Experience speaks:
The importance of linguistic security during a public health crisis in immigrant and minority-language speakers

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Abstract

Linguistic insecurity, as faced by minority-language (ML) and immigrant communities, affects public health across the globe. This literature review addresses challenges faced by immigrants and ML speakers since the start of the SARS-CoV-2 (COVID-19) pandemic. These groups sometimes experience obstacles when accessing healthcare, such as language barriers, mistrust in government, and lack of access to healthcare and information. Circulating misinformation may underlie many of the healthcare struggles faced by minorities, making them especially vulnerable to health disparities. We discuss some of the factors that affect immigrant and ML speaker experiences of the public health crisis, which include compliance, perceived support, stressors, vaccine hesitancy and willingness, and anti-expert and conspiratorial thinking. We make recommendations to improve public health through targeted research and linguistic security.

Keywords: compliance, conspiratorial thinking, misinformation, perceived support, stressors, vaccine hesitancy

Résumé

L'insécurité linguistique, en particulier celle à laquelle restent confrontées les communautés de langue minoritaire (LM) et d'immigrants, affecte la santé publique partout au monde. Cette revue de la littérature discute des défis auxquels sont confrontés les immigrants et les locuteurs de LM depuis le début de la pandémie de SRAS-CoV-2 (COVID-19). Ces groupes rencontrent parfois des défis lors de l'accès aux soins de santé, tels que les barrières linguistiques, la méfiance à l'égard du gouvernement, ainsi que le manque d'accès aux soins de santé et aux informations. La circulation d'informations erronées peut être à l'origine de nombreuses difficultés rencontrées par les minorités en matière de soins de santé, ce qui les rend particulièrement vulnérables aux disparités en matière de santé. Cet article s'intéresse à certains facteurs qui influencent l'expérience que les

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immigrants et les locuteurs de LM feront des crises de santé publique, notamment le respect des directives, le soutien perçu, les facteurs de stress, la réticence ou la volonté de vacciner, ainsi que la pensée anti-experts et conspirationniste. Nous formulons des recommandations pour améliorer la santé publique grâce à de la recherche ciblée et à la sécurité linguistique.

Mots-clés : respect des directives, pensée conspirationniste, désinformation, soutien perçu, facteurs de stress, réticence à la vaccination

Introduction

The public health experience is shaped by a myriad of political, institutional, and personal influences (Liverani et al., 2013; Valaitis et al., 2018). Undoubtedly, this experience is often fraught with challenges, resulting from incongruities in healthcare systems, lifestyle and environmental risks, gaps in scientific literature, and health disparities (Koplan & Fleming, 2000). Central to tackling these challenges requires deliberate consideration of the differences faced by minority groups compared to the local majority. Immigrants and minority-language speakers (ML speakers) are two minority groups that require special attention in public health. Thus, this literature review aims to look at the factors affecting ML speakers and immigrants during COVID-19 compared to the general population.

In this article, we have defined ML speakers as individuals who speak a language other than that spoken by the majority population in a given region (May, 2003; Paradis et al., 2021); for instance, in the United States where English is spoken by the majority, Spanish-speakers are considered ML speakers. Generally, where the official language of a country or region is the one most spoken, individuals speaking another language would be considered minority language speakers. ML speakers can be difficult to define in areas where there are multiple official languages and definitions vary in the literature (May, 2003; Paradis et al., 2021). For the sake of this article, we have included any individual who speaks a language that is used significantly less than another language within a given region. However, as definitions in the literature are somewhat inconsistent regarding official minority languages, we have used the most inclusive definition of ML speaker and noted where the literature deviates from this definition when it was critical to the discussion. Many minority-language communities include a number of immigrants. The definition of what constitutes immigrant status varies across countries, but generally refers to someone who moves from his or her country of birth or residence with the intention to settle in the country they have moved to, regardless of legal status (International Rescue Committee [IRC], 2022;

United Nations Department of Economic and Social Affairs, n.d.). While many immigrants are ML speakers, this is not always the case. Languages within a region may change due to political or social influences. ML speakers may be heritage speakers (e.g., a second-generation Vietnamese-speaker living in the United States); likewise, immigrants may move to areas where the majority language is their dominant language (e.g., an American who immigrates to the United Kingdom).

Because both ML speakers and immigrants are often marginalized (Castañeda et al., 2015; Johnstone & Kanitsaki, 2008), it is important to consider whether they face health-related challenges during a public health crisis as a result of linguistic insecurity, language barriers, and marginalization. Linguistic insecurity can be defined as a language speaker's belief that the use of their language is inferior to that of other speakers (Preston, 2013). This is different from language barriers, which we will define as obstacles that hamper or prevent the effective communication and understanding of a language that is different from one's native language, especially in a healthcare setting (Slade & Sergent, 2023). Contrary to linguistic insecurity is linguistic security, or a speaker's belief that their regional dialect is "standard" (Niedzielski, 2010). Thus, linguistic insecurity significantly affects ML speakers at the individual and community level.

International organizations such as the World Health Organization (WHO) are working diligently to develop interventions to reduce global health disparities, but lack of information on trends and causes of inequalities has hampered progress towards actual implementation (Almeida-Filho et al., 2003). More representation is needed in research on the health disparities and unique experiences of minority groups from countries all over the world.

As a leading cause of death on a global scale (Flaxman et al., 2023), the SARS-CoV-2 (COVID-19) pandemic provides a unique opportunity to investigate the impact of immigrant and ML status on healthcare and crisis-related outcomes. Since the start of COVID-19, equal access to healthcare has been critical to improve outcomes both in these communities and the public health sphere altogether (Xiang & Lehmann, 2021). However, among the host of new challenges brought by COVID-19 and the existing struggles experienced by minorities, it seems that these groups are more likely to be negatively impacted by the pandemic compared to the general population (Aragona et al., 2020). Evidence suggests that immigrants and minority-speaking groups are similarly affected, as language barriers disrupt access to healthcare and healthcare quality (de Moissac & Bowen, 2017) and significantly contribute to disparities related to COVID-19 (Ortega et al., 2020). Because immigrants and ML speakers are especially vulnerable to face unique obstacles during COVID-19, they offer valuable insight into the ongoing public health crisis. In essence,

COVID-19 has brought sundry challenges to immigrants and ML speakers, many of which revolve around misinformation and other disadvantages, which may heavily influence their experience of the crisis in the following six domains: compliance with public health guidelines, perceived support, stressors, vaccine attitude and willingness, and anti-expert and conspiratorial thinking. While certainly not exclusive, investigating these factors highlights important perspectives from immigrants and ML speakers that emphasize the importance of linguistic security and may help inform public policy across the globe. This article will offer a concise review of the literature on six factors, previously mentioned, affecting ML speakers and immigrants during COVID-19. We will address each domain separately and consider the overarching theme of misinformation as it is affected by linguistic insecurity. After a brief discussion of how misinformation affects ML and immigrant communities, we will address how each of the six factors is different between ML and immigrant populations and how we might predict that their experiences will be different from the general public. We will then conclude with recommendations from the authors for improving global public health through linguistic security.

Disparities in healthcare

Access disparities

ML communities often face linguistic insecurity. For instance, this may manifest if healthcare workers lack proficiency or knowledge of medical terminology in the minority-language (Roberts & Paden, 2000) or patients may face prejudice when using a marginalized language (Johnstone & Kanitsaki, 2008). ML speakers also face language barriers when seeking healthcare, which commonly leads to unequal treatment on the basis of culture, race, or ethnicity (Hansen & Charles, 2023). These linguistic differences may interfere with the quality of care received by ML speakers, making these and other minority communities particularly susceptible to common public health challenges (Vieira et al., 2020). It has also been found that ML speakers are at risk of social exclusion from majority-language speaking groups and activities, which may ineffably include exclusion from studies in which only the majority language is used (Nyqvist et al., 2021). As a result, an underrepresentation of minorities is commonplace in research, which further severs the divide between the quality of care received by minority groups compared to the majority (Redwood & Gill, 2013).

While access to care varies considerably between immigrants across countries, the literature suggests that immigrants generally have poorer access to and utilization of preventative healthcare (Gelatt, 2016; Kandula et al., 2004; Parker Frisbie et al., 2001). Restricted access to quality healthcare

disproportionally engenders an environment in which misinformation is more likely to spread (Arigbede et al., 2022), making immigrants and other minority populations highly vulnerable.

Misinformation disparities in healthcare

The spread of misinformation about COVID-19 posed a significant threat to public health (Roozenbeek et al., 2020), and we must consider how misinformation might differentially affect majority and minority groups, especially with regard to linguistic security. Misinformation can be defined as the spread of false or inaccurate information, regardless of the intention of the author (Southwell et al., 2019). The internet serves as a common repository of inaccurate information about the virus (Caceres et al., 2022). This creates challenges for media consumers to make informed decisions and to consider appropriate preventative action, putting the public health at risk (Bin Naeem & Kamel Boulos, 2021). To complicate this issue further, global audiences through online platforms are easily reached by news media, politicians, and prominent public figures, which have been shown to possess a staggering influence over the views of the general public (Brennen et al., 2020). If left unchallenged, this influence has the potential to cause harm to any community, with marked harm to minority communities. Majority groups, such as majority language speakers and non-immigrants, with more available resources have been shown to be more likely to support information that has undergone rigorous reporting and quality control, which may lower the prevalence of shared misinformation (Southwell et al., 2023). On the other hand, minority groups, such as minority-language speakers and immigrants, who lack accessibility to credible information tend to turn to other, more available local sources of information, such as personal connections and trusted health care professionals (Southwell et al., 2023). This tendency to trust local sources does not inherently pose a risk but may be especially dangerous for minority groups already facing unique personal and political challenges. A lack of accessibility to credible healthcare information on COVID-19 prevention and vaccines can lead to misinformation, as local sources are not always reliable sources of information (Southwell et al., 2023). Consequently, misinformation poses a considerably higher risk of harm to immigrants and minority-language speakers compared to their majority counterparts through the promotion of COVID-related malpractices and inaccurate health information. We can conclude that misinformation is a common, yet serious, threat to public health, especially in immigrants and ML speakers — a challenge exacerbated by COVID-19 (Arigbede et al., 2022; Piller et al., 2020).

Misinformation challenges in immigrant populations

Immigrants comprise vulnerable populations in countries across the world. They have been shown to exhibit greater risk for serious health problems, including higher rates of morbidity and mortality compared to non-immigrants (Kreps & Sparks, 2008) and higher rates of poverty, food and housing insecurity, lack of education, and overall access to healthcare (Chang, 2019). These risk factors make immigrant populations especially vulnerable to trusting misinformation and being harmed by it. For instance, one study found that many immigrants in South Korea preferred to use the internet to seek medical advice and sought information written in the Korean language because they were unable to understand medical information presented in English (KHademian et al., 2020). Another study on Central and South American immigrants found that more than half of the immigrant respondents were more likely to use the internet to seek information on cancer and were more likely to trust the internet for health information in general (Selsky et al., 2013). Interviews of immigrants who migrated to the United States revealed that they were exposed to misinformation surrounding COVID-19 both in their country of origin and in the United States (Baines et al., 2023).

Specifically, immigrants may be prone to believing inaccurate health information when they lack adequate skills, such as language proficiency, to evaluate the reliability of information on the internet (KHademian et al., 2020). Lack of reliable health resources may potentiate these challenges, which implies a high prevalence and accessibility of misinformation in immigrants. More research needs to be done to uncover how immigrants are affected by misinformation during the pandemic, but these findings demonstrate a need for healthcare intervention to protect immigrants and other minorities in countries globally from being harmed by misinformation.

To combat this need, organizations such as the European Centre for Disease Prevention and Control (ECDC) and the Centre for Ocular Research and Education (CORE) in collaboration with EUROMCONTACT, as well as research groups such as the COVIDiSTRESS Consortium, respectively, worked quickly during the onset of the COVID-19 pandemic to combat misinformation for ML speakers by providing translated infographics and conducting research studies in as many languages as possible (Blackburn et al., 2022; ECDC, 2020; CORE, n.d.; Lieberoth et al., 2021; Yamada et al., 2021). The internet has inherently brought with it a unifying global connection, and yet, disproportionate challenges remain to be addressed in immigrants and minority communities across the globe.

Misinformation challenges in ML speakers

Communication inherently requires mutual understanding. ML speakers who are unable to understand life-saving healthcare information are vulnerable to health disadvantages and are frequently left out of health discourse. This issue is compounded when ML speakers, due to language barriers, are excluded from research studies in areas of health, leading them to an even greater degree of ostracism from healthcare advancements (Spencer et al., 2022). Together, these issues are exacerbated by the misinformation crisis, which is supported by various studies examining the deleterious effects of misinformation paired with a language barrier. One case study by the Federal Union of European Nationalities (2020) found that in the first half of the pandemic, European countries provided COVID-19 related information unevenly across minority languages, with only half of the surveyed countries providing at least partial information about the pandemic in their country's minority languages. Another article pointed out that in Ireland, where Irish is both an official language and a minority language, almost all information about COVID-19 was presented in English, forcing Irish and other ML speakers to rely on their own creativity to make critical decisions about the pandemic (Bober & Willis, 2021). Consequently, ML speakers will access information in their own language, limiting their access to outside health resources and influencing their behaviors when choosing to implement preventative measures (Southwell et al., 2023). As a result, they may be unaware of government recommendations (Southwell et al., 2023). Another study found that, in general, increased vulnerability to misinformation negatively affects a group's compliance with public health guidelines and, across all countries surveyed by the study, higher trust in scientists was associated with lower susceptibility to pandemic-related misinformation (Roozenbeek et al., 2020). Few studies have focused on examining the effects of misinformation on ML speakers during COVID-19.

Language barriers, underutilization of healthcare services, mistrust of government and healthcare providers, and under-preparedness of frontline workers to address presenting challenges of minority patients add to the hurdles faced by immigrants and ML speakers during COVID-19 (Yu et al., 2020). The literature suggests that misinformation, as proliferated by a lack of reliable information, tends to exacerbate existing challenges and makes navigating a social world more difficult (Yu et al., 2020). While healthcare struggles faced by immigrants may differ from those of ML speakers, many struggles also overlap. For instance, studies have shown that misinformation among immigrants was exacerbated by communication and socioeconomic challenges, especially when language proficiency and literacy was limited (Yu et al., 2020). That is, having both an immigrant status and being a

minority-language speaker may create added hurdles. With misinformation as a common denominator, various other factors may also contribute heavily to the overall experience of immigrant and ML speakers as they navigate the public health crisis. These include, but are not limited to, pandemic-related experiences including compliance with public health guidelines, perceived support, stressors, vaccine attitude and willingness, anti-expert sentiment, and conspiratorial thinking (e.g., Blackburn et al., 2022, 2023; Stoeckli et al., 2021–2022). Of note, many of these selected variables may coincide, framing a unique experience during the pandemic with variations across cultures and countries.

Factors affecting immigrant populations and ML speakers during COVID-19

Compliance with public health guidelines

Since the start of COVID-19, countries and global health institutions have protected public health by implementing policies that slow the spread of the virus (Van Rooij et al., 2020). Early interventions by the WHO and the Center for Disease Control and Prevention (CDC) promoted worldwide public compliance with health practices, such as social distancing, frequent handwashing, and use of face coverings (Anwar et al., 2020). Shelter-in-place ordinances were some of the first major policies implemented across the globe, although compliance with these ordinances was costly and required behavioral changes across diverse populations, including homeless individuals and other groups (Wright et al., 2020). These first ordinances affected each country differently with a notable association between increased stress and non-compliance (Lieberoth et al., 2021). These disparities led to differences in compliance with COVID-19 preventative measures across minority groups.

Immigrants, as a highly vulnerable population, may experience a range of attitudes towards government institutions. Many immigrants are distrustful of these institutions, as underserved communities have historically been abused by or provided less access to medical systems across the world (Berger et al., 2020). One study found that various forms of mistrust, such as conspiracy beliefs, are associated with less compliance with government-imposed guidelines and a greater unwillingness to accept testing and treatment (Freeman et al., 2022). In the United States, many undocumented immigrants consider fear of deportation when deciding whether to seek needed healthcare (McFadden et al., 2022). This fear and uncertainty may obstruct compliance with public health guidelines. Inversely, a greater sense of national identity has been associated with greater support and compliance (Van Bavel et al., 2022). To promote compliance with public health guidelines during COVID-19, all government entities should enact a comprehensive law prohibiting

discrimination against individuals seeking quarantine, medical assistance, or any other public safety measure (Rothstein & Coughlin, 2019).

ML speakers are another population vulnerable to non-compliance, which is evidently a consequence of a lack of available healthcare services and accessibility to those services; and a lack of accepted and adaptable provisions tailored to fit the diverse needs, technologies, and vulnerabilities of ML speakers (Piller et al., 2020). One study investigating the health of a ML community living in Canada delineated two primary issues fundamental to promoting the health of this minority population (Bouchard et al., 2017). The first involved health literacy, or the ability to adequately communicate in and navigate a health system; the second involved offering active services to promote equal quality of care throughout all communities (Bouchard et al., 2017). These issues highlight the struggles ML speakers face in effectively understanding and responding to the healthcare system, which includes a need to address non-compliance with public health guidelines. Other anecdotal evidence suggests that French speakers living outside the province of Quebec access information provided by Quebec because the information is in French. This may prompt citizens to comply with Quebec guidelines rather than those provided by their own province, which could have legal and public health implications (Blais et al., 2020; Chouinard & Normand, 2020). It is evident that issues of non-compliance in ML speakers may be a result of government and public policy and require intervention on behalf of the linguistic needs of minority-language speaking communities. Ortega et al. (2020) suggest that public health departments and public health policy leaders seek collaborations with community organizations, clinicians, and patients to ensure that public health communications are inclusive and sensitive to the needs of ML populations.

Compliance with COVID-19 guidelines varies across countries and individuals. Mistrust in science or government and language barriers are some of many obstacles that may interfere with compliance to public health guidelines. It has been found that trust in science and risk perception are two factors that predict compliance with COVID-19 guidelines (Plohl & Musil, 2021). Thus, the various factors that contribute to compliance and non-compliance should be considered in all groups of individuals to improve public health intervention developments.

Perceived support

Perceived support, or the belief in the availability of support within one's family, larger social circles, and at institutional and national levels, has been consistently linked to health (Haber et al., 2007; Lakey & Cohen, 2000) and possibly compliance with public health guidelines (Gallegos et al., 2022).

Generally, perceived support has been found to be more important than received support in predicting adjustment to stressful life events (Wethington & Kessler, 1986). Lakey and Cohen's (2000) social-cognitive perspective of perceived support depicts perceived support to directly affect health and self-esteem, while self-esteem mediates perceived support and health. Additionally, high perceived support has been linked to higher resilience to stress and better mental health (Grey et al., 2020). Thus, perceived support is strongly associated with health and well-being and has important implications for public health during crises such as COVID-19.

Immigrants are especially vulnerable to experiencing feelings of detachment or social exclusion in their host country (Herz & Johansson, 2012). This perception could be harmful to immigrants who believe that they are not supported by the healthcare or government systems, which may limit their experience of perceived support during the pandemic. When individuals believe they are experiencing a lack of healthcare or government support, they will demonstrate lower levels of perceived support, which may harm their mental health (Ritsner et al., 2000). A study on older adult Chinese immigrants in Canada found perceived social support to be a strong protective factor for psychological well-being, highlighting the importance of supporting immigrants of all ages as they navigate their own set of challenges during the pandemic (Su et al., 2022). Another study recruited Russian immigrants from Israel to investigate the factors responsible for various levels of psychological distress (Ritsner et al., 2000). The study determined that perceived support was an important factor in predicting levels of distress with high levels of social support being enough to deter normal levels of stress and low levels of social support being insufficient to buffer the effect of higher levels of stress (Ritsner et al., 2000). Another study investigating Latinx immigrants in the United States during the pandemic found that greater social support (which broadly encompasses perceived support) was linked to reductions in mental health issues such as post-traumatic stress disorder and depressive symptoms (Held et al., 2022). Thus, immigrants are at greater risk of experiencing psychological strain when levels of perceived support are low, a problemed heightened with COVID-19.

Like immigrants, ML speakers are at risk of social exclusion on a global scale, which is common in groups facing language barriers, particularly among individuals of older age (Nyqvist et al., 2021). This has important implications in health. Increased awareness may facilitate increased social support in health, as social support has been linked to improved mental health and stress mitigation (Callaghan & Morrissey, 1993). During the pandemic, more social support is needed as ML speakers are often some of the last groups to be informed about important public health directives (Piller et al., 2020).

To date, more research is needed on how perceived support affects the

experiences of immigrants and ML speakers during the pandemic. While research is preliminary in this area, the current body of literature suggests that having immigrant status and being a minority-language speaker, or the combination, may generally reduce the experience of perceived support during COVID-19, and may therefore exacerbate health disparities related to the pandemic.

Stressors

With limited perceived support during the pandemic comes added stressors, which may include infection-related stressors, daily routine-related stressors, and resource-related stressors (Ntontis et al., 2023; Tambling et al., 2021). One study found that reading or hearing about the severity of COVID-19, uncertainty about social distancing or quarantine requirements, experiencing unwanted changes in routines, and financial concerns ranked as some of the most stressful experiences reported during the pandemic, among others (Park et al., 2020). Prolonged stress about COVID-19 and other stressful situations have been associated with increased substance abuse and declines in immunity and mental and physical health (Minihan et al., 2020). Because of its potential for harm, stress should be considered in all populations with special sensitivity given to its role in the lives of minorities.

In general, minority groups and families of low socioeconomic status (SES) from Chicago who have fewer resources to protect themselves against COVID-19 and related stressors tended to fare more poorly during the pandemic than higher-income populations (Perrigo et al., 2022). Because both ML speakers and immigrants are sometimes prone to poorer economic conditions, paired with a language barrier, they are more likely to experience added stressors brought on by the pandemic and from uneven access to health-related resources (Gao et al., 2022).

Immigrants during COVID-19 are laden with a distinct experience of psychological stress, because in addition to the stress that comes with navigating a pandemic, they also must juggle stress associated with immigration and potential immigration or border issues that arise as a result of the pandemic. The WHO (2020) points to evidence suggesting that refugee and migrant populations experience higher levels of stress than the general population, which may be exacerbated by the pandemic. Another study surveying families of Latinx and Somali immigrants and Burma/Myanmar refugees during COVID-19 found that other common stressors included housing insecurity, crowded living conditions, unsafe employment conditions, job loss, and lack of technological skill (Solheim et al., 2022).

Considering a significant portion of public health information is reported and accessed online (Benigeri & Pluye, 2003), technological barriers could

be an added stressor in minority-language communities. Solheim et al. (2022) discussed language barriers as another significant stressor, as language barriers often made it difficult for individuals to meet their family's needs and created obstacles in conveniently accessing healthcare resources.

Thus, ML speakers are susceptible to added stressors during COVID-19 related to obtaining information. Information seeking during public health crises plays an important role in the perception of one's self-care and well-being (Gao et al., 2022). In their study of Chinese immigrants speaking a minority language in Japan, Gao et al. (2022) found that participants often took *language detours*, or visits to resources written in Mandarin for information about COVID-19 in their host country. This suggests that ML speakers may seek alternative resources for information, when available, to alleviate stressors related to their language barrier and to maintain psychological well-being. Few articles directly address the stressors experienced by ML speakers in countries around the world during COVID-19. More research is needed in this area to accurately assess the significance of the consequences resulting from this urgent issue.

Despite the increased susceptibility of immigrants and ML speakers to added stressors, it has been found that immigrants and refugees are less likely to receive mental health services compared to the general population (Kirmayer et al., 2011). Similar findings across the literature point to a dire need for intervention and more inclusive healthcare policies worldwide that consider the mental healthcare needs of immigrants and other minority populations.

Because of the underrepresentation of immigrants, ML speakers, and other minority groups in research, it is challenging for researchers to fully document the consequences of stress specific to these populations. The unique experiences faced by immigrants and ML speakers require greater representation in the literature, but there is a clear need for immediate intervention in these groups to improve outcomes across the globe.

Vaccine attitude and willingness

Vaccine hesitancy refers to "the delay in acceptance or refusal of vaccination despite availability of vaccination services" (MacDonald, 2015, p. 4161). Widespread vaccination against COVID-19 could prevent the deaths of millions of individuals worldwide (Paul et al., 2021). However, vaccine hesitancy continues to impact the rate of vaccination across countries worldwide (Nehal et al., 2021). The unique circumstances of immigrants and ML speakers are special considerations when addressing vaccine attitudes and willingness in public health (Mahimbo et al., 2022; Schyve, 2007).

Hefty barriers to healthcare in immigrant populations often lead to

challenges in safely navigating the pandemic and, thus, making informed decisions surrounding COVID-19 vaccines. Because of these barriers, immigrant populations may experience greater vaccine hesitancy and lower vaccine willingness. It has been found that greater levels of vaccine hesitancy are associated with lower socioeconomic status, educational attainment, and being of a minority status (Fisher et al., 2020). A study assessing attitudes towards the COVID-19 vaccine in South Korean immigrants found that only approximately half of the participants surveyed reported certainty in receiving the vaccine whereas less than half the participants believed the vaccine to be safe (Acharya et al., 2021).

Vaccine hesitancy in immigrant populations likely stems from intermediary factors such as misinformation on social media, social and religious norms, gaps in knowledge on vaccines, lack of accessibility to information, and language barriers, among other considerations (Mahimbo et al., 2022). However, the literature demonstrates varied results. One study found that adults from immigrant families in California demonstrated a greater intention to be vaccinated compared to non-immigrant adults, but the immigrant families were also more likely to report language barriers, conflicts between work and clinic hours, and difficulties with accessing information related to COVID-19 and its vaccines (McFadden et al., 2022). Perhaps these contradictory findings may be consolidated through the reasonable assumption that many immigrants may desire to make safe and informed decisions surrounding COVID-19 vaccines but may not always have the safe and accessible means to do so.

Minority-language speakers are also at risk of higher degrees of vaccine hesitancy and lower levels of willingness. One study investigating vaccine willingness across language groups in Australia found that, of all the factors analyzed in the study, language spoken at home was the greatest predictor of intention to test and vaccinate against COVID-19 (Ayre et al., 2022). Another study identified a correlation between health literacy and vaccine hesitancy, with higher levels of health literacy associated with lower levels of vaccine hesitancy (Willis et al., 2023). Low levels of health literacy may be especially harmful during COVID-19 for minority-language speaking groups. One review article analyzing low-, middle-, and high-income countries all over the world found that some countries, such as Africa, were understudied in health literacy research, which could have dire implications for public health, as there already exists an urgent need for consistency in the dissemination of reliable healthcare information worldwide (Sentell et al., 2020). Low health literacy, cultural differences, and language barriers have been deemed a *triple threat* to effectively communicate public health information (Schyve, 2007), which has been linked to mistrust in the health system and vaccine hesitancy (Turhan et al., 2022), making ML speakers especially affected.

While there is a general trend for immigrants and ML speakers to have less favorable attitudes about the COVID-19 vaccine and lower levels of vaccine willingness, inconsistent results across the literature point to large differences across countries. More research is needed to consolidate conflicting results and unravel the impact that vaccine hesitancy has on these communities and on public health in general. Recognizing the interacting factors that contribute to vaccine hesitancy in immigrants and ML speakers should be explored further and may help inform public policy in countries across the world.

Anti-expert and conspiratorial thinking

As mentioned above, compliance with public health guidelines and vaccine willingness are negatively associated with conspiratorial thinking and lack of trust in science. Furthermore, as we have discussed, immigrants and ML speakers may encounter difficulty obtaining information related to healthcare and be more susceptible to misinformation, which is an aspect of anti-expert and conspiratorial thinking related to the COVID-19 pandemic.

Conspiratorial thinking can be defined as the "increased likelihood to view the world in conspiratorial terms and attribute the causes of events to groups acting in secret for personal benefit against the common good" (Han et al., 2022, p. 1). This concept is often paired with anti-expert thinking, which refers to the general distrust of individuals who hold credentials about a topic, such as scientists or other experts (Han et al., 2022; Motta, 2018). Both conspiratorial thinking and anti-expert sentiment demonstrate negative implications for public health safety and trust in government and the health system (Han et al., 2022). These anti-intellectualist beliefs are important considerations in explaining the public's engagement with information and advice provided by scientists and experts, which has more recently posed a fundamental challenge to promoting scientist-led public health directives (Merkley & Loewen, 2021). One cross-sectional study found that economic inequalities can cause conspiratorial thinking and vice versa across the world (Casara et al., 2022). Disparities in resources and health information creates an imbalance in minority communities, making these groups potentially more susceptible to this harmful way of thinking.

On average, immigrants tend to experience an economic disadvantage with respect to non-immigrants (Hum & Simpson, 2004). Alongside the host of issues that accompany economic inequality, the literature has suggested that economic disadvantage may also be associated with greater support for anti-expert and conspiratorial thinking (Jetten et al., 2022). Experimental studies have found a reliable and strong causal effect of economic inequality and conspiracy beliefs (Casara et al., 2022). These effects reveal greater susceptibility of immigrants and low SES groups to fall victim to conspiratorial

thinking. With respect to COVID-19, conspiracy beliefs have been found to have distinct behavioral implications, which may include decreased isolation-related behavior (such as quarantining) or, inversely, greater self-focused preparation-related behaviors (such as hoarding), both of which may be problematic to the greater good of public health (Imhoff & Lamberty, 2020). In general, conspiratorial thinking tends to increase during times of public health crises (Van Prooijen & Douglas, 2017). Immigrant populations worldwide require special consideration as a population at risk for anti-expert and conspiratorial thinking.

ML speakers deserve special consideration on the topic of anti-expert and conspiratorial thinking. One study investigating German-speaking minority language communities in Italy found that, compared to majority-language speakers, German speakers were more likely to experience increased vaccine hesitancy, worsened economic conditions, mistrust in institutions, and conspiratorial thinking (Barbieri et al., 2022). Another study found that conspiratorial beliefs and anti-expert thinking were positively correlated with each other and negatively correlated with trust in science and institutions (Han et al., 2022). Few studies seem to focus on anti-expert and conspiratorial thinking in ML speakers on an international scale, making it difficult to make generalizations about its prevalence in these communities.

Anti-expert and conspiratorial thinking are dangerous for all communities but bring greater problems to minority populations. Immigrants and ML speakers are underrepresented in the literature on the impact of these beliefs. However, the association between minority communities and economic disparities implies a link between health disparities in minority groups and conspiratorial thought. Immigrants and ML speakers deserve special attention when addressing the impact that anti-expert sentiments and conspiracy thinking has on public health.

Recommendations to improve public health through linguistic security

Many of the factors that determine the ML and immigrant community experiences of a public health crisis interact with access to information. Anti-expert sentiment and conspiratorial thinking, vaccine hesitancy, and non-compliance with public health guidelines are each linked to misinformation. As described above, ML speakers and immigrants face barriers to credible information sources, so one of the best means of combating health disparities in these groups involves providing reliable, accessible information about public health. Organizations such as the ECDC and CORE in collaboration with EUROMCONTACT have been combating misinformation for ML speakers by providing translated infographics in as many languages as possible (ECDC, 2020; CORE, n.d.). While these translations are an excellent resource for ML

speakers, dissemination to local populations is necessary. Increased efforts and funding to support reliable and accessible translated information sources is critical for public health. Efforts to improve health literacy have also been highlighted here as ways to improve vaccine willingness and compliance.

Translation and interpretation services are another way of promoting linguistic security in healthcare. In a review of work by Ineke Creeze, a contributor to the promotion of proper translation services in healthcare, accuracy is considered a key element for effective communication of information, which includes technical and specialized healthcare terms and an understanding of cultural differences (Creeze, 2013, as cited in Pena, 2014). Thus, accurate and culturally sensitive interpretation services may help bypass the spread of misinformation in healthcare. Other major contributors to this area such as Valero-Garcés and Taibi (2004) recommend that public service authorities maintain a directory of qualified translators and interpreters, establish quality control procedures, and provide funding for staff to receive adequate cultural and interpersonal training.

In addition to access to reliable information, other obstacles to compliance include limited access to resources and/or a fear of discrimination and immigration-related policies. Ortega et al. (2020) suggested that public health departments collaborate with community organizations, clinicians, and patients to ensure that public health communications are inclusive of ML populations. In addition, to promote immigrant compliance with public health guidelines, Rothstein and Coughlin (2019) suggested that governments enact laws prohibiting discrimination and legal consequences against individuals seeking to follow public safety measures.

One major factor that improves bilingual healthcare options is linguistic security within a community, by means of enhancing ML prestige as well as the proficiency and attitudes of practitioners (Roberts & Paden, 2000). Roberts and Paden identified factors that contributed to the use of MLs in a medical setting, including language policy of the organization, availability and accessibility of terminology, teaching and learning resources and strategies, information technology software, and the proficiency and attitudes of speakers. Medical education must include education in minority-languages or the use of minority-language resources so that practitioners feel comfortable using medical terminology with their ML patients. They found that healthcare access for ML speakers may be ameliorated by improving these factors in medical education and by increasing linguistic security through measures to ensure patients are aware of language choices. For instance, one successful measure is indicating MLs spoken on clinicians' name badges. As we have mentioned above, improving linguistic security in the ML communities at large may increase perceived support and lower stressors related to a public health crisis.

Finally, this review has highlighted areas where factors that affect ML speakers' pandemic experience are lacking due to underrepresentation in research. Although groups such as the COVIDiSTRESS Consortium have sought to mitigate this effect by offering research studies in multiple languages (Blackburn et al., 2022; Lieberoth et al., 2021; Yamada et al., 2021), ML speakers are excluded from many smaller-scale studies. It is critical to offer even small-scale studies in multiple languages and refrain from exclusions due to language usage whenever possible in order to accurately represent ML and immigrant populations. This is best accomplished by rigorous translations of research materials and large, representative sample sizes.

Conclusion

We have reviewed a breadth of recent research on COVID-19 to improve a general understanding of immigrant and minority-language experiences during COVID-19. Linguistic insecurity contributes to misinformation and lack of access to information, which creates challenges for ML speakers and immigrants attempting to navigate a public health crisis. In this literature review, we have presented some of these COVID-19 related challenges affecting immigrants and ML speakers compared to the majority: compliance with public health guidelines, perceived support, stressors, vaccine attitude and willingness, and anti-expert and conspiratorial thinking.

The literature suggests that, compared to the majority, immigrants and ML speakers are likely to exhibit lower compliance with public health guidelines, lower levels of perceived support, greater stressors associated with the pandemic, less favorable vaccine attitudes and lower vaccine willingness, and greater anti-expert sentiment and conspiratorial thinking.

Importantly, understanding how immigrant status and speaking a minority language influences compliance with public health guidelines and vaccine hesitancy, and how these interact with other factors, is crucial to improving these public health outcomes. Linguistic security may offer ML speakers and immigrants unique solutions to overcome these obstacles, for instance through novel institutional initiatives, enhanced preparedness of frontline practitioners, greater representation of minorities in research, and the necessity of increased efforts and funding. This review of literature offers a critical consolidation of the various factors contributing to minorities' experiences of public health, especially during times of a health crisis. A greater representation of minorities in research is central to addressing their needs and improving health outcomes.

More research is needed to grasp the nuances and unique challenges faced by minority communities to inform realistic intervention. Future studies may wish to implement a needs assessment inclusive of minority communities throughout specific geographic regions of the world. The repeatedly under-

reported experiences and insights of minorities are a critical component of public health crises and research to address public health guidelines. Implementing our recommendations regarding linguistic security and access to information will not only benefit ML speakers and immigrants. By increasing compliance and vaccine willingness, while reducing anti-expert sentiment, conspiratorial thinking, stressors, vaccine hesitancy, and misinformation, all individuals in the community will benefit.

References

Acharya, S.R., Moon, D.H., & Shin, Y.C. (2021). Assessing attitude toward COVID-19 vaccination in South Korea. *Frontiers in Psychology*, *12*, 1–6. https://doi.org/10.3389/fpsyg.2021.694151

Almeida-Filho, N., Kawachi, I., Filho, A.P., & Dachs, J.N.W. (2003). Research on health inequalities in Latin America and the Caribbean: Bibliometric analysis (1971–2000) and descriptive content analysis (1971–1995). *American Journal of Public Health*, *93*(12), 2037–2043. https://doi.org/10.2105/ajph.93.12.2037

Anwar, A., Malik, M., Raees, V., & Anwar, A. (2020). Role of mass media and public health communications in the COVID-19 pandemic. *Cureus*, *12*(9). https://doi.org/10.7759/cureus.10453

Aragona, M., Barbato, A., Cavani, A., Costanzo, G., & Mirisola, C. (2020). Negative impacts of COVID-19 lockdown on mental health service access and follow-up adherence for immigrants and individuals in socio-economic difficulties. *Public Health*, *186*, 52–56. https://doi.org/10.1016/j.puhe.2020.06.055

Arigbede, O.M., Aladeniyi, O.B., Buxbaum, S.G., & Arigbede, O.J. (2022). The use of five public health themes in understanding the roles of misinformation and education toward disparities in racial and ethnic distribution of COVID-19. *Cureus*, *14*(10). https://doi.org/10.7759/cureus.30008

Ayre, J., Muscat, D.M., Mac, O., Batcup, C., Cvejic, E., Pickles, K., Dolan, H., Bonner, C., Mouwad, D., Zachariah, D., Turalic, U., Santalucia, Y., Chen, T., Vasic, G., & McCaffery, K. (2022). COVID-19 testing and vaccine willingness: Cross-sectional survey in a culturally diverse community in Sydney, Australia. *Health Equity*, *6*(1), 965–974. https://doi.org/10.1089/heq.2021.0171

Baines, A., Seo, H., Ittefaq, M., Shayesteh, F., Kamanga, U., & Liu, Y. (2023). Race/ethnicity, online information and COVID-19 vaccination: Study of minority immigrants' internet use for health-related information. *Convergence*. *29*(2), 268–287. https://doi.org/10.1177/13548565221116075

Barbieri, V., Wiedermann, C.J., Lombardo, S., Ausserhofer, D., Plagg, B., Piccoliori, G., Gärtner, T., Wiedermann, W., & Engl, A. (2022). Vaccine hesitancy during the coronavirus pandemic in South Tyrol, Italy: Linguistic correlates in a representative cross-sectional survey. *Vaccines*, *10*(10), 1584. https://doi.org/10.3390/vaccines10101584

Benigeri, M., & Pluye, P. (2003). Shortcomings of health information on the Internet. *Health Promotion International*, *18*(4), 381–386. https://doi.org/10.1093/heapro/dag409

Berger, Z.D., Evans, N.G., Phelan, A.L., & Silverman, R.D. (2020). Covid-19: Control measures must be equitable and inclusive. *British Medical Journal*, *368*. https://doi.org/10.1136/bmj.m1141

Bin Naeem, S., & Kamel Boulos, M.N. (2021). COVID-19 misinformation online and health literacy: A brief overview. *International Journal of Environmental Research and Public Health*, *18*(15), 8091. https://doi.org/10.3390/ijerph18158091

Blackburn, A.M., Vestergren, S., & COVIDiSTRESS II Consortium. (2022). COVIDiSTRESS diverse dataset on psychological and behavioural outcomes one year into the COVID-19 pandemic. *Scientific Data*, *9*(331), 1–25. https://doi.org/10.1038/s41597-022-01383-6

Blackburn, A.M., Han, H., Gelpí, R.A., Stöckli, S., Jeftić, A., Ch'ng, B., Koszałkowska, K., Lacko, D., Milfont, T.L., Lee, Y., COVIDiSTRESS II Consortium, & Vestergren, S. (2023). Mediation analysis of conspiratorial thinking and anti-expert sentiments on vaccine willingness. *Health Psychology*, *42*(4), 235. https://psycnet.apa.org/doi/10.1037/hea0001268

Blais, S., Collard, L., & Simard, A. (2020, April 15). *MPPs Blais, Collard and Simard ask Ford for French content in COVID-19 briefings*. Ontario Liberal. https://ontarioliberal.ca/mpps-blais-collard-and-simard-ask-ford-for-french-content-in-covid-19-briefings/

Bober, S., & Willis, C. (2021). The Covid-19 pandemic and minority language media in Europe: The effects of spring 2020 lockdowns. *Journal of Multilingual and Multicultural Development*, 1–17. https://doi.org/10.1080/01434632.2021.2005074

Bouchard, L., Desmeules, M., Drolet, M., Bouchard, P., & Savard, J. (2017). The health of Francophone seniors living in minority communities in Canada: Issues and needs. In M. Frolet, P. Bouchard, & J. Savard (Eds.), *Accessibility and active offer. Health care and social services in linguistic minority communities* (pp. 109–124). University of Ottawa Press. https://doi.org/10.2307/j.ctv5vdcxc.10

Brennen, J.S., Simon, F.M., Howard, P.N., & Nielsen, R.K. (2020). *Types, sources, and claims of COVID-19 misinformation* [Doctoral dissertation, University of Oxford]. ORA Oxford University Research Archive. https://ora.ox.ac.uk/objects/uuid:178db677-fa8b-491d-beda-4bacdc9d7069

Callaghan, P., & Morrissey, J. (1993). Social support and health: A review. *Journal of Advanced Nursing, 18*(2), 203–210. https://doi.org/10.1046/j.1365-2648.1993.18020203.x

Casara, B.G.S., Suitner, C., & Jetten, J. (2022). The impact of economic inequality on conspiracy beliefs. *Journal of Experimental Social Psychology*, *98*, Article 104245. https://doi.org/10.1016/j.jesp.2021.104245

Caceres, M.M.F., Sosa, J.P., Lawrence, J.A., Sestacovschi, C., Tidd-Johnson, A., Rasool, M.H.U., Gadamidi, V.K., Ozair, S., Pandav, K., Cuevas-Lou, C., Parrish, M., Rodriguez, I., & Fernandez, J.P. (2022). The impact of misinformation on the COVID-19 pandemic. *AIMS Public Health*, *9*(2), 262–277. https://doi.org/10.3934/publichealth.2022018

Castañeda, H., Holmes, S.M., Madrigal, D.S., Young, M.E.D., Beyeler, N., & Quesada, J. (2015). Immigration as a Social Determinant of Health. *Annual Review of Public Health*, *36*, 375–392. https://doi.org/10.1146/annurev-publhealth-032013-182419

Chang, C.D. (2019). Social determinants of health and health disparities among immigrants and their children. *Current Problems in Pediatric and Adolescent Health Care*, *49*(1), 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009

Chouinard, S., & Normand, M. (2020). Talk Covid to me: Language rights and Canadian government responses to the pandemic. *Canadian Journal of Political Science/Revue canadienne de science politique*, *53*(2), 259–264. https://doi.org/10.1017/s0008423920000359

Centre for Ocular Research & Education. (n.d.). *Translated COVID-19 infographics, with thanks to EUROMCONTACT for coordination of these translations*. https://core.uwaterloo.ca/translated-covid-19-infographics/

de Moissac, D., & Bowen, S. (2017). Impact of language barriers on access to healthcare for official language minority Francophones in Canada. *Healthcare Management Forum*, *30*(4), 207–212. https://doi.org/10.1177/0840470417706378

European Centre for Disease Prevention and Control. (2020, February 26). *Infographic: COVID-19*. https://www.ecdc.europa.eu/en/publications-data/infographic-covid-19

Federal Union of European Nationalities. (2020, October 7). *Do you speak corona? Updated survey report for 43 minority groups in 25 European countries*. https://bit.ly/FUEN-Do-you-speak-Corona

Fisher, K.A., Bloomstone, S.J., Walder, J., Crawford, S., Fouayzi, H., & Mazor, K.M. (2020). Attitudes toward a potential SARS-CoV-2 vaccine: A survey of US adults. *Annals of Internal Medicine*, *173*(12), 964–973. https://doi.org/10.7326/M20-3569

Flaxman, S., Whittaker, C., Semenova, E., Rashid, T., Parks, R.M., Blenkinop, A., Unwin, J.T., Mishra, S., Bhatt, S., Gurdasani, D., & Ratmann, O. (2023). Assessment of COVID-19 as the underlying cause of death among children and young people aged 0 to 19 years in the US. *JAMA Network Open*, *6*(1), e2553590. https://doi.org/10.1001/jamanetworkopen.2022.53590

Freeman, D., Waite, F., Rosebrock, L., Petit, A., Causier, C., East, A., Jenner, L., Teale, A., Carr, L., Mulhall, S., Bold, E., & Lambe, S. (2022). Coronavirus conspiracy beliefs, mistrust, and compliance with government guidelines in England. *Psychological Medicine*, *52*(2), 251–263. https://doi.org/10.1017/S0033291720001890

Gallegos, A., Han, H., Vestergren, S., & Blackburn, A.M. (2022, June 30). The effects of identity, and perceived support on attitudes towards COVID-19 compliance [Study preregistration]. OSF Registries. https://doi.org/10.17605/OSF.IO/UPJQ8

Gao, G., Zheng, J., Choe, E.K., & Yamashita, N. (2022). Taking a language detour: How international migrants speaking a minority language seek COVID-related information in their host countries. *Proceedings of the ACM on Human-Computer Interaction*, *6*(CSCW2), 1–32. https://doi.org/10.1145/3555600

Gelatt, J. (2016). Immigration status and the healthcare access and health of children of immigrants. *Social Science Quarterly*, *97*(3), 540–554. https://doi.org/10.1111/ssqu.12261

Grey, I., Arora, T., Thomas, J., Saneh, A., Tohme, P., & Abi-Habib, R. (2020). The role of perceived social support on depression and sleep during the COVID-19 pandemic. *Psychiatry Research, 293*, 1–6. https://doi.org/10.1016/j.psychres.2020.113452

Haber, M.G., Cohen, J.L., Lucas, T., & Baltes, B.B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology*, *39*(1), 133–144. https://doi.org/10.1007/s10464-007-9100-9

Han, H., Blackburn, A.M., Jeftić, A., Tran, T.P., Stöckli, S., Reifler, J., & Vestergren, S. (2022). Validity testing of the conspiratorial thinking and anti-expert sentiment scales during the COVID-19 pandemic across 24 languages from a large-scale global dataset. *Epidemiology & Infection*, *150*, 1–7. https://doi.org/10.1017/S0950268822001443

Hansen, J., & Charles, J.A. (2023). Investigating the importance of interpreting services to improve patient care and access to health services for Aboriginal Australians, Indigenous global populations and minority language speakers. *The Translator*, *29*(1), 124–138. https://doi.org/10.1080/13556509.2022.2137903

Held, M.L., First, J.M., & Huslage, M. (2022). Effects of COVID-19, discrimination, and social support on Latinx adult mental health. *Journal of Immigrant and Minority Health*, *24*(6), 1446–1458. https://doi.org/10.1007/s10903-022-01382-0

Herz, M., & Johansson, T. (2012). The experience of being stopped: Young immigrants, social exclusion and strategies. *Young*, *20*(2), 157–176. https://doi.org/10.1177/110330881202000203

Hum, D., & Simpson, W. (2004). Economic integration of immigrants to Canada: A short survey. *Canadian Journal of Urban Research*, *13*(1), 46–61. https://www.jstor.org/stable/44320795

Imhoff, R., & Lamberty, P. (2020). A bioweapon or a hoax? The link between distinct conspiracy beliefs about the coronavirus disease (COVID-19) outbreak and pandemic behavior. *Social Psychological and Personality Science*, *11*(8), 1110–1118. https://doi.org/10.1177/1948550620934692

International Rescue Committee. (2022, July 13). Migrants, asylum seekers, refugees and immigrants: What's the difference? (UK). https://www.rescue.org/article/migrants-asylum-seekers-refugees-and-immigrants-whats-difference

Jetten, J., Peters, K., & Casara, B.G.S. (2022). Economic inequality and conspiracy theories. *Current Opinion in Psychology*, *47*, 1–5. https://doi.org/10.1016/j.copsyc.2022.101358

Johnstone, M.J., & Kanitsaki, O. (2008). Cultural racism, language prejudice and discrimination in hospital contexts: An Australian study. *Diversity and Equality in Health and Care*, *5*(1), 19–30.

Kandula, N.R., Kersey, M., & Lurie, N. (2004). Assuring the health of immigrants: What the leading health indicators tell us. *Annual Review of Public Health*, *25*, 357–376. https://doi.org/10.1146/annurev.publhealth.25.101802.123107

KHademian, F., Roozrokh Arshadi Montazer, M., & Aslani, A. (2020). Web-based health information seeking and eHealth literacy among college students: A self-report study. *Investigación y Educación en Enfermería*, *38*(1). https://doi.org/10.17533/udea.iee.v38n1e08

Kirmayer, L.J., Narasiah, L., Munoz, M., Rashid, M., Ryder, A.G., Guzder, J., Hassan, G., Rousseau, C., & Pottie, K. (2011). Common mental health problems in immigrants and refugees: General approach in primary care. *Canadian Medical Association Journal*, *183*(12), E959–E967. https://doi.org/10.1503/cmaj.090292

Koplan, J.P., & Fleming, D.W. (2000). Current and future public health challenges. *Journal of the American Medical Association*, *284*(13), 1696–1698. doi:10.1001/jama.284.13.1696

Kreps, G. L., & Sparks, L. (2008). Meeting the health literacy needs of immigrant populations. *Patient Education and Counseling*, *71*(3), 328–332. https://doi.org/10.1016/j.pec.2008.03.001

Lakey, B., & Cohen, S. (2000). Social support theory and measurement. In S. Cohen, L.G. Underwood, & B.H. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social scientists* (pp. 29–52). Oxford University Press. https://doi.org/10.1093/med:psych/9780195126709.003.0002

Lieberoth, A., Lin, S.Y., Stöckli, S., Han, H., Kowal, M., Gelpi, R., Chrona, S., Tran, T.P., Jeftić, A., Rasmussen, J., Cakal, H., Milfont, T.L., Lieberoth, A., Yamada, Y., Han, H., Rasmussen, J., Rizwana, A., Debove, S., Gelpí, R., … Dubrov, D. (2021). Stress and worry in the 2020 coronavirus pandemic: relationships to trust and compliance with preventive measures across 48 countries in the COVIDiSTRESS global survey. *Royal Society Open Science*, *8*(2). https://doi.org/10.1098/rsos.200589

Liverani, M., Hawkins, B., & Parkhurst, J.O. (2013). Political and institutional influences on the use of evidence in public health policy: A systematic review. *PloS One*, *8*(10), e77404. https://doi.org/10.1371/journal.pone.0077404

MacDonald, N.E. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine*, *33*(34), 4161–4164. https://doi.org/10.1016/j.vaccine.2015.04.036

Mahimbo, A., Kang, M., Sestakova, L., Smith, M., & Dawson, A. (2022). Factors influencing refugees' willingness to accept COVID-19 vaccines in Greater Sydney: A qualitative study. *Australian and New Zealand Journal of Public Health*, *46*(4), 502–510. https://doi.org/10.1111/1753-6405.13252

May, S. (2003). Rearticulating the case for minority language rights. *Current Issues in Language Planning*, *4*(2), 95–125. https://doi.org/10.1080/14664200308668052

McFadden, S.M., Demeke, J., Dada, D., Wilton, L., Wang, M., Vlahov, D., & Nelson, L.E. (2022). Confidence and hesitancy during the early roll-out of COVID-19 vaccines among black, hispanic, and undocumented immigrant communities: A review. *Journal of Urban Health*, *99*(1), 3–14. https://doi.org/10.1007/s11524-021-00588-1

Merkley, E., & Loewen, P.J. (2021). Anti-intellectualism and the mass public's response to the COVID-19 pandemic. *Nature Human Behaviour*, *5*(6), 706–715. https://doi.org/10.1038/s41562-021-01112-w

Minihan, E., Gavin, B., Kelly, B.D., & McNicholas, F. (2020). COVID-19, mental health and psychological first aid. *Irish Journal of Psychological Medicine*, *37*(4), 259–263. https://doi.org/10.1017/ipm.2020.41

Motta, M. (2018). The dynamics and political implications of anti-intellectualism in the United States. *American Politics Research*, *46*(3), 465–498. https://doi.org/10.1177/1532673X17719507

Nehal, K.R., Steendam, L.M., Campos Ponce, M., van der Hoeven, M., & Smit, G.S.A. (2021). Worldwide vaccination willingness for COVID-19: A systematic review and meta-analysis. *Vaccines*, *9*(10), 1071. https://doi.org/10.3390/vaccines9101071

Niedzielski, N. (2010). Linguistic security, ideology, and vowel perception. In D.R. Preston & N. Niedzielski (Eds.) *A reader in sociophonetics* (pp. 253–264). De Gruyter Mouton. https://doi.org/10.1515/9781934078068.2.253

Ntontis, E., Blackburn, A.M., Han, H., Stöckli, S., Milfont, T.L., Tuominen, J., Griffin, S.G., Ikizer, G., Jeftić, A., Chrona, S., Nasheedha, A., Liutsko, L., & Vestergren, S. (2023). The effects of secondary stressors, social identity, and social support on perceived stress and resilience: Findings from the COVID-19 pandemic. *Journal of Environmental Psychology*, *88*, 102007. https://doi.org/10.1016%2Fj.jenvp.2023.102007

Nyqvist, F., Häkkinen, E., Renaud, A., Bouchard, L., & Prys, C. (2021). Social exclusion among official language minority older adults: A rapid review of the literature in Canada, Finland and Wales. *Journal of Cross-Cultural Gerontology*, *36*(3), 285–307. https://doi.org/10.1007/s10823-021-09433-z

Ortega, P., Martínez, G., & Diamond, L. (2020). Language and health equity during COVID-19: Lessons and opportunities. *Journal of Health Care for the Poor and Underserved*, *31*(4), 1530–1535. https://doi.org/10.1353/hpu.2020.0114

Paradis, J., Genesee, F., & Crago, M.B. (2021). *Dual language development & disorders: A handbook on bilingualism and second language learning*. Paul H. Brookes Publishing.

Park, C.L., Russell, B.S., Fendrich, M., Finkelstein-Fox, L., Hutchison, M., & Becker, J. (2020). Americans' COVID-19 stress, coping, and adherence to CDC guidelines. *Journal of General Internal Medicine*, *35*(8), 2296–2303. https://doi.org/10.1007/s11606-020-05898-9

Parker Frisbie, W., Cho, Y., & Hummer, R.A. (2001). Immigration and the health of Asian and Pacific Islander adults in the United States. *American Journal of Epidemiology*, *153*(4), 372–380. https://doi.org/10.1093/aje/153.4.372

Paul, E., Steptoe, A., & Fancourt, D. (2021). Attitudes towards vaccines and intention to vaccinate against COVID-19: Implications for public health communications. *The Lancet Regional Health–Europe*, *1*. https://doi.org/10.1016/j.lanepe.2020.100012

Pena, C. (2014). Ineke Creeze. 2013. Introduction to healthcare for interpreters and translators. *FITISPos International Journal*, *1*, 119–121. https://doi.org/10.1075/z.181

Perrigo, J.L., Samek, A., & Hurlburt, M. (2022). Minority and low-SES families' experiences during the early phases of the COVID-19 pandemic crisis: A qualitative study. *Children and Youth Services Review*, *140*, 106594. https://doi.org/10.1016/j.childyouth.2022.106594

Piller, I., Zhang, J., & Li, J. (2020). Linguistic diversity in a time of crisis: Language challenges of the COVID-19 pandemic. *Multilingua*, *39*(5), 503–515. https://doi.org/10.1515/multi-2020-0136

Plohl, N., & Musil, B. (2021). Modeling compliance with COVID-19 prevention guidelines: The critical role of trust in science. *Psychology, Health & Medicine*, *26*(1), 1–12. https://doi.org/10.1080/13548506.2020.1772988

Preston, D.R. (2013). Linguistic insecurity forty years later. *Journal of English Linguistics*, *41*(4), 304–331. https://doi.org/10.1177/0075424213502810

Redwood, S., & Gill, P.S. (2013). Under-representation of minority ethnic groups in research — call for action. *British Journal of General Practice*, *63*(612), 342–343. https://doi.org/10.3399/bjgp13X668456

Ritsner, M., Modai, I., & Ponizovsky, A. (2000). The stress-support patterns and psychological distress of immigrants. *Stress Medicine*, *16*(3), 139–147. https://doi.org/10.1002/(SICI)1099-1700(200004)16:3<139::AID-SMI840>3.0.CO;2-C

Roberts, G.W. & Paden, L. (2000). Identifying the factors influencing minority language use in health care education settings: A European perspective. *Journal of Advanced Nursing, 32*(1), 75–83. https://doi.org/10.1046/j.1365-2648.2000.01442.x

Roozenbeek, J., Schneider, C.R., Dryhurst, S., Kerr, J., Freeman, A.L., Recchia, G., van der Bles, A.M., & van der Linden, S. (2020). Susceptibility to misinformation

about COVID-19 around the world. *Royal Society Open Science*, *7*(10). https://doi.org/10.1098/rsos.201199

Rothstein, M.A., & Coughlin, C.N. (2019). Ensuring compliance with quarantine by undocumented immigrants and other vulnerable groups: Public health versus politics. *American Journal of Public Health*, *109*(9), 1179–1183. https://doi.org/10.2105/AJPH.2019.305201

Schyve, P.M. (2007). Language differences as a barrier to quality and safety in health care: The Joint Commission perspective. *Journal of General Internal Medicine*, *22*(2), 360–361. https://doi.org/10.1007/s11606-007-0365-3

Selsky, C., Luta, G., Noone, A.M., Huerta, E.E., & Mandelblatt, J.S. (2013). Internet access and online cancer information seeking among Latino immigrants from safety net clinics. *Journal of Health Communication*, *18*(1), 58–70. https://doi.org/10.1080/10810730.2012.688248

Sentell, T., Vamos, S., & Okan, O. (2020). Interdisciplinary perspectives on health literacy research around the world: More important than ever in a time of COVID-19. *International Journal of Environmental Research and Public Health*, *17*(9). https://doi.org/10.3390/ijerph17093010

Slade, S., & Sergent, S. (2023, April 10). *Language barrier*. NIH National Library of Medicine: National Center for Biotechnology Information. https://www.ncbi.nlm.nih.gov/books/NBK507819/

Solheim, C.A., Ballard, J., Fatiha, N., Dini, Z., Buchanan, G., & Song, S. (2022). Immigrant family financial and relationship stress from the COVID-19 pandemic. *Journal of Family and Economic Issues*, *43*, 282–295. https://doi.org/10.1007/s10834-022-09819-2

Southwell, B.G., Niederdeppe, J., Cappella, J.N., Gaysynsky, A., Kelley, D.E., Oh, A., Peterson, E.B., & Chou, W.Y.S. (2019). Misinformation as a misunderstood challenge to public health. *American Journal of Preventive Medicine*, *57*(2), 282–285. https://doi.org/10.1016/j.amepre.2019.03.009

Southwell, B.G., Machuca, J.O., Cherry, S.T., Burnside, M., & Barrett, N.J. (2023). Health misinformation exposure and health disparities: Observations and opportunities. *Annual Review of Public Health*, *44*, 113–130. https://doi.org/10.1146/annurev-publhealth-071321-031118

Spencer, D.L.H., Cooledge, M.B.A., & Hoare, D.Z. (2022). A systematic review of the experiences of minority language users in health and social care research. *medRxiv*, 2022.04.27.22273307. https://doi.org/10.1101/2022.04.27.22273307

Stoeckli, S., Vestergren, S., Parry, D.A., Griffin, S.M., Ikizer, G., Lacko, D., Blackburn, A.M., Chrona, S., COVIDiSTRESS Round II Consortium, Tran, T., & Tuominen, J. (2021–2022). *COVIDiSTRESS Global Survey — Round II* [Data set]. Open Science Framework. https://osf.io/36tsd/

Su, C., Yang, L., Dong, L., & Zhang, W. (2022). The psychological well-being of older Chinese immigrants in Canada amidst COVID-19: The role of loneliness, social

support, and acculturation. *International Journal of Environmental Research and Public Health*, *19*(14), 8612. https://doi.org/10.3390/ijerph19148612

Tambling, R.R., Russell, B.S., Park, C.L., Fendrich, M., Hutchinson, M., Horton, A.L., & Tomkunas, A.J. (2021). Measuring cumulative stressfulness: Psychometric properties of the COVID-19 Stressors Scale. *Health Education & Behavior*, *48*(1), 20–28. https://doi.org/10.1177/1090198120979912

Turhan, Z., Dilcen, H.Y., & Dolu, Í. (2022). The mediating role of health literacy on the relationship between health care system distrust and vaccine hesitancy during COVID-19 pandemic. *Current Psychology*, *41*(11), 8147–8156. https://doi.org/10.1007/s12144-021-02105-8

United Nations Department of Economic and Social Affairs. (n.d.). *Migrant*. Refugees and Migrants. https://refugeesmigrants.un.org/definitions

Valaitis, R.K., O'Mara, L., Wong, S.T., MacDonald, M., Murray, N., Martin-Misener, R., & Meagher-Stewart, D. (2018). Strengthening primary health care through primary care and public health collaboration: The influence of intrapersonal and interpersonal factors. *Primary Health Care Research & Development*, *19*(4), 378–391. https://doi.org/10.1017/S1463423617000895

Valero-Garcés, C., & Taibi, M. (2004). Professionalizing public service translation and interpreting in Spain. *Critical Link*, *4*, 20–23.

Van Bavel, J.J., Cichocka, A., Capraro, V., Sjåstad, H., Nezlek, J.B., Pavlović, T., Alfano, M., Gelfand, M.J., Azevedo, F., Birtel, M.D., Cislak, A., Lockwood, P.L., Ross, R.M., Abts, K., Agadullina, E., Aruta, J.J.B., Besharati, S.B., Bor, A., Choma, B.L., … & Boggio, P.S. (2022). National identity predicts public health support during a global pandemic. *Nature Communications*, *13*(1), 517. https://doi.org/10.1038/s41467-021-27668-9

Van Prooijen, J.W., & Douglas, K.M. (2017). Conspiracy theories as part of history: The role of societal crisis situations. *Memory Studies*, *10*(3), 323–333. https://doi.org/10.1177/1750698017701615

Van Rooij, B., de Bruijn, A.L., Reinders Folmer, C., Kooistra, E.B., Kuiper, M.E., Brownlee, M., Olthuis, E., & Fine, A. (2020). Compliance with COVID-19 mitigation measures in the United States. *Amsterdam Law School Research Paper*, (2020–21). http://dx.doi.org/10.2139/ssrn.3582626

Vieira, C.M., Franco, O.H., Restrepo, C.G., & Abel, T. (2020). COVID-19: The forgotten priorities of the pandemic. *Maturitas*, *136*, 38–41. https://doi.org/10.1016/j.maturitas.2020.04.004

Wethington, E., & Kessler, R.C. (1986). Perceived support, received support, and adjustment to stressful life events. *Journal of Health and Social Behavior*, *27*(1), 78–89. https://doi.org/10.2307/2136504

Willis, D.E., Selig, J.P., Andersen, J.A., Hall, S., Hallgren, E., Williams, M., Bryant-Moore, K., & McElfish, P.A. (2023). Hesitant but vaccinated: Assessing COVID-19

vaccine hesitancy among the recently vaccinated. *Journal of Behavioral Medicine*, *46*(1–2), 15–24. https://doi.org/10.1007/s10865-021-00270-6

World Health Organization. (2020). ApartTogether survey: Preliminary overview of refugees and migrants self-reported impact of COVID-19. https://apps.who.int/iris/bitstream/handle/10665/337931/9789240017924-eng.pdf

Wright, A.L., Sonin, K., Driscoll, J., & Wilson, J. (2020). Poverty and economic dislocation reduce compliance with COVID-19 shelter-in-place protocols. *Journal of Economic Behavior & Organization*, *180*, 544–554. https://doi.org/10.1016/j.jebo.2020.10.008

Xiang, D., & Lehmann, L.S. (2021). Confronting the misinformation pandemic. *Health Policy and Technology*, *10*(3), 100520. https://doi.org/10.1016/j.hlpt.2021.100520

Yamada, Y., Ćepulić, D.B., Coll-Martín, T., Debove, S., Gautreau, G., Han, H., Rasmussen, J., Tran, T.P., Travaglino, G.A., COVIDiSTRESS Global Survey Consortium, & Lieberoth, A. (2021). COVIDiSTRESS Global Survey dataset on psychological and behavioural consequences of the COVID-19 outbreak. *Scientific Data*, *8*(1), 3. https://doi.org/10.1038/s41597-020-00784-9

Yu, M., Kelley, A.T., Morgan, A.U., Duong, A., Mahajan, A., & Gipson, J.D. (2020). Challenges for adult undocumented immigrants in accessing primary care: A qualitative study of health care workers in Los Angeles County. *Health Equity*, *4*(1), 366–374. https://doi.org/10.1089/heq.2020.0036