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MEASURING CULTURAL HUMILITY OF COMMUNITY HEALTH WORKERS

NAYEEMA AHMED
UTHealth School of Public Health

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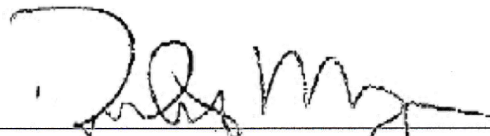
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Measuring Cultural Humility of Community Health Workers

by

NAYEEMA AHMED, MPA, MS, DRPH CANDIDATE

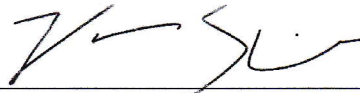
APPROVED:




ROBERT O. MORGAN, PHD
ACADEMIC ADVISOR/COMMITTEE CHAIR



MARIA E. FERNANDEZ, PHD
COMMITTEE MEMBER



VANESSA R. SCHICK, PHD
COMMITTEE MEMBER



ROSALIA GUERRERO, MBA, CHWI
COMMITTEE MEMBER

DEAN, THE UNIVERSITY OF TEXAS
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COMMITTEE MEMBER

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SCHOOL OF PUBLIC HEALTH

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by
Nayeema Ahmed, MPA, MS, DrPH
2020

DEDICATION

To my parents, for always believing in me.

MEASURING CULTURAL HUMILITY OF COMMUNITY HEALTH WORKERS

by

NAYEEMA AHMED
MPA, UNIVERSITY OF DHAKA, 2006
MS, UNIVERSITY OF MINNESOTA, 2011

Presented to the Faculty of The University of Texas

School of Public Health

in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PUBLIC HEALTH

THE UNIVERSITY OF TEXAS
SCHOOL OF PUBLIC HEALTH

Houston, Texas

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This research could not have reached to this point, without the unconditional love from my parents, Gul Anar Ahmed and late Ansar Uddin Ahmed. Thanks for always believing in me. I am truly thankful to my brother Emran Ansari for his continuous support and encouragement. I also extend my heartfelt gratitude to my sister Naila Ahmed for satisfying all my childhood inquisitiveness with patience. A special thanks goes to my husband Samiul Islam for his countless sacrifices that kept me going during good and bad times. I want to thank my Aunt Hafiza Begum for her genuine love to me. Lastly, I could not have finished this without my son Zarif Zakaria who came to us as a piece of sunshine during my doctoral studies. His innocent smiles inspired me during the last leg of this long journey.

Finally, I want to thank sincerely to the Department of Management, Policy, and Community Health of University of Texas School of Public Health, for funding this research, and UT Physicians for their kind approval to grant me access in their multiple clinics.

Measuring cultural Humility of community health workers

Nayeema Ahmed, MPA, MS, DrPH
The University of Texas
School of Public Health, 2020

Dissertation Chair: Robert O. Morgan, PhD

This study examined cultural humility of community health workers (CHWs) in ambulatory clinical settings. Cultural humility has been defined as an attitude, or process that incorporates openness, power-balance, and critical self-reflection when interacting with people of cultural differences. It differs from the more well-known concept of cultural competence in that cultural humility is not culture specific and reflects provider attitudes and an orientation towards recognizing differences rather than specific knowledge about another culture. As such, cultural humility may lend itself to improving the care process across diverse patient populations.

The literature on cultural humility and its relationship with CHWs is relatively new. This study explores three key questions that are yet unaddressed regarding the study of cultural humility. First, it is assumed that client ratings of a provider's cultural humility are more accurate than provider self-ratings. However, correspondence of client-ratings and provider self-ratings has not been explicitly examined. Second, no study has empirically explored the relationship of cultural humility of CHWs with linguistically discordant patients. Third, the level of client or self-rated cultural humility, has not been empirically linked to measures of client experience with care.

To measure the cultural humility of CHWs, 19 CHWs and 57 corresponding clients were surveyed from 12 ambulatory clinics. It was found that cultural humility scores reported through two modes of assessments differed significantly ($Z=3.1/p=.0019$). CHWs consistently under-rated their cultural humility. Furthermore, linguistically concordant clients did not significantly differ from linguistically discordant clients in the way they scored the cultural humility of their CHWs ($p=0.525$). Additionally, cultural humility was found to be a significant predictor of patient experience ($aOR=1.18$; $[1.01-1.37]$). Future studies can explore similar relationships of cultural humility with different cultural identities and health outcomes.

Findings of this study support the foundational claim that humility measures should take an approach of multiple raters' consensus for more accurate results. Findings also imply, cultural humility may potentially reduce interpersonal gaps created due to cultural differences. The last finding of this study was consistent with the hypothesis that higher ratings of cultural humility would be positively related to improved health outcomes. Overall, findings of this study are consistent with the growing knowledge that suggests cultural humility should be an integral part of any healthcare service training.

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BACKGROUND

Introduction:

The United States (US) is one of the most diverse countries in the world. The US Census Bureau projects Hispanic and Asian populations to double by 2060, and other ethnicities to increase significantly in number as well during the same time. Moreover, the number of people over 65 will double and those who are above 85 will triple (US. Census Bureau, 2012). Although immigration is integral to American society, it has a long history of divisiveness and inequality that continues to be reflected in current health policies and practices (Jackson, 2012; Sue et al., 2007). In recent years, healthcare access and quality have been improved, but the lack of parallel gains in access and quality across groups has resulted in continued disparities (Riley, 2012). Health disparity exists not only based on race and ethnicity but also on nationality, immigration status, gender, age, religion, sexual identity and other cultural identities of lives (Franzini, Ribble, & Keddle, 2001; Franzini, Ribble, & Wingfield, 2005; Iyer, Sen, & Östlin, 2008).

To promote health equality and reduce disparity, Community Health Workers (hereafter CHWs) play an important role by assisting individuals and families accessing essential health services, facilitating support groups, or engaging people to participate in community campaigns (Miller, Avila-Esparza, & Berthold, 2009). The American Public Health Association's classification defines CHWs as "a frontline public health worker who is

a trusted member of the community served. This trusting relationship enables the worker to serve as a link between health/social services, and the community to facilitate access to services and improve the quality and cultural competence of service delivery” (APHA, 2020). As a result, CHWs ensure that culturally appropriate quality care is received by being a bridge that links community members to essential health services (Gwede et al., 2013; Cherrington et al., 2008; Wells et al., 2011). Indeed, this is one of the primary reasons why CHWs are hired (Miller et al., 2009). This role enables CHWs to address the social determinants of health where the healthcare system may fall short due to lack of time, cultural skills, and community linkages (Malcarney, Pittman, Quigley, Horton, & Seiler, 2017).

Addressing health disparity requires examination of the context and culture of those experiencing the disparities, because life style behaviors that take place outside of the healthcare system are largely influenced by cultural identities and backgrounds (Dutta, 2007). Hidden and internal aspects of culture govern human behaviors (Sabella & Hall, 1978). In recent times, the American Association of Community Health Workers’ newly developed code of ethics underscored the importance of cultural humility. Cultural humility of CHWs guides the manner in which cultural interactions between a CHW and a client should take place (Knettel, Slifko, Inman, & Silova, 2017). Multicultural literature defines cultural humility as an attitude/process which incorporates openness, power-balance, and critical self-reflection when interacting with people of cultural differences (Tervalon & Murray-García, 1998). It differs from the well-known concept of cultural competence in a

way that cultural humility is not culture specific, and reflects CHWs own attitude and orientation towards recognizing differences rather than specific knowledge about another culture. As such, cultural humility may help to improve the care process across diverse patient population.

The cultural humility of a CHW can be measured from relational (client rated) as well as self-rated perspective. Relational humility is defined as an observer's (i.e., client's) judgement that a target person (i.e., a CHW) is interpersonally other-oriented, marked by lack of superiority and an accurate view of self (Davis et al., 2013). The relational model takes up an approach of using consensus of multiple raters in assessing humility. Many researchers doubt the self-report component of cultural humility since humble people may modestly underreport and moderately humble people may overestimate their humility during self-reporting (Davis, Hook, et al., 2011). However, the modesty effect that is assumed to threaten the accuracy of self-reports of cultural humility has not been empirically tested (Davis, Hook, et al., 2011). Measuring cultural humility by client assessments can be time consuming and expensive, and it can impose extra challenges during data collection and analysis phases. If cultural humility scores measured by self and client-ratings adequately match with each other, self-rating might be substituted for client rating and would be easier to apply and operate.

Besides the measurement issues mentioned above, one essential culturally appropriate service provided by CHWs is language services. Being able to speak the same language and

dialect of clients have consistently been shown to be effective in reducing communication barriers (Ngo-Metzger et al., 2007; D. Lairson, Chang, Byrd, Smith, & Wilson, 2010; Fernández et al., 2009). While previous work confirmed that language services serve the needs of linguistically concordant clients successfully, no work exists that compares differences in cultural humility scores of CHWs obtained by self and client ratings between linguistically concordant and discordant clients. This study will investigate this comparison after adjusting for the socio-economic and demographic characteristics of clients.

Another major challenge of existing cultural humility research is its subjective and theoretical nature. Few studies have linked cultural humility to patient outcomes, let alone measuring it quantitatively in the context of CHW services (Hook et al., 2016). In order to further cultural humility studies in the context of the CHW field, there is a great need to empirically link cultural humility to outcome research. Fortunately, research findings have confirmed that CHWs improve disease outcomes for patients with asthma, hypertension, diabetes, cancer, TB, HIV/AIDs and depression (Kangovi. S., Grande. D., Trinnh-Shevrin. C., 2015). However, limited studies exist that focus on a specific competency of CHWs that contributes to their effectiveness. Therefore, this study will directly address the extent to which cultural humility may predict overall patient (client) experience.

LITERATURE REVIEW

Culture & Multiple Cultural Identities:

Culture is defined by a renowned medical anthropologist as “a set of guidelines that individuals inherit as members of a particular society” (Helman, 1984). It includes beliefs, values, and attitudes shared by the members of a particular group. However, this definition, that considers culture as a fixed set of characteristics has largely been abandoned. Instead, contemporary anthropology depicts culture as a flexible and ongoing process of transmitting knowledge (Kirmayer, 2012). Moreover, culture is considered as information that are learned socially (Matthews, Brown, & Kennedy, 2018).

Brach and Fraserirector (2000), conceptually linked use of culture and culturally competent CHWs in reducing health disparities (Brach & Fraserirector, 2000). CHWs serve clients and communities with cultural backgrounds and identities that are different from their own (Miller et al., 2009). Even if CHWs work within the community they share with their clients, differences may exist based on generational, economic, professional, racial, religious, or linguistic backgrounds, gender and gender identity (Miller et al., 2009; Arvey & Fernandez, 2012). The majority of CHW studies recognize the cultural mediation role of CHWs, but they often equate cultural competence with either language proficiency or shared racial identity (Carney et al., 2014; Braun et al., 2015; Wennerstrom et al., 2018; Cheun & Loomis, 2018). Theoretically, this embeds a problematic assumption of what constitutes

culture and the cultural mediation role for CHWs (Kumaş-Tan, Beagan, Loppie, MacLeod, & Frank, 2007; Arvey & Fernandez, 2012). This premise then runs the risk of reinforcing cultural stereotypes and biases, which may ultimately misdirect the application of cultural competence education of health professionals (Gregg & Saha, 2006).

Cultural Role, Skill, Quality, & Competence:

The National Community Health Advisor Study (NCHAS) was carried out from 1994 to 1998 to distinguish CHWs' core roles from the skills and qualities (Rosenthal, 1998). In 2014, many of the research team members that contributed to NCHAS formed Community Health Worker Common Core (C3) to follow-up the CHW roles, skills and qualities that had been changed since 1998 (Rosenthal et al., 2016). This study updated cultural mediation and dissemination of culturally appropriate information as major CHW roles for outreach, health education, client centered counseling, case management, community organization, and advocacy. While the duties of an individual CHW position may not require all the roles, skills or qualities as mentioned by C3, a key common aspect of CHW positions in both patient and community centered delivery settings is effective interpersonal communication. Specially, C3 project defined *competency* as a combination of both skills and qualities. *Skills* are defined as something that individuals are capable of doing because they have learned so, whereas qualities are defined as personal characteristics or traits that can be enhanced but not taught. Competencies refer to things that people are able to do and can be objectively measured. However, although strong emphasis was put on the ability of cultural competence

for effective communication in previous studies, attempts to measure this key ability remained largely untapped in CHW field.

Cultural Competence & Cultural Humility:

Many cultural humility research studies have compared and contrasted cultural humility from other relevant terms such as cultural competence (Worthington, Davis, & Hook, 2017) .

Although cultural competence is a widely used framework for health professional mandates, humility scholars have challenged the concept for its over emphasis on achieving competence on the culture of “others” (clients) (Kumaş-Tan et al., 2007; Yeager & Bauer-Wu, 2013). The dilemma with this approach is that it does not incorporate the health professional’s own self-awareness and reflection on culture into the framework. In fact, the most influential tripartite model of cultural competence developed by D.W Sue, Arredondo and McDavis (1992) consisting of attitudes, beliefs, and knowledge and skill; has been criticized for stressing more on racial identity over other identities of lives. In reality, human health needs cannot fit into one of the five race-based groups as proposed by Sue et al., (Ridley, Baker, & Hill, 2001). Moreover, focus on “others” assumes locus of “normalcy” is White, which has been criticized intensely by many researchers (Fisher-Borne, Cain, & Martin, 2015).

As a result, Tervalon and Murry Garcia provided a re-visioning of cultural competence with cultural humility (Tervalon & Murray-García, 1998). Many scholars have seen cultural humility either as an alternative (Fisher-Borne et al., 2015), an apposition (i.e., side by side) (Campinha Bacote, 2019) or as a complement to cultural competence (Yancu,2017) . Cultural competence literature assumes healthcare professionals can learn a

quantifiable set of attitudes and skills to be culturally effective with their patients. The notion that someone could be perfectly competent on another culture is unrealistic and simplistic in nature (Azzopardi & McNeill, 2016). Cultural humility, on the other hand, is not defined by an end point of knowledge/skill acquisition (Mosher et al., 2017). It involves a life-long process of learning through exploration, listening emphatically, and being mindful of one's own biases. Tervalon (1998) challenges traditional notion of competence by asserting that a finite body of knowledge of culture cannot effectively serve culturally diverse patients. Cultural competency trainings may cause more harm than good because they tend to teach definitive information about specific cultural groups. The key assumption behind this thought process is that once CHWs have gained knowledge for example, on diet, death or sexuality of a specific cultural group, they become equipped to provide culturally competent services to that particular group. There is no harm to have knowledge-based training on specific cultural norms and health beliefs, but serving people based on cursory physical traits and limited knowledge foster cultural stereotypes that have already proven harmful in the past, as it tends to promote the idea that people can reach a certain place after training where they are "competent". However, in reality, there exists a range of diversity in "between" and "within" cultures. Within culture differences may originate from different immigration patterns, level of acculturation, and socio-economic status (Arvey & Fernandez, 2012). Contrary to traditional cultural competency models, the Tervalon model places greater emphasis on life-long commitment to self-reflection and critique, openness, power balances; and asserts less importance on knowledge and technical aspects of competence (Prasad et al., 2016). Under such circumstances, the self-reflection component of cultural humility is more important

because CHWs have their own cultural beliefs and cannot be assumed a-cultural in nature. Findings from a qualitative study indicate training on cultural humility can successfully enhance communication skills, knowledge on health inequities, and awareness of individual self-privilege (Ross, 2010).

Types of Cultural Humility and Cultural Openness:

The cultural humility can be both intrapersonal and interpersonal that may impact all kinds of human relationships. On the intrapersonal level, humility incorporates an accurate view of self that can involve limitations of one's own worldview and limitations in one's own ability to understand the cultural backgrounds of others. On the other hand, at the interpersonal level, humility involves a stance that is other oriented which involves openness to the differences (Hook, Davis, Owen, Worthington, & Utsey, 2013).

Recent cultural humility literature finds cultural openness is more important than other components of cultural humility, e.g., cultural knowledge or skill. As such, cultural humility has been defined as the “ability to maintain an interpersonal stance that is *other oriented, or to be open to other* in relation to the aspects of cultural identity that are most important to the clients” (Hook et al., 2013). According to this definition, a CHW must be able to overcome the natural tendency to view his/her own beliefs, values and worldviews as superior; and instead be open to beliefs, values, and worldview of the client. Having openness is one of the critical first steps in initiating the process of cultural humility (Foronda, Baptiste, Reinholdt, & Ousman, 2014). Ridley et al assert that understanding a

client based on cultural background alone is not possible, rather a CHW should adopt cultural openness when engaging with clients from diverse backgrounds (Ridley, Mendoza, Kanitz, Angermeier, & Zenk, 1994). In this way they will be able to tap into the complex formation of client identities.

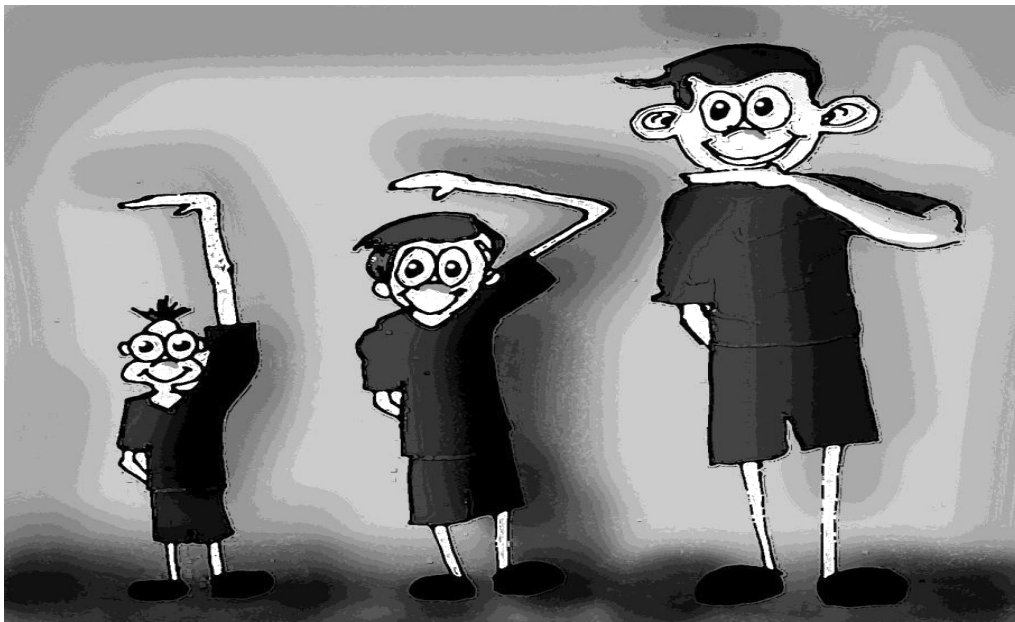


FIGURE 1: THREE PEOPLE WITH DIFFERENT LEVELS OF ACTUAL HUMILITY MIGHT REPORT THE SAME SCORE ON A HUMILITY MEASURE (ADOPTED FROM DAVIS ET AL. 2011)

Measurement & Application Concerns about Cultural Humility:

Concerns around measurement of cultural humility mainly include problems with the validity of self-reports. When self-reporting, individuals may over-state their cultural humility due to a bias towards providing socially desirable answers. Those who are truly humble will

underreport, a modestly humble person will self-enhance to some degree; and those who are high in narcissism will self-enhance to a great extent in their responses (Lopez & Snyder, 2012). This effect is known as “modesty effect” and is different from “social desirability”. The modesty effect predicts that actual humility will be inversely related to self-enhancement, which is a key reason why scholars suggest humility to be measured from a relational perspective (Davis et al., 2011). Davis illustrates the problem in Figure 1. The study of humility had a slow take off because of this validity concerns on self-reports. As modesty effect of cultural humility measure has not been tested empirically, a side by side comparison of cultural humility scores obtained through self and client reports can offer broader insights on validity issues of measuring cultural humility (Davis et al., 2013).

Recently, two studies have linked cultural humility with health outcomes, including, improvements in psychotherapy and hospital safety (Hook et al., 2013; Hook et al., 2016; Hook, Davis, Owen, & DeBlaere, 2017). Authors of the only study that linked cultural humility to hospital safety recommend future studies on this field need to include demographic profiles such as age, gender and socio-economic status of study participants, because the majority of published studies on cultural humility don’t report demographic and socio-economic characteristics of the study participants (Hook et al., 2016). Ideally, such inclusion of socio-economic and demographic characteristics of participants into research models will provide an in-depth context of findings on cultural humility. Rigorous research that carefully operationalizes cultural humility with health outcomes is urgently needed to add evidence of its effectiveness. Therefore, this study plans to address this need and link CHW cultural humility with patient experiences by a

recently developed generic tool on patient experience. Patient experience is one of the fundamental outcome measures of patient-centered care, and is increasingly being used as a means of quality assessment (Edwards, Walker, & Duff, 2015). A strategic goal of Agency of Healthcare Research and Quality (AHRQ) is to support improvements in outcome measures.

Cultural Humility and Language Discordance:

CHWs who speak the same language with their clients are effective in disseminating health messages and recognizing the underlying reasons why clients accept or reject certain health messages and behaviors. While language services of CHWs has been an effective tool to improve health outcomes of diverse populations, it is not clear if CHWs can be effective in interacting with people with language discordance (Ngo-Metzger et al., 2007; D. Lairson et al., 2010; Fernández et al., 2009). Nationwide, approximately 18% of the Americans speak languages other than English in their homes (John-Baptiste et al., 2004). Despite increasing multiculturalism in the United States, the potential of cultural humility on language difference had little research attention. Previous studies in clinical settings have shown language discordance is associated with poor health outcome and quality of health care (Sarver & Baker, 2000; Chan et al., 2010; Baker, Parker, Williams, Coates, & Pitkin, 1996). Language discordance occurs when a patient demonstrates certain level of proficiency in the language(s) spoken by healthcare providers.

Public Health Significance

Established health professions, such as-medicine, social work and nursing, have well developed scope of practice guidelines. Because CHW field is relatively new and evolving, there are areas/topics that require additional consideration of research. In order to fully understand and translate cultural humility into practice, developing clear guidelines based on evidence for CHWs is required ((Miller et al., 2009; Knettel et al., 2017). Cultural humility is a key defining characteristic of the CHWs, and as such requires an in-depth study due to the complexities that the construct “culture” offers and the unique cultural mediation role that CHWs play.

Measuring cultural humility is a logical first step of CHW performance assessment because there is a shift in CHW employment settings from community-based organizations (CBOs) to clinical settings (hospitals, healthcare systems), where they are expected to serve individuals from multiple cultural backgrounds and roles (Arvey & Fernandez, 2012). Recent findings show 58% of CHWs are employed by the clinical entities led by hospitals/health systems, health plans or healthcare provider/clinics (Malcarney et al., 2017). Employers who directly hire CHWs value formal training more highly than the peer status alone; as CHWs own cultural prejudices, values and beliefs run the risk of guiding their work, and can work against the welfare of clients (Malcarney et al., 2017). Based on this study results, public health researchers, practitioners, and employers will be able to choose the appropriate mode of assessing cultural humility of CHWs working in clinical settings.

It is still unclear, if the effectiveness of CHWs differ when the work settings change. There is little evidence of comparative effectiveness of CHWs working in neighborhood settings (i.e., community outreach) as opposed to those working in clinical settings (Arvey & Fernandez, 2012). By linking cultural humility with patient outcomes, this study for the first time will demonstrate the potential effectiveness of cultural humility of CHWs in clinical setting.

Findings of this study may establish cultural humility as a robust tool to be used even when there is language discordance between a CHW and a client. Results of this current study will create an evidence base for the need of CHW trainings on cultural humility to effectively serve linguistically discordant patients. CHWs who have non-discriminatory attitudes may not be adequately humble and effective, if they are not trained to learn when their actions or inactions are needed to support the best interest of a client.

RESEARCH QUESTIONS OR OBJECTIVES

Objective 1: To demonstrate correspondence of assessing cultural humility of CHWs by self and client ratings.

Objective 1.1: To assess if the difference in score of cultural humility between each client and a corresponding CHW differ between linguistically concordant and discordant clients after controlling for client socio-economic and demographic factors.

Objective 2: To examine the relationship of client rated cultural humility with patient experience.

CONCEPTUAL FRAMEWORK

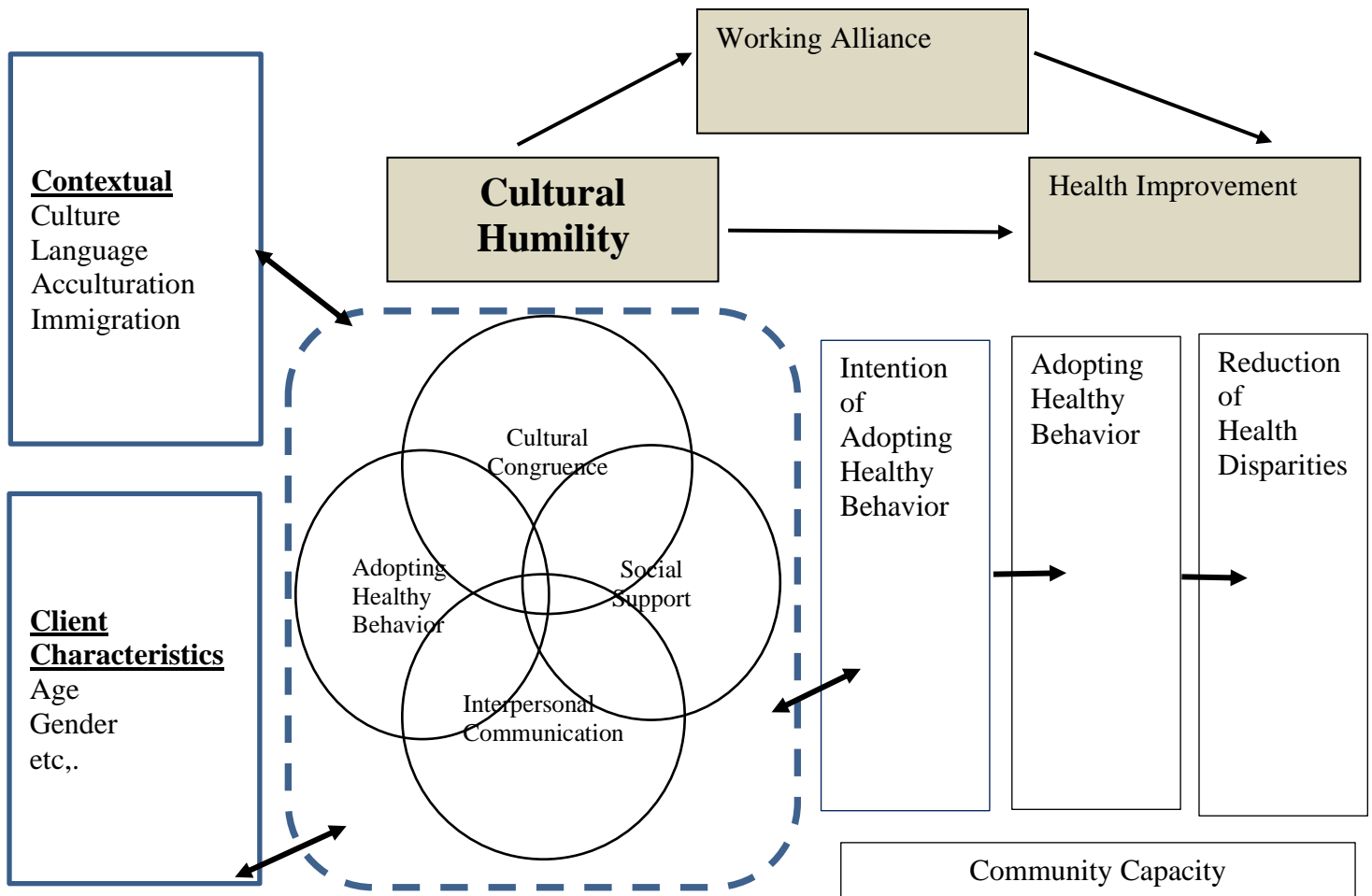


FIGURE 2: A CONCEPTUAL FRAMEWORK EXPLAINING CHW CULTURAL HUMILITY ROLE WITH HEALTH IMPROVEMENTS

The above proposed conceptual framework of this study is mainly adapted from a recent conceptual model developed by Katigbak and colleagues to explore the mechanisms and processes through which CHWs produce results (Katigbak, Van Devanter, Islam, & Trinh-Shevrin, 2015). The comprehensive theme, guided by Social Cognitive and Social Support Theory¹, frames CHWs and patients as partners, as the common goal of both of these entities is health improvements. Four mutually interacting factors - *cultural congruence* with clients, *interpersonal communication* to build trust and support, assisting in *adoption of health behaviors*, and providing *social support* to access resources characterize the processes of CHWs facilitating health improvements. In their various roles, CHWs function as a part of an open system influenced by both client characteristics (e.g. age, gender.) and contextual factors (e.g. culture, immigration, language and acculturation).

Among the four mutual factors mentioned above, cultural humility of CHWs best matches with cultural congruence and interpersonal communication components of the Katigbak et al. framework. Cultural congruence as it stands in the Katigbak model may be developed by keeping in mind the common cultural values that CHWs share with their clients in community settings. However, CHWs who work in clinical settings do not always share

¹ Social Cognitive Theory posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. Social support is defined as assistance exchanged through social relationships and interpersonal transactions, and includes four distinct types of support: (a) emotional support, including expressions of empathy, trust, caring, (b) instrumental support including tangible aid or service, (c) appraisal support, including information that is used for self-evaluation, and (d) informational support, including advice, suggestions, information

cultural congruence with their clients. Therefore, in addition to Katigbak model, Hook's model of cultural humility that describes the process modality of how cultural humility is linked to health outcomes is combined. Hook and colleagues illustrate the mediator effect of working alliance on the relationship between cultural humility and health improvements. A client's perception of cultural humility as it relates to the CHWs, depends on the development of a mutual working alliance. Cultural differences between a CHW and a client can make a working relationship conflicting. Cultural humility counterbalances this tendency by the formation of working alliance. Katigbak model of CHWs and the cultural humility framework proposed by Hook et al., (boxes in Grayscale) are combined in **Figure 2** as they together connect CHW and client factors with cultural humility.

METHODS

Study Design:

To achieve the aim of this study, a cross-sectional study design was adopted. After obtaining the Institutional Review Board (IRB) approval, a convenience sample of study participants were recruited from 12 locations of UT Physicians ambulatory clinics (Appendix B).

Selection of study sample from UT Physician clinics deemed appropriate as they provide comprehensive services that meet the healthcare needs of wide range of diverse patients.

CHWs serving multicultural patients in these clinics were expected to be more familiar with cultural humility than those who work in community settings with shared cultural identities.

In UT Physician clinics, CHWs work alongside a team comprised of physicians, nurses and other allied healthcare workers. One of the key job responsibilities of CHWs at UT Physician clinics include establishing a working alliance with care team and patients. They develop one to one relationship with their clients. Patients that are identified for case management at UT Physician clinics due to a chronic illness or social needs are paired with a CHW who use their skills to assist patients carry out their case management plans. They coach patients in effective disease management and track progress over time. They also assist patients by providing culturally appropriate health information on disease prevention and by updating knowledge on community needs and resources available. This requires CHWs to have extensive knowledge on healthcare system of resource availability in communities. Regular on the job trainings for CHWs are arranged, so that they can develop skills and competencies linked to their activities. These trainings are often administered by CHW coordinators in the form of mentoring. CHWs at UT Physician Clinics deliver phone appointment reminders and coordinate available transportation options for patients when necessary. By gathering information about patients' home environment that may affect patient medical conditions, CHWs connect patients to utilize eligible resources and programs. A social worker or clinical case manager usually supervises a CHW's functions.

Given that the first objective of this study measured cultural humility of CHWs by self and client ratings, survey responses were collected from CHWs and their corresponding clients. Similarly, observations were collected from both groups of CHWs and their clients for objective 1.1. However, for second objective, only client responses were used.

Sample Size and Recruitment Procedure

To operationalize the study objectives, a convenience sample of 19 CHWs were recruited from UT Physicians clinics, affiliated under the John P. and Katherine G. McGovern Medical School at the University of Texas Health Science Center at Houston (UT Health). The Healthcare Transformation Initiative (HTI) Department of UT Physicians, mainly responsible for quality, clinical effectiveness, and access to primary and specialty care, has successfully developed a model to incorporate CHWs into caregiving teams to make healthcare patient-centered, affordable and accessible to the people of Southeast Texas. At the time of UTP approval, 27 FTE CHWs worked as members of patient-centered care teams in multiple locations of UTP clinics.

Among the 27 CHWs, 6 CHWs did not meet the eligibility criteria to self-report their cultural humility for Objective 1 and 1.1. All individuals working at UTP clinics with a job title of Community Health Worker were eligible to participate. During data collection 2 FTE CHWs became ineligible to participate as they were advanced to different positions within UT Physicians clinics. CHWs working at pediatric specialties were excluded from participation because of the unique challenge posed by pediatric clients. Pediatric clients are minors and cannot take independent decisions without the involvement of third parties; who are usually the parent or legal guardians. As such, 4 CHWs did not meet the eligibility criteria to participate as they were assigned to serve in pediatric specialties. Since the design of this study required direct responses from the clients, allowing indirect responses from third

parties could introduce inconsistencies in findings from client ratings. Additionally, indirect responses from third parties could have added an extra layer of analytical challenge due to the hierarchical nature of data. Out of the remaining 21 eligible CHWs, 19 could complete self-rating their own cultural humility. Two eligible CHWs could not participate because they were working in clinics with heavy workloads.

For Objectives 1, 1.1 and 2, a total of 57 (=19X3) clients were surveyed to rate cultural humility of 19 CHWs. The proponents of relational humility recommend at least two patients who have received services from a same CHW are required to make valid estimation of cultural humility by client ratings (Davis et al., 2013). However, they also strongly assert that increasing number of clients, from 2 to 3 per CHW can notably increase the validity of the study instruments. In UTP clinics, a patient paired with a CHW is followed up in subsequent visits by the same CHW.

Data Collection

Before the actual data collection could start, a pilot test was conducted to pretest the format, flow and accuracy of the survey instruments among 1 pediatric CHW and 3 pediatric parents. Pilot test findings neither suggested any major adjustments into the survey instruments nor revealed any unforeseeable challenges during the trial run.

CHWs completed online surveys via Qualtrics and clients completed their surveys on-site at the clinics. No follow-up surveys were conducted with either CHWs or clients. The Principal Investigator (PI) of this study sent out online survey links to CHW office email addresses, so that CHWs could complete the surveys at their own pace. The PI administered paper-based client assessment surveys on-site. For client assessments, clients who were 18 years of age or older; could read and write English; and received either face to face, or telephone services, or both; from the corresponding CHWs were recruited. Clients under 18 were excluded as their participation required consent from their legal representatives. Additionally, patients who could not read or write English and had received interpreter services were excluded as the survey instruments were only available in English. The PI pre-scheduled visits at UT Physicians clinics to collect responses from the clients. Client surveys were anonymous. Every client was given an assigned unique number for preserving participant anonymity. While client assessments were anonymous, CHW self-assessments were not. CHW names served as common identifiers between CHWs and their clients. Clients were selected on site by following a systematic random selection (i.e., every alternate patient) process. The PI visited clinic waiting rooms on pre-scheduled dates and every alternate client walking into the clinic was asked if that client had received services from a CHW. If a client received services from a CHW but did not agree to participate or meet the inclusion criteria, the next in line of random selection process was approached for survey participation. This process continued until the goal of 3 client assessments per CHW was reached. Verbal consents from clients were obtained before a client could start his or her survey. Separate informed consents were added at the beginning of both survey instruments

that clearly stated the study objectives and the participant right to leave the survey at any time or for any reason.

Each CHW and participating client received \$10 gift cards separately on-site for survey completions. Although CHW surveys were completed online, their gift cards (\$10 each) were distributed on the same designated dates and sites where client surveys were administered.

Measurements:

Community Humility Scale:

A 12 item Cultural Humility Scale (CHS) was used to assess CHW total cultural humility score by self and client ratings (Hook et al., 2013; Owen et al., 2014). After obtaining an approval from the scale developers, CHS has been modified for self-reporting as the tool is originally developed for client ratings only (Appendix A). CHS is a brief tool in which, at the beginning participants are asked to report their perceived most important central cultural background. As participants may have more than one aspect of their cultural backgrounds that are important to them, participants are asked to report the second and third aspects of their cultural background that are also deemed important. The CHS has two subscales; positive and negative. Out of the 12 items, 7 questions (e.g., “is genuinely interested to learning more”) pertain to positive subscale. The remaining 5 questions (e.g., “assumes he/she already knows a lot”) reflect to the negative subscale. Total cultural humility score is calculated by adding positive and negative subscale scores. Participants rate the cultural humility of the CHWs on a 5-point Likert type scale, ranging from 1 (Strongly Disagree) to 5

(Strongly Agree). The maximum and minimum scores that one can obtain are 60 and 12 respectively. The CHS has good psychometric properties. Reported Cronbach Alpha (α) of this scale ranges from .90-.93, suggesting evidence of high internal consistency (Hook et al., 2013; Owen et al., 2014). The CHS was developed after screening the items with content experts and then through exploratory and confirmatory factor analyses. By using the scores obtained from CHWs and their clients in this sample, the calculated Cronbach Alpha (α) of CHS for self and client ratings were 0.83 and .82 respectively. Study instruments that were used for this study can be found in Appendix A.

Patient Experience (howRwe):

A four-item short generic patient experience scale, *howRwe*-was used for calculating client experience (Benson & Potts, 2014). Out of the four items of this scale, two items focus on clinical care (treat me kindly; listen and explain) and the other two on organization of care (see me promptly; well organized). Each item as perceived by the clients has four responses (excellent=3, good=2, fair=1 and poor=0). The summary *howRwe* score for each client is then calculated by adding the scores for each item, giving the scale with 13 possible values with lowest 0 and highest 12. Reported Cronbach's Alpha of *howRwe* is 0.82 (Benson & Potts, 2014). The Developers of this tool suggests that it is appropriate to use the overall *howRwe* score as well as the individual item scores. The calculated Cronbach Alpha of *howRwe*, by using the scores obtained from the clients of this study was exactly same as

reported by the scale developers, suggesting the scale was reliable to capture the information on patient experience (Please see actual *howRwe* questionnaire Appendix C).

Patient Health Status (howRu):

A generic instrument *howRu* was used for estimating the health status of clients (Benson et al., 2010). This instrument was developed by the same group of developers who developed *howRwe* scale of patient experience. In order to self-report the health status, clients of this study scored on four items including discomfort, distress, disability and dependence by using four levels none=3, a little=2, quite a lot=1 and extreme=0. Total health status score was calculated by aggregating item scores with a possible range from 0 (worst) to 12 (best). Because of its generic nature and brevity, this tool was used in this study. Reported Cronbach's Alpha of *howRu* is 0.80 (Benson et al., 2010). The calculated Cronbach Alpha of *howRu*, by using the scores obtained from the clients of this study was 0.77, suggesting the scale had acceptable properties of reliability (Please see Appendix D).

Socio-Demographic & Economic factors (The American Community Survey):

Questions related to socio-demographic and economic factors, including age, gender, race, ethnicity, and education levels of clients was adapted from the American Community Survey (ACS) questionnaire. A composite variable race-ethnicity was created during the analysis phase (Hispanics, non-Hispanic African Americans, non-Hispanic Whites, non-Hispanic American Indians, non-Hispanic Chinese).

Language Concordance:

Two questions adapted from Arauz Boudreau et al., (2010) were included into the client assessment questionnaire of this study to determine language concordance between a client and a CHW. These two specific questions were--“What language do you mainly speak at home?” and “What language did you speak during your visit with a CHW?” The options to choose from were English, Spanish, and Others (if others, please mention). A client was considered “linguistically concordant” if s/he chose the same language options for both questions. If a client chose non-identical language options for those questions, s/he was considered “linguistically discordant”.

Data Analysis

The total cultural humility scores were calculated by adding two subscale (i.e. positive and negative) scores. A higher total cultural humility score indicated higher cultural humility. Developers of the CHS suggest reverse coding for negative subscale items. The cutoff points which should represent standard scores for each of the subscales are not yet established (Hook et al., 2016). For objective 1, three client-rated CHS scores were averaged to get a single score for a specific CHW. Individual client scores were used for Objectives 1.1 and 2. All statistical analyses were conducted by using STATA 15.1 software package

Objective 1:

(To demonstrate correspondence of assessing cultural humility of CHWs by self and client ratings)

A common practice for examining correspondence between the two modes of measurements is to report correlation coefficient. There are many techniques of correlational analysis, but the most common is Pearson correlation (r). However, reporting a correlation coefficient and test of significance can often lead to false conclusion. With a small sample similar to this study, a moderate correlation coefficient can produce non-significant result, but that result can be significant if the sample size is larger. Another popular method used to report correspondence between the two measures is Ordinary Least Square Regression (OLS) (Yellareddygar & Gudmestad, 2017). During an examination of correspondence, a new method is usually compared with the established method (e.g. gold standard) to find out how well a new method matches with the established one (Kwiecien, Kopp-Schneider, & Blettner, 2011). This approach estimates both the linear relationship between the dependent and independent measures, like a correlation coefficient, and mean difference. This study used OLS regression to determine the linear relationship and mean differences (i.e., systematic bias) between the client and self-rated cultural humility scores. OLS estimates are considered inadequate for measuring the correspondence between alternative measurement tools since OLS assumes random errors exist only in Y (dependent) variable and does not take into account errors in independent variable. In other words, it means there is no error in

the measurement method used as the independent measure in the regression model (Yellareddygari & Gudmestad, 2017).

As a result, OLS can produce biased estimation of relationship between two measures (Ludbrook, 2002). Thus, this study used a Wilcoxon Signed Rank test as an additional alternative test of correspondence. The Wilcoxon Signed Rank test is a nonparametric test used for detecting differences between correlated (paired) data. As cultural humility scores obtained from both methods are continuous, Wilcoxon Sign Rank test was preferred over simple sign test (Scheff, 2016). Since this study was interested in within group differences, Wilcoxon Sign Rank test was preferred over Mann Whitney U test. The latter is mostly used when between group differences need to be identified. Wilcoxon Signed Rank test was not developed for clustered data (i.e., multiple client ratings per CHW) (Rosner, Glynn, & Lee, 2006). Consequently, for this analysis, client reported cultural humility scores for each CHW were averaged to get a single value.

Before conducting any analyses, cultural humility scores were examined graphically. Scores obtained from the two methods were plotted against each other in X-Y plane, with self-rated scores placed in X axis and client rated scores in Y axis. Scores obtained from two measurements that match perfectly should be on diagonal line ($x=y$) or lie nearby the diagonal line if they match closely (Kwiecien et al., 2011). An alternative informative way to graphically present that relationship is by using Bland-Altman diagram, which is widely used to compare two measurements of a same construct such as cultural humility. A Bland and Altman diagram presents both bias and precision statistics (Martin Bland & Altman, 1986). In methods-agreement study, precision is defined as the degree to which values cluster

around the mean (Hanneman, 2008). In a Bland-Altman diagram, the score differences between two methods (Client Assessment Score – CHW Self Assessment Score) are plotted against mean of measurement scores (Client Assessment Score + Self-Assessment Score/2). The bias between two measurements is calculated by mean difference \bar{d} and variation around the bias is estimated by standard deviation (sd) of differences. Bland Altman evaluates bias of mean differences, and estimate an agreement of interval, which indicate that 95% of data points fall within the range of mean difference ($\bar{d} \pm 1.96sd$). (Giavarina, 2015). In an ideal state, for full agreement, difference of scores obtained from two methods should be equal to 0. Bland-Altman assumes differences are normally distributed. For this study, normal distribution of the differences was verified and reported graphically (Appendix F). In addition to the Bland Altman diagram, Lin's correlation coefficient (Rho_c) is reported to assess the degree of agreement between two modes of measurements.

Objective 1.1 and 2:

Objective 1.1: *To assess if the difference in scores of cultural humility between each client and a corresponding CHW differ between linguistically concordant and discordant clients after controlling for client socio-economic and demographic factors.*

Objective 2: *To examine the relationship of client rated cultural humility with patient experience.*

Objectives 1.1 and 2 used a Generalized Estimated Equation (GEE) approach to adjust within cluster correlations and to include client level covariates. GEE estimates generalized linear models for clustered or repeated data, and is appropriate when observations are correlated within a cluster but uncorrelated across clusters. Client rated cultural humility

scores *per* CHW are correlated and not independent, and are clustered within a larger unit of each CHW. However, client rated cultural humility scores are uncorrelated across CHWs. Instead of attempting to model within subject covariance structure, GEE averages over all subjects within the cluster covariance structure. Notably, GEE estimates are valid even if the covariance structure is mis-specified (Liang & Zeger, 1986).

In order to use the GEE model for Objectives 1.1 and 2, several steps were taken. First, the distributions of dependent variables for both objectives were graphed. Next, depending on the shape of the distributions, appropriate family and link options for GEE analyses were chosen. Dependent variable for Objective 1.1 was difference in cultural humility scores obtained from client and self-ratings. The dependent variable difference in scores was continuous and suggested a normal distribution (Appendix F). ‘Gaussian’ distribution was selected for family with an ‘identity’ link for Objective 1.1. Difference in scores were regressed with language concordance (0/1) after controlling for clients’ highest level of education, age, gender, and race-ethnicity.

For Objective 2, the dependent variable, patient experience was expressed in a binary (0/1) format, with 1 indicating excellent patient experience, and 0 indicating otherwise. GEE uses an appropriate combination of family ‘binomial’ and link ‘logit’, when the dependent variable is binary. For both objective 1.1 and 2, an exchangeable correlation structure was assumed for the clustered data (Ballinger, 2004). For objective 1.1, regression coefficients are reported. Since a logit link was used for objective 2, results are reported as Odds Ratios (OR). Client reported age, health status, gender and cultural humility of scores of CHWs are included as covariates in the GEE model for Objective 2.

Additionally, CHWs and their clients were asked to list top three preferences from a set of predetermined cultural backgrounds, in the order of importance they felt those backgrounds had in determining their ‘culture’. Based on their reports separate ranking of cultural backgrounds for CHWs and clients were created. First, second, and third preferences of top three ranked cultural backgrounds are expressed in frequencies and percentages. Summary descriptive statistics for client characteristics are presented either by means and standard deviations (SDs), or percentages.

RESULTS

In this section, results of the current study are presented based on each objective. Out of the 57 clients of this study, 28% of the clients were male, the mean age was 49 years, and 56% of the clients reported their highest level of education was high school. About 30% of clients reported their ethnicity as Hispanic. Forty seven percent of the clients were African Americans. More than three fourths of the clients had reported they spoke the same language at home and during a visit to their CHWs. Descriptive statistics of client characteristics are presented in Table 1.

TABLE 1: CHARACTERISTICS OF 57 CLIENTS

	<i>Total N=57 (%) (n)</i>
<u>Male</u>	28.07% (16)
<u>Age</u> (Years) (SD) (Range)	48.5 (17.24) (20-86)
<u>Race</u>	
White	38.6% (22)
African American	47.27% (27)
American Indian	5.26% (3)
Chinese	3.51% (2)
Others	5.26% (3)
<u>Ethnicity</u>	
Hispanic	29.82% (17)
<u>Education</u>	
No School	10.53% (6)
High School	56.14% (32)
Associate Degree	14.04% (8)
Bachelor	7.02% (4)
Masters	8.77% (5)
Doctorate	3.51% (2)
Linguistically Concordant	77.19% (44)

Except for Age, all other variables are categorical. Age is continuous and presented by mean.

Objective 1:

For reporting results of Objective 1, current standards of methods-agreement studies that suggest inclusion of both statistical and graphical techniques for conclusive recommendations are followed (Clinical and Laboratory Standards Institute, 2002). As the sample size for Objective 1 is small, results were cross-validated by multiple analytical and graphical techniques.

In this sample, a moderate correlation and marginal non-significant relationship ($r=0.41$, p value=.08) between the scores of two measurements were identified. Client reported maximum, minimum and mean of total cultural humility scores of CHWs were higher when

compared to the scores obtained from self-ratings. Mean total scores, standard deviation, intra-class correlation coefficients and Pearson correlation coefficient between self and client ratings of cultural humility are provided in Table 2. Results also show in this sample client reported cultural humility scores on negative subscale are higher than that of the self-ratings.

TABLE 2 SUMMARY OF INTERCORRELATION, MEANS, STANDARD DEVIATION, RANGE OF CHS OF STUDY PARTICIPANTS

	<i>Obs.</i>	<i>Mean ±SD</i>	<i>Max</i>	<i>Min</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1.Total Self CHS	19	52.36±3.3	45	58	---	---	---	---	---	---
2.CHS Self Positive	19	34.05±1.8	28	35	.65*	---	---	---	---	---
3.CHS Self Negative	19	18.32±2.5	13	23	.83*	.12	---	---	---	---
4.Total Client CHS	19	55.7±2.7	48	60	.41 (.08)	---	---	---	---	---
5.Total Client Positive	19	33.66±1.45	29	35	---	---	---	.72*	---	---
6.Total Client Negative	19	22.03±1.9	18.33	25	---	---	---	.86*	.33	---

**Pearson Correlation coefficient is not significant at .05 level, SD= Standard Deviation, CHS= Cultural Humility Score.*

Approximately 50% of the CHWs' self-reported their cultural humility scores lower than the cut off of Q1 (25%) of client assessments (See Figure 3). Median score of self-assessments is visibly lower than that of the individual (n=57, top part of the figure) and averaged (n=19, bottom part of the figure) client assessed scores. A tall boxplot indicates higher variability of scores and the long whisker at the bottom suggests scores varied most at lowest quartile (Q1).

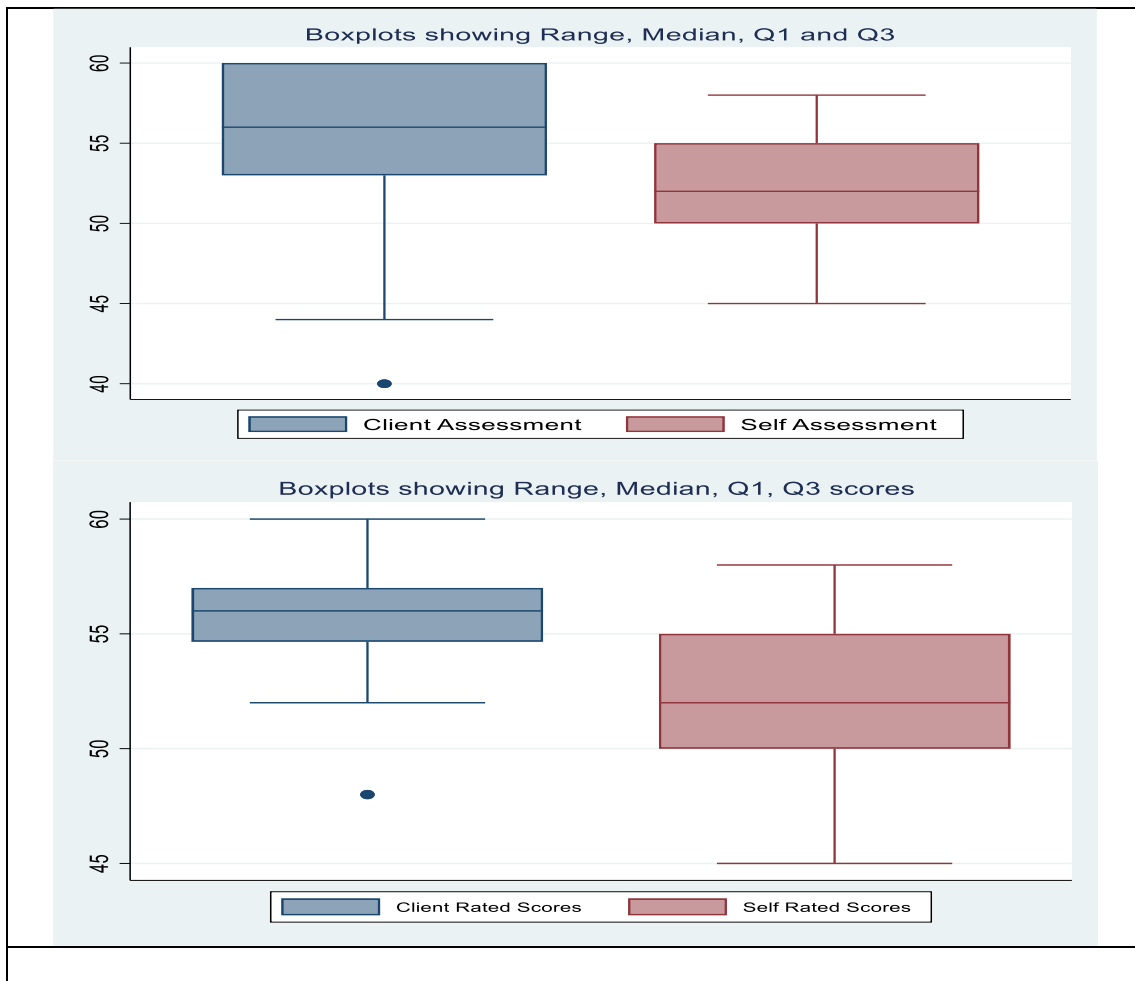


FIGURE 3: BOXPLOTS SHOWING RANGE, MEDIAN, Q1, Q3 SCORES (TOP AND BOTTOM)

By looking at the confidence intervals of OLS parameters, presence of bias (i.e. mean difference) between two measurement scores were identified (Table 3). More specifically, the confidence interval of intercept term indicates significant difference from 0 [CI 17.90-58.09], and the confidence interval of β indicates significant difference from 1 [CI -.047-0.72], suggesting presence of constant and proportional bias between two measurements, respectively.

TABLE 3 ORDINARY LEAST SQUARE ESTIMATES OF TWO MEASUREMENTS

	Coefficient (SE)	P value	Confidence Interval
Constant (α)	37.99 (9.52)	0.001 [†]	17.90-58.09*
Self-Assessment Score (β)	0.335 (0.18)	0.082	-.047-0.72*
R-Squared	0.17		
No of Observations	19		

*Standard Errors are reported in parenthesis. * indicates significance based on CI values. [†] P value corresponds to Wilcoxon Sign Rank test results.*

Visually, a systematic positive scatter is observed between two measurement scores (Figure 4). The majority of the data observations lied above the diagonal line, and the fitted regression line did not coincide with the 45° line of identity, indicating that clients rated

cultural humility of their CHWs higher than the CHWs rated themselves. This systematic positive bias corresponds to the beta coefficient estimated in the OLS model (Table 3)

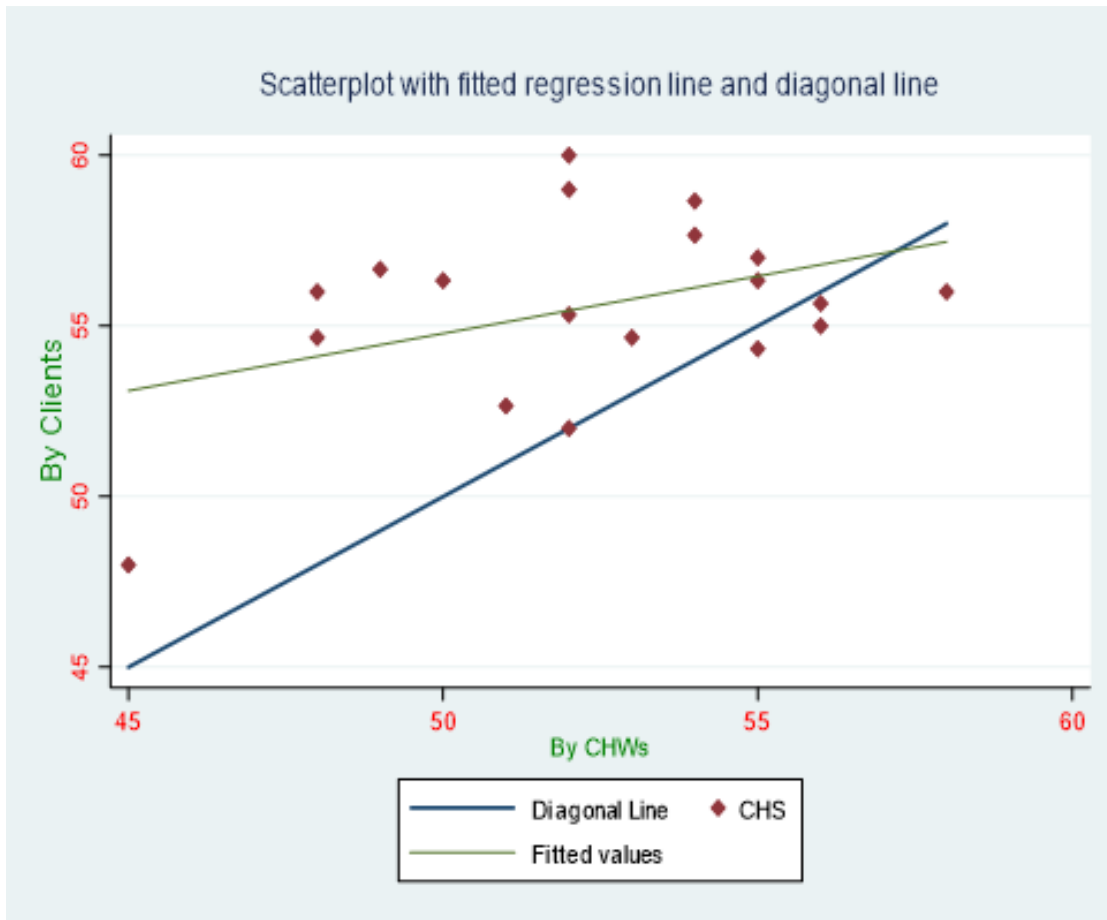


FIGURE 4 :SCATTERPLOT WITH FITTED REGRESSION LINE AND LINE OF IDENTITY

(The diagonal line looks slightly off because the X and Y axes are different in length even though they both have 45 and 60, minimum and maximum; the X axis is visually longer than the Y)

Results from Wilcoxon Signed-Rank test indicate cultural humility scores differ significantly between the two modes of assessments ($Z=3.1$, $p=.0019$) (shown in Table 4). As a result, the null hypothesis that paired rank differences are symmetric around zero got rejected. This result corresponds with and supports the mean-difference detected using the OLS regression model. A positive difference means client rated cultural humility scores exceed the scores from self-rating. Difference scores below zero mean that self-rating scores exceed client rating scores.

TABLE 3 :WILCOXON SIGN RANK TEST RESULTS FOR SELF AND CLIENT RATINGS

	N=19	Sum of Ranks	Expected
Positive ^a	14	171.5	94.5
Negative ^b	4	17.5	94.5
Zeros ^c	1	1	1
Z value	(3.1)0.0019*		

a. Client rating>Self Rating

b. Client rating <Self Rating

c. Client Rating-Self Rating=0

*Z value significant at P value <.05

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Results from Bland and Altman (B&A) diagram reveal mean difference between two modes of measurements was 3.2, suggesting clients' scores on cultural humility were higher than the self-ratings. Because the difference scores represent between client and self-ratings, client ratings had positive bias (shown in Figure 5). Since differences between methods were distributed normally (shown in Appendix F), 95% of the difference from the bias are expected to be between -3.27 to 9.69. Confidence limit is calculated by $\{9.69 - (-3.27) = 12.96\}$ (Table 5).

$LOA = (\bar{d} \pm 1.96sd)$ <p>Higher Limit of Agreement = $(3.2 + 1.96 \times 3.3) = 9.69$;</p> <p>Lower Limit of Agreement = $(3.2 - 1.96 \times 3.3) = -3.27$</p>

In Figure 5 the red horizontal lines represent 95% confidence limits or limits of agreements. Upper and lower limit of agreement is calculated by the equation above. The developers of cultural humility scale have not specified cut off scores that make an individual culturally humble. In absence of such cut off scores it is difficult for an investigator to set a priori criterion specification with which bias and precision of a new method can be tested. However, a confidence limit difference of 13 between two measurements appears to be too large for a recommendation to substitute self-rating for client rating. To construct B&A diagram, difference in scores obtained by client and self-ratings were placed at Y axis and average of scores obtained by two methods were placed at X axis. Systematic and random error in measurements are reflected by bias and confidence limits respectively.

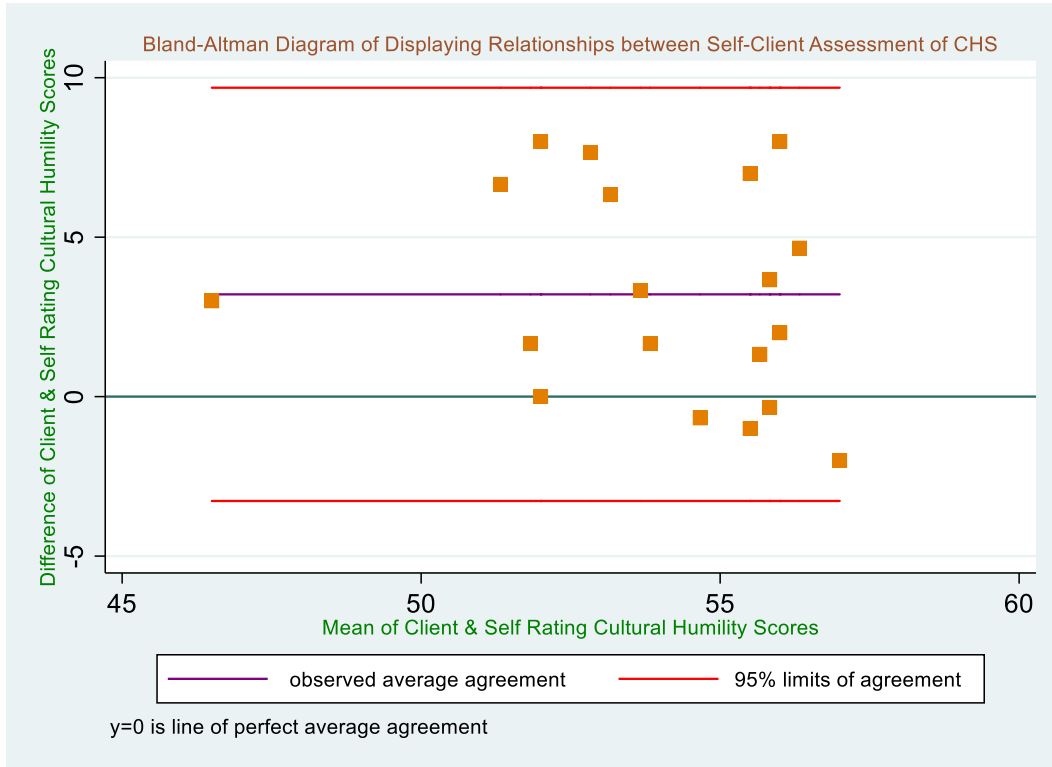


FIGURE 5: BLAND ALTMAN DIAGRAM OF MEAN DIFFERENCE & LIMIT OF AGREEMENT

Additionally, the reported Lin's concordance did not exceed the norm of 0.4, which is the standard of practical level of concordance between two measures (Lairson, Basu, Begley, & Reynolds, 2009). Lin's rho measures concordance between two measurements (Table 5). Usually, Lin's rho (0.25) should closely match with Pearson's correlation coefficient (0.41). A mismatch between these two coefficients again indicates presence of systematic bias.

TABLE 4: AGREEMENT BETWEEN CLIENT AND SELF RATING OF CULTURAL HUMILITY

Client Rating Mean	Self Rating Mean	Mean difference	Standard Deviation	Lin's concordance(Rho_C)	Pearson Correlation	95% Limit of Agreement (LOA)
55.7	52.36	3.2	3.3	0.25	0.41	(-3.27-9.69)

Results from Bland Altman Diagram with Mean difference, Lin's Rho, and 95% LOA

Objective 1.1

In this sample, the top three cultural backgrounds deemed important by clients were religion, race, age, and nationality, with age and nationality considered equally important. In contrast, the top three cultural backgrounds considered important by CHWs were religion, ethnicity, and gender (all considered equally important). Table 6 shows separate ranking of cultural backgrounds based upon self-reports from CHWs and clients. A cultural background received highest ranking if maximum number of study participants considered that specific cultural background important as either the first, second, or third preference. Religion was considered most important cultural background by both CHWs and clients. Reporting religion as most important by both CHWs and clients suggests that they share a common cultural value guided by religious beliefs. Interestingly, while ethnicity was considered as one of the top most important cultural backgrounds by the CHWs, clients considered it less important. This could be due to the differences in understanding what ethnicity includes as opposed to race.

TABLE 5: RANKING OF CULTURAL BACKGROUNDS CONSIDERED IMPORTANT BY CHWs & CLIENTS

Cultural Background	Client Ranking (n=57)	CHW Ranking(n=19)
Religion	1	1
Race	2	4
Nationality	3	7
Age	3	5
Gender	5	1
SES	5	5
Ethnicity	7	1
Sexual Orientation	7	10
Disability	9	10
Others	9	7
Size	11	9

Note: Duplicate numbers have the same rank. Presence of duplicate numbers affects the ranks of subsequent order.

The top three cultural background rankings reported by CHWs and clients were further broken down into first, second, and third preferences by frequencies and percentages (Table 7). In this sample, majority of the CHWs (36.8%) considered ethnicity as their first preference. This result makes sense as in Texas, ethnicity of CHWs has played a crucial role of reaching out Hispanic communities under *Promotora de salud* model. A first preference refers here to a cultural background that is considered most important to an individual. After CHWs and clients had identified their first preferences, they were asked to report their second and third preferences subsequently (if any). Gender was considered important as second and third preferred cultural background by about 30% and 27% of the CHWs respectively. This result is consistent in a way that majority of the CHWs in Texas are female. Interestingly, while many CHWs deemed their gender important, it was not considered as one of the top important cultural backgrounds by the clients, though more than

70% of the clients were females in this study. This indicates the importance of understanding an individual's overall cultural identity from the lens of cultural intersectionality as opposed to viewing it from single identity.

TABLE 6: TOP 3 CULTURAL BACKGROUND RANK AND PREFERENCE MATRIX BY CHWs & CLIENTS

CHW % (n) Preference				Clients % (n) Preference			
Rank	1st	2nd	3rd	Rank	1st	2nd	3rd
Religion † (1)	26.3% (5)	11.8% (2)	20% (3)	Religion (1)	24.1% (13)	15.4% (11)	12.9% (7)
Ethnicity † (1)	36.8% (7)	17.7% (3)	--	Race (2)	20.4% (11)	13.5% (7)	19.2% (9)
Gender † (1)	5.3% (1)	29.4 (5)	26.7% (4)	Nationality † (3)	7.4% (4)	9.6% (5)	12.8% (6)
				Age † (3)	13% (7)	11.5% (6)	4.3% (2)

†= Cultural backgrounds have equal number of individuals reported them important as either first, or second, and or third preference

Compared to linguistically concordant patients, patients who had language discordance with their CHWs showed 1.23 times less difference in scores (Table 8). A less difference means higher agreement between scores obtained from client and self-ratings. Interestingly, this was due to linguistically discordant clients rating the cultural humility of their CHWs lower than that of the linguistically concordant patients. However, this difference was not statistically significant (p value > 0.05), after adjusting for client level characteristics such as education,

gender and race-ethnicity. Results from GEE analysis that examined the relationship of differences in cultural humility scores with language concordance of a CHW with a client, showed age, gender, and education were not statistically significant at the 5% level. Before performing GEE analysis, differences in cultural humility scores obtained from client and self-ratings were checked for normal distribution. The normal distribution of differences in scores are presented in histograms (shown in Appendix F).

TABLE 7: GEE ESTIMATIONS SHOWING RELATIONSHIP BETWEEN CULTURAL HUMILITY & LANGUAGE CONCORDANCE (N=57)

	Coefficient	Standard Error	Confidence Interval		Significance P value<0.05
Intercept	3.83	1.97	-.047	7.7	0.053
Linguistically Concordent	Reference				
Linguistically Discordant	-1.23	1.93	-5.01	2.56	0.525
High School	Reference				
Above High School	1.41	1.32	-1.17	3.99	0.284
Female	Reference				
Male	-2.47	1.37	-5.16	0.213	0.071
Age	.01	.038	-.064	.084	0.792
Non-Hispanic African American	Reference				
Non-Hispanic White	-.522	1.75	-3.95	2.90	0.766
Hispanics	.18	1.86	-3.47	3.83	0.923
Non-Hispanic American Indians	-10.33	3.27	-16.7	-3.92	0.002*
Non Hispanic Chinese	-2.14	3.45	-8.9	4.6	0.534

*P value greater than 0.05 is not significant

Objective 2:

Client rated cultural humility is a significant predictor of excellent patient experience (Table 9). The unadjusted odds ratio between patient experience and cultural humility is 1.16 with a CI of 1.009-1.32. After adjusting for client level covariates such as health status, age and gender, adjusted OR slightly increased to 1.18 with a confidence interval of 1.01-1.37, and remained significant at p value of 0.037. An aOR of 1.18 means with each unit increase in cultural humility scores, patients are 1.18 times more likely to report patient experience as excellent. Results also reveal, older patients are less likely to report their patient experience excellent (OR=0.97). Client reported health status, age and gender were not significant predictors of patient experience.

TABLE 8 RELATIONSHIP OF CLIENT RATED CULTURAL HUMILITY WITH PATIENT EXPERIENCE (N=57)

Patient Experience Excellent=1 Otherwise=0	Odds Ratios a(OR)	Coefficients	Standard Errors	Confidence Interval		P value
Health Status	1.04	0.048	0.15	0.79	1.38	0.75
Age	0.97	-0.028	0.02	0.93	1.02	0.23
Female	Reference					
Male	1.08	.079	0.92	0.23	5.13	0.92
Client rated CHS	1.18	.163	0.09	1.01	1.37	0.037*

*Significant at 0.05 level; a (OR)= adjusted OR; unadjusted (OR=1.16, [1.009-1.32])

DISCUSSION & IMPLICATIONS

Methods-Disagreement & Modesty Effect:

The primary purpose of this study was to measure and compare the cultural humility scores of CHWs obtained from self and client ratings. Overall, this study did not find adequate evidence of agreement between client and self-rating of cultural humility measurements. The agreement between two modes of measurements (i.e., self and client ratings) is important to know prior to substituting client rating for self-rating. Findings of this study detected possible presence of the modesty effect in self-rating of cultural humility as client reported cultural humility scores were systematically higher than the self-assessed scores by CHWs. Under the modesty effect, as explained by humility scholars, a truly humble individual may under-rate their own cultural humility (Davis, 2013). This finding empirically supports the theoretical assumption of the scholars that self-rating component of cultural humility is prone to modesty effect and as such should not be used as a suitable substitute of current client-rating approach. A modesty effect is more likely to be present when assessing one's own humility than assessing someone else's humility.

An alternative explanation of the mismatch of scores between self and client ratings might be a result of CHWs and clients weighting individual aspects of "culture" differently. Another explanation may be found in the difference in focus between the two modes of ratings. Client-rating focuses on the interpersonal dimension whereas self-rating focuses on the intra-personal (i.e., accurate view of self) dimension of humility. In either case, these

findings suggest that if self-rating is adopted because of time and resource constraints as a substitute of client-rating for performance assessment, it should be used with caution as it may provide an inaccurate assessment of how clients rate CHW cultural humility. As explained earlier, another worrisome aspect of self-report of cultural humility is self-enhancement by narcissistic individuals. Although CHWs of this study did not demonstrate any signs of narcissism at all, the point to make here is that self-reporting is potentially susceptible to both modesty and self-enhancement effects. Self-reports with high humility scores may actually indicate lack of humility (Peterson & Seligman, 2004). However, considering the helping profession of CHWs and the findings from this study, one can anticipate self-reporting component of cultural humility for CHWs will be more susceptible to modesty than the self-enhancement effect.

In addition, in this study it was revealed that clients assessed cultural humility of their CHWs very highly. Given that cultural humility is a relational variable, it is likely that the CHWs in this sample had a strong work relationship with their clients. This strong CHW-patient alliance may be a reason why clients might have assessed their CHWs very highly. In Texas, a CHW or Promotor(a) is required to complete 160 hours of competency based standardized training or complete at least 1000 hours of community-based services before receiving state certification. This certification requirement enables each CHW to have effective training on interpersonal communication skills. This training may be another reason why participating client might have assessed their CHWs very highly. For future studies, it

will be interesting to find whether or not this result varies if conducted on different sets of CHWs working in states that do not require mandatory training for CHW certification.

Cultural Humility Scores of CHWs Reported by Linguistically Concordant and Discordant Clients:

Conceptually, cultural humility reduces any interpersonal difference caused due to cultural backgrounds. In this sample when compared with linguistically concordant patients, linguistically discordant patients did not score cultural humility of CHWs significantly different, implying CHWs may effectively communicate with people, who speak a language other than English at home, but have some level of skill to communicate in English during their visit with CHWs. Despite potential communication barriers, a lack of difference in scoring between linguistically concordant and discordant patients is indicative of a robust client perception of the cultural humility of CHWs in spite of the language discordance of clients. Results from this study also show client level factors such as education, age, race-ethnicity and gender are not significant predictors of differences in cultural humility scores at the 5% level.

This study used language as a proxy for capturing latent cultural similarities and differences between groups (Matthews et al., 2018). Several studies examining the association between the CHW roles and language services they provide to people who experience difficulties in navigating health system because of lack of English language skills,

operate under the assumption that if only CHWs speak the same language of their clients, they would be effective in interacting with their clients. This study as it stands does not entirely support this line of reasoning. This study realizes the potential importance of cultural humility to overcome cultural differences between a CHW and a client, as CHWs offer a range of engagement and relationship that may go beyond language translation. The dominance of language concordance has created a skewed body of CHW literature in the US. Skewed in a sense that other avenues of reducing cultural differences, having to deal with diverse cultural backgrounds are left out. In this sample, the majority of CHWs and clients reported religion as their top ranked cultural background. At first glance, it may appear that a shared cultural value guided by the religious beliefs by both CHWs and clients will be devoid of interpersonal conflict. In reality, a CHW's own religious belief can be very different from a client's one and that can be a strong source of interpersonal differences. By active listening, asking open ended questions, observing how others understand religion and showing respect by not making assumptions, a CHW may be able to reduce interpersonal differences. For future studies, a similar statistical approach that fits cultural characteristics other than language, such as sexual orientation, religion, nationality etc., is recommended, so that the interpersonal gap reduction role of cultural humility can be fully realized.

Cultural Humility Predicts Patient Experience:

Overall, findings of this study primarily confirm that cultural humility is a positive predictor of patient experience. Those who rated the cultural humility of their CHWs more highly, also rated their patient experience more highly. This finding extends the existing body of

humility research by examining the association of CHW cultural humility with patient experience. When it came to patient experience, client reported health status, age and gender were not statistically significant. Conceptually, cultural humility improves health outcomes by creating a strong work alliance (Hook et al., 2013). Work alliance, in the context of CHWs may denote to a mutual relationship between a client and a CHW, where there is a shared intent to work together for health improvement. The sampled CHWs of this study had multiple opportunities to interact with their clients to improve that paired work alliance. However, CHWs working in different settings may get only one chance to interact with their clients (Arvey & Fernandez, 2012). It would be interesting to see if the effectiveness of CHWs on patient experience varies based on the number of interactions that they have with their clients. Future studies should explore this relationship with other individual health outcomes.

Role of CHW-Patient Alliance as a Mediator Variable

Given the current findings, supporting the positive relationship between cultural humility and patient experience, researchers should find a way to measure CHW-patient alliance (work alliance), so that the mediating role of work alliance between cultural humility and health improvements can be fully understood. A mediating effect explains a potential mechanism by which an independent variable can produce changes in dependent variable. To confirm that mediating effect, the next step is to establish cultural humility as a significant predictor of work alliance. Perhaps the best example of measuring work alliance would be WAI (Work Alliance Inventory) (Munder, Wilmers, Leonhart, Linster, & Barth, 2010). But

WAI measures therapeutic alliance (i.e. therapist-client), and a more generic tool designed to measure work alliance will benefit future research endeavors on CHW field.

Cultural Intersectionality and humility:

In this study, about 79% of CHWs and 83% of clients listed up-to three combinations of cultural identities that were perceived as most important to them. This reconfirms that multiple intersecting cultural identities are important aspects of the patient-CHW alliance in clinical settings and suggests that cultural humility should be considered as an integral part of any healthcare training. For instance, a client can identify that a combination of being Hispanic, Female and Catholic are important aspects to her overall identity. Focusing on just one of these identities (e.g. weak intersectionality) would limit recognizing the overall cultural orientation and possible discrimination and marginalization associated with it.

This approach of assessing cultural backgrounds from the perspective of intersectionality is very different from the traditional way of assessing cultural backgrounds by the CHWs. Traditionally, CHWs in community settings have been the members of the homogenous populations where they share many common cultural identities with little diversity. A humble CHW embraces learning and openness to new experience. As such, cultural humility is an attitude worth having for CHWs working in clinical settings. Future research studies on CHW field, may take a qualitative as well as quantitative approach of exploring the potential of cultural humility in addressing complex cultural intersectionality of

patients, especially in clinical settings. Quantitative studies like this one would benefit if interaction terms of cultural identities (e.g. gender x ethnicity) are incorporated into predictive models.

Implications of the study findings:

Underscoring our analysis, is the question of what CHW field can do with the information generated from this study. Since CHWs are venturing out from community settings to clinical settings, enhancing their existing knowledge and skill to practice cultural humility requires planning. Findings of this study raise some interesting perspectives that researchers and practitioners in CHW field should consider moving forward.

Firstly, there is a question of choosing an appropriate tool of measuring cultural humility of CHWs. Our study finding showed self-rating of measuring cultural humility of CHWs should be avoided in spite of its easy operation and application. For employers, it provides a clear direction of which tool to use while assessing CHW performances.

Secondly, our study finding indicates cultural humility can be a robust avenue to serve clients with cultural similarities and differences. As such, researchers on CHW field, should develop training materials that can provide CHWs the most critical skills of understanding self-limitations, openness, cultural intersectionality and sensitivity to work effectively with diverse people. Finally, the significant relationship of cultural humility with health outcomes highlights the fact that CHWs in clinical settings should consider cultural humility as a viable

option to activate patients on following through treatment regimens and recommended life-style changes.

LIMITATIONS OF THE STUDY:

There are several limitations of the current study. First, data were cross-sectional, which limited the ability to draw causal inferences. Second, due to limitations in data collection, socio-demographic information of CHWs were not collected. Future studies on this topic should include socio-demographic characteristics of CHWs alongside the clients. Third, the study sample for self-assessment was small because of the time and resource constraints and also due to the fact that the CHWs and clients were enrolled from one clinical entity. Thus, findings from this study should be utilized with caution. Future research with a larger sample is needed to better evaluate the relationships described in this study. Fourth, the study instruments were only available in English. As a result, observations from those who could not read and write English were missed. Fifth, the cutoff score which should represent the standard score of being culturally humble are not yet established by CHS developers. As a result, priori criterion specification to check bias of a new method could not be done. Finally, this study collected data from clinical settings only. Findings might have varied if conducted in community settings. However, given the fact that the findings of this study largely support the current literature, it can be anticipated that these findings will be applicable to the CHWs working in other clinical entities.

CONCLUSION

Based on the study findings, recommendations for assessing the performance of CHWs by using cultural humility tools has emerged. The first major finding of this study supports the foundational claim of humility research that humility measures should take an approach of multiple raters' consensus for more accurate results. The second major finding empirically suggests, linguistically concordant clients do not significantly differ from linguistically discordant clients in the way they score the cultural humility of their CHWs. A similar research approach may explore the role of cultural humility in other dyad-based relationships such as teacher-student, employer-employee and between couples. The third finding was consistent with the hypothesis that higher ratings of cultural humility would be positively related to patient experience. This was an important step of creating an evidence-base for future recommendations of cultural humility training for CHWs. Overall, this is the first study to our knowledge to examine the role of cultural humility in the context of CHW functions, and our findings are consistent with the growing knowledge that cultural humility plays an important role in helping professions.

In conclusion, improving health outcomes for all and decreasing health disparities within a diverse population is a key challenge of the US health system. The communication barriers and other cultural differences that cultural humility attempts to address are only some of the contributors to health disparities. However, they are crucial aspects that may successfully improve any care relationship.

APPENDICES

Appendix A Questionnaire used for Client Rating

Verbal Consent Form–Measuring Cultural Humility of Community Health Workers by Clients

Study Title: Measuring Cultural Humility of Community Health Workers

Principal Investigator: Nayeema Ahmed, MPA, MS

My name is Nayeema Ahmed, MPA, MS and I am a doctoral student of Management, Policy and Community Health, Division of School of Public Health at the University of Texas Health Science Center at Houston (UTHealth).

You are being invited to be in this research study because you have received face to face services or telephone services from a Community Health Worker at a UT Physicians Clinic at UTHealth. Please feel free to ask questions at any time. Your participation is voluntary and you can stop at any time without penalty. Your decision to take part will not affect the services you receive at UTHealth.

If you agree to take part in this study, you will be asked to complete a survey questionnaire that will take about 10-12 minutes to complete. You can choose either to take part the survey or not. You can skip questions that you do not want to answer or stop the survey at any time. The survey is anonymous, and the researcher will not be able to link your answers back to you. Please do not include your name or other information that could be used to identify you in the survey responses.

Each participant will have a unique identification number. Responses obtained from this study will be saved into password-protected computers of University of Texas, School of Public Health to ensure participant privacy and confidentiality. The risks of taking part in this study are minimal and not significant.

You will be compensated \$10 for your participation time. Your decision to participate will not have any impact on your relationship with a CHW.

If you have any complaints, suggestions, or questions about your rights as a research volunteer, you may contact the UTHealth Committee for the Protections of Human Subjects (CPHS) at 713-500-7943. If you have any questions regarding the study, you may contact Rosalia Guerrero at 713-500-9395.

Do you have any questions for me?

Would you like to take part in this study?

☐ Yes

☐ No

Study Contact: Rosalia GuerreroPage 1
Telephone: 713-500-9395



IRB NUMBER: HSC-SPH-19-0372
IRB APPROVAL DATE: 09/25/2019

Client Rating of Cultural Humility of Community Health Workers Questionnaire

Participant ID # _____

A. Are you 18 years old or above?

☐ Yes

☐ No

If you have chosen 'Yes', please mention your age in _____ years.

B. Can you read and write English?

☐ Yes

☐ No

Note: If you have chosen 'No' for either question A or B or both, please stop here. If you have chosen 'Yes' for question A and B, please continue to fill up this questionnaire.

C. Are you a Male or Female?

☐ Female

☐ Male

Note: Please answer BOTH Questions D about Hispanic origin and Question E about race. Hispanic origin are not races---

D. Are you of Hispanic, Latino, or Spanish origin?

☐ No, not of Hispanic, Latino or Spanish Origin

☐ Yes, Cuban

☐ Yes, Mexican, Mexican Am, Chicano

☐ Yes, others

☐ Yes, Puerto Rican

E. What is race?

☐ White

☐ Filipino

☐ Native Hawaiian

☐ Black/African American

☐ Japanese

☐ Guamanian or Chamorro

☐ American Indian or Alaskan Native

☐ Korean

☐ Samoan

☐ Asian Indian

☐ Vietnamese

☐ Other Pacific Islander

☐ Chinese

☐ Other Asian

☐ Other Race

F. What is the highest degree or level of education?

☐ No School Completed

☐ Associate Degree

☐ Masters Degree

☐ High School Graduate

☐ Bachelor Degree

☐ Doctorate Degree



IRB NUMBER: HSC-SPH-19-0372
IRB APPROVAL DATE: 06/06/2019

G. Please answer the following questions on your health status (How are you feeling today?)

I. Pain or discomfort

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

II. Feeling low or worried

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

III. Limited in what I can do

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

IV. Dependent on others

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

H. Please answer the following questions on your experience with your Community Health Workers

01. Treat me kindly

Excellent	Good	Fair	Poor
-----------	------	------	------

02. Listen and Explain

Excellent	Good	Fair	Poor
-----------	------	------	------

03. See me promptly

Excellent	Good	Fair	Poor
-----------	------	------	------

04. Well organized

Excellent	Good	Fair	Poor
-----------	------	------	------

I. What language do you speak at home?

☐ English

☐ Spanish

☐ Others, Specify

J. What language did you speak with your CHW during your visit?

☐ English

☐ Spanish

☐ Others, Specify

There are several different aspects of one's cultural background that may be important to a person, including (but not limited to race, ethnicity, nationality, gender, age, sexual orientation, religion, disability, socio-economic status, and size. Some things may be less central or important.

K. Please identify the aspect of your cultural background that is most important to you:

How important is this aspect of your cultural background?

Not at all important		Somewhat important		Very important
1	2	3	4	5

L. If there is a 2nd aspect of your cultural background that is important to you, please list:

Not at all important		Somewhat important		Very important
1	2	3	4	5

M. If there is a 3rd aspect of your cultural background that is important to you, please list

Not at all important		Somewhat important		Very important
1	2	3	4	5

N. Please think about your CHW. Using the scale below, please indicate the extent to which you agree or disagree with the following statements about your CHW

Regarding the core aspects of my cultural background, my CHW	Strongly Disagree 1	Mildly Disagree 2	Neutral 3	Mildly Agree 4	Strongly Agree 5
1. Is respectful					
2. Is open to explore					
3. Assumes he/she already knows a lot					
4. Is considerate					
5. Is genuinely interested in learning more					
6. Acts superior					
7. Is open to seeing things from my perspective					
8. Makes assumptions about me					
9. Is open minded					
10. Is a know it all					
11. Thinks he/she understands more than he/she actually does					
12. Asks questions when he/she is uncertain					

Q1

INFORMED CONSENT TO TAKE PART IN RESEARCH**Study Title: Measuring Cultural Humility of Community Health Workers****Principal Investigator:** Nayeema Ahmed, MPA, MS

You are being invited to be in the research study because you are a Community Health Worker at a UT Physicians Clinic at the UTHealth. Please feel free to ask questions at any time at the number given below. Your participation is voluntary and you can stop at any time without penalty. Your decision to take part will not affect your employment at UTHealth.

We are doing this research study to learn more about cultural humility of community health workers (CHWs). Cultural humility of a CHW is defined *as the ability to maintain an interpersonal stance that is other-oriented or to be open to other in relation to the aspects of cultural identity that are most important to a client*. The information we obtain will be used to compare the correspondence of cultural humility scores acquired from self and client ratings.

If you agree to participate in this study:

We will ask you to fill out an online questionnaire to measure cultural humility. It will take about 10-12 minutes to answer the questions. You do not have to answer any questions that you do not wish to answer.

You will be compensated \$10 gift card for your participation time. You can expect to receive the gift card within two-three weeks of survey completion from the principal investigator at your work site.

Your privacy is very important to us. There is a risk of loss of confidentiality. We will make every effort to protect the information we collect.

You may revoke our permission to access your information by contacting Nayeema Ahmed, but it may not be possible to remove your information from the study if it has already been used.

You will not be personally identified in any reports or publications of the study results.

If you have any questions about this study please call Rosalia Guerrero 713-500-9395.

If you have any complaints, suggestions, or questions about your rights as a research volunteer, please contact UTHealth Committee for the Protections of Human subjects (CPHS) at 713-500-7943.

If you consent to participate in this survey, please click yes and type in your name. If you decline to take part in this survey, please click no.

☐ Yes (1) _____

☐ No (2) _____

Skip To: End of Survey If INFORMED CONSENT TO TAKE PART IN RESEARCH Study Title: Measuring Cultural Humility of Community H... != Yes



IRB NUMBER: HSC-SPH-19-0372
IRB APPROVAL DATE: 10/03/2019

Page 2 of 8

Q2 Participant Name

Q3 DIRECTIONS: There are several different aspects of one's cultural background that may be important to a person, including (but not limited to **race, ethnicity, nationality, gender, age, sexual orientation, religion, disability, socio-economic status, and size**). Some things may be less central or important.

Q4 Please identify the aspect of your cultural background that is **most** important to you:
(Example: **race, ethnicity, nationality, gender, age, sexual orientation, religion, disability, socio-economic status, and size**)

Q5 How important is this aspect of your cultural background?

	Not at all important 1 (1)	2 (2)	Somewhat Important 3 (3)	4 (4)	Very Important 5 (5)
How important is this aspect of your cultural background? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 If there is a **2nd aspect** of your cultural background that is important to you, please mention
: (Example: **race, ethnicity, nationality, gender, age, sexual orientation, religion, disability, socio-economic status, and size**)

Q7 How important is this aspect of your cultural background?

	Not at all important 1 (1)	2 (2)	Somewhat Important 3 (3)	4 (4)	Very Important 5 (5)
How important is this aspect of your cultural background? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 If there is a **3rd aspect** of your cultural background that is important to you, please list
(Example: **race, ethnicity, nationality, gender, age, sexual orientation, religion, disability, socio-economic status, and size**)

Q9 How important is this aspect of your cultural background?

	Not at all important 1 (1)	2 (2)	Somewhat Important 3 (3)	4 (4)	Very Important 5 (5)
How important is this aspect of your cultural background? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Please think about yourself as a CHW. Using the next scale, please indicate the extent to which you agree or disagree with the following statements about yourself as a CHW. Regarding the core aspects of my clients' cultural backgrounds, I as a CHW---

Q11 I am respectful

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am respectful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 I am open to explore

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am open to explore	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 I already know a lot.

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I already know a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 I am considerate

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am considerate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 I am genuinely interested in learning more

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am genuinely interested in learning more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16 I am superior

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am superior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 I am open in seeing things from others perspectives

	Strongly Disagree 1 (1)	Mildly Disagree 2 (2)	Neutral 3 (3)	Mildly Agree (4)	Strongly Agree (5)
I am open in seeing things from others perspectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 I make assumptions about others

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I make assumptions about others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 I am open minded

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am open minded	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 I am a know it all

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I am a know it all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 I understand more than I actually do

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I understand more than I actually do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 I ask questions when I am uncertain

	Strongly Disagree (1)	Mildly Disagree (2)	Neutral (3)	Mildly Agree (4)	Strongly Agree (5)
I ask questions when I am uncertain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Default Question Block



Committee for the Protection of Human Subjects

6410 Fannin Street, Suite 1100
Houston, Texas 77030

NOTICE OF APPROVAL TO IMPLEMENT REQUESTED CHANGES

October 03, 2019

HSC-SPH-19-0372 - Measuring cultural Humility of Community Health Workers
PI: Dr. Nayeema Ahmed, MS

Reference Number: 193636

PROVISIONS: Unless otherwise noted, this approval relates to the research to be conducted under the above referenced title and/or to any associated materials considered at this meeting, e.g. study documents, informed consent, etc.

APPROVED: By Expedited Review and Approval

CHANGE APPROVED: Consent Version 1.3 (dated 10/3/2019)

REVIEW DATE: 10/3/2019

APPROVAL DATE: 10/3/2019

CHAIRPERSON: Rebecca Lunstroth, JD

A handwritten signature in black ink, appearing to be "RL" followed by a stylized flourish.

Upon receipt of this letter, and subject to any provisions noted above, you may now implement the changes approved.

CHANGES: The principal investigator (PI) must receive approval from the CPHS before initiating any changes, including those required by the sponsor, which would affect human subjects, e.g. changes in methods or procedures, numbers or kinds of human subjects, or revisions to the informed consent document or procedures. The addition of co-investigators must also receive approval from the CPHS. **ALL PROTOCOL REVISIONS MUST BE SUBMITTED TO THE SPONSOR OF THE RESEARCH.**

INFORMED CONSENT: Informed consent must be obtained by the PI or designee(s), using the format and procedures approved by the CPHS. The PI is responsible to instruct the designee in the methods approved by the CPHS for the consent process. The individual obtaining informed consent must also sign the consent document. **Please note that if revisions to the informed consent form were made and approved, then old blank copies of the ICF MUST be destroyed. Only copies of the appropriately**

dated, stamped approved informed consent form can be used when obtaining consent.

UNANTICIPATED RISK OR HARM, OR ADVERSE DRUG REACTIONS: The PI will immediately inform the CPHS of any unanticipated problems involving risks to subjects or others, of any serious harm to subjects, and of any adverse drug reactions.

RECORDS: The PI will maintain adequate records, including signed consent documents if required, in a manner that ensures subject confidentiality.

Appendix D **howRwe**

How are We doing?

Treat me kindly

Excellent	Good	Fair	Poor
-----------	------	------	------

Listen and Explain

Excellent	Good	Fair	Poor
-----------	------	------	------

See me promptly

Excellent	Good	Fair	Poor
-----------	------	------	------

Well organized

Excellent	Good	Fair	Poor
-----------	------	------	------

Appendix E **Howru**

How are you today?

Pain or discomfort

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

Feeling low or worried

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

Limited in what I can do

None	A little	Quite a lot	Extreme
------	----------	-------------	---------

Dependent on others

None	A little	Quite a lot	Extreme
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3. What is person 1's sex? *MARK (X) ONE box.*

☐

Male

☐

Female

4. What is person 1's age (in years)?

Note: Please answer BOTH Questions 5 about Hispanic origin and Question 6 about race.
For this survey, Hispanic origin are not races---

5. Is person 1 of Hispanic, Latino, or Spanish origin?

☐

No, not of Hispanic, Latino, or Spanish origin

☐

Yes, Mexican, Mexican Am., Chicano

☐

Yes, Puerto Rican

☐

Yes, Cuban

☐

Yes, another Hispanic, Latino, Spanish origin- Print, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.

6. What is person 1's race? Mark (X)one or more boxes AND print origins

☐

White – Print for example, German, Irish, English, Italian, Lebanese, Egyptian, etc.

☐

Black or African American. Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.

☐

American Indian or Alaska Native- print name of enrolled or principal tribe (s). For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.

☐

Chinese

☐

Vietnamese

☐

Native Hawaiian

☐

Filipino

☐

Korean

☐

Samoan

☐

Asian Indian

☐

Japanese

☐

Chamorro

☐ Other Asian—Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.

☐ Other Pacific Islander, Print race, for example, Fijian, Tongan, and so on.

☐ Some other race- Print race or origin

11. What is the highest degree or level of education this person has completed? *Mark X ONE box.*

☐ No School Completed
Nursery or Preschool through Grade 12

☐ Nursery School

☐ Kindergarten

☐ Grade 1 through 11- Specify grade 1-11

☐ 12th grade No diploma

☐ High School Graduate
Regular high school diploma

☐ GED or alternative credential
College or some college

☐ Some college credit, but less than 1 year of college credit

☐ 1 year of college credit, no degree

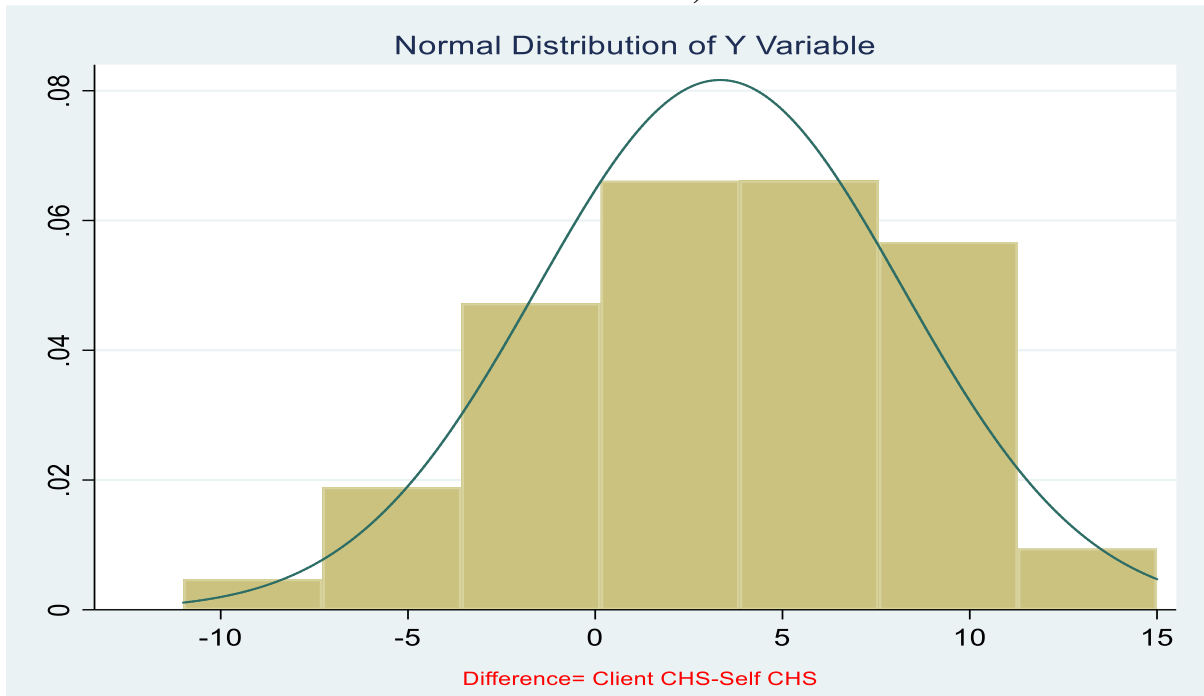
☐ Associate's Degree (for example: AA, AS)

☐ Bachelor's Degree (for example BA, BS)
After Bachelor's Degree

☐ Master's degree (for example: MA, MS, Meng, Med, MSW, MBA)

☐ Professional Degree beyond of Bachelor's degree (for example: MD, DDS, DVM, LLB, JD)

☐ Doctorate degree (for example: PhD, EdD)





McGovern
Medical School

Healthcare Transformation Initiatives

August 30, 2019

Nayeema Ahmed
Doctoral candidate, UTSPH

NOTICE OF APPROVAL TO BEGIN RESEARCH

[UTP-HTI-Quality-100](#) – Measuring Cultural Humility Community Health Workers (CHWs)

APPROVAL DATE: 08/30/2019

REVIEWED & APPROVED BY HTI Quality Committee: Sahar Qashqai, Yen-Chi Le, Logan Thornton, Jennifer Bradley

A handwritten signature in black ink, appearing to read "Yen-Chi Le".

PROVISIONS: This approval relates to the research to be conducted under the above referenced title and/or to any associated materials considered by the HTI Quality Committee

PROTOCOL CHANGES: Ms. Ahmed must receive approval from the HTI Quality Committee before initiating any changes which would affect human subjects, e.g. changes in methods or procedures, numbers or kinds of human subjects, or revisions to the informed consent document or procedures

RECORDS: Ms. Ahmed will maintain adequate study records, including signed consent and HIPAA documents if required, in a manner that ensures participant confidentiality.

CC: Jennifer Bradley, Sahar Qashqai, Logan Thornton

REFERENCES

- Arauz Boudreau, A. D., Fluet, C. F., Reuland, C. P., Delahaye, J., Perrin, J. M., & Kuhlthau, K. (2010). Associations of providers' language and cultural skills with latino parents' perceptions of well-child care. *Academic Pediatrics*.
<https://doi.org/10.1016/j.acap.2010.01.002>
- Arvey, S. R., & Fernandez, M. E. (2012). Identifying the core elements of effective community health worker programs: A research agenda. *American Journal of Public Health*. <https://doi.org/10.2105/AJPH.2012.300649>
- Azzopardi, C., & McNeill, T. (2016). From Cultural Competence to Cultural Consciousness: Transitioning to a Critical Approach to Working Across Differences in Social Work. *Journal of Ethnic and Cultural Diversity in Social Work*.
<https://doi.org/10.1080/15313204.2016.1206494>
- Ballinger, G. A. (2004). Using Generalized Estimating Equations for Longitudinal Data Analysis. *Organizational Research Methods*.
<https://doi.org/10.1177/1094428104263672>
- Benson, T., & Potts, H. W. W. (2014). Short generic patient experience questionnaire: HowRwe development and validation. *BMC Health Services Research*.
<https://doi.org/10.1186/s12913-014-0499-z>
- Benson, T., Sizmur, S., Whatling, J., Arian, S., McDonald, D., & Ingram, D. (2010). Evaluation of a new short generic measure of health status: HowRu. *Informatics in Primary Care*.
- Brach, C., & Fraserirector, I. (2000). Can Cultural Competency Reduce Racial and Ethnic Health Disparities? a Review and Conceptual Model. *Medical Care Research and Review*. <https://doi.org/10.1177/1077558700574009>
- Clinical and Laboratory Standards Institute. (2002). Method Comparison and Bias Estimation Using Patient Samples; Approved Guideline?— Second Edition. *Approved Guideline Second Edition. NCCLS Document EP9-A2. CLSI Document EP9-A2*.
[https://doi.org/10.1016/S1874-5849\(03\)80042-6](https://doi.org/10.1016/S1874-5849(03)80042-6)
- Davis, D. E., Hook, J. N., Worthington, E. L., Van Tongeren, D. R., Gartner, A. L., Jennings, D. J., & Emmons, R. A. (2011). Relational humility: Conceptualizing and measuring humility as a personality judgment. *Journal of Personality Assessment*.
<https://doi.org/10.1080/00223891.2011.558871>
- Davis, D. E., Worthington, E. L., Hook, J. N., Emmons, R. A., Hill, P. C., Bollinger, R. A., & van Tongeren, D. R. (2013). Humility and the Development and Repair of Social Bonds: Two Longitudinal Studies. *Self and Identity*.
<https://doi.org/10.1080/15298868.2011.636509>
- Dutta, M. J. (2007). Communicating about culture and health: Theorizing culture-centered and cultural sensitivity approaches. *Communication Theory*.
<https://doi.org/10.1111/j.1468-2885.2007.00297.x>
- Edwards, K., Walker, K., & Duff, J. (2015). Instruments to measure the inpatient hospital experience: A literature review. *Patient Experience Journal*.
- Fisher-Borne, M., Cain, J. M., & Martin, S. L. (2015). From Mastery to Accountability:

- Cultural Humility as an Alternative to Cultural Competence. *Social Work Education*.
<https://doi.org/10.1080/02615479.2014.977244>
- Foronda, C., Baptiste, D. L., Reinholdt, M. M., & Ousman, K. (2014). Cultural Humility: A Concept Analysis. *Journal of Transcultural Nursing*.
<https://doi.org/10.1177/1043659615592677>
- Giavarina, D. (2015). Understanding Bland Altman analysis. *Biochemia Medica*.
<https://doi.org/10.11613/BM.2015.015>
- Gregg, J., & Saha, S. (2006). Losing culture on the way to competence: The use and misuse of culture in medical education. *Academic Medicine*.
<https://doi.org/10.1097/01.ACM.0000225218.15207.30>
- Hanneman, S. K. (2008). Design, analysis, and interpretation of method-comparison studies. *AACN Advanced Critical Care*.
<https://doi.org/10.1097/01.AACN.0000318125.41512.a3>
- Helman, C. (1984). *Culture, Health and Illness*. *Culture, Health and Illness*.
<https://doi.org/10.1016/B978-0-7236-1991-8.50010-3>
- Hook, J. N., Boan, D., Davis, D. E., Aten, J. D., Ruiz, J. M., & Maryon, T. (2016). Cultural Humility and Hospital Safety Culture. *Journal of Clinical Psychology in Medical Settings*. <https://doi.org/10.1007/s10880-016-9471-x>
- Hook, J. N., Davis, D. E., Owen, J., Worthington, E. L., & Utsey, S. O. (2013). Cultural humility: Measuring openness to culturally diverse clients. *Journal of Counseling Psychology*. <https://doi.org/10.1037/a0032595>
- John-Baptiste, A., Naglie, G., Tomlinson, G., Alibhai, S. M. H., Etchells, E., Cheung, A., ... Krahn, M. (2004). The effect of english language proficiency on length of stay and in-hospital mortality. *Journal of General Internal Medicine*. <https://doi.org/10.1111/j.1525-1497.2004.21205.x>
- Kangovi, S., Grande, D., Trinnh-Shevrin, C., 2015. (n.d.). Retrieved from
<https://nejm.org/doi/pdf/10.1056/NEJMp1502569>
- Katigbak, C., Van Devanter, N., Islam, N., & Trinh-Shevrin, C. (2015). Partners in health: A conceptual framework for the role of community health workers in facilitating patients' adoption of healthy behaviors. *American Journal of Public Health*.
<https://doi.org/10.2105/AJPH.2014.302411>
- Kirmayer, L. J. (2012). Rethinking cultural competence. *Transcultural Psychiatry*.
<https://doi.org/10.1177/1363461512444673>
- Knettel, B. A., Slifko, S. E., Inman, A. G., & Silova, I. (2017). Training community health workers: an evaluation of effectiveness, sustainable continuity, and cultural humility in an educational program in rural Haiti. *International Journal of Health Promotion and Education*. <https://doi.org/10.1080/14635240.2017.1284014>
- Kwiecien, R., Kopp-Schneider, A., & Blettner, M. (2011). Concordance Analysis. *Deutsches Aerzteblatt Online*. <https://doi.org/10.3238/arztebl.2011.0515>
- Lairson, D. R., Basu, R., Begley, C. E., & Reynolds, T. (2009). Concordance of survey and billing data in a study of outpatient healthcare cost and utilization among epilepsy patients. *Epilepsy Research*. <https://doi.org/10.1016/j.epilepsyres.2009.07.010>
- Liang, K. Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear

- models. *Biometrika*. <https://doi.org/10.1093/biomet/73.1.13>
- Lopez, S. J., & Snyder, C. R. (2012). *The Oxford Handbook of Positive Psychology, (2 Ed.)*. *The Oxford Handbook of Positive Psychology, (2 Ed.)*. <https://doi.org/10.1093/oxfordhb/9780195187243.001.0001>
- Ludbrook, J. (2002). Statistical techniques for comparing measurers and methods of measurement: A critical review. *Clinical and Experimental Pharmacology and Physiology*. <https://doi.org/10.1046/j.1440-1681.2002.03686.x>
- Malcarney, M. B., Pittman, P., Quigley, L., Horton, K., & Seiler, N. (2017). The Changing Roles of Community Health Workers. *Health Services Research*. <https://doi.org/10.1111/1475-6773.12657>
- Martin Bland, J., & Altman, D. G. (1986). STATISTICAL METHODS FOR ASSESSING AGREEMENT BETWEEN TWO METHODS OF CLINICAL MEASUREMENT. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(86\)90837-8](https://doi.org/10.1016/S0140-6736(86)90837-8)
- Matthews, L., Brown, R., & Kennedy, D. (2018). *A Manual for Cultural Analysis. A Manual for Cultural Analysis*. <https://doi.org/10.7249/tl275>
- Miller, J., Avila-Esparza, A., & Berthold, T. (2009). Working to promote health at the community level. *Foundations for Community Health Workers*.
- Mosher, D. K., Hook, J. N., Captari, L. E., Davis, D. E., DeBlaere, C., & Owen, J. (2017). Cultural humility: A therapeutic framework for engaging diverse clients. *Practice Innovations*. <https://doi.org/10.1037/pri0000055>
- Munder, T., Wilmers, F., Leonhart, R., Linster, H. W., & Barth, J. (2010). Working alliance inventory-short revised (WAI-SR): Psychometric properties in outpatients and inpatients. *Clinical Psychology and Psychotherapy*. <https://doi.org/10.1002/cpp.658>
- Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues. A handbook and classification*. <https://doi.org/313971759>
- Prasad, S. J., Nair, P., Gadhvi, K., Barai, I., Danish, H. S., & Philip, A. B. (2016). Cultural humility: Treating the patient, not the illness. *Medical Education Online*. <https://doi.org/10.3402/meo.v21.30908>
- Ridley, C. R., Baker, D. M., & Hill, C. L. (2001). Critical issues concerning cultural competence. *The Counseling Psychologist*. <https://doi.org/10.1177/0011000001296003>
- Ridley, C. R., Mendoza, D. W., Kanitz, B. E., Angermeier, L., & Zenk, R. (1994). Cultural Sensitivity in Multicultural Counseling: A Perceptual Schema Model. *Journal of Counseling Psychology*. <https://doi.org/10.1037/0022-0167.41.2.125>
- Riley, W. J. (2012). Health disparities: gaps in access, quality and affordability of medical care. *Transactions of the American Clinical and Climatological Association*.
- Rosenthal, E. L. (1998). A Summary of the National Community Health Advisor Study. *Baltimore, MD: Annie E. Casey Foundation*. <https://doi.org/10.1093/intimm/dxs153>
- Rosner, B., Glynn, R. J., & Lee, M. L. T. (2006). The Wilcoxon signed rank test for paired comparisons of clustered data. *Biometrics*. <https://doi.org/10.1111/j.1541-0420.2005.00389.x>
- Ross, L. (2010). Notes from the field: Learning cultural humility through critical incidents and central challenges in community-based participatory research. *Journal of Community Practice*. <https://doi.org/10.1080/10705422.2010.490161>

- Sabella, E. Z., & Hall, E. T. (1978). Beyond Culture. *Contemporary Sociology*.
<https://doi.org/10.2307/2064404>
- Scheff, S. W. (2016). Statistic Essentials. In *Fundamental Statistical Principles for the Neurobiologist*. <https://doi.org/10.1016/b978-0-12-804753-8.00003-8>
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*. <https://doi.org/10.1037/0003-066X.62.4.271>
- Tervalon, M., & Murray-García, J. (1998). Cultural Humility Versus Cultural Competence: A Critical Distinction in Defining Physician Training Outcomes in Multicultural Education. *Journal of Health Care for the Poor and Underserved*.
<https://doi.org/10.1353/hpu.2010.0233>
- Worthington, E. L. J. [Ed], Davis, D. E. [Ed], & Hook, J. N. [Ed]. (2017). Handbook of humility: Theory, research, and applications. *Handbook of Humility: Theory, Research, and Applications*.
- Yellareddygar, S. K. R., & Gudmestad, N. C. (2017). Bland-Altman comparison of two methods for assessing severity of Verticillium wilt of potato. *Crop Protection*.
<https://doi.org/10.1016/j.cropro.2017.07.019>

