.7	53	360	54.6
Height in Inches	167	66.9	57	81	4.0
BMI	167	27.5	11.5	53.6	7.6
Household Size Under 18	332	4.9	1	7	1.2
Duration Living in House	310	10.9	0	65	10.7
Duration Living in Dearborn	256	15.7	0	71	15.0
Not Good Mental Health Before COVID	177	34.2	0	100	30.5
Poor Physical or Mental Health Keeping You from Doing Your Usual Activities Before COVID	172	31.5	0	100	28.9
Fear About Your Own Physical Health or Love Ones Before COVID	175	39.5	0	100	32.6
Fear That You Will Not Have Access to Health Facilities Before COVID	170	29.8	0	100	31.9
Not Good Mental Health Since COVID	178	39.4	0	100	31.7
Poor Physical or Mental Health Keeping You from Doing Your Usual Activities Since COVID	173	38.0	0	100	31.8
Fear About You Own Physical Health or Love Ones Since COVID	178	47.9	0	100	34.0
Fear That You Will Not Have Access to Health Facilities Since COVID	176	37.6	0	100	32.6
Alcoholic Drinks Per Week Before COVID	45	2.7	0	8	2.0
Alcoholic Drinks Per Month Before COVID	51	6.0	1	30	5.9
Alcoholic Drinks Per Week Since COVID	48	2.9	0	7	2.0
Alcoholic Drinks Per Month Since COVID	51	7.9	0	30	7.9

Table 3 shows the descriptive statistics for the categorical socio-economic variables. The sample (n=355) represents 34% of Middle Easterners and 66% non-Middle Easterners; similar to the representation of the city of Dearborn. 41% of the Middle Eastern sample (n=121) is from Lebanon, while 59% of the sample are from Iraq (14%), Yemen (13%), Palestine (8%), Saudi Arabia (4%), Jordan (2%), Syria, (2%), and other (15%). Majority of the sample (n=348) are women (63%), 36 % are men, and 1% preferred to not answer. 25% of the sample (n=333) is Muslim, and 47% is Christian, while the others made up smaller percentages of Jewish, Buddhism, Hindu, other, and no religion. Majority of the sample (n=332) have never been

married (50%), while 35% are currently married. Lastly, the majority of the sample (n=332) own their home (64%), while the others are renters (36%).

Table 3: Descriptive Statistics for Categorical Socio-Economics Variables

Variable (N=sample size)	Categories	Frequency	Percentage/Proportion
<u>Middle Eastern (N=355)</u>			
	Other	234	65.92
	Middle Eastern	121	34.08
<u>If Middle East, Specific Ethnicity (N=121)</u>			
	Syria	3	2.48
	Iraq	17	14.05
	Saudi Arabia	5	4.13
	Lebanon	49	40.50
	Jordan	3	2.48
	Palestine	10	8.26
	Yemen	16	13.22
	Other	18	14.88
<u>Gender (N=348)</u>			
	Male	124	35.63
	Female	220	63.22
	Prefer not to answer	4	1.15
<u>Religion (N=333)</u>			
	Christian	155	46.55
	Muslim	94	28.23
	Other	84	25.22
<u>Highest Educational Attainment (N=332)</u>			
	No schooling completed	4	1.20
	Nursery schooling to 8th grade	4	1.20
	Some high school, no diploma	16	4.82
	High school graduate, diploma, or the equivalent (ex. GED)	137	41.27
	Associate degree	53	15.96
	Bachelor's Degree	73	21.99
	Graduate degree or higher	45	13.55

Table 3 (Cont'd)

Variable (N=sample size)	Categories	Frequency	Percentage/Proportion
<u>Marital Status (N=332)</u>			
	Currently Married	114	34.34
	Divorced	22	6.63
	Separated	9	2.71
	Widowed	7	2.11
	Never Married	163	49.10
	Other	17	5.12
<u>Employment Status Before COVID-19 (N=332)</u>			
	Employed for pay outside your home	172	51.81
	Self-employed	34	10.24
	Student	45	13.55
	Homemaker	23	6.93
	Unemployed	24	7.23
	Retired	28	8.43
	Other	6	1.81
<u>Employment Status Changed Since COVID-19 (N=332)</u>			
	No Employment Change	229	68.98
	Employment Change	103	31.02
<u>Owner or Renter (N=332)</u>			
	Renter	121	36.45
	Owner	211	63.55
<u>Total Combined Annual Household Income (N=329)</u>			
	Less than \$5,000	33	10.03
	\$5000 to \$9,999	18	5.47
	\$10,000 to \$14,999	8	2.43
	\$15,000 to \$19,999	17	5.17
	\$20,000 to \$24,999	19	5.78
	\$25,000 to \$34,999	38	11.55
	\$35,000 to \$49,999	40	12.16
	\$50,000 to \$74,999	58	17.63
	\$75,000 to \$100,000	45	13.68
	More than \$100,000	53	16.11
<u>If Household Income Changed Due to COVID (N=332)</u>			
	No Income Change	217	65.36
	Income Change	115	34.64

Table 4 shows descriptive statistics for the health variables 94% of the sample (n=177) is covered by healthcare, while 6% are not covered by healthcare. From those that are covered, 53% are covered through employment, 25% from the state, and 17% from other forms such as from parents. Further, when asked if they have recently visited the doctors or other health care providers within the past 12 months, 82% (n=146) responded with yes, and 18% responded with no (n=31). Of those that responded yes to visiting the doctors or other health care providers, majority visited a doctor's clinic (68%), while the 32% responded visited were small percentages of facilities such as telemedicine services (10%), pharmacy (9%), health facilities (6%), camp facilities (1%), and government facilities (1%). Of these visits, the majority of the reason was for a check-up (58%), and 28% for treatment for self. The other services for visit reason were small percentages of treatment for a child (3%), family planning (3%), immunization (2%), and other services (6%).

Table 4: Descriptive Statistics for Categorical Health Variables

Variable (N=sample size)	Categories	Frequency	Percentage/Proportion
<u>Have You Visited Doctor or Other Health Care Provider within Last 12 Months (N=177)</u>			
	No	31	17.51
	Yes	146	82.49
<u>Type of Health Facility Most Recently Visited (for yourself or your children) (N=146)</u>			
	Doctor's clinic	100	68.49
	Government/Municipal	1	0.68
	Camp	2	1.37
	Health facility	9	6.16
	Pharmacy	13	8.90
	Used Telemedicine	14	9.59
	Other	7	4.79
<u>Service Reason for Most Recent Visit (N=146)</u>			
	Family planning	4	2.74
	Health check-up	85	58.22
	Immunization	3	2.05

Table 4 (Cont'd)			
Variable (N=sample size)	Categories	Frequency	Percentage/Proportion
	Other	8	5.48
<u>Covered by Healthcare (N=177)</u>			
	No, Healthcare Coverage	10	5.65
	Yes, Healthcare Coverage	167	94.35
<u>Healthcare Type (N=149)</u>			
	Employment	79	53.02
	State Health Insurance	38	25.50
	Medical reimbursement	6	4.03
	Other:	26	17.45
	Treatment for child	5	3.42
	Treatment for self	41	28.08

4.1 Mental Health Disparities

T-tests were conducted to compare mental health conditions between Middle Eastern and non-Middle Eastern respondents and comparisons before and since the COVID-19 restrictions were put in place. The first set of analyses is comparing the mean of mental health between the two sub-groups with 177 responses used for the analysis. These survey questions (Table 5) are on a 5-point Likert scale.

Table 5: Mental Health Scale

Questions	5-Point Likert Scale
• Been able to concentrate on whatever you're doing?	1. Always
• Been so restless that it was hard to sit still?	2. Most of the time
• Lost sleep over worry about something?	3. About half the time
• Felt you could not overcome difficulties?	4. Sometimes
• Been feeling reasonably happy, considering all things going on in life?	5. Never
• Felt afraid as if something awful might happen?	

The first six variables shown in Table 6 are on a 5-point Likert Scale from the questions in Table 5. Variables that are in a 5-point Likert Scale are marked with an (L) or (H) for guidance indicating that (L): lower mean value means better mental health condition and (H): higher mean

value means better mental health conditions. The latter four questions marked in ♦, are answers from a 0-100 continuous scale of feeling.

Comparing the means of mental health conditions between Middle Eastern and non-Middle Eastern since COVID-19 (current mental health state of respondents when taking the survey) in Table 6, Middle Easterners display greater intensity/frequency for eight out of the ten variables: restlessness, feeling of not being able to overcome difficulties, lost sleep over worry, less feeling of being reasonably happy, afraid if something awful might happen, poor mental health, poor physical or mental health keeping you from doing usual activities, fear about your own physical health or love ones, and fearing that you will not have access to health. For the variables restlessness, feeling of not being able to overcome difficulties, afraid if something awful might happen, fear about your own physical health or loved ones, and fear that you will not have access to health facilities the means differences between the two sub-groups are statistically significantly, calling attention that the disparities in means between Middle Easterners and non-Middle Easterners are significant.

Table 6: T-test Mental Health Between Middle Eastern and non-Middle Eastern (Since COVID-19)

Variables	Both	Middle Eastern	Non-Middle Eastern	Diff (NM-M)
Been Able to Concentrate (L)	2.49	2.389	2.57	0.18
Been So Restless (H)	3.54	3.31	3.69	0.39**
Lost Sleep Over Worry (H)	3.42	3.28	3.52	0.24
Not Overcome Difficulties (H)	3.52	3.32	3.66	0.34*
Reasonably Happy (L)	2.83	2.90	2.780	-.13
Afraid as If Something Awful Might Happen (H)	3.28	2.94	3.52	.57***
Not Good Mental Health ♦	39.12	40.96	37.86	-3.70
Poor Physical or Mental Health Keeping You from Doing Your Usual Activities ♦	37.83	40.12	36.18	-4.56
Fear About Your Own Physical Health or Love Ones ♦	48.00	53.68	44.03	-9.62*
Fear That You Will Not Have Access to Health Facilities ♦	37.33	41.37	34.48	-7.25*

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

♦ Continuous Variables from a scale 0-100 of feeling

(L) Lower value= better condition

(H) Higher value=better condition

N=177

Adding to the comparisons in table 6, analysis of mean differences between both sub-groups mental health before and since COVID-19 were conducted through t-tests. Table 7 suggests that the impact of COVID-19 on mental health were significant for both sub-groups combined for nine out of the ten indicators of mental health. For Middle Easterners, the impact of COVID-19 on their mental health was statistically significant for five indicators: been able to concentrate (0.32), afraid of as if something awful might happen (0.28) , poor physical health keeping you from doing your usual activities (7.82%), fear about your own physical health or loved one (9.03%), and fear that you will not have access to health facilities (6.64%). For non-Middle Easterners, the impact of COVID-19 on their mental was statistically significant for nine indicators: been able to concentrate (0.43), restlessness (0.23), feeling of not being able to overcome difficulties (0.17), less feeling of being reasonably happy (0.28), afraid if something awful might happen (0.28), not good mental health (6.99%), poor physical or mental health

keeping them from doing usual activities (4.94%), fear about your own physical health or love ones (8.05%), and fear that they will not have access to health (7.91%).

Although, the impact of COVID-19 is statistically significant for four more variables for non-Middle Easterners, Table 6 suggests that Middle Easterners have higher intensity/feeling of negative mental health since COVID-19. In addition, Table 7 includes mental health indicators for both sub-groups before COVID-19. Table 7 illustrates that Middle Easterners' mental health were worse before the pandemic than non-Middle Easterners during the pandemic. Middle Easterners face higher intensity of negative mental health for eight out of the ten indicators: restlessness, fear of not over coming difficulties, feeling reasonably happy, afraid something awful might happen, not good mental health, poor physical or mental health keeping you from doing your usually activities, fear about your own physical health or loved ones, and fear that you will not have access to health facilities. The difference of means of mental health before COVID-19 are statically significant for 6 indicators: restlessness (0.47), fear of not overcoming difficulties (0.42), afraid something awful might happen (0.55), not good mental health (0.35%), fear about your own physical health or loved ones (8.67%), and fear that you will not have access to health facilities (8.42%) suggesting that mental health is negatively statistically significant for Middle Easterners than non-Middle Easterners.

Table 7: T-test Mental Health Differences Before and Since COVID-19 Pandemic (Before-Since COVID)

Variables	Before COVID-19 Pandemic				Difference (Before-Since)		
	Both	Middle Eastern	Non-Middle Eastern	Diff (NM-M)	Both	Middle Eastern	Non-Middle Eastern
Been Able to Concentrate (L)	2.113	2.069	2.143	0.07	-.38***	-0.32**	-0.43***
Been So Restless (H)	3.737	3.458	3.932	0.47***	.20***	0.15	0.23**
Lost Sleep Over Worry (H)	3.511	3.347	2.625	0.17	0.09	0.07	0.10
Not Overcome Difficulties (H)	3.657	3.417	3.825	0.42*	0.14**	0.10	0.17*
Reasonably Happy (L)	2.563	2.653	2.500	-0.14	-0.28***	-0.25	-.28**
Afraid as If Something Awful Might Happen (H)	3.563	3.222	3.798	.55***	0.28***	0.28*	0.28***
Not Good Mental Health ♦	34.672	40.222	30.867	-9.35*	-4.45**	-0.74	-6.99***
Poor Physical or Mental Health Keeping You from Doing Your Usual Activities ♦	31.690	32.324	31.240	-1.39	-6.13***	-7.82***	-4.94**
Fear About Your Own Physical Health or Love Ones ♦	39.549	44.653	35.981	-8.67*	-8.45***	-9.03**	-8.05**
Fear That You Will Not Have Access to Health Facilities ♦	29.947	34.729	26.566	-8.42*	-7.39***	-6.64**	-7.91***

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

♦ Continuous Variables from a scale 0-100 of feeling

(L) Lower value= better condition

(H) Higher value=better condition

N=177

4.2 Food Consumption

Table 8: Food Consumption Scale

Question/Categories	5-Point Likert Scale
How often do you consume the following:	
• Milk	1. Daily
• Beans	2. 2-3 times a week
• Vegetables	3. Once a week
• Fruits	4. Once a month
• Eggs	5. Never
• Meats	
• Fried Foods	

Table 9: Food Consumption T-test Results

	Milk	Beans	Vegetables	Fruits	Eggs	Meats	Fried Foods
Non- Middle Eastern (N=102)	2.81 (.14)	2.69 (.10)	1.91 (.08)	1.76 (.07)	2.56 (.09)	1.80 (.09)	3.06 (.09)
Middle Eastern (N=72)	2.49 (.15)	2.83 (.12)	2.06 (.11)	1.69 (.10)	2.38 (.12)	1.97 (.14)	2.95 (.12)
Standard Errors in Parenthesis *** p<0.01, **p<0.05, * p<0.1							

For the food consumption variables, the categories (milk, beans, green vegetables, fruits, eggs, meats, and fried foods) were selected to understand nutrient content, reliable grocery or food stores nearby based on the practices of the household's diet. Similar to the mental health analysis, the comparisons were conducted through a t-test comparing the different consumptions of each food category between Middle Easterners and Non-Middle Easterners. The higher the value of the means in Table 9, the less often the food is part of their diet indicated in scale in Table 8.

There were no statistically significant differences between what Middle Eastern and non-Middle Eastern respondents consumed in the various food categories (table 8). The mean for both sub-groups are similar in each of the food groups. For milk, the intake is between 1-3 times a week.

For beans, the intake is around once a week. For green vegetables, the intake is around 2-3 times a week. For fruits, it's approximately between daily to 2-3 times a week. For eggs, the intake is between 1-3 times a week. For meats, the intake is about 2-3 times a week. Finally, fried foods intake is about once a week.

4.3 Physical Health

Table 10: Logistic Regression for Physical Health

Variable	Reference Category	Wald	Exp(B)
	<u>Non-Middle Eastern</u>		
BMI (Overweight/ Obese) (N=167)		3.05	0.547* (.183)
Diabetes (N=176)		0.12	0.833 (.4503)
Heart Disease (N=176)		0.18	1.429 (1.187)
Asthma (N=176)		3.28	0.368* (.217)
Other Chronic Illnesses (N=176)		5.39	0.293** (.169)

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

For the physical health variables: weight, height, diabetes, heart disease, asthma, and other chronic illnesses, logistic regressions were used to make better comparison of likelihoods between both sub-groups. The physical health dependent variables were coded as binary variables; either the participant reported having or does not have the chronic illness. The only variables that needed appropriate calculations was weight and height in inches to calculate BMI; as BMI is an indicator for underweight, normal weight, overweight, or obese. First, BMI was calculated by $(703 * \text{weight}(\text{lb})) / (\text{height}^2(\text{in}))$ with the given weights and heights from the respondents. BMI ranges are underweight <18.5, normal weight 18.5-24.9, overweight 25.0-29.9, and obese >30.0 (Centers for Disease Control and Prevention, 2020). In Table 2, the mean BMI of the participants is 27.454, indicating the sample (n=167) mean is in the range of

overweight. After calculating the BMIs, participants' BMI's were coded into two categories; either underweight or normal and overweight or obese.

Table 10 displays the logistic regression results for physical health comparisons between Middle Easterners and Non-Middle Easterners. Results show that Middle Easterners are statistically significant by 0.547 times less likely to be overweight or obese than non-Middle Easterners. For chronic illnesses, Middle Easterners were statistically significantly 0.367 times and 0.293 times less likely to have asthma or other chronic illnesses. These other chronic illnesses from the sample were given as lupus, fibrositis, arthritis, and hypertension. There were no significant differences in the likelihood of having diabetes or heart diseases, however, Middle Easterners were 1.429 times more likely to have heart disease than non-Middle Easterners.

4.4 Healthcare and Doctor Visits

Similar to the physical health analysis, logistic regressions were conducted to predict likelihoods of Middle Easterners and non-Middle Easterners being covered by health insurance (Table 11). Through regression analysis, Middle Easterners are statistically significant 0.159 times less likely to be covered by health insurance than non-Middle Easterners. The analysis shows no significant likelihood of doctor visits within the past 12 months but Middle Eastern are 0.703 less likely to visit than non-Middle Easterners.

Table 11: Logistic Regression for Health Care and Doctor Visit

Variable	Reference Category	Wald	Exp(B)
	<u>Non-Middle Eastern</u>		
Healthcare Insurance (N=177)		6.66	0.159** (.128)
Doctor Visit within past 12 Months (N=177)		0.78	0.703 (.279)

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

4.5 Behavioral Habits

The behavioral habits variables included the consumption of alcohol, cigarettes, and tobacco use (Table 12). Middle Easterners are statistically less likely to consume alcoholic beverages by 0.132 times than non-Middle Easterners. Although there was no significance in the results for cigarettes or tobacco use, logistic regression analysis estimated that Middle Easterners are also less likely to consume tobacco (0.432 times) and cigarettes (0.486 times).

Table 12: Logistic Regression for Behavioral Habits

Variable	Reference Category	Wald	Exp(B)
	<u>Non-Middle Eastern</u>		
Alcohol (N=174)		32.53	.132*** (.052)
Cigarettes (N=174)		1.54	0.486 (.294)
Tobacco (N=174)		2.64	.432 (.234)

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

Table 13 displays the changes of consumption of alcoholic beverages before and since COVID. For analysis, comparisons for both subgroups consumption differences were conducted through t-tests to find significance. For both sub-groups, the increase of consumption of alcohol weekly was not significant. Middle Easterners consumption did not change weekly, but for non-Middle Easterners, their drink consumption increased by 0.0297 weekly. For monthly, both sub-groups monthly consumption of alcohol increases. Middle Easterners' intake increased by 2.25 drinks and for non-Middle Easterners', intake statistically increased by 1.317 drinks.

Table 13: Alcohol Consumption Difference (Before COVID-since COVID)

	Both	Middle Eastern	Non-Middle Eastern
Alcoholic Beverages (weekly)	-0.244 (0.251)	0 (.926)	-.0297 (0.239)
Alcoholic Beverages (monthly)	-1.469 (0.512)	-2.25 (1.497)	-1.317* (0.543)

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

4.6 Socioeconomics

In Table 14, for the variables combined annual household income and highest educational attainment, simple comparisons are not applicable by statistical comparisons through means but instead through ordinal categories by ranking. Table 3 displays the ranking series for annual household income and educational attainment. As 1 (less than \$5,000) being the lowest household income and 10 (more than \$100,000) for highest household income. For educational attainment, 1 (no schooling completed) for lowest educational attainment and 7 (graduate degree or higher).

Table 14 models an ordered logistic regression analysis of the sample's annual household income and educational attainment for Middle Easterners. Middle Easterners are statistically 0.435 times less likely to have a higher income threshold than non-Middle Easterners. Middle Easterners are also statistically 0.522 less likely to have a higher educational attainment level than non-Middle Easterners.

Table 14: Logistic Regression for Household Income and Highest Educational Attainment

Variable	Reference Category	Wald	Exp(B)
	<u>Non-Middle Eastern</u>		
Household Income (N=329)		16.04	.435*** (.091)
Highest Educational Attainment (N=332)		2.64	.522*** (.112)

Standard Errors in Parenthesis

*** p<0.01, **p<0.05, * p<0.1

5. DISCUSSION

The sample size (n=360) closely mirrored the representation of Middle Easterners in Dearborn with 33% (n=121) of the respondents being Middle Eastern (U.S. Census 2003). It is important to highlight here that the mean age difference is 14 years, with the sample size for Middle Easterners being younger than non-Middle Easterners. However, the duration of living in Dearborn is only a three-year difference with Middle Easterners average at nine years and 12 years for non-Middle Easterners.

Results of this study indicate that Middle Easterners in Dearborn are experiencing similar mental health stressors as other immigrants in the U.S. (Amer, 2007; Berry, 1992; Du, 2016; Torres, 2013). Although there is a large population in Dearborn that share the same heritage of being Middle Eastern, these stressors can be tied to separation from American culture, discrimination, lack of social support, financial status, and keeping up with work (Amer, 2007; Amer, 2012; Berry, 1997; Khawaja 2016, Phinney, 2001), Middle Eastern respondents showed intensified feelings of being restless, worrying about not overcoming difficulties, not being happy, and fear of access to healthcare and physical health than the non-Middle Easterners before COVID. When asked in an open-ended question on further information about the mental stress they were facing before COVID, 23% of Middle Eastern respondents' answers mentioned the general feeling of anxiety and stress. Some of the stress and anxiety was tied to school, work, finances, and social anxiety. Non-Middle Eastern respondents (13%) also indicated stress and anxiety with similar reasons; however, some non-Middle Eastern respondents indicated they are in treatment for their stress, anxiety, and depression, while none of the Middle Easterners mentioned any indication of being under treatment with medication or seeing a therapist. With internal stigma in the Arab community and minorities towards mental health issues, non-Middle Eastern are more open to

admitting having depression and already seeking treatment for it than Middle Easterners (Kira, 2014; Kira, 2015; Nasser-McMillan, 2003).

Middle Eastern respondents continued to report greater intensities of restlessness, worry of not overcoming difficulties, losing sleep over worries, not feeling happy, and fear than non-Middle Easterners since the pandemic (Smith et al., 2020). However, for some of the mental health indicators, the intensity of mental health stress increased before- and since-COVID, was statistically greater for non-Middle Easterners (Endale, 2020; Smith, 2020; Tai, 2020). When asked what the reasons for these mental health stressors are since COVID, there were greater responses focused more on fear of loved ones getting sick, financial stresses, the anxiety of being in crowds, and social isolation, leading to increased depression, while Middle Eastern respondents added that the induced stress is from fear of loved ones being sick, increased anxiety, and depression. Although the results displayed more statistical significance to increased mental stressors on non-Middle Easterners, Middle Easterners had greater concerns of mental health before the pandemic disturbed the nation. When states and nations shutdown during the pandemic, people were forced to isolate and lose immediate social support (Rubin & Wessely, 2020). This means that non-Middle Easterners experienced greater mental stressors of anxiety, stress, worry, and fear of family and job loss after something disturbed their daily structure from increased social isolation, financial stress, and worry about a loved one's health (Usher, et al., 2020). Middle Easterners have been feeling this way before the pandemic and fear and worry are part of their daily structure.

Unlike findings found for Somalian refugees and other immigrant populations, food insecurity for Arab-Americans in Michigan reported no difficulty in purchasing quality food (Neumayer et al., 2017). As expected, similar to non-Middle Easterners, the Middle Easterners in Dearborn do

not face significant challenges in accessing culturally appropriate foods. This could be because Dearborn has many grocery stores around the corners of Middle Easterners' homes that are accustomed to Middle Eastern shopping environment that accommodates to their food cultures, such as halal food, ingredients that are common in Middle Eastern dishes, and Arabic signs that translate ingredients and foods that remove language difficulty (Hadley, 2007; Himmelgreen, 2000; Kaiser, 2002; Vu, 2020).

Results of physical health relating to obesity and chronic illnesses did not show any significant signs that Middle Easterners have more physical health problems than non-Middle Easterners. The sample displayed a lower likelihood of Middle Easterners having a BMI greater than 25, indicating less likelihood of being overweight and obese than non-Middle Easterners. Likewise, there were not any significant likelihood of having chronic illnesses such as diabetes, heart disease, asthma, etc. This could be relating to the age difference of both groups as the mean for Middle Easterners was younger than non-Middle Easterners. Younger people are less likely to have developed chronic illnesses and can maintain a healthy weight. What is more is, although not significant in result but proven in studies, Middle Easterners were 0.703 less likely to visit the doctors or health facilities than non-Middle Easterners. This could mean lack of check-ups reduces adequate physical health data/reports. Fear of access to healthcare, lack of cultural sensitivity from healthcare providers, and embarrassment of language barriers lead to low knowledge of illnesses and social health services (Abuelezzam et al., 2018).

There were no statistical signs of detrimental behavioral habits for Middle Easterners for cigarette and tobacco consumption in conjunction with the physical health results. However, Middle Easterners are less likely to consume alcoholic beverages before and since COVID due to alcohol not being a great part of Arab and Muslim culture's social habits. Since non-Middle

Easterners showed to have higher likelihood of being overweight and chronic illnesses, some of this can be attributed to the likelihoods of consuming alcohol and cigarette use for longer durations as the non-Middle Eastern sample was older and more accustomed to western practices (Gerber, 2011; Unger, 2004).

Healthcare and doctor visits did interact significantly with the Middle Easterner population by showing less likelihood of being covered by healthcare insurance and visiting the doctors within the past 12 months since COVID (Chen, 2011; Derose, 2007, Du, 2016; Edward 2015; Fowler, 1998; Jimenez, 2012; Neumayer, 2017). The Middle Eastern sample was younger, implying less frequency of needing to visit the doctor for check-ups and not obtaining healthcare insurance because they are unable to afford it. Obtaining affordable healthcare insurance could correspond with the results of less likelihood of earning a higher annual household income than non-Middle Easterners and higher education level (Edward 2015, Ku 2017; Simich,, 2005). Middle Easterners cannot afford essentials like healthcare with a lower-wage occupation or still attempting to receive a higher degree to earn more for the future as the younger Middle Eastern sample contribute their stress to college and schoolwork. Furthermore, Middle Easterners reported lower income but food accessibility was not an issue. This could mean that Dearborn, with a high concentration of Arab-Americans, groceries and food stores accommodate Middle Eastern cultural foods affordability. Studies that correlate food insecurity to negative mental and physical health (Fitzgerald, 2011; Gucciardi, 2009; Kaiser, 2002; Lee, 2001) could be excluded from the sample's attribution to mental health.

Implications for Future Research

This research is a significant step toward examining Arab-American mental health before and after COVID-19, as well as food accessibility and physical health. The study's results may extend to second-generation/early immigrant individuals due to the study's greater sample size of younger Middle Easterners. Further research with adolescents and adults who are second-generation/early immigrants is needed to recognize explanatory stressors and physical health disparities that may exist compared to first-generation immigrants. Research should assess the impact of additional socio-demographics like country of origin, length of duration since migrating, and religion for better understanding of the acculturation process for this group. Further, studies of Middle Eastern health should not be limited to Dearborn, but is open to areas across the U.S. with Middle Eastern populations that can bring forth comparative studies of geographical disbursements. New studies can reduce gaps in unidentified explanations to accessibility to health facilities, grocery/food stores, social services, and green spaces. These findings pose challenges to traditional immigration research based on food insecurity and physical health (Dharod, 2013; Hadley, 2007; Hersey, 2001; Murthy, 2016; Vu, 2020). For example, compared to non-Middle Easterners, Middle Easterners showed significant likelihood of earning less and obtaining a lower education but have no trouble obtaining food. Research is moreover needed to examine the built environment of areas with a concentrated immigration population and comparably conduct migrant physical health disparities with walkability, access to parks, and various connections to physical activity. More in-depth analyses of proximity to health facilities and social services that offer social support should be undertaken in addition to built environment comparative studies. These research implications can presumably be expanded to comparative studies with adult/senior first and second-generation/early immigrants for

identifying stressors, food insecurity, physical health, accessibility to health facilities, and shared spaces for physical activity (Neumayer et al., 2017).

Policy Implications

Consistent with the study (Kira, et al. 2015), Middle Easterners are less likely to report seeking treatment for psychotherapy. Refraining from seeking treatment could be attributed to internal cultural stigmatization surrounding mental health problems (Soheilian & Inman, 2009). Although research suggests that assimilation is linked to positive mental wellbeing, immigrants seeking counseling attributed to transgenerational conflicts and difficulties in adapting to Western cultural conditions their challenge (Martin, 2012). Clinics should intervene by educating Middle Eastern families into supporting one another when an individual is wanting to seek treatment for overcoming mental health problems as this strengthens their social support within family members first. Cooperation between psychiatrists and immigrant families can destigmatize seeking help and educate accessibility to health clinics.

Particularly two groups can be targeted to help destigmatize mental health for immigrants: the native born sub-groups and children of immigrants. Exposing them to the field of psychology and mental health professions, as well as addressing the stigma associated with mental illness, can help them better manage with mental health issues. Therapists can work with their non-immigrant clients to explore the benefits of other cultures and shape a healthy space for bicultures. Children from immigrant families can benefit from destigmatizing mental health illnesses early on so intergenerational cultures can normalize therapy treatment and increase social support related to negative mental health.

Policies during national emergencies should not disadvantage immigrants giving them a dilemma between citizenship and benefits but rather ensure all immigrants are included to receiving health treatments or vaccines by focusing on areas with high vulnerability. Indication of healthcare and doctor visits suggest that Middle Easterners are disproportionately less likely to be covered by healthcare than non-Middle Easterners. A number of policies should be reviewed to end these disparities not only in Dearborn but regions with high immigrant and minority concentrations. There needs to be monitoring in these regions for families' wellness by assessing education, employment, and children of immigrants' health as the gap of inequality greatens with policies such as the federal policies shifting the definition of an immigrant being a “public charge” to limit accesses to benefits.

In areas with high correlation of food insecurity and negative physical and mental health for immigrants and refugees, urban planners or policy makers should educate dominant sub-groups in host areas of incorporating cultural foods and needs in restaurants, grocery, and food stores and provide affordability services such as more restaurants or grocery stores accepting food related social services such as EBT, SNAP, and WIC. While the pandemic is still around, online interactions with immigrant and non-immigrant communities can educate and consult one another on dietary intakes, open willingness for language training, and provide social support as immigrants need to be reminded that they are thought of and not discriminated against.

As Dearborn has formed a microcosm world with various representations of the Arab American culture, there is still a lack of social support for adult Arab American immigrants/refugees that prevent higher levels of educational attainment or income. Services like Arab Community Center for Economic and Social Services (ACCESS) in Dearborn offer training for skilled-level work and language courses for ex-criminals with records and children of immigrants but not directly

for adult immigrant or refugees. Social services like Bethany Christian Services Refugee & Immigrant Services in Grand Rapids, Michigan focus solely on ensuring immigrants and refugees get skilled-level training for careers that offer higher incomes and aim to get these jobs for them within 5-years. If there are services that attract adult Arab American immigrants and refugees to get the right training and successfully bring more adults immigrants to the labor force, healthcare facilities can be more access and decrease financial burdens.

Limitations

There were several limitations of this study pertaining to the data collection process. When the survey was first sent out as a postcard with a website linked, there was only a 1.2% return. The younger sample of Middle Easterners might have better access to the internet and frequently use it. Although the survey gave the option to be translated in Arabic, the survey online might have been presented first in English, decreasing the probability of older Middle Easterners immigrants who experience language difficulties or internet trust issues to take the survey. Moreover, although internet methods allow for greater sample sizes for comparatively, the sample size was still small. Obtaining random samples should be replicated to increase diversity in sample and statistical confidence.

CONCLUSION

Like other immigrant groups in the U.S., Arab-Americans in Dearborn, Michigan face countless structural, social and economic challenges which impede their mental health and the coverage for healthcare. Further, these findings indicate that Arab-Americans in Dearborn, even with a younger sample size, still obtain lower educational levels and household income than their comparative groups, non-Arab American. Immigration policies engender these challenges by hindering accessibility to proper healthcare and receiving government benefits in times of crisis as immigrants are more vulnerable than non-immigrants. Immigrants are compelled to make difficult decisions that infringes on their earlier mental stressors; financial stress, policy confusion, discrimination, and receiving appropriate health services. Nonetheless, regions like Dearborn, Michigan that accommodate for food accessibility with grocery and food stores that embrace cultural dietary contribute to positive physical health and food security for immigrants and minorities.

APPENDICES

APPENDIX A: Survey Results

Table 15: Been Able to Concentrate on Whatever You're Doing Before COVID

	Freq.	Percent
Always	54	30.34
Most of the time	79	44.38
About half the time	21	11.80
Sometimes	20	11.24
Never	4	2.25
Total	178	100.00

Table 16: Been So Restless That It Was Hard to Sit Still Before COVID

	Freq.	Percent
Always	6	3.39
Most of the time	22	12.43
About half the time	29	16.38
Sometimes	73	41.24
Never	47	26.55
Total	177	100.00

Table 17: Lost Sleep Over Worry About Something Before COVID

	Freq.	Percent
Always	14	7.91
Most of the time	28	15.82
About half the time	24	13.56
Sometimes	74	41.81
Never	37	20.90
Total	177	100.00

Table 18: Felt You Could Not Over Come Difficulties Before COVID

	Freq.	Percent
Always	11	6.21
Most of the time	29	16.38
About half the time	22	12.43
Sometimes	62	35.03
Never	53	29.94
Total	177	100.00

Table 19: Been Feeling Reasonably Happy Before COVID

	Freq.	Percent
Always	28	15.82
Most of the time	70	39.55
About half the time	38	21.47
Sometimes	34	19.21
Never	7	3.95
Total	177	100.00

Table 20: Felt Afraid As If Something Awful Might Happen Before COVID

	Freq.	Percent
Always	13	7.34
Most of the time	25	14.12
About half the time	26	14.69
Sometimes	74	41.81
Never	39	22.03
Total	177	100.00

Table 21: Been Able to Concentrate on Whatever You're Doing Since COVID

	Freq.	Percent
Always	35	19.77
Most of the time	66	37.29
About half the time	34	19.21
Sometimes	37	20.90
Never	5	2.82
Total	177	100.00

Table 22: Been So Restless That It Was Hard to Sit Still Since COVID

	Freq.	Percent
Always	10	5.71
Most of the time	27	15.43
About half the time	37	21.14
Sometimes	61	34.86
Never	40	22.86
Total	175	100.00

Table 23: Lost Sleep Over Worry About Something Since COVID

	Freq.	Percent
Always	16	9.09
Most of the time	29	16.48
About half the time	30	17.05
Sometimes	67	38.07
Never	34	19.32
Total	176	100.00

Table 24: Felt You Could Not Over Come Difficulties Since COVID

	Freq.	Percent
Always	8	4.57
Most of the time	35	20.00
About half the time	35	20.00
Sometimes	52	29.71
Never	45	25.71
Total	175	100.00

Table 25: Been Feeling Reasonably Happy Since COVID

	Freq.	Percent
Always	23	12.99
Most of the time	60	33.90
About half the time	36	20.34
Sometimes	41	23.16
Never	17	9.60
Total	177	100.00

Table 26: Felt Afraid as If Something Awful Might Happen Since COVID

	Freq.	Percent
Always	19	10.80
Most of the time	34	19.32
About half the time	32	18.18
Sometimes	60	34.09
Never	31	17.61
Total	176	100.00

Table 27: Consume Beans

	Freq.	Percent
Daily	10	5.75
2-3 times a week	76	43.68
Once a week	44	25.29
Once a month	36	20.69
Never	8	4.60
Total	174	100.00

Table 28: Consume Green Vegetables

	Freq.	Percent
1	50	28.74
2	92	52.87
3	19	10.92
4	11	6.32
5	2	1.15
Total	174	100.00

Table 29: Consume Fruit

	Freq.	Percent
Daily	75	43.10
2-3 times a week	77	44.25
Once a week	16	9.20
Once a month	5	2.87
Never	1	0.57
Total	174	100.00

Table 30: Consume Eggs

	Freq.	Percent	Cum.
1	27	15.52	15.52
2	69	39.66	55.17
3	53	30.46	85.63
4	17	9.77	95.40
5	8	4.60	100.00
Total	174	100.00	

Table 31: Consume Meats

	Freq.	Percent
Daily	66	37.93
2-3 times a week	82	47.13
Once a week	15	8.62
Once a month	4	2.30
Never	7	4.02
Total	174	100.00

Table 32: Consume Fried Foods

	Freq.	Percent
Daily	8	4.60
2-3 times a week	47	27.01
Once a week	60	34.48
Once a month	52	29.89
Never	7	4.02
Total	174	100.00

Table 33: Smoke Cigarettes

	Freq.	Percent
Does not Smoke Cigarettes	159	91.38
Does Smokes Cigarettes	15	8.62
Total	174	100.00

Table 34: Cigarette Consumption Change Since COVID

	Freq.	Percent
I smoke more than before	5	33.33
I smoke the same amount as before	7	46.67
I smoke less than before	3	20.00
Total	15	100.00

Table 35: Other Forms of Tobacco Use

	Freq.	Percent
Cigar	7	4.02
Hookah	8	4.60
Other	5	2.87
I don't use tobacco in any form	154	88.51
Total	174	100.00

Table 36: Tobacco Consumption Change Since COVID

	Freq.	Percent
I use it more than before	6	30.00
I use the same amount as before	8	40.00
I use less than before	6	30.00
Total	20	100.00

Table 37: Drinks Alcoholic Beverages

	Freq.	Percent
Don't Drink Alcoholic Beverage	108	62.07
Drink Alcoholic Beverages	66	37.93
Total	174	100.00

Table 38: Worry of Worsening of Chronic Illness Since COVID

	Freq.	Percent
No fear	28	68.29
Fear/worry of worsen chronic illness	13	31.71
Total	41	100.00

APPENDIX B: Survey Questionnaire

Introduction and Consent

Physical and mental health disparities in Dearborn, Michigan: The role of the built environment and social support for immigrant/refugee and non-immigrant families

Consent Form You are being asked to participate in a study to investigate the effects of your physical environment and social and economic conditions on mental and physical stress levels and overall health conditions. You are being asked to participate by filling out a survey that helps us understand these associations. You must be at least 18 years old and a resident of Michigan to participate in the survey. All information that you give us will be kept strictly confidential and only be evaluated in combination with other questionnaires received. Participation is voluntary and you have the right to refuse to participate in the survey or stop answering the survey at any time. The survey should take about 12 minutes to complete. Dr. Z. Kotval-K, assistant professor of Urban & Regional Planning at Michigan State University and Marah Maaita, graduate student in the same program, are available to answer any questions you may have about the survey and can be reached via email at kotvalze@msu.edu or maaitam1@msu.edu or via telephone at (517) 353-5460. Please indicate your consent to participate in this study and proceed to the survey.

- ☐ I agree to participate - take me to the survey (1)
- ☐ I do not agree to participate in the survey (2)
-

Demographic Questions:

Is your ethnic origin Middle Eastern?

☐ Yes (1)

☐ No (2)

Please specify your ethnicity:

☐ Syria (1)

☐ Iraq (2)

☐ Saudi Arabia (3)

☐ Lebanon (4)

☐ Jordan (5)

☐ Palestine (6)

☐ Other: (7) _____

Please enter your zip code below:

Please fill in the closest street intersection you live by (this information will ONLY be used for aggregate mapping purposes):

What gender do you identify with?

- ☐ Male (1)
 - ☐ Female (2)
 - ☐ Prefer not to answer (3)
-

How old are you (in years)?

What religion do you generally follow?

- ☐ Christian (1)
 - ☐ Muslim (2)
 - ☐ Jewish (3)
 - ☐ No Religion (4)
 - ☐ Others: (5) _____
-

What is the highest degree attained or level of schooling you have completed?

- ☐ No schooling completed (1)
 - ☐ Nursery schooling to 8th grade (2)
 - ☐ Some high school, no diploma (3)
 - ☐ High school graduate, diploma, or the equivalent (ex. GED) (4)
 - ☐ Associate degree (5)
 - ☐ Bachelor's degree (6)
 - ☐ Graduate and above degree (7)
-

How many people are included in your household (including yourself)?

How many children (under 18 years of age) are in your household?

What is your current marital status?

- ☐ Currently married (1)
 - ☐ Divorced (2)
 - ☐ Separated (3)
 - ☐ Widowed (4)
 - ☐ Never married (5)
 - ☐ Other: (6) _____
-

Which one of the following best describes your employment status (BEFORE any changes due to the COVID Pandemic)? Are you (circle only one):

- ☐ Employed for pay outside your home (1)
- ☐ Self-employed (2)
- ☐ Student (3)
- ☐ Homemaker (4)
- ☐ Unemployed (5)
- ☐ Retired (6)
- ☐ Other: (7) _____
-

Has your employment status changed since the COVID pandemic?

- ☐ Yes: Please explain how it has changed (1)

- ☐ No (2)
-

Do you own (with or without a mortgage) or rent your house?

- ☐ Own (1)
- ☐ Rent (2)
-

How long have you lived: (please answer both options)

- ☐ In this house (years): (1) _____
- ☐ In the City of Dearborn (years): (2) _____
-

What is your total combined annual household income (BEFORE the COVID Pandemic)? (total gross salaries and wages)

- ☐ Less than \$5,000 (1)
 - ☐ \$5000 to \$9,999 (2)
 - ☐ \$10,000 to \$14,999 (3)
 - ☐ \$15,000 to \$19,999 (4)
 - ☐ \$20,000 to \$24,999 (5)
 - ☐ \$25,000 to \$34,999 (6)
 - ☐ \$35,000 to \$49,999 (7)
 - ☐ \$50,000 to \$74,999 (8)
 - ☐ \$75,000 to \$100,000 (9)
 - ☐ More than \$100,000 (10)
-

Has the household income changed DUE TO the COVID Pandemic?

- ☐ Yes: Please explain how it has changed (1)

- ☐ No (2)
-

Mental Health Questions:

How often have you (in the past 3 months **BEFORE the COVID-19 restrictions in Michigan**) been able to do the following:

	Always (1)	Most of the time (2)	About half the time (3)	Sometimes (4)	Never (5)
Been able to concentrate on whatever you're doing? (1)	☐	☐	☐	☐	☐
Been so restless that it was hard to sit still? (2)	☐	☐	☐	☐	☐
Lost sleep over worry about something? (3)	☐	☐	☐	☐	☐
Felt you could not overcome difficulties? (4)	☐	☐	☐	☐	☐
Been feeling reasonably happy, considering all things going on in life? (5)	☐	☐	☐	☐	☐
Felt afraid as if something awful might happen? (6)	☐	☐	☐	☐	☐

Please tell us a little more about any of the mental stress you were facing **BEFORE the COVID-19 pandemic**

Now thinking about your mental health (which includes stress, depression, and problems with emotions), what percent of the time **BEFORE COVID** did you feel the following? (Please move the sliders horizontally to the appropriate percentage):

0 10 20 30 40 50 60 70 80 90 100

Not good mental health ()	
Poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation ()	
Fear about your own physical health or that of loved ones? ()	
Fear that you will not have access to health facilities for care? ()	

How often have you (in the past 2 months **SINCE the COVID-19 restrictions in Michigan**) been able to do the following:

	Always (1)	Most of the time (2)	About half the time (3)	Sometimes (4)	Never (5)
Been able to concentrate on whatever you are doing? (1)	☐	☐	☐	☐	☐
Been so restless that it was hard to sit still? (2)	☐	☐	☐	☐	☐
Lost sleep over worry about something? (3)	☐	☐	☐	☐	☐
Felt you could not overcome difficulties? (4)	☐	☐	☐	☐	☐
Been feeling reasonably happy, considering all things going on in life? (5)	☐	☐	☐	☐	☐
Felt afraid as if something awful might happen? (6)	☐	☐	☐	☐	☐

Please tell us a little more about any of the mental stress you are facing **SINCE the COVID restrictions began in Michigan:**

Now thinking about your mental health (which includes stress, depression, and problems with emotions), what percent of the time **SINCE COVID restrictions began in Michigan,** did you feel the following? (Please move the sliders horizontally to the appropriate percentage):

0 10 20 30 40 50 60 70 80 90 100

Not good mental health ()	
Poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation ()	
Fear about your own physical health or that of loved ones? ()	
Fear that you will not have access to health facilities for care? ()	

Ever **SINCE the COVID restrictions began in Michigan,** have you had any fear or worry of worsening chronic health problems?

- ☐ Yes (1)
- ☐ No (2)

Physical Health Questions:

What is your weight (lbs)?

What is your height (ft and inches)?

☐ Feet (1) _____

☐ Inches (2) _____

In the last 12 months, have you visited a doctor or other health care provider?

☐ Yes (1)

☐ No (2)

What type of health facility did you visit most recently for yourself (or for your children)?

☐ Doctor's clinic (1)

☐ Government/Municipal (2)

☐ Camp (3)

☐ Healthy facility (4)

☐ Pharmacy (5)

☐ Used Telemedicine (6)

☐ Other: (7) _____

What service did you go for on your most recent visit?

- ☐ Family planning (1)
 - ☐ Health check-up (2)
 - ☐ Immunization (3)
 - ☐ Treatment for child (4)
 - ☐ Treatment for self (5)
 - ☐ Other: (6) _____
-

Do you currently have any of the following chronic illnesses? (Select all that apply)

- ☐ Diabetes (1)
 - ☐ Heart disease (2)
 - ☐ Asthma (3)
 - ☐ Other (please specify) (4) _____
 - ☐ I do not have any chronic illness (5)
-

Are you covered by any health insurance?

- ☐ Yes (1)
 - ☐ No (2)
-

What type of health insurance?

- ☐ Employment (1)
- ☐ State health insurance (2)
- ☐ Medical reimbursement (3)
- ☐ Community program (4)
- ☐ Other: (5) _____
- ☐ I don't know (6)
-

How often do you consume the following?

	Daily (1)	2-3 times a week (2)	Once a week (3)	Once a month (4)	Never (5)
Milk (1)	☐	☐	☐	☐	☐
Beans (lentils, green beans, lima beans) (2)	☐	☐	☐	☐	☐
Green vegetables (3)	☐	☐	☐	☐	☐
Fruits (4)	☐	☐	☐	☐	☐
Eggs (5)	☐	☐	☐	☐	☐
Chicken/meat/seafood (6)	☐	☐	☐	☐	☐
Fried foods (7)	☐	☐	☐	☐	☐

Harmful Habits Questions

Do you currently smoke cigarettes?

- ☐ Yes (1)
- ☐ No (2)
-

Has this (smoking cigarettes) changed since the COVID restrictions began in Michigan?

- ☐ I smoke more than before (1)
- ☐ I smoke the same amount as before (2)
- ☐ I smoke less than before (3)
-

Do you currently smoke or use tobacco in other forms?

- ☐ Pipe (1)
- ☐ Cigar (2)
- ☐ Hookah (3)
- ☐ Chewing (4)
- ☐ Other: (5) _____
- ☐ I don't use tobacco in any form (6)
-

Has this (using tobacco in other forms) changed since the COVID restrictions began in Michigan?

- ☐ I use it more than before (1)
- ☐ I use the same amount as before (2)
- ☐ I use less than before (3)
-

Do you drink alcoholic beverages?

- ☐ Yes (1)
- ☐ No (2)
-

BEFORE the COVID situation in Michigan, how many days per week or per month in general did you have at least one drink of any alcoholic beverage (such as beer, wine, malt beverage or liquor)?

- ☐ Days per week (1) _____
- ☐ Days in a month (2) _____
-

SINCE the COVID restrictions in Michigan began, how many days per week or per month in general did you have at least one drink of any alcoholic beverage (such as beer, wine, malt beverage or liquor)?

- ☐ Days per week (1) _____
- ☐ Days in a month (2) _____
-

Please use the comment box below to leave us any further comments/feedback on this survey.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Abdallah-Hijazi, M., Anderson-Carpenter, K. D., Gruber, J. A., Chiaramonte, D. M., & Haight, P. E. (2019). Understanding substance use among Arab Americans: A community assessment. In Paper presented at the 8th Arab Health Summit, Washington, DC.
- Abraham, N., & Shryock, A. (2000). *Arab Detroit : from margin to mainstream*. Wayne State University Press.
- Abu-Bader, S. H., Tirmazi, M. T., & Ross-Sheriff, F. (2011). The Impact of Acculturation on Depression Among Older Muslim Immigrants in the United States. *Journal of Gerontological Social Work*, 54(4), 425–448. <https://doi.org/10.1080/01634372.2011.560928>
- Abuelezam, N. N., El-Sayed, A. M., & Galea, S. (2018). The Health of Arab Americans in the United States: An Updated Comprehensive Literature Review. *Frontiers in Public Health*, 6. <https://doi.org/10.3389/fpubh.2018.00262>
- Aglipay, M., Colman, I., & Chen, Y. (2012). Does the Healthy Immigrant Effect Extend to Anxiety Disorders? Evidence from a Nationally Representative Study. *Journal of Immigrant and Minority Health*, 15(5), 851–857. <https://doi.org/10.1007/s10903-012-9677-4>
- Alaimo, K., Olson, C. M., & Frongillo, E. A. (2001). Low Family Income and Food Insufficiency in Relation to Overweight in US Children. *Archives of Pediatrics & Adolescent Medicine*, 155(10), 1161. <https://doi.org/10.1001/archpedi.155.10.1161>
- Amer, M. M., & Bagasra, A. (2013). Psychological research with Muslim Americans in the age of Islamophobia: Trends, challenges, and recommendations. *American Psychologist*, 68(3), 134–144. <https://doi.org/10.1037/a0032167>
- Amer, M. M., & Hovey, J. D. (2007). Socio-demographic Differences in Acculturation and Mental Health for a Sample of 2nd Generation/Early Immigrant Arab Americans. *Journal of Immigrant and Minority Health*, 9(4), 335–347. <https://doi.org/10.1007/s10903-007-9045-y>
- Amer, M. M., & Hovey, J. D. (2011). Anxiety and depression in a post-September 11 sample of Arabs in the USA. *Social Psychiatry and Psychiatric Epidemiology*, 47(3), 409–418. <https://doi.org/10.1007/s00127-011-0341-4>
- Anderson, J. M. (1991). Immigrant women speak of chronic illness: the social construction of the devalued self. *Journal of Advanced Nursing*, 16(6), 710–717. <https://doi.org/10.1111/j.1365-2648.1991.tb01729.x>
- Arbona, C., Olvera, N., Rodriguez, N., Hagan, J., Linares, A., & Wiesner, M. (2010). Acculturative Stress Among Documented and Undocumented Latino Immigrants in the United States. *Hispanic Journal of Behavioral Sciences*, 32(3), 362–384. <https://doi.org/10.1177/0739986310373210>

- Arfken, C. L., Kubiak, S. P., & Farrag, M. (2009). Acculturation and Polysubstance Abuse in Arab-American Treatment Clients. *Transcultural Psychiatry*, 46(4), 608–622. <https://doi.org/10.1177/1363461509351364>
- Asvat, Y., & Malcarne, V. L. (2008). Acculturation and depressive symptoms in Muslim university students: Personal–family acculturation match. *International Journal of Psychology*, 43(2), 114–124. <https://doi.org/10.1080/00207590601126668>
- Berry, J. W. (1992). Acculturation and Adaptation in a New Society. *International Migration*, 30, 69–85. <https://doi.org/10.1111/j.1468-2435.1992.tb00776.x>
- Blackwood, L., Hopkins, N., & Reicher, S. (2015). From Theorizing Radicalization to Surveillance Practices: Muslims in the Cross Hairs of Scrutiny. *Political Psychology*, 37(5), 597–612. <https://doi.org/10.1111/pops.12284>
- Britannica, T. Editors of Encyclopaedia (2013, April 18). *Dearborn*. *Encyclopedia Britannica*. <https://www.britannica.com/place/Dearborn>
- Bux, S. (2007). Muslim Youths, Islam and Violent Radicalisation: Addressing Some Myths. *The Police Journal: Theory, Practice and Principles*, 80(3), 267–278. <https://doi.org/10.1350/pojo.2007.80.3.267>
- Cabassa, L. J. (2003). Measuring Acculturation: Where We Are and Where We Need to Go. *Hispanic Journal of Behavioral Sciences*, 25(2), 127–146. <https://doi.org/10.1177/0739986303025002001>
- Centers for Disease Control and Prevention . (2020). Coronavirus Disease 2019 (COVID-19): People who are at higher risk for severe illness. [Cited 6 April 2020]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/specific-groups/highrisk-complications.html>
- Centers for Disease Control and Prevention. (2020, September 17). Defining Adult Overweight and Obesity. Centers for Disease Control and Prevention. <https://www.cdc.gov/obesity/adult/defining.html>
- Chen, J., & Vargas-Bustamante, A. (2011). Estimating the Effects of Immigration Status on Mental Health Care Utilizations in the United States. *Journal of Immigrant and Minority Health*, 13(4), 671–680. <https://doi.org/10.1007/s10903-011-9445-x>
- Cholera, R., Falusi, O. O., & Linton, J. M. (2020). Sheltering in Place in a Xenophobic Climate: COVID-19 and Children in Immigrant Families. *Pediatrics*, e20201094. <https://doi.org/10.1542/peds.2020-1094>
- Corrigan, P. W., Watson, A. C., & Barr, L. (2006). The Self–Stigma of Mental Illness: Implications for Self–Esteem and Self–Efficacy. *Journal of Social and Clinical Psychology*, 25(8), 875–884. <https://doi.org/10.1521/jscp.2006.25.8.875>

Creatore, M. I., Moineddin, R., Booth, G., Manuel, D. H., DesMeules, M., McDermott, S., & Glazier, R. H. (2010). Age- and sex-related prevalence of diabetes mellitus among immigrants to Ontario, Canada. *Canadian Medical Association Journal*, 182(8), 781–789. <https://doi.org/10.1503/cmaj.091551>

Demographic of Health Surveys. (n.d.). The DHS Program - Demographic and Health Survey (DHS). [dhsprogram.com](https://dhsprogram.com/methodology/survey-Types/dHs.cfm). <https://dhsprogram.com/methodology/survey-Types/dHs.cfm>
Derose, K. P., Escarce, J. J., & Lurie, N. (2007). Immigrants And Health Care: Sources Of Vulnerability. *Health Affairs*, 26(5), 1258–1268. <https://doi.org/10.1377/hlthaff.26.5.1258>

DeSantis, G., & Social Planning and Research Council of Hamilton and District. (1990). *Diverse racial and cultural groups' access to the social service system*. Hamilton, Ont: Social Planning and Research Council.

DeSantis, L., & Halberstein, R. (1992). The Effects of Immigration on the Health Care System of South Florida. *Human Organization*, 51(3), 223–234. <https://doi.org/10.17730/humo.51.3.h4xv1u37177756j7>

Dharod, J. M., Croom, J. E., & Sady, C. G. (2013). Food Insecurity: Its Relationship to Dietary Intake and Body Weight among Somali Refugee Women in the United States. *Journal of Nutrition Education and Behavior*, 45(1), 47–53. <https://doi.org/10.1016/j.jneb.2012.03.006>

Du, Y., & Xu, Q. (2016). Health Disparities and Delayed Health care among Older Adults in California: A Perspective from Race, Ethnicity, and Immigration. *Public Health Nursing*, 33(5), 383–394. <https://doi.org/10.1111/phn.12260>

Ebrahim, S., Kinra, S., Bowen, L., Andersen, E., Ben-Shlomo, Y., Lyngdoh, T., Ramakrishnan, L., Ahuja, R. C., Joshi, P., Das, S. M., Mohan, M., Davey Smith, G., Prabhakaran, D., & Reddy, K. S. (2010). The Effect of Rural-to-Urban Migration on Obesity and Diabetes in India: A Cross-Sectional Study. *PLoS Medicine*, 7(4), e1000268. <https://doi.org/10.1371/journal.pmed.1000268>

Edward, J., & Hines-Martin, V. (2014). Exploring the Providers Perspective of Health and Social Service Availability for Immigrants and Refugees in a Southern Urban Community. *Journal of Immigrant and Minority Health*, 17(4), 1185–1191. <https://doi.org/10.1007/s10903-014-0048-1>

El-Sayed, A. M., & Galea, S. (2009). The health of Arab-Americans living in the United States: a systematic review of the literature. *BMC Public Health*, 9(1). <https://doi.org/10.1186/1471-2458-9-272>

Endale, T., St. Jean, N., & Birman, D. (2020). COVID-19 and refugee and immigrant youth: A community-based mental health perspective. *Psychological Trauma: Theory, Research, Practice, and Policy*. <https://doi.org/10.1037/tra0000875>

Evenson, K. R., Sarmiento, O. L., & Ayala, G. X. (2004). Acculturation and physical activity among North Carolina Latina immigrants. *Social Science & Medicine*, 59(12), 2509–2522. <https://doi.org/10.1016/j.socscimed.2004.04.011>

Exec. Order No. 2020-4, Fed. Reg. Emergency Powers of the Governor Act of 1945, 1945 PA 302, as amended, MCL 10.31 et seq.

Fassaert, T., De Wit, M. A. S., Tuinebreijer, W. C., Knipscheer, J. W., Verhoeff, A. P., Beekman, A. T. F., & Dekker, J. (2009). Acculturation and Psychological Distress Among Non-Western Muslim Migrants - a Population-Based Survey. *International Journal of Social Psychiatry*, 57(2), 132–143. <https://doi.org/10.1177/0020764009103647>

Fernández-Reino, M., Sumption, M., & Vargas-Silva, C. (2020). From Low-Skilled to Key Workers: The Implications of Emergencies for Immigration Policy. *Oxford Review of Economic Policy*. <https://doi.org/10.1093/oxrep/graa016>

Fernández-Reino, M., Sumption, M., & Vargas-Silva, C. (2020). From Low-Skilled to Key Workers: The Implications of Emergencies for Immigration Policy. *Oxford Review of Economic Policy*. <https://doi.org/10.1093/oxrep/graa016>

Fitzgerald, N., Hromi-Fiedler, A., Segura-Pérez, S., & Pérez-Escamilla, R. (2011). Food Insecurity is Related to Increased Risk of Type 2 Diabetes Among Latinas. *Ethnicity & Disease*, 21(3), 328–334. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4048712/>

Fowler N. (1998). Providing primary health care to immigrants and refugees: the North Hamilton experience. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne*, 159(4), 388–391.

Gerber, M., Barker, D., & Pühse, U. (2011). Acculturation and physical activity among immigrants: a systematic review. *Journal of Public Health*, 20(3), 313–341. <https://doi.org/10.1007/s10389-011-0443-1>

Goel, M. S. (2004). Obesity Among US Immigrant Subgroups by Duration of Residence. *JAMA*, 292(23), 2860. <https://doi.org/10.1001/jama.292.23.2860>

Gordon-Larsen, P. (2006). Inequality in the Built Environment Underlies Key Health Disparities in Physical Activity and Obesity. *PEDIATRICS*, 117(2), 417–424. <https://doi.org/10.1542/peds.2005-0058>

Gucciardi, E., Vogt, J. A., DeMelo, M., & Stewart, D. E. (2009). Exploration of the Relationship Between Household Food Insecurity and Diabetes in Canada. *Diabetes Care*, 32(12), 2218–2224. <https://doi.org/10.2337/dc09-0823>

Hadley, C., Zodhiates, A., & Sellen, D. (2007). Acculturation, economics and food insecurity among refugees resettled in the USA: A case study of West African refugees. *Public Health Nutrition*, 10(4), 405–412. doi:10.1017/S1368980007222943

Hanson, M. D., & Chen, E. (2006). Socioeconomic Status, Race, and Body Mass Index: The Mediating Role of Physical Activity and Sedentary Behaviors during Adolescence. *Journal of Pediatric Psychology*, 32(3), 250–259. <https://doi.org/10.1093/jpepsy/jsl024>

Hashemi, N., Marzban, M., Sebar, B., & Harris, N. (2019). Acculturation and psychological well-being among Middle Eastern migrants in Australia: The mediating role of social support and perceived discrimination. *International Journal of Intercultural Relations*, 72, 45–60. <https://doi.org/10.1016/j.ijintrel.2019.07.002>

Hatahet, W., Khosla, P., & Fungwe, T. V. (2002). Prevalence of risk factors to coronary heart disease in an Arab-American population in Southeast Michigan. *International Journal of Food Sciences and Nutrition*, 53(4), 325–335. <https://doi.org/10.1080/09637480220138124>

Hersey, J., Anliker, J., Miller, C., Mullis, R. M., Daugherty, S., Das, S., Bray, C. R., Dennee, P., Sigman-Grant, M., & Thomas, H. O. (2001). Food Shopping Practices Are Associated with Dietary Quality in Low-Income Households. *Journal of Nutrition Education*, 33, S16–S26. [https://doi.org/10.1016/s1499-4046\(06\)60066-3](https://doi.org/10.1016/s1499-4046(06)60066-3)

Himmelgreen, D., Pérez-Escamilla, R., Segura-Millán, S., Peng, Y.-K., Gonzalez, A., Singer, M., & Ferris, A. (2000). Food Insecurity Among Low-Income Hispanics in Hartford, Connecticut: Implications for Public Health Policy. *Human Organization*, 59(3), 334–342. <https://doi.org/10.17730/humo.59.3.76557m3177481414>

Hunt, L. M., Schneider, S., & Comer, B. (2004). Should “acculturation” be a variable in health research? A critical review of research on US Hispanics. *Social Science & Medicine*, 59(5), 973–986. <https://doi.org/10.1016/j.socscimed.2003.12.009>

Igoye, A. (2020). Migration and Immigration: Uganda and the COVID-19 Pandemic. *Public Integrity*, 1–4. <https://doi.org/10.1080/10999922.2020.1753383>

Jaber, R. M., Farroukh, M., Ismail, M., Najda, J., Sobh, H., Hammad, A., & Dalack, G. W. (2014). Measuring depression and stigma towards depression and mental health treatment among adolescents in an Arab-American community. *International Journal of Culture and Mental Health*, 8(3), 247–254. <https://doi.org/10.1080/17542863.2014.953188>

Jamil, H., Fakhouri, M., Dallo, F., Templin, T., Khoury, R., & Fakhouri, H. (2007). Disparities in Self-Reported Diabetes Mellitus among Arab, Chaldean, and Black Americans in Southeast Michigan. *Journal of Immigrant and Minority Health*, 10(5), 397–405. <https://doi.org/10.1007/s10903-007-9108-0>

Jetter, K. M., & Cassady, D. L. (2006). The Availability and Cost of Healthier Food Alternatives. *American Journal of Preventive Medicine*, 30(1), 38–44. <https://doi.org/10.1016/j.amepre.2005.08.039>

Ji, W., Wang, W., Zhao, X., Zai, J., & Li, X. (2020). Homologous recombination within the spike glycoprotein of the newly identified coronavirus may boost cross-species transmission from snake to human. *Journal of Medical Virology*. <https://doi.org/10.1002/jmv.25682>

Jimenez, D. E., Bartels, S. J., Cardenas, V., Dhaliwal, S. S., & Alegría, M. (2012). Cultural Beliefs and Mental Health Treatment Preferences of Ethnically Diverse Older Adult Consumers in Primary Care. *The American Journal of Geriatric Psychiatry*, 20(6), 533–542. <https://doi.org/10.1097/jgp.0b013e318227f876>

KAISER, L. L., LAMP, C. L., JOHNS, M. C., SUTHERLIN, J. M., HARWOOD, J. O., & MELGAR-QUIÑONEZ, H. R. (2002). Food Security and Nutritional Outcomes of Preschool-Age Mexican-American Children. *Journal of the American Dietetic Association*, 102(7), 924–929. [https://doi.org/10.1016/s0002-8223\(02\)90210-5](https://doi.org/10.1016/s0002-8223(02)90210-5)

Kaplan, M. S., Huguet, N., Newsom, J. T., & McFarland, B. H. (2004). The association between length of residence and obesity among Hispanic immigrants. *American Journal of Preventive Medicine*, 27(4), 323–326. <https://doi.org/10.1016/j.amepre.2004.07.005>

Khawaja, N. G. (2016). Acculturation of the Muslims Settled in the West. *Journal of Muslim Mental Health*, 10(1). <https://doi.org/10.3998/jmmh.10381607.0010.102>

Kim, G., Worley, C. B., Allen, R. S., Vinson, L., Crowther, M. R., Parmelee, P., & Chiriboga, D. A. (2011). Vulnerability of Older Latino and Asian Immigrants with Limited English Proficiency. *Journal of the American Geriatrics Society*, 59(7), 1246–1252. <https://doi.org/10.1111/j.1532-5415.2011.03483.x>

Kira, I. A., Lewandowski, L., Ashby, J. S., Templin, T., Ramaswamy, V., & Mohanesh, J. (2014). The Traumatogenic Dynamics of Internalized Stigma of Mental Illness Among Arab American, Muslim, and Refugee Clients. *Journal of the American Psychiatric Nurses Association*, 20(4), 250–266. <https://doi.org/10.1177/1078390314542873>

Kira, I. A., Ramaswamy, V., Lewandowski, L., Mohanesh, J., & Abdul-Khalek, H. (2015). Psychometric assessment of the Arabic version of the Internalized Stigma of Mental Illness (ISMI) measure in a refugee population. *Transcultural Psychiatry*, 52(5), 636–658. <https://doi.org/10.1177/1363461515569755>

Ku, L. (2017, March 2). Why Immigrants Lack Adequate Access to Health Care and Health Insurance. *Migrationpolicy.org*. <https://www.migrationpolicy.org/article/why-immigrants-lack-adequate-access-health-care-and-health-insurance>

Kunst, J. R., & Sam, D. L. (2013). Relationship between perceived acculturation expectations and Muslim minority youth's acculturation and adaptation. *International Journal of Intercultural Relations*, 37(4), 477–490. <https://doi.org/10.1016/j.ijintrel.2013.04.007>

- Laffrey, S. C., Meleis, A. I., Lipson, J. G., Solomon, M., & Omidian, P. A. (1989). Assessing Arab-American health care needs. *Social Science & Medicine*, 29(7), 877–883. [https://doi.org/10.1016/0277-9536\(89\)90087-7](https://doi.org/10.1016/0277-9536(89)90087-7)
- Lee, J. S., & Frongillo, E. A. (2001). Nutritional and Health Consequences Are Associated with Food Insecurity among U.S. Elderly Persons. *The Journal of Nutrition*, 131(5), 1503–1509. <https://doi.org/10.1093/jn/131.5.1503>
- Leighton, M. (2015). The price of rights: Regulating international labor migration. By Martin RUHS. *International Labour Review*, 154(2), 277–283. <https://doi.org/10.1111/j.1564-913x.2015.00243.x>
- Lu, Y. (2010). Mental health and risk behaviours of rural–urban migrants: Longitudinal evidence from Indonesia. *Population Studies*, 64(2), 147–163. <https://doi.org/10.1080/00324721003734100>
- Marquez, D. X., & McAuley, E. (2006). Gender and acculturation influences on physical activity in latino adults. *Annals of Behavioral Medicine*, 31(2), 138–144. https://doi.org/10.1207/s15324796abm3102_5
- Mägi, K., van Ham, M., Leetmaa, K., & Tammaru, T. (2018). The neighbourhood context and changes in self-reported ethnic identity. *Journal of Ethnic and Migration Studies*, 46(1), 277–296. <https://doi.org/10.1080/1369183x.2018.1547634>
- Martin, U. (2012). Psychotherapy with Arab Americans: an exploration of therapy-seeking and termination behaviors. *International Journal of Culture and Mental Health*, 7(2), 162–167. <https://doi.org/10.1080/17542863.2012.742121>
- May, K. M. (1992). Middle-Eastern immigrant parents’ social networks and help-seeking for child health care. *Journal of Advanced Nursing*, 17(8), 905–912. <https://doi.org/10.1111/j.1365-2648.1992.tb02017.x>
- McDonald, J. T., & Kennedy, S. (2004). Insights into the “healthy immigrant effect”: health status and health service use of immigrants to Canada. *Social Science & Medicine*, 59(8), 1613–1627. <https://doi.org/10.1016/j.socscimed.2004.02.004>
- McKay L, Macintyre S, Ellaway A. Migration and health: a review of the international literature. In: Petticrew M, Hunt K, editors. Glasgow: MRC Social and Public Health Sciences Unit; 2003. MRC Social and Public Health Sciences Unit. Occasional paper series number 12.
- Molnar, B. E., Gortmaker, S. L., Bull, F. C., & Buka, S. L. (2004). Unsafe to Play? Neighborhood Disorder and Lack of Safety Predict Reduced Physical Activity among Urban Children and Adolescents. *American Journal of Health Promotion*, 18(5), 378–386. <https://doi.org/10.4278/0890-1171-18.5.378>

- Moroz, H., Shrestha, M., & Testaverde, M. (2020). Potential Responses to the COVID-19 Outbreak in Support of Migrant Workers. World Bank, Washington, DC.
<https://doi.org/10.1596/33625>
- Murthy, V. (2016). Food Insecurity. *Public Health Reports*, 131(5), 655–657.
<https://doi.org/10.1177/0033354916664154>
- Nassar-McMillan, S. C., & Hakim-Larson, J. (2003). Counseling Considerations Among Arab Americans. *Journal of Counseling & Development*, 81(2), 150–159.
<https://doi.org/10.1002/j.1556-6678.2003.tb00236.x>
- Nauman, E., VanLandingham, M., Anglewicz, P., Patthavanit, U., & Punpuing, S. (2015). Rural-to-Urban Migration and Changes in Health Among Young Adults in Thailand. *Demography*, 52(1), 233–257. <https://doi.org/10.1007/s13524-014-0365-y>
- Neumayer H, Weir S, Fussman C, McKane P. Health risk behaviors among Arab adults within the State of Michigan: 2016 Arab behavioral risk factor survey. Lansing: Michigan Department of Health and Human Services, Lifecourse Epidemiology and Genomics Division and Health Disparities Reduction and Minority Health Section; 2017.
- Norris, A. E., Aroian, K. J., & Nickerson, D. M. (2011). Premigration Persecution, Postmigration Stressors and Resources, and Postmigration Mental Health. *Journal of the American Psychiatric Nurses Association*, 17(4), 283–293. <https://doi.org/10.1177/1078390311408900>
- Philbin, M. M., Flake, M., Hatzenbuehler, M. L., & Hirsch, J. S. (2018). State-level immigration and immigrant-focused policies as drivers of Latino health disparities in the United States. *Social Science & Medicine*, 199, 29–38. <https://doi.org/10.1016/j.socscimed.2017.04.007>
- Phinney, J. S., Horenczyk, G., Liebkind, K., & Vedder, P. (2001). Ethnic Identity, Immigration, and Well-Being: An Interactional Perspective. *Journal of Social Issues*, 57(3), 493–510.
<https://doi.org/10.1111/0022-4537.00225>
- Pinelli, N. R., Brown, M. B., Herman, W. H., & Jaber, L. A. (2011). Family support is associated with success in achieving weight loss in a group lifestyle intervention for diabetes prevention in Arab Americans. *Ethnicity & disease*, 21(4), 480–484.
- Raphael, J. L., Beers, L. S., Perrin, J. M., & Garg, A. (2020). Public Charge: An Expanding Challenge to Child Health Care Policy. *Academic Pediatrics*, 20(1), 6–8.
<https://doi.org/10.1016/j.acap.2019.09.001>
- Redfield, R., Linton, R., & Herskovits, M. J. (1936). Memorandum for the Study of Acculturation. *American Anthropologist*, 38(1), 149–152.
<https://doi.org/10.1525/aa.1936.38.1.02a00330>
- Rubin, G. J., & Wessely, S. (2020). The psychological effects of quarantining a city. *BMJ*, m313. <https://doi.org/10.1136/bmj.m313>

Sam, D. L. (2006). Acculturation: conceptual background and core components. *The Cambridge Handbook of Acculturation Psychology*, 11–26. <https://doi.org/10.1017/cbo9780511489891.005>

SEMCOG. (2018). TM-2: Regional Population Projections. https://detroitmi.gov/sites/detroitmi.localhost/files/2018-05/TM-02_Regional_Population_Projections.pdf

Simich, L., Beiser, M., Stewart, M., & Mwakarimba, E. (2005). Providing Social Support for Immigrants and Refugees in Canada: Challenges and Directions. *Journal of Immigrant and Minority Health*, 7(4), 259–268. <https://doi.org/10.1007/s10903-005-5123-1>

Singh, G. K., Yu, S. M., Siahpush, M., & Kogan, M. D. (2008). High levels of physical inactivity and sedentary behaviors among US immigrant children and adolescents. *Archives of Pediatrics & Adolescent Medicine*, 162(8), 756–763. <https://doi.org/10.1001/archpedi.162.8.756>

Sirin, S. R., & Fine, M. (2007). Hyphenated Selves: Muslim American Youth Negotiating Identities on the Fault Lines of Global Conflict. *Applied Developmental Science*, 11(3), 151–163. <https://doi.org/10.1080/10888690701454658>

Smith, K., Bhui, K., & Cipriani, A. (2020). COVID-19, mental health and ethnic minorities. *Evidence-Based Mental Health*, 23(3), 89–90. <https://doi.org/10.1136/ebmental-2020-300174>

Soheilian, S. S., & Inman, A. G. (2009). Middle Eastern Americans: The Effects of Stigma on Attitudes Toward Counseling. *Journal of Muslim Mental Health*, 4(2), 139–158. <https://doi.org/10.1080/15564900903245766>

Steel, Z., Momartin, S., Silove, D., Coello, M., Aroche, J., & Tay, K. W. (2011). Two year psychosocial and mental health outcomes for refugees subjected to restrictive or supportive immigration policies. *Social Science & Medicine*, 72(7), 1149–1156. <https://doi.org/10.1016/j.socscimed.2011.02.007>

Tai, D. B. G., Shah, A., Doubeni, C. A., Sia, I. G., & Wieland, M. L. (2020). The Disproportionate Impact of COVID-19 on Racial and Ethnic Minorities in the United States. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa815>

The National Institute of Environmental Health Sciences. (2013). Supplemental Mental Health Questionnaire https://www.niehs.nih.gov/research/atniehs/labs/epi/studies/gulfstudy/questionnaires/supplemental_mental_health_questionnaire_508.pdf

U.S. Census Bureau 2000. (2003). Census 2000 measured a U.S. population of 281.4 million, including 1.2 million who reported an Arab ancestry. <https://www.census.gov/prod/2003pubs/c2kbr-23.pdf>

U.S. Census Bureau 2019. (2019). Census.gov. https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2019_Gazetteer/2019_gaz_place_26.txt

- U.S. Census Bureau. Educational attainment in the United States. 2007a. Retrieved from <http://blueprod.ssd.census.gov/prod/2009pubs/p20-560.pdf>.
- U.S. Census Bureau. Income, poverty, and health insurance coverage in the United States. 2007b. Retrieved from <http://www.census.gov/prod/2008pubcs/p60-235.pdf>.
- Usher, K., Durkin, J., & Bhullar, N. (2020). The COVID-19 pandemic and mental health impacts. *International Journal of Mental Health Nursing*, 29(3). <https://doi.org/10.1111/inm.12726>
- Unger, J. B., Reynolds, K., Shakib, S., Spruijt-Metz, D., Sun, P., & Johnson, C. A. (2004). Acculturation, Physical Activity, and Fast-Food Consumption Among Asian-American and Hispanic Adolescents. *Journal of Community Health*, 29(6), 467–481. <https://doi.org/10.1007/s10900-004-3395-3>
- Ünlü Ince, B., Fassaert, T., de Wit, M. A., Cuijpers, P., Smit, J., Ruwaard, J., & Riper, H. (2014). The relationship between acculturation strategies and depressive and anxiety disorders in Turkish migrants in the Netherlands. *BMC Psychiatry*, 14(1). <https://doi.org/10.1186/s12888-014-0252-5>
- US Department of Agriculture, Economic Research Service. Definitions of food security. (2018). [Usda.gov. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx](https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx)
- Viruell-Fuentes, E. A., Miranda, P. Y., & Abdulrahim, S. (2012). More than culture: Structural racism, intersectionality theory, and immigrant health. *Social Science & Medicine*, 75(12), 2099–2106. <https://doi.org/10.1016/j.socscimed.2011.12.037>
- Vu, M., Raskind, I.G., Escoffery, C., Srivanjarean, Y., Jang, H-M., Berg C.R., Food insecurity among immigrants and refugees of diverse origins living in metropolitan Atlanta: the roles of acculturation and social connectedness, *Translational Behavioral Medicine*, Volume 10, Issue 6, December 2020, Pages 1330–1341, <https://doi.org/10.1093/tbm/ibaa035>
- Wang, W., Tang, J., & Wei, F. (2020). Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. *Journal of Medical Virology*. <https://doi.org/10.1002/jmv.25689>
- Ward, C., Bochner, S., & Furnham, A. (2020). *The Psychology of Culture Shock*. Routledge. <https://doi.org/10.4324/9781003070696>
- Ward, C., Fox, S., Wilson, J., Stuart, J., & Kus, L. (2010). Contextual influences on acculturation processes: The roles of family, community and society. *Psychological Studies*, 55(1), 26–34. <https://doi.org/10.1007/s12646-010-0003-8>
- Wieland, M. L., Tiedje, K., Meiers, S. J., Mohamed, A. A., Formea, C. M., Ridgeway, J. L., Asiedu, G. B., Boyum, G., Weis, J. A., Nigon, J. A., Patten, C. A., & Sia, I. G. (2013).

Perspectives on Physical Activity Among Immigrants and Refugees to a Small Urban Community in Minnesota. *Journal of Immigrant and Minority Health*, 17(1), 263–275. <https://doi.org/10.1007/s10903-013-9917-2>

Winn, A., Hetherington, E., & Tough, S. (2018). Caring for pregnant refugee women in a turbulent policy landscape: perspectives of health care professionals in Calgary, Alberta. *International journal for equity in health*, 17(1), 91. <https://doi.org/10.1186/s12939-018-0801-5>

Wolin, K. Y., Colditz, G., Stoddard, A. M., Emmons, K. M., & Sorensen, G. (2006). Acculturation and physical activity in a working class multiethnic population. *Preventive Medicine*, 42(4), 266–272. <https://doi.org/10.1016/j.ypmed.2006.01.005>

World Health Organization. (2020). Timeline: WHO's COVID-19 response. [Www.who.int](http://www.who.int). <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline>

(2020). Yellow Pages: a directory of commercial, industrial, and professional establishments in Dearborn, Michigan.