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Is Health Literacy a Defined Risk Factor?

A Literature Review of Health Literacy as it relates to Immigrant Populations in the U.S.

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May 22, 2022

A Master's Paper

Submitted to the faculty of Clark University, Worcester, Massachusetts, in partial fulfillment of the requirements for the degree of Master of Health Science in the department of International Development, Community and Environment

And accepted on the recommendation of

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ABSTRACT

Is Health Literacy a Defined Risk Factor?

A Literature Review of Health Literacy as it relates to Immigrant Populations in the U.S.

Kelly Zdanuczyk

Throughout its lifespan the definition of health literacy in the United States has been ambiguous and disagreeable. This discrepancy has created disparity among health outcomes for vulnerable populations who are classified with lower degrees of health literacy and thus have a harder time interacting with the healthcare system. This paper will review published peer-reviewed literature on the topic of health literacy as it relates to immigrant populations in the United States and explore the ways in which low health literacy results in negative health outcomes. The literature review finds the discrepancies among health literacy, as it pertains to immigrant communities all stems from a lack of consistency among a definition of the concept. The gap identified is twofold such that, an inconsistent understanding makes it difficult to claim health literacy as a risk factor for poor outcomes. Moreover, because health literacy is linked to the use of language, the ways in which it is understood and exists within communities that don't use the dominant language becomes a complexity that lacks adequate research.

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Introduction

Health literacy, as it is understood in the United States, first began appearing in the academic peer-reviewed literature in the early 1990s (Pleasant, 2011). Since then, it has undergone transformative expansion in scope and to present it has abundant and varied definitions. The breadth which it has grown to hold has added layers of complexity of content, context, and history. This complexity is simultaneously entrenched by discrepancies, such that of a lack of a singular definition has amounted to a lack of a collective understanding of the concept and thus a lack of effective action and pro-action.

The definition of health literacy was first used in 1974 to describe how health information impacts the educational system, the health care system, and mass communication and was used as a goal to be established for grades K through 12 (Parnell, 2014). This concept gained little traction at the time, and as aforementioned, was not introduced into academic literature until the 1990's. In the year 2000, the U.S. Department of Health and Human Services defined health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services to make appropriate health decisions" (U.S. Department of Health and Human Services, 2000). This definition was frequently identified in preliminary literature on health literacy, and it subject the matter to one of the abilities of an individual to apply basic reading and numeracy skills to a health care concept. The original definition was simplistic, such that it was about the basic understanding of health information. Moreover, this adds the burden solely to those in the receiving end of health services with little expectation for providers. Methods to measure health literacy were reflective of this simplicity, such that they were often on a *teach back method*, where individuals were asked to mirror back the information

physicians dictated to them. This method was later criticized, and the definition of health literacy was expanded.

Two decades later, the most recent update published in August of 2020 by the Center for Disease Control and Prevention, defines health literacy in two-fold. The definition reads as follows:

> "Personal health literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.
>
> Organizational health literacy is the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others" (CDC, 2020).

The mere stratification of the definition indicates the expansion of the concept to encompass not only the individual, but also the institutions which are equally responsible for information processing. The drastic change in definition across two decades is a representation of the grandeur of conceptualization health literacy has endured. Historically, it has been altered so many times that one definition cannot contain the wide scope it harbors.

Health literacy in the United States is presumed to be the understanding of health information in the English language. This creates a vulnerability for immigrant populations, who are non-native English speakers. The literature explicitly indicates an association between low health literacy of immigrants and quality of care. A 2019 report of the National Immigration Council reported that 14% of the U.S. population is comprised of naturalized citizens, nearly

70% of which report speaking English well or very well. Not to mention the significant number of undocumented immigrants that reside in the country. The substantial number of immigrants calls for an evaluation of health literacy of said population.

All literature reviewed in this paper addresses health literacy; however, it was found that there is limited agreement on one definition which creates a discrepancy for vulnerable populations. The problem is two-fold such that lack of consistency on the definition makes it difficult to claim health literacy as a risk factor for poor outcomes. Moreover, because health literacy is linked to the use of language, the ways in which it is understood and exists within communities that don't use the dominant language becomes a complexity that lacks adequate research. This paper will review published peer-reviewed literature on the topic of health literacy as it relates to immigrant populations in the United States and explore the ways in which low health literacy results in negative health outcomes.

Methods

The PubMed and Google Scholar database were the two primary databases used in this literature review. Searches were limited to articles from January 2009 to January 2022. The articles chosen for the literature review were chosen based on the narrowing search presented in Appendix A.

The search strategy was based on the use of the index term 'health literacy' combined with the free terms' 'immigrant', 'immigrant population', 'United States', 'discrimination', 'health outcomes', 'marginalization', 'social exclusion', and 'English proficiency' using the Boolean operators 'AND' and 'OR'.

By reviewing the articles' titles and abstracts, articles were selected as eligible for the literature review. Papers that met the inclusion criteria were read in their entirety and assessed for final inclusion. Please refer to Table 1 to see a summary of the main articles visited for this review.

Additionally, all papers included in the review are cited and formulated into a table based on objective of study and major findings. This information can be accessed in Appendix A, at the conclusion of the review.

Health Literacy in the Context of language and culture

Health literacy in the United States is understood in the context of the English language, making proficiency in said language a prerequisite for adequate levels of health literacy. However, this reality is not applicable for everyone. Many people, specifically immigrants and non-native English speakers, were capable of understanding the healthcare system in their native countries, but lack health literacy for reasons pertaining to language, culture, familiarity, and navigation. This section will explore these realms as well as the testing metrics used to assess health literacy.

Adult literacy assessments

Health literacy is measured widespread in the United States, through the use of assessments. Two commonly used health literacy assessments are the 1) Test of Functional Health Literacy in Adults (TOFHLA) and 2) the Program for the International Assessment of Adult Competencies (PIAAC). TOFHLA measures functional health literacy by assessing numeracy and comprehension using real-world health-related materials such as prescription

bottle labels and appointment slips. The PIAAC assesses literacy by measuring “understanding, evaluating, using, and engaging with written texts to participate in society.” Moreover, the National Assessment of Adult Literacy (NAAL) includes a health literacy component.

In 2003, the National Assessment of Adult Literacy (NAAL) found that Hispanics in the United States had lower levels of health literacy compared to other population groups (U. S. Department of Education, 2006). However, there exists criticism of the NAAL as an appropriate tool for assessing health literacy among non-English speakers. The questionnaire measures English fluency as “how well Americans perform tasks with printed materials similar to those they encounter in their daily lives at work, at home, and in the community.” Aside from this, only a few regional U.S. studies have focused on health literacy of the Hispanic population.

A follow-up study exploring these results and conducting an analysis of baseline data collected for a randomized controlled study, involving a TOFHLA and included only self-reported immigrants identified English proficiency as the strongest predictor of health literacy among Hispanic immigrants. (Jacobson, et al. 2016). However, it recommends future research should consider the role of geographic and sociolinguistic environments on health literacy. Such that, levels of health literacy are not solely based on English-proficiency but are also rooted in health beliefs and practices.

The purpose of the abovementioned study was to examine the predictors of English health literacy among adult Hispanic immigrants whose self-reported primary language is Spanish, but who live and function in a bilingual community. The identification of English language proficiency as the strongest predictor of health literacy, serves as an important aspect of the ways in which health literacy is understood and enacted in the United States.

Another study on the topic, by researchers Chen et al., used a theory-based health literacy assessment survey to identify the mechanisms underlying low health literacy among people with limited English proficiency in the US. Specifically, a modified All Aspects of Health Literacy Scale (AAHLS) was used with a sample of Chinese speakers. The survey was provided both in English and Chinese and presented to the participants. The results found that the participants had significantly higher health literacy scores when assessed in their native language, in this case Chinese (Chen, et al., 2018). Suggesting that language plays a significant role in the comprehension and interaction with the American healthcare system. It is suggested that health literacy assessments be provided in different languages to gauge more accurate results.

Furthermore, researchers McKee and Paasche-Orlow, who published on the topic of health literacy and the disenfranchised, write, “Inadequate health literacy and limited English proficiency are associated with poor health care access and outcomes. Despite what appears to be an interaction phenomenon—whereby the rate of inadequate health literacy is particularly high among limited English proficiency populations—researchers in health literacy and limited English proficiency rarely collaborate. As a result, few health literacy instruments and interventions have been developed or validated for a smaller linguistic population” (McKee, Paasche-Orlow, 2012). This study accentuates the relationship between health literacy and English-proficiency and suggests that the disregard of this relationship is further marginalizing non-native English speaking communities.

Health literacy assumes immigrants and non-English speakers have limited abilities in understanding health, simply because of a language barrier. Assessments such as the TOFHLA and PIAAC are an attempt to define health literacy using tangible metrics, however they lack an awareness of cultural and linguistic differences and thus indicate that immigrants perform

poorly. However, because the primary form of health services is delivered in English, with limited translation, poor health literacy of immigrant populations often results in poor health outcomes.

Country of Origin and Culture

Health literacy of immigrant populations is deeply tied into the traditions and cultures surrounding health, health practices, and perspectives in their countries of origin. Perception of health, as in how individuals are perceiving health and the role of health care in their everyday lives relates to their degree of health literacy. Across cultures, there exists a difference in the role of healthcare as an intervention or necessity. This difference is attributable to the ways in which immigrant groups interact with the healthcare system in the United States.

The study conducted by Chen and colleagues, abovementioned, assessing health literacy among Chinese speakers in the US with limited English proficiency found that more than three-quarters of the participants were not likely to question their doctor's and nurse's advice regardless of language scenarios and most of them had limited empowerment capabilities at the level of community and social engagement (Chen, et al., 2018). This is an aspect of cultural and social sensitivity that needs to be addressed when talking about health literacy. It is important to note that it is not addressed in most of these studies on "health literacy" and therefore exists as a significant gap.

Moreover, a literature review published in the Canadian Journal of Public Health denotes the most cited reasons for newly arrived immigrants not seeking health services as: barriers to access, lack of information about certain health services, use of herbalist or alternative providers and lack of culturally sensitive health services for ethnic communities (Zanchetta, Poureslami, 2006). Discomfort in discussing traditional practices with healthcare providers or shame when

asking for additional clarification are barriers that also exist for immigrants interacting with a foreign healthcare system.

In sum, the complexity of health literacy should be explored as an ethno-cultural phenomenon which calls on all stakeholders and actors to better understand the interconnectedness of avenues such as culture and literacy.

Familiarity and Navigation

Language and culture shape the ways in which immigrant communities develop health literacy and in turn interact with the U.S. healthcare system. A lack of familiarity amid a new system of rules is oftentimes an additional barrier for immigrants and one that holds great potential for poorer outcomes.

A cross-national comparative study examining the influence of health insurance on U.S. immigrant versus non-immigrant disparities in access to primary health care, found that, "In the U.S., odds of unmet medical needs of insured immigrants were similar to those of insured non-immigrants but far greater for uninsured immigrants. The effect of health insurance was even more striking for lack of regular doctor (Siddiqi, et al., 2009). These findings suggest that health care insurance is critical in the differences between access to primary care among immigrant and non-immigrant groups. It emphasizes the role of navigation as it pertains to immigrants accessing and understanding the U.S. healthcare system and the complexities that come along with insurance.

This issue is not unique to the United States. A literature review published in the Canadian Journal of Public Health, identifies a shared experience of unfamiliarity with the Canadian healthcare system especially in terms of navigation of resources, for newly arrived immigrants to Canada (Zanchetta, Poureslami, 2006). The paper denotes, "the most cited reasons

for newcomers not seeking health services as: barriers to access, lack of information about certain health services, use of herbalist or alternative providers and lack of culturally sensitive health services for ethnic communities" (Zanchetta, Poureslami, 2006). Health literacy is not the mere ability to read prescription labels or communicate with one's physician, instead it is deeply related to culture and the safety immigrants may or may not feel within the system. A lack of familiarity brews distrust, therefore this relationship is pertinent.

Han and colleagues published a paper in the Journal of Health Communication on the case of health literacy in Pap test use among Korean American women. This paper explicitly notes that low health literacy has been identified as a major barrier to effective utilization of cancer screening services, independent of race and socioeconomic status (Han, et al., 2019). Health literacy is relevant here because patients experiencing language discordance may be more likely to have misconceptions of information provided and may negatively affect utilization of preventive care. These results are important because they identify familiarity, navigation and comprehension are important factors in increasing health literacy and subsequently the utilization of healthcare services.

Health Literacy as Policy

Health literacy in policy has been a recent phenomenon. It appeared as a goal in Healthy People 2010, and then again in Healthy People 2020, where it was defined as, "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (CDC, 2022). It remains a goal in the Healthy People 2030 report, however its definition has been altered. The CDC reports that the new definitions, "Emphasize people's ability to *use* health information rather than just understand it. Focus on the ability to make "well-informed" decisions rather than "appropriate"

ones. Acknowledge that organizations have a responsibility to address health literacy. Incorporate a public health perspective" (CDC, 2022). This new approach is far more comprehensive than in the past, however the ways in which policy is reviewed in published literature remains scarce.

One paper, published in BMC Public Health, calls for the change in definition writing, "Here remains a critical need to develop a theoretically driven conceptual definition of health literacy as a social construct [78–80]. In- stead of focusing on health literacy as an individual deficit; a shifting perspective of health literacy emphasizes the importance of social context, the role of social interaction, and the creation of social connections as an asset" (Rikard, et al., 2016).

The discernment from clinical risk definition to an asset-focused definition is reflective of the 2030 Healthy People policy. However, the recency of such a policy, has resulted in limited studies denoting any changes.

Health literacy and Health Outcomes

Nearly all the literature reviewed in this paper denotes the correlation of health literacy and health outcomes, denoting that low health literacy relates to poor health outcomes. However, the literature lacks discourse about what causes low health literacy, it is just assumed that correlation is a state that exists in a fixed nature.

Quality of Care

The quality of care of immigrant populations in the United States is unanimously denoted in the literature as substandard. It is correlated with determined low levels of health literacy. Health literacy as it is defined by the U.S. Department of Health and Human Services fails to differentiate from educational levels and language ability and denotes health literacy as a

better predictor of health outcomes than income or education. (U.S. Department of Health and Human Services, 2000).

One study data which examines data from a nationally representative sample of 2,996 immigrants from the 2007 Pew Hispanic Center and Robert Wood Johnson Foundation Hispanic Healthcare Survey found that immigrants with higher levels of health literacy reported better QoC and that inadequate health literacy influenced immigrants' QoC beyond education and income, English proficiency, health insurance coverage, and having a regular place of care (Calvo, 2016). Latino immigrants have lower health literacy than any other racial or ethnic group in the United States, however very few studies explore this gap exist in the literature. The analysis conducted in this paper found that health literacy was significantly and consistently associated with QoC, suggesting that low health literacy equates with poor health outcomes, such that the ability to navigate the system, allows room for inquiry and advocacy on one's behalf.

Social Determinants of Health

Social determinants of health, "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks" coexist with an individual's health literacy and the two simultaneously and mutually affect one another. Immigrant status is not a sole attribute of low health literacy and the associated social exclusion. It exists in tandem with other factors of historical exclusion, such as gender, race, ethnicity, that cannot be discredited in this review. Although this paper aims to extrapolate the effects of immigrant status and non-native English language on health literacy and its translation into the quality of care, it cannot be accomplished without exploring the social determinants that comprise the lives of immigrants. Culture and language, as previously reviewed, as two such social determinants that are relevant to health

literacy. The literature in this paper does make space for discourse around social determinants of health, but often acknowledges the conditions as stagnant.

The literature identifies abundant factors to be pertinent to the health literacy of immigrants. One such paper, "Social determinants of health and health disparities among immigrants and their children" identifies the following as significant social determinants of health that impact the health of immigrants. Firstly, the U.S. healthcare system, such that a lack of resources and support leads to an alarming rate of immigrant families who live without access to healthcare. Moreover, immigrants receive suboptimal care when it comes to obtaining preventive healthcare services, managing chronic health conditions, and accessing mental health services, thus, disparities arise in health outcomes. Secondly, poverty, such that immigrant workers are more likely to receive lower wages and less benefits. The paper writes, "It is difficult for immigrant parents to address both their health necessities and those of their children when there are unmet fundamental needs such as food and housing" (Chang, 2019). Thirdly, housing insecurity, which is linked to poorer health outcomes. Fourth, education, "given the disparities that exist, immigrants suffer from poorer health literacy when compared to the native population" (Chang, 2019). These factors, along with many other social determinants, affect immigrant families with low health literacy and thus heighten the risk of poor health outcomes and unsuccessful interactions with the health care system.

Additionally, a systematic review on health literacy interventions for immigrant populations published in 2018, defines health literacy as a social health determinant that influences improvement in health, patient empowerment and reduction in inequalities. However, the results of the review identify a major gap, that being that there were very few specific health literacy interventions for immigrant populations found in the literature published between 2000

and 2015. “The interventions that were identified were positive in improving functional health literacy but made no strides towards improving interactive and critical health literacy” (Fernández-Gutiérrez, et al., 2018).

Another paper which aims to address social determinants, specifically among Hispanic immigrant populations, identifies the gap that there are few studies that evaluate the factors associated with having low health literacy, especially among immigrants (Becerra, et al., 2018). It is denoted in literature that low health literacy is often associated with poor health outcomes, but what causes it is persistently omitted. Using the California Health Interview Survey, the largest population-based state health survey in the United States, Becerra, and colleagues, analyze key determinants of low health literacy among immigrant Hispanic adults in California. Findings report low health literacy being associated with living in poverty, lacking consistent health insurance, and limited English language proficiency, while women were less likely than men to report low health literacy (Becerra, et al., 2018).

The role of social determinants of health in the discourse of health literacy among immigrants within the United States is very important, but it is rarely explored in depth. The relationship suggests that sociodemographic variables are interconnected to levels of health literacy and should be evaluated as such, when considering preventive or interventionist practices.

Preventive Services and Utilization

Health literacy, as it encompasses language, culture, social determinants of health, and other factors influences the utilization of care and preventive services for immigrants in the

United States. It affects the frequency in which immigrants access health services and perceive medical need, as aforementioned.

Health literacy also affects the degrees in which immigrants understand and subsequently choose to adhere to physician recommendations. A 2014 study published in the Annals of Pharmacotherapy, explored the relationship between health literacy on medication adherence. This meta-analysis identified a small statistically significant and positive association between health literacy and medication adherence, such that higher health literacy levels were associated with better medication adherence (Zhang, et al., 2014). Amidst their evaluation of the results, Zhang and colleagues write, “Health literacy may influence a patient’s medication beliefs (such as perceived need, perceived concerns, or perceived afford- ability), which have been shown to significantly influence medication adherence” (Zhang, et al., 2014). This again affirms the notion that health literacy is not uniform across all groups, immigrant communities interact with the health system in various ways, and practices to increase health literacy should reflect those differences.

There is limited general literature on the specific topic of healthcare utilization as it pertains to immigrants, however there is one study that explores this relationship in Switzerland. This study was preceded by literature which identified immigrants as being less likely to seek preventive services, however, more likely to be hospitalized at higher frequencies than Switzerland natives. It identifies that health literacy is not only about understanding services and procedures, but also comprehension of the healthcare system and associated costs. In assessing the health literacy and utilization of health services of immigrant versus native groups, the researchers found that functional health literacy is directly related to healthcare utilization, higher levels of health literacy were associated with overutilization of health services, possibly

due to a degree of consciousness of accessibility of resources (Mantwill, Schulz, 2017). This study also identified that aside from immigration status, region of residence was an effect modifier, meaning it had some significance in the results. This further supports the notion that a comprehensive understanding of SDOH is necessary in practices of increasing health literacy.

Although the study conducted by Mantwill and Schulz references immigrant and native groups in Switzerland, it provides commentary on the topic in the U.S., writing, "Studies, mainly from the US, have found that ethnic minorities are disproportionately affected by lower levels of health literacy. Yet only few studies have tried to tease out the influence of immigration background on health literacy. Studies that have attempted to do so have mainly focused on language proficiency and found that in particular those participants who were not proficient in the language of the host country and had lower levels of health literacy were most likely to deal with negative health (-related) consequences" (Mantwill, Schulz, 2017). This commentary directly identifies a gap in American published literature pertaining to health literacy of immigrant groups and furthermore connects language, culture, and social determinants of health as relevant factors of the degree to which individuals understand and interact with the concept of health literacy.

Health Literacy and Best Practices

Health literacy among immigrant groups and the ways in which that plays out as poor outcomes and subpar interactions is an identified disparity. The literature reviewed in this paper acknowledges that notion and typically concludes with recommendations on how to improve this inequity.

ESL Intervention

One such best practice that is repeatedly made in the literature is the integration of health literacy in English as a Second Language services. Immigrants are a dominant participant in ESL services, thus proving a good point of intervention.

One study titled, "ESL participation as a mechanism for advancing health literacy in immigrant communities" published in the Journal of Health Communication, explores the practicality of the implementation of health literacy in an ESL program. The researchers examined teacher survey data and learner outcomes data collected as part of a multiyear collaboration involving the California Diabetes Program, university researchers, and adult ESL teachers. The results reported the majority of learners reported they had learned about diabetes risk factors and prevention strategies. Additionally, two thirds of the learners reported sharing preventive health content with members of out-of-school social networks (Santos, et al., 2014). This study presents a strategy by which social interaction and social support facilitate health literacy outcomes in ESL contexts. It identifies the adult English-as-a-second language (ESL) system as an untapped resource in the effort to address health literacy disparities among underserved immigrant populations, those with limited schooling and literacy skills, as well as other historically hard-to-reach populations, such as immigrants without legal documentation and elderly immigrants (Santos, et al., 2014).

Furthermore, an additional examination of the implementation of health literacy in ESL among Hispanic immigrants found a positive attraction to the program on the part of participants, and a positive perceived learning experience (Soto, et al., 2013). It concludes that ESL can be

one vehicle to better the health literacy of the immigrant population, as long as it is conducted in an audience-centered approach that is needs based.

Soto and colleagues also introduce the role of federal agencies in interventions that effectively address the health and language needs of Hispanics and facilitate their access to quality health care. It references the calls in *Healthy People 2010* and *2020*, and suggests ESL is one vehicle towards reaching those health literacy goals. However, using ESL reaffirms the focus of health literacy solely on language.

Collaborative Efforts

Increasing health literacy across immigrant communities calls for collaborative efforts across various realms of healthcare and educational actors. Although there is dispute around the definition of health literacy, there must be collaboration in order for real change to be made. The literature points to this need as well. Health literacy when unpacked, insects with language, culture, social determinants, and a plethora of other realms of life, therefore the way it is enacted and taught must be reflective of that. Furthermore, health literacy is not the mere interaction between patient and doctor, but an all-inclusive understanding of health.

A lack of collaboration was repeatedly identified in the literature. "Researchers in health literacy and limited English proficiency rarely collaborate. As a result, few health literacy instruments and interventions have been developed or validated for smaller linguistic populations" (McKee, Paasche-Orlow, 2012). This is subsequently repeatedly identified as a best practice, McKee and Paasche-Orlow conclude saying, "It is important to ensure that research is collaborative and inclusive in order to broaden the reach of future interventions to smaller linguistic minority populations" ((McKee, Paasche-Orlow, 2012). Moreover, there is a specific

call for collaboration among medical and public health efforts. Researchers believe that health promotion would be more successful if health literacy was acknowledged appropriately. "Communication and promotion of health initiatives may have a stronger impact if they are made more accessible via language translation" (Chen, et al., 2018). Health literacy as limited to the English language limits the agency immigrant and non-native English speakers hold in navigating their health within the U.S. system. Chen and colleagues write, "Perhaps a best practice for both the healthcare and public health realm should be to provide information in multiple languages to increase accessibility" (Chen, et al., 2018).

Collaborative effort across various health and non-health related avenues would greatly benefit the understanding and improvement of health literacy among immigrant communities. However, this collaboration is lacking. Perhaps, due to the lack of a consistent and thus accepted definition of health literacy as a concept and furthermore as a risk factor.

Discussion

The purpose of this literature review was to explore health literacy of immigrants in the United States. The relationships explored between immigrant status, English language proficiency, health literacy and health outcomes illuminate the pipeline of these factors leading to marginalization, discrimination, and social exclusion of immigrants in the healthcare settings.

The methodology of this paper consisted of finding published academic literature pertinent to the topic of choice. Two established search engines were used to conduct this search. For the PubMed searches, an original search of "Health Literacy" articulated 23,001 papers. After applying the inclusion/exclusion criteria, the final search resulted in 21 published articles. A similar trend was observed in the Google Scholar search, which began with 3,100,000 results

under “Health Literacy.” But strikingly lowered that number after applying time frame and specific language criteria such as, “immigrant,” “U.S.”, “English proficiency,” etc. In the end, a total of 18 published articles were deemed appropriate, under the inclusion/exclusion criteria, as relevant to a literature review, evaluating health literacy of immigrants in the United States. The mere narrowing search is an identification of a gap, such that the topic is not well researched in U.S. literature. Indicating either a disregard for the matter, or a lack of consistent data to produce authenticated results on the topic.

Moreover, most of the literature reviewed explicitly state that immigrant communities often harbor lower health literacy scores, as compared to the general population of the United States. However, the literature lacks discourse on what causes such low health literacy and assumes it to be a fixed state for immigrant groups. Those articles that do address social determinants of health, and other such factors that contribute to low health literacy, never mention the social exclusion or marginalization of immigrant communities, that further heightens their access to health literacy. This is an important gap because immigrant status is not a sole attribute of low health literacy and the associated social exclusion. It exists in tandem with other factors of historical exclusion, such as gender, race, ethnicity, that cannot be discredited in this review. Thus, it is nearly impossible to extrapolate the effects of immigrant status and non-native English language on health literacy and its translation into the quality of care, without acknowledging other risk factors that are at play.

This paper must also recognize that immigrant communities are a diverse and dynamic population in the United States. To write of such a community as one entity is problematic in its representation. The majority of the literature that was written in a case-study format, focused on Latino immigrants. Perhaps this can be attributed to the notion that Latino immigrants have been

identified as an immigrant group with the lowest health literacy levels. However, it is important to note this finding. Moreover, because the literature was already so limited, papers on both immigrant populations and non-native English speakers were included, however a disclaimer is to be made that those are not equated. Although, research on both groups, does paint a narrative on the experiences of culturally diverse groups with the American healthcare system. Finally, immigrant communities are a vulnerable population to study, as their documentation status can affect their willingness to participate in research. None of the literature reviewed in this paper, mentioned undocumented immigrants as participants. This was not an exclusionary criterion for the literature review, but the research on health literacy and undocumented immigrants in the United States is not only limited, but it is non-existent. This is important because much of the poor outcomes, marginalization and social exclusion that is documented because of low health literacy exists on a much larger scale in the United States, when the mere number of undocumented immigrants is considered in the equation.

Familiarity and navigation are a subsection that came to light in this research, as it was found to be an important factor in the extent to which immigrants understand and participate in the healthcare system. These concepts are all related to social determinants of health and encompass the meaning of health literacy, however none of these factors are included in the definitions proposed by any researchers, nor national institutions such as the CDC, who officially define health literacy. Moreover, the influence of health insurance and the navigation of such systems, especially for those whom it is foreign to, is not mentioned in the literature. This again, creates disparity in what health literacy is understood to encompass. An individual's understanding of health insurance surely influences their perceived understanding of access to

health care. However, the literature rarely mentions the concept of *cost* and *perceived cost of care*, as relevant to health literacy.

A review of best practices proposed by the literature suggests linguistic intervention, such as ESL as a vehicle for increased health literacy education. However, there is a lack of suggestions to increase translation services among health care settings, which could increase non-native English speaker's comprehension of information. To include linguistically competent information, not only at a physician's office, but also in public health promotion efforts, could increase its reach, especially in vulnerable populations. This is relatively uncommon in the literature, which further cements the definition of health literacy as limited to the English language and assumes immigrants and non-English speakers have limited abilities in understanding health, simply because of a language barrier.

Additionally, the recommendation proposed frequently in the literature is an increase in collaborative efforts across key actors. The trend amidst research in this field is such that healthcare practitioners, public health practitioners, educators, government agencies, etc. all act separately from one another. Collaborative effort is a reasonable best practice; however, it begs the question of who does the responsibility to create an equitable system of health literacy fall on. This question is not addressed in any of the literature and thus remains a major gap in achieving any change. Researchers can suggest best practices, but without any ownership from involved institutions, no agency is assigned to the matter. Leaving few strategies for implementation, and even less incentive to do so.

Conclusion

All the identified gaps, abovementioned, echo a similar theme, which equates to the main finding of this paper, the discrepancies among health literacy, as it pertains to immigrant communities all stems from a lack of consistency among a definition of the concept. Health literacy, since its inception, has undergone many changes to its meaning and still fails to comprehensively encompass all relevant factors. Although the Healthy People 2030 definition, mentioned previously in this paper, is more suitable for a representative definition, it fails to acknowledge key social determinants that contribute to an individual's understanding of health literacy.

As acknowledged, language and culture are two key components to the ways in which immigrants perceive health, wellness, and care. Health literacy must be contextualized. It is not just a matter of translation and language, but rather a matter of language, context, culture. To understand it as multifaceted in this way, is an important first step. The original definition of health literacy was simplistic and an accommodation to the clinical setting, such that patients were asked to repeat information, without inquiry as to whether they understood it. The reality of health literacy, especially, among immigrant and non-native English speakers is far more intersectional and exists in tandem with other lifestyle factors.

The biggest gap identified through this literature review is the lack of a consistent and comprehensive definition of health literacy. There is no overall approach to health literacy and thus what do we do when people are not familiar with the system is not consistent. Moreover, because there is not a clear definition of health literacy, it makes it difficult to make the concept functional and, more importantly, to have it be classified as a risk factor. The problem identified is two-fold such that, health literacy is in a position to be considered a risk factor, yet it is not. And because health literacy is linked to the use of language, the ways in which it exists in

communities that don't use the dominant language, becomes a problem in itself. Moreover, the lack of a coherent definition limits research and intervention in this field. In sum, health literacy needs to be recognized and treated as a risk factor, because it is a dynamic risk factor, however for that to happen, it must first be properly defined.

An important conclusion to make is that health literacy can neither be all-encompassing, nor too narrow. For decades, it has been limited by its understanding to a clinical setting. This literature review reveals that to be literate in health, is far more than regurgitating doctor's orders. However, for it to be useful health literacy must be understood as an umbrella term under which varying scales of the notion exist. These scales may include clinical encounters, physical and mental well-being perception, insurance, and billing literacy, and so on. If it is understood as a multi-faceted concept, it harbors greater potential to be contextualized accordingly. Moreover, an understanding that is neither so narrow, that it is merely parroting back instruction, nor so broad that is loses meaning, can be useful to educate policy makers, clinicians and all other involved actors and can inspire programs that will support vulnerable populations.

As a conclusion to this literature review, a comprehensive and encompassing definition of health literacy, based on the research reviewed is proposed:

Health Literacy – is the comprehensive and cultural literacy including but not limited to, oral, print and numeracy, of individuals as they understand and interact with U.S. healthcare system. It is a cultural nuance, that calls on health-based institutions to communicate relevant information in sensitive and clear manners, not merely based on one's degree of English proficiency. A clear definition of health literacy across institutions will empower individuals to

comfortably interact with the health care system and it will allow for degree of health literacy to be identified as a dynamic risk factor for vulnerable groups.

Finally, the formation of a comprehensive definition of health literacy will only be impactful if it is universalized. It must be accepted across institutions and said institutions including but not limited to policy makers, clinicians, public health practitioners, educators, etc., must work in collaboration to ensure they share corresponding understandings of the concept. When this is not the case, vulnerable populations, such as the immigrant communities explored in this paper, pay the consequences. Thus, the need to comprehensively address health literacy is not only necessary, but urgent, especially in the light of all the risks faced by vulnerable groups, when this is not the case.

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Appendix A.

Mapping (PubMed)	Mapping (Google Scholar)
Health Literacy (23001)	Health Literacy (3,100,000)
Health Literacy in the US (1549)	Health Literacy (articles 2010-present) (1,160,000)
Health Literacy and Immigrants (550)	Health Literacy of Immigrants (53,600)
Health literacy and immigrants in the US (87)	Health Literacy of Immigrants in the US (48,100)
Health literacy of US immigrants and English proficiency (21)	Health literacy of immigrants' discrimination (18,300)
	Health literacy of us immigrants and health outcomes (18,300)
	Health literacy of us immigrants and marginalization (18,100)
	Health literacy of us immigrants and social exclusion (18,300)
	Health literacy of US immigrants and English proficiency (20,000)

Appendix B.

Citation	Title	Year	Purpose of Study	Major Findings
Becerra, B. J., Arias, D., & Becerra, M. B. (2017). Low health literacy among immigrant Hispanics. Journal of Racial and Ethnic Health Disparities, 4(3), 480-483.	Low Health Literacy among Immigrant Hispanics	2017	This exploratory study aimed to assess the key determinants of low health literacy among immigrant Hispanic adults in California using the California Health Interview Survey.	Findings report low health literacy being associated with living in poverty, lacking consistent health insurance, and limited English language proficiency, while women were less likely than men to report low health literacy.
Calvo, R. (2016). Health literacy and quality of care among Latino immigrants in the United States. *Health & Social Work*, *41* (1), e44-e51.	Health Literacy and Quality of Care among Latino Immigrants in the United States	2016	This paper explores the correlation between levels of health literacy and quality of care among Latino immigrants in the United States by examining data from a nationally representative sample of 2,996 immigrants from the 2007 Pew Hispanic Center and Robert Wood Johnson Foundation Hispanic Healthcare Survey.	The paper finds that immigrants with higher levels of health literacy reported better QoC and that inadequate health literacy influenced immigrants' QoC beyond education and income, English proficiency, health insurance coverage, and having a regular place of care.
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.	Social Determinants of Health and Health Disparities Among Immigrants and their Children	2019	This paper aims to explore the notion of why the immigrant population in the US, especially undocumented immigrants, are one of the most affected in terms of poverty and health disparities.	It's main findings include a plethora of social determinents of health that create health disparities among immigrant populations. These social determinents include: poverty, education, housing insecurity and a lack of resources to navigate the healthcare system effectively.
Chen, X., Goodson, P., Acosta, S., Barry, A. E., & McKyer, L. E. (2018). Assessing health literacy among Chinese speakers in the US with limited English proficiency. HLRP: Health Literacy Research and Practice, 2(2), e94-e106.	Assessing Health Literacy Among Chinese Speakers in the U.S. with Limited English Proficiency	2018	This paper uses a theory-based health literacy assessment survey to identify the mechanisms underlying low health literacy among people with limited English proficiency in the US.	The results found that the participants had significantly higher health literacy scores when assessed in their native language, in this case Chinese. Suggesting that language plays a significant role in the comprehension and interaction with the American healthcare system. It is suggested that health literacy assessments be provided in different languages to gauge more accurate results.
Fernández-Gutiérrez, M., Bas-Sarmiento, P., Albar-Marín, M. J., Paloma-Castro, O., & Romero-Sánchez, J. M. (2018). Health literacy interventions for immigrant populations: a systematic review. International Nursing Review, 65(1), 54-64.	Health literacy interventions for immigrant populations: a systematic review	2018	This paper is a systematic review which aims to identify and analyze interventions directed at immigrant populations to improve the functional (basic reading, writing and arithmetic skills), interactive (social and cognitive skills) and critical (advanced cognitive and social skills in critically analyzing information and making informed decisions) dimensions of health literacy, taking into account the role played by nursing in these interventions.	The results of this systematic review identified a major gap, that being that there were very few specific health literacy interventions for immigrant populations found in the literature (between 2000-2015). The interventions that were identified were positive in improving functional health literacy, but made no strides towards improving interactive and critical health literacy.
Han, H. R., Kim, K., Cudjoe, J., & Kim, M. T. (2019). Familiarity, navigation, and comprehension: Key dimensions of health literacy in Pap test use among Korean American women. Journal of health communication, 24(6), 585-591.	Familiarity, Navigation, and Comprehension: Key Dimensions of Health Literacy in Pap Test Use among Korean American Women	2019	The objective of this study is to examine the various dimensions of health literacy, including print, oral literacy and numeracy, as it related to the effects of cervical cancer screening among Korean American women.	The results of this study found that self-assessment of one's ability to use relevant medical terminologies (familiarity) and one's ability to apply relevant medical terminologies throughout the cancer screening navigational trajectory (navigational literacy) were associated with an increased likelihood of KA women's lifetime Pap test screening.
Jacobson, H. E., Hund, L., & Mas, F. S. (2016). Predictors of English Health Literacy among US Hispanic Immigrants: The importance of language, bilingualism and sociolinguistic environment. Literacy & numeracy studies: an international journal in the education and training of adults, 24(1), 43.	Predictors of English Health Literacy among U.S. Hispanic Immigrants: The importance of language, bilingualism and sociolinguistic environment	2016	The purpose of this study was to examine the predictors of English health literacy among adult Hispanic immigrants whose self-reported primary language is Spanish, but who live and function in a bilingual community	The major finding of this paper is the identification of as English proficiency as the strongest predictor of health literacy. It recommends future research should consider the role of geographic and sociolinguistic environments on health literacy. Such that, levels of health literacy are not solely based on English-proficiency, but are also rooted in health beliefs and practices.
Kim, K., & Han, H. R. (2016). Potential links between health literacy and cervical cancer screening behaviors: a systematic review. Psycho-Oncology, 25(2), 122-130.	Potential links between health literacy and cervical cancer screening behaviors: a systematic review	2016	The purpose of this study is to identify pathways between health literacy and cervical cancer screenings.	Evidence supports a positive link between health literacy and cervical cancer screening. However, there is only limited evidence to delineate indirect pathways linking HL and cervical cancer screening.
Linton, J. M., Green, A., Chilton, L. A., Duffee, J. H., Dilley, K. J., Gutierrez, J. R., ... & Nelson, J. L. (2019). Providing care for children in immigrant families. Pediatrics, 144(3).	Providing Care for Children in Immigrant Families	2019	This paper aims to explore how children of immigrant families may face inequities that can threaten their health and well-being.	It conclude that pediatricians play an essential role in addressing vulnerabilities, minimizing barriers to care, and supporting optimal short- and long-term health and well-being of children of immigrant families within the medical home and in communities across the nation.
Mantwill, S., & Schulz, P. J. (2017). Does acculturation narrow the health literacy gap between immigrants and non-immigrants—An explorative study. Patient education and counseling, 100(4), 760-767.	Does acculturation narrow the health literacy gap between immigrants and non-immigrants—An explorative study	2017	The objective of this study was to compare functional health literacy levels in three immigrant groups to those of the German- and Italian-speaking non-immigrant population in Switzerland.	The researchers found that of the three groups, Albanian- and Portuguese-speaking immigrants had lower levels of functional health literacy. Also that age when taking residency in Switzerland was associated with the their health literacy levels.

Mantwill, S., & Schulz, P. J. (2017). Low health literacy and healthcare utilization among immigrants and non-immigrants in Switzerland. Patient education and counseling, 100(11), 2020-2027.	Low health literacy and healthcare utilization among immigrants and non-immigrants in Switzerland	2017	This study examines the relationship between low health literacy and healthcare utilization among immigrants and non-immigrants in Switzerland.	In assessing the health literacy and utilization of health services of immigrant versus native groups, the researchers found that functional health literacy is directly related to healthcare utilization. Higher levels of health literacy were associated with overutilization of health services, possibly due to a degree of consciousness of accessibility of resources. This study also identified that aside from immigration status, region of residence was an effect modifier, meaning it had some significance in the results.
McKee, M. M., & Paasche-Orlow, M. K. (2012). Health literacy and the disenfranchised: The importance of collaboration between limited English proficiency and health literacy researchers. Journal of health communication, 17(sup3), 7-12.	Health Literacy and the Disenfranchised: The Importance of Collaboration Between Limited English Proficiency and Health Literacy Researchers	2012	This paper explores the gap wher researchers in health literacy and limited English proficiency rarely collaborate despite the notion that inadequate health literacy and limited English proficiency are associated with poor health care access and outcomes.	It concludes that it is critical for health literacy and limited English proficiency researchers to work together to understand how culture, language, literacy, education, and disabilities influence health disparities and health outcomes. It is important to ensure that research is collaborative and inclusive in order to broaden the reach of future interventions to smaller linguistic minority populations.
Rikard, R. V., Thompson, M. S., McKinney, J., & Beauchamp, A. (2016). Examining health literacy disparities in the United States: a third look at the National Assessment of Adult Literacy (NAAL). BMC Public Health, 16(1), 1-11.	Examining health literacy disparities in the United States: a third look at the National Assessment of Adult Literacy (NAAL)	2016	This paper analyzs data from nearly 15,000 respondents of the 2003 National Assessment of Adult Literacy, in order to understand how indicators of social inequalities contribute to understanding disparities in health literacy.	The results provide strong evidence that disparities in health literacy cut across demographic and socioeconomic groups, level of civic engagement through voting and volunteering, and available social resources
Santos, M. G., Handley, M. A., Omark, K., & Schillinger, D. (2014). ESL participation as a mechanism for advancing health literacy in immigrant communities. Journal of health communication, 19(sup2), 89-105.	ESL Participation as a Mechanism for Advancing Health Literacy in Immigrant Communities	2014	This study examines the practicality of the implementation of health literacy in an ESL program. The researchers examined teacher survey data and learner outcomes data collected as part of a multiyear collaboration involving the California Diabetes Program, university researchers, and adult ESL teachers.	The paper found that the majority of learners reported they had learned about diabetes risk factors and prevention strategies. Additionally, two thirds of the learners reported sharing preventive health content with members of out-of-school social networks. Suggesting the adult English-as-a-second-language (ESL) system is an untapped resource in the effort to address health literacy disparities among underserved immigrant populations.
(2009). The role of health insurance in explaining immigrant versus non-immigrant disparities in access to health care: comparing the United States to Canada. Social science & medicine, 69(10), 1452-1459.	The role of health insurance in explaining immigrant versus non-immigrant disparities in access to health care: Comparing the United States to Canada	2009	Using a cross-national comparative approach, this study examined the influence of health insurance on U.S. immigrant versus non-immigrant disparities in access to primary health care.	Findings suggest health care insurance is a critical cause of differences between immigrants and non-immigrants in access to primary care, lending robust support for the expansion of health insurance coverage in the U.S. This study also highlights the usefulness of cross-national comparisons for establishing alternative counterfactuals in studies of disparities in health and health care.
Soto Mas, F., Mein, E., Fuentes, B., Thatcher, B., & Balcázar, H. (2013). Integrating health literacy and ESL: An interdisciplinary curriculum for Hispanic immigrants. *Health promotion practice*, *14* (2), 263-273.	Integrating Health Literacy and ESL: An Interdisciplinary Curriculum for Hispanic Immigrants	2013	This article explores the approach of combining health literacy and English as a second language (ESL) as a potential to addressing health literacy and language needs of the Hispanic population in the United States.	The evaluation of a ESL and health literacy curriculm results in a positive attraction to the program on the part of participants, and also a perceived learning experience. It concludes that ESL can be one vehicle to better the health literacy of the immigrant population, as long as it is conducted in an audience-centered approach that is needs based.
Zanchetta, M. S., & Poureslami, I. M. (2006). Health literacy within the reality of immigrants' culture and language. *Canadian journal of public health*, *97* (2), S28-S33.	Health Literacy Within the Reality of Immigrants' Culture and Language	2006	This paper presents key points on culture, language and health literacy presented at the Secondary Canadian Conference on Literacy and Health. It aims to introduce the presenters' ideas, reports of the learners' discussion, and attendees' recommendations. There is also a literature review of the links between health literacy and use of health services among newcomers in Canada.	In an evaluation of the experiences of newly arrived immigrants to Canada, the researchers identify a shared experience of unfamiliarity with the Canadian health care system especially in terms of navigation of resources. Moreover, the literature review finds the most cited reasons for newcomers not seeking health services as: barriers to access, lack of information about certain health services, use of herbalist or alternative providers and lack of culturally sensitive health services for ethnic communities.
Zhang, N. J., Terry, A., & McHorney, C. A. (2014). Impact of health literacy on medication adherence: a systematic review and meta-analysis. Annals of Pharmacotherapy, 48(6), 741-751.	Impact of Health Literacy on Medication Adherence: A Systematic Review and Meta-analysis	2014	The objective of this study was to systematically review the literature and estimate the effect size of the relationship between health literacy and medication adherence through meta-analysis.	The major findings suggest the relationship between health literacy and medication adherence is statistically significant but weak. It is plausible that health literacy has a mediator relationship with other adherence determinants.