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The Role of Spirituality in Conceptualizations of Health Maintenance and Healthy Aging Among Latin American Immigrants

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ABSTRACT

Objectives: We aimed to investigate ways in which spirituality was conceptualized in relationship to maintaining brain health and healthy aging in a cohort of older adults who immigrated to the United States from diverse regions of Latin America, in order to ultimately develop culturally-tailored brain health promotion approaches. **Design:** We conducted a qualitative study using semi-structured interviews. **Setting:** Participants were recruited from community centers and by a memory care center at a large academic medical center. **Participants:** We interviewed 30 Spanish-speaking immigrants over age 60. Questions addressed perspectives about the brain, aging, and dementia. Interviews were coded for themes. **Measurements:** Thematic analysis was used to analyze participants' responses. **Results:** We identified 5 themes: (1) expressing gratitude to God for mental and physical health, (2) putting the onus of life and death in God's hands, (3) using church as a place to socialize and build community as an approach to leading a healthy lifestyle, (4) using prayer as nourishment for the soul and the brain, and (5) gaining inner-peace and calm, and thus maintaining a healthy life, due to a connection with God. **Conclusion:** The incorporation of customized spiritual interventions may be a mechanism by which to increase the effectiveness of brain health promotion efforts. (Am J Geriatr Psychiatry 2021; 29:1079–1088)

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Highlights

- How do older adults who immigrated to the United States from diverse regions of Latin America conceptualize spirituality in relationship to maintaining brain health and healthy aging?
- When asked how to best take care of the brain while aging, spirituality emerged as a key factor in 19 out of 30 participants' responses. Within these responses, we identified five major themes: (1) expressing gratitude to God for mental and physical health, (2) putting the onus of life and death in God's hands, (3) using prayer as nourishment for the soul and the brain, (4) using church as a place to socialize and build community as an approach to leading a healthy lifestyle, and (5) gaining inner-peace and calm, and thus maintaining a healthy life, due to a connection with God.
- This study builds upon existing spirituality-linked public health efforts to discuss a possible patient- or community-centered approach, pertaining to the incorporation of customized spiritual interventions as a potential mechanism by which to increase the effectiveness of brain health promotion efforts.

INTRODUCTION

As societies around the globe see impressive advances in the medical sciences, longevity is increasing, leading to a heightened focus on the health and wellbeing of the growing population of older adults. One crucial consideration in this population is brain health. In the United States, there are currently an estimated 6 million adults living with dementia¹, a clinical disorder that is characterized by neurocognitive decline severe enough to impede independent living. Furthermore, this number is projected to reach nearly 14 million by 2060¹, highlighting the importance of identifying strategies that may help reduce the burden of the disease.

While dementia affects the population at large, people of Latin American descent in the United States are one-and-a-half times more likely than non-immigrant European Americans to develop cognitive impairment¹. Notably, it is projected that by 2060, people who identify as Latin American will make up 28.6% of the nation's population, and 18% of this group will be 65 or older². While individuals of Latin American descent hail from a wide range of backgrounds and cultures, first generation immigrants from Latin America living in urban centers of the U.S. often face similar structural and environmental barriers to health, including limited access to healthcare, language discordance with healthcare providers, transportation barriers, stigma, racism, and fear^{3,4}. These socioeconomic and structural risk factors may account for the inequities in incidence of dementia, as

well as in timely diagnosis and care^{2,6}. The impending population-wide increase in the incidence of dementia, and especially the heightened risk for vulnerable communities, poses pressing emotional, medical, and financial challenges to society¹.

Fortunately, research highlights the potential of modifiable lifestyle factors to slow or reduce the onset of dementia⁵. For example, a recent Lancet Commission statement found that 35% of dementia cases could be prevented by modifying nine known risk factors, including obesity, hypertension, depression, smoking, physical inactivity, diabetes, and social isolation⁶. These compelling evidence-based recommendations encourage the continued investigation of brain health promotion strategies aimed to combat cognitive decline via modifiable lifestyle factors.

One potential complementary behavioral intervention for brain health promotion in the aging population involves the role of spirituality and religiosity, which have similarly been recognized as modifiable variables implicated in wellbeing⁷. Furthermore, attention to spirituality and religiosity have the potential to enable the tailoring of interventions focused on the above nine modifiable risk factors, for instance via the pathway of decreasing social isolation⁸. Notably, religiosity and spirituality tend to increase as we get older⁹, possibly in response to the higher frequency with which older adults face illness, loss, and mortality¹⁰. However, studies on the relationship between spirituality and health in older adults show mixed findings. Many robust meta-analyses and systematic reviews, prospective cohort studies, and longitudinal investigations have shown a positive association

between spirituality and wellbeing, positive emotions, and physical health outcomes, as well as associations with reduced depression, anxiety, and morbidity^{10–13}. For example, the longitudinal Study of Women's Health Across the Nation demonstrated significant associations between spirituality and better psychological well-being¹². Further, a recent cross-sectional study highlighted the link between religiosity and resilience against symptoms of distress, as mediated by the role of perceived confidence in using coping behaviors and engaging in the cognitive reframing of challenging circumstances as opportunities for spiritual growth¹³. However, other researchers have either found no significant relationship between spiritual engagement and health outcomes, or even a negative correlation^{11,14}. For instance, in a cross-sectional study evaluating older adults during screening and baseline procedures of a clinical trial, negative religious coping – including doubting God's love or perceiving negative life events to be a form of punishment – was shown to be associated with increased anxiety, worry, and depression¹⁴. One theory for these negative associations is the relationship between religion and locus of control: namely, the more an individual believes in the omnipotence of a supreme being, the more likely they are to have an external locus of control, and thus believe that their health will not be affected by their own actions or behaviors^{15,16}.

That said, in communities that struggle with poverty, chronic disease, discrimination, and other social determinants of health, researchers have found that spiritual beliefs may be particularly useful in providing comfort and solace¹⁷. As the large Spanish-speaking immigrant population ages, many of these older adults will find themselves in such vulnerable living conditions, and more work is needed to understand how to promote healthy aging. The present investigation was therefore conducted within the context of a parent study, whose goal was to investigate the perceptions of aging and brain health in a diverse cohort of older adults who migrated to California from urban and rural regions of Latin America. The present study is a qualitative analysis of data from this larger study, which is not yet published, as discussions of spirituality and religiosity spontaneously emerged as a major key theme in interviews. We sought to evaluate the frequency and manner in which participants discussed spirituality in relationship to brain health

and aging. We used thematic analysis to gain an understanding of individuals' contemplation of aging and cognitive decline, which is currently a neglected area of research. Our ultimate goal is to leverage this investigation's findings to inform the development of culturally-adapted brain health promotion strategies that will improve brain health literacy and contribute to dementia prevention among Latin American immigrants living in the United States.

METHODS

Design

This qualitative interview study examined the relationship between spirituality and conceptions of brain health. It was conducted within a larger study focused on perceptions of brain health, aging, and dementia among community-dwelling older adults who immigrated to California from Latin America. This study was approved by the IRB of the University of California, San Francisco.

Participants

We recruited participants by contacting community center leadership, disseminating ads, flyers, and utilizing snowball sampling from community outreach clinics and centers that have been engaged in workshops by a memory care center at a large academic medical center, as well as from nearby community centers. Eligible participants were (a) first generation Latin American immigrants, (b)

TABLE 1. Participant Demographics (SD = Standard Deviation)

Participants (n = 30)	
Characteristics	Means and Percentages
Age	76.37 years (SD = 7.7)
Sex	66.7% female (n = 30) 33.3% male (n = 10)
Education	8.5 years (SD = 5.0)
Country of Origin	50.0% Mexico (n = 15) 20.0% El Salvador (n = 6) 20.0% Nicaragua (n = 6) 3.3% Ecuador (n = 1) 3.3% Peru (n = 1)
Years Living in U.S.	3.3% Guatemala (n = 1) 34.6 years (SD = 15.1)

monolingual Spanish speakers, and (c) ≥ 60 years old, and they were approached in-person.

A total of 30 participants were enrolled in this study (Table 1). The participants ranged in age from 60 to 92 ($M = 76.37$; $SD = 7.73$). Fifty percent of the sample identified as being from Mexico, 20% from El Salvador, 20% from Nicaragua, 3.33% from Guatemala, 3.33% from Peru, and 3.33% from Ecuador. The majority of participants identified as female (66.67%), and years of formal education ranged from 0 to 20 ($M = 8.47$; $SD = 4.99$). On average, participants had been living in the United States for 34.57 years (range = 9–70).

Procedures

We conducted individual semi-structured interviews to identify participants' knowledge, perspectives, and attitudes about the brain and aging. Interviews were conducted at community-based sites chosen by the participants. Informational handouts were provided, and informed consent was obtained prior to conducting each interview.

The senior author, a medical anthropologist, developed the interview guide in collaboration with a multidisciplinary team consisting of a medical sociologist, a neuropsychologist, and a neurologist (DD, KPR, SL), based on a review of relevant literature and topics identified as salient during brain health education outreach conducted by the neurologist. The interview guide covered the following topics: (a) perspectives and knowledge about the brain, brain health, and brain health maintenance, and (b) perspectives about healthy and unhealthy aging and healthy aging behaviors (Appendix 2). Interviews were conducted by a bilingual female research assistant with extensive experience living and working in Latin America and experience conducting qualitative research in Spanish. Each interview lasted approximately 45–60 minutes. Interviews were digitally recorded, professionally transcribed, and coded using Dedoose Version 8.3.17, a qualitative data management and coding software¹⁸.

Data Analysis

The data was analyzed by two coders using thematic analysis to identify key themes¹⁹. The first author, who is fluent in Spanish, read and coded all

interviews deductively for overarching themes based on interview domains and goals of the parent study, and inductively to identify any emergent themes. One of the inductive codes that emerged frequently across 19 of 30 interviews in relationship to brain health, healthy aging, and brain health maintenance was "spirituality and religiosity." The first author then inductively re-coded all of the transcripts to identify key themes related specifically to spirituality and religiosity, given the salience of this inductive code. The senior author, who is also fluent in Spanish, reviewed all transcripts and codes at multiple intervals during the coding process, and the first and senior authors developed code definitions through an iterative process. Any disagreements in coding between the first and senior author were discussed and resolved. They identified recurring themes that came up repeatedly based on these codes until thematic saturation was reached. The first and senior authors then reviewed and refined these themes and identified illustrative quotations. Interviews were conducted in Spanish and coded in English. Illustrative quotes were translated to English. We have followed the Consolidated Criteria for Reporting Qualitative Research in reporting our findings²⁰ (Appendix 1).

RESULTS

When asked about how to take care of the brain while aging, spirituality spontaneously emerged as a key factor in 19 of 30 participants' conceptualizations of staying cognitively healthy. We identified five major themes within these responses: (a) expressing gratitude to God for mental and physical health, (b) putting the onus of life and death in God's hands, (c) using prayer as nourishment for the soul and the brain, (d) using church as a place to socialize and build community as an approach to leading a healthy lifestyle, and (e) gaining inner-peace and calm, and thus maintaining a healthy life, due to a connection with God (Table 2). We provide the number and percentage of participants who discussed a given code out of the total number of participants in the study ($n = 30$), though those who discussed spirituality during interviews was a smaller subset ($n = 19$).

Expressing gratitude to God for mental and physical health. The majority of participants ($n = 17$; 56.67%)

TABLE 2. Key Themes

Key Themes	Main Categories	Examples
Expressing gratitude to God for mental and physical health	<i>Thanking God for lack of physical and mental decline</i>	<p>"Yes, my brain... I thank God that I haven't declined in my way of thinking and doing things correctly, staying on track, remembering and acting in the appropriate manner with my children and other people."</p> <p>"I could say to you, thank God my brain is doing well. It's working well, but the day that my brain starts malfunctioning, we'll see what we need to do."</p> <p>"Thank God nothing worse happened to me. I say thank God because I don't think that experience has affected me."</p> <p>"I had gotten depressed that you can't do what you need. You know, you have benefits and you can't access them. And that brings a person down. But like I said, after that you thank God when you get better."</p> <p>"I ask for help from God above, I tell him thank you for maintaining me, thank you for the health that you give me. Thank you for the money that you give me. . . Maybe He won't be giving me riches, but He is giving me life to maintain me like this. I even realize I feel...I don't feel ancient even though I'm 81."</p>
	<i>Thanking God for being physically able to engage in activities</i>	<p>"Monday, thank God, I do yoga. Wednesdays I do Zumba. And Fridays I do other exercises."</p> <p>"I go to God so that he controls my appetite and then I'm not going to eat 5 times in a day, but like 3. Sometimes 2 and a half. And God appeases me and doesn't make me feel weak. He keeps me at my normal weight."</p>
Putting the onus of life and death in God's hands	<i>Discussing the end of life as being determined by God</i>	<p>"In the case of my mother, we have to try to help her to eat at least a little, to nourish herself, to help her feel a bit more energy to be alive, until God says: it stops here."</p> <p>"...I don't know if at the end of the year, if next year God will lend me life, right?"</p> <p>"I didn't have an accident, I didn't have a ticket, and my daughter said '...this is your message from God, that you shouldn't drive.'"</p> <p>"...we don't know what's to come. Not even an educated person, or a bald person like me can know. But not knowing, because through God comes what's going to happen...I'm not in a rush. I have faith that God helps me...God knows. I leave it to God, and who knows what can happen and how."</p>
	<i>Hoping that God continues to support health and longevity</i>	<p>"...within the brain or having illnesses of the brain, a human being can't live like he should or how he'd like to, and thank God for the brain."</p> <p>"Just thank God that it seems like he loves you, and ask Him to give you life to keep on going."</p> <p>"I give infinite thanks to God that each morning I wake up again."</p> <p>"It's like I tell my people 'when you have problems and you don't know what to do, come to me. And I'll go with you to God, but for sure He's going to cure you, not me. He's going to cure you.'"</p>
Using prayer as nourishment for the soul and the brain	<i>Prayer as beneficial to brain health</i>	<p>"I'm spiritual because I love to pray and all that. That's why I get up early. Because I like to dedicate time to this. And so, I think that all that is good for the brain."</p> <p>"Praying...is essential, it's what feeds our spirits, our souls, our hearts."</p>
	<i>Prayer in creating a sense of safety and security</i>	<p>"I don't go to bed without praying. Also when I get up in the morning. At all times. It's religion that keeps us going."</p> <p>"But, if I don't pray, I can't sleep...Also, that's what I do with prayers, so that God protects me and protects all the people of the world. Especially right now, since it's so ugly."</p>
Using church as a place to socialize and build community as an approach to leading a healthy lifestyle	<i>Participating in church activities to keep the brain busy</i>	<p>"For me, exercise I think is the best. And it could be the person's nutrition too. That they feed themselves with things that give their body strength. And, maybe, as they say, going to church, going to places where there are group meetings to learn things. Like me here, each time they tell me there's a meeting, I come."</p> <p>"Participate in things – for example, I participate in church."</p> <p>"I live alone. I don't have a lot of money. My health isn't that good, but I don't fall into depression. When I feel like I'm going to cry or I'm sad, I immediately grab my jacket and go to church."</p>
	<i>Participating in church to avoid social isolation</i>	<p>"You have to help yourself. To spend time with people...The woman that lives near me is really negative...so it's better for me to go to church and talk to the pastor."</p>
Gaining inner peace and calmness, and thus maintaining a healthy life, due to a connection with God	<i>Having a personal relationship with God to maintain a healthy life</i>	<p>"One has to balance praying in a calm silence just God and me... Closing my eyes, turning off the TV at whatever time, and staying there, even though I don't fall asleep, but I stay calm always thinking about God. Right? About myself and about my God. About that world that I don't know."</p> <p>"I personally, particularly, I think I'm connected to God. He makes me, he tells me, and he makes me feel in a good state of health and he gives me strength and gives me life because I think He knows that I'm connected to Him and I try to teach certain people that I see are distanced from God."</p>
	<i>Coping with stress through connection with God</i>	<p>"There's never not problems, but sometimes you have to give a lot of priority to the problems. If you have a problem and you just dedicate yourself to that problem, you get sick. But if you say, God comes first, this problem will resolve itself little by little. So, your mind calms down. You don't have to dedicate yourself to the problem, right?"</p> <p>"...move closer to God, that person that approaches God, God will resolve that problem."</p>

The Role of Spirituality in Conceptualizations

expressed gratitude to a higher power through statements in which they thanked God for their lack of physical and mental decline. Importantly, participants discussed this gratitude specifically in relation to sustained brain health.

"Yes, my brain... I thank God that I haven't declined in my way of thinking and doing things correctly, staying on track, remembering and acting in the appropriate manner with my children and other people" (Participant 7).

"I could say to you, thank God my brain is doing well. It's working well, but the day that my brain starts malfunctioning, we'll see what we need to do" (Participant 17).

Others expressed gratitude for being physically able to engage in activities that require health, strength, and willpower.

"Monday, thank God, I do yoga. Wednesdays I do Zumba. And Fridays I do other exercises" (Participant 9).

"I go to God so that he controls my appetite and then I'm not going to eat 5 times in a day, but like 3... And God appeases me and doesn't make me feel weak. He keeps me at my normal weight" (Participant 28).

Putting the onus of life and death in God's hands. Many participants (n = 9; 30%) described the role they feel God plays in their personal destinies. Some discussed the end of life as something that is only known and determined by God, and some specifically spoke of brain disease as being under God's control.

"I give infinite thanks to God that each morning I wake up again" (Participant 13).

"...we don't know what's to come. Not even an educated person, or a bald person like me can know. But not knowing, because through God comes what's going to happen...I'm not in a rush. I have faith that God helps me...God knows. I leave it to God, and who knows what can happen and how" (Participant 27).

"...within the brain or having illnesses of the brain, a human being can't live like he should or how he'd like to, and thank God for the brain" (Participant 28).

Using prayer as nourishment for the soul and the brain. Additionally, some participants (n = 7; 23.33%) mentioned prayer as beneficial to brain health, as well as to overall wellbeing.

"I'm spiritual because I love to pray and all that. That's why I get up early. Because I like to dedicate time to this. And so, I think that all that is good for the brain" (Participant 15).

"But, if I don't pray, I can't sleep...Also, that's what I do with prayers, so that God protects me and protects all the people of the world. Especially right now, since it's so ugly" (Participant 26).

Using church as a place to socialize and build community, as an approach to leading a healthy lifestyle. When asked about healthy lifestyle approaches, some participants (n = 5; 16.67%) mentioned churchgoing as a brain maintenance approach.

"For me, exercise I think is the best. And it could be the person's nutrition too...And, maybe, as they say, going to church, going to places where there are group meetings to learn things" (Participant 26).

"Participate in things – for example, I participate in church" (Participant 12).

Church was also discussed as an opportunity to socialize:

"You have to help yourself. To spend time with people...The woman that lives near me is really negative...so it's better for me to go to church and talk to the pastor" (Participant 14).

Gaining inner-peace and calm, and thus maintaining a healthy life, due to a connection with God. Finally, some participants (n = 6; 20%) discussed a connection with a higher being as a path to gaining a sense of inner peace. When asked what activities can help to maintain a brain-healthy life, they emphasized having a personal relationship with God.

"One has to balance praying in a calm silence just God and me...I stay calm always thinking about God. Right? About myself and about my God. About that world that I don't know" (Participant 15).

"I think I'm connected to God. He makes me, he tells me, and he makes me feel in a good state of

health and he gives me strength and gives me life because I think He knows that I'm connected to Him and I try to teach certain people that I see are distanced from God" (Participant 28).

Likewise, some participants discussed their connection with God as a way to deal with problems and cope with stress.

"There's never not problems, but sometimes you have to give a lot of priority to the problems. If you have a problem and you just dedicate yourself to that problem, you get sick. But if you say, God comes first, this problem will resolve itself little by little. So, your mind calms down. You don't have to dedicate yourself to the problem, right?" (Participant 17)

"...move closer to God, that person that approaches God, God will resolve that problem" (Participant 28).

DISCUSSION

This study examined the role of spirituality, including religion and a connection with a higher power, in the conceptualization of brain health maintenance among a cohort of first generation Latin American immigrants living in California. We found that the majority of participants spontaneously described an important role of spirituality when discussing their perspectives on brain health maintenance, and that these participants connected their knowledge of the benefits of engaging in well-established protective behaviors, such as physical activity and socialization, with their perceptions of spirituality. The findings of the present study suggest that a translation of prior spirituality-based public health efforts into evidence-based brain health promotion approaches may prove fruitful within some communities.

The Role of Spirituality in Conceptualizations of Brain Health

While previous studies have investigated the relationship between spirituality and health, this study is unique in that it specifically examined conceptualizations of spirituality in brain health and aging. Still,

the five major themes that emerged in our findings were consistent with previous literature that has described typologies regarding the role of God and spirituality in health²¹⁻²⁷.

For example, relating to our first theme regarding the expression of gratitude to God for mental and physical health, many previous works have discussed the role of God as a healer, as well as a guide for engaging in health behaviors^{25,26}. In our study, many participants thanked God for the ability to engage in health-related activities. Moreover, both physical activity and healthy diet have been recognized as potent modifiable risk factors for dementia^{6,28}, and some of our participants spoke about God's role in promoting these important activities.

Our second theme of putting the onus of life and death in God's hands aligns with previous work that suggests that members of certain religions see God as having all-encompassing knowledge, in contrast to their own partial knowledge, thus requiring trust in God's vast wisdom^{21,23-25}. This may reflect the concept of a passive relationship with God, such that health is understood to be out of the hands of the individual, requiring full faith and trust in the higher power^{22,25}. Previous work has highlighted individuals' dependence on God for ability and strength²⁵; here, participants discussed a similar desire, sometimes specifically in relation to illnesses of the brain.

In concordance with our third theme, prayer has previously been conceptualized as an important aspect of pain management²⁶, and as a powerful healing force, both as therapy on an individual level, and as a tool that might create change in the wider social world^{21,23,24}. Moreover, prayer has been discussed as a valuable tool for helping patients and caregivers feel part of health decision-making processes²². Thus, prayer is often understood to represent an active type of relationship, in which individuals see God as a partner with shared participation, for example in promoting pain relief and fear reduction²⁵.

Our fourth theme, involving the role of church in brain health, can also be compared to existing typologies. While prior literature has recognized the importance of church in disseminating health information²², our participants mentioned the importance of participating in church activities specifically to keep the brain busy. Cognitively stimulating activities that activate alternate brain pathways have demonstrated benefits to brain health^{5,29}, and church participation may be

leveraged in a similar vein. Moreover, our participants' discussion of church as a place to socialize is not novel: the sense of relatedness, connectedness, and acceptance that individuals can gain from faith communities has long been recognized as an important aspect of spirituality and health^{22–24,27}. In regard to brain health, socializing and avoiding social isolation are widely agreed upon protective factors³⁰, and many participants from this cohort identified their religious communities as their primary social circles.

Finally, our participants' discussion of gaining inner peace through a relationship to God may be likened to the extant idea that a sense of connectedness can enable individuals to reflect on their selves, their motives, their desires, and their sense of purpose^{21,23,24,27}. Additionally, previous literature has suggested that in times of stress people often turn to the 'older wisdom' of spirituality, because it provides comfort in a way that rational scientific information cannot²¹. In the present study, responses supported the prior work that has discussed the role of spirituality and faith as coping mechanisms in response to health issues, in promoting hope, courage, power, and psychological strength in the face of adversity^{22–27}.

Culturally-Tailoring Brain Health Promotion

Our findings may be a reflection of the fact that religious beliefs tend to be highly integrated into the daily lives of various Latin American cultures³¹. Moreover, when people immigrate to a new country, sites of worship are frequently the first places they seek out for support during transitional times³². Previous research on spirituality and health among people from Latin America, specifically, has revealed that religious participation may enhance physical health in women³³ and promote well-being across multiple generations³⁴. Spirituality has been found to be consistently associated with the idea of successful aging in men and women from Latin American cultures³⁵. Moreover, in cases of both cognitive impairment and dementia, patients, caregivers, and health professionals alike struggle with pain and loss; hence, questions of faith, religion, and spirituality inevitably arise for some³⁶.

A robust literature already documents that public health efforts leveraging spirituality can be quite successful in communities that emphasize spirituality³⁷.

For example, faith-based education and prevention efforts relating to conditions such as HIV/AIDS, cancer, sexually transmitted infections, and addiction have resulted in beneficial outcomes in Latinx, Black, Native American and rural communities^{22,37}. The present study further supports this well-studied phenomenon, while identifying new themes involving spiritual factors in brain health conceptualization, specifically.

Thus, in accordance with previous work, our findings underscore the potential of spirituality and religion as important factors in the design of brain health promotion and dementia prevention outreach programs. Spirituality may be particularly important to consider within brain health promotion, since dementia is understood to be an exception to the Latino Health Paradox, a phenomenon in which Latin Americans living in the U.S. tend to have better health than other ethnic groups of the same socioeconomic status³⁸. Along with the important role of community, many have theorized that spirituality is a crucial protective factor that helps account for this effect, potentially due to (a) encouraging health promoting behaviors such as abstinence from alcohol, red meat and tobacco, or (b) promoting a sense of purpose, inner-peace and self-confidence^{11,21,39}. Since dementia tends to defy this phenomenon⁴⁰, the development of brain health promotion efforts within Latinx communities is of particular importance. Engaging with individuals' spirituality, and thus leveraging the potential for encouraging healthy behaviors and promoting a sense of purpose, may benefit the development of community-based guidelines tailored to address attitudes about the brain, brain health, and dementia more effectively.

While many public health promotion efforts have incorporated spirituality in their programming, there is little work in this arena within the realm of brain health promotion and dementia prevention, specifically. Therefore, this study has implications for the development and implementation of brain health promotion efforts. For example, in utilizing the themes derived from this study, public health interventions may be developed in collaboration with community and faith-based organizations, to incorporate gratitude to a higher power, prayer, church-going, and a connection with God alongside other approaches to addressing modifiable dementia risk factors. These approaches may help to better address and engage

people in brain health maintenance in some at-risk populations.

Limitations

Although this study illuminates one possible avenue by which to promote brain health, our findings are limited to represent the lived experiences of the participants in our sample. Their beliefs and attitudes may not necessarily reflect those of other Latin American immigrants who embody diverse backgrounds and whose lives as immigrants are profoundly shaped by many social, environmental, and structural factors. The data were qualitative in nature, with the goal of exploring participants' perceptions and beliefs and identifying points for future recommendations. In recognizing the previously mentioned contradictory findings regarding the relationship between religion and health¹⁰, more research is warranted to identify the factors that differentiate between the type of spiritual engagement that promotes positive brain health outcomes versus that which promotes negative brain health outcomes.

CONCLUSIONS

With the rise of the aging population in the U.S. and the expected increase in the incidence of dementia, it is critical to develop successful strategies for promoting brain health. This study builds upon spirituality-linked public health efforts to discuss a possible patient- or community-centered approach, pertaining to the incorporation of customized spiritual interventions as a potential mechanism by which to increase the effectiveness of brain health promotion efforts.

This study sought to understand the perspectives of Latin American immigrants on brain health and aging, in order to better inform low-cost and practical strategies that can be employed in studies with diverse populations. While spirituality-focused

interventions aimed to promote brain health may be especially powerful among groups that have historically strong relationships with religion, the concept of spirituality is multifaceted and cannot be succinctly and universally applied to all¹⁰. Spiritual interventions tailored to unique individuals and communities and integrated with research on psychological, social, genetic, and neurobiological factors may prove promising for the effective promotion of brain health among diverse populations.

AUTHOR CONTRIBUTIONS

Project conception, design, and qualitative analyses were completed by SWL and ABS. As first author, SWL completed the literature review and wrote the manuscript. KR, SL, KP, and DD supervised the project and provided critical edits of the manuscript.

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SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.jagp.2021.04.017>.

References

1. Alzheimer's Association: Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2021; 17:18-27
2. Colby SL, Ortman JM: Projections of the Size and Composition of the U.S. Population: 2014 to 2060. *US Dep Commer Econ Stat Adm US Census Bur*, March 2015:13.
3. Brindis C, Decker M, Gutmann-Gonzalez A, et al: Taking a Pulse: Latinx Health Equity in California: Facing Disparities and Building for the Future. San Francisco: Hispanics in Philanthropy and the University of California, 2018. Accessed November 21, 2019 https://hiponline.org/wp-content/uploads/2018/11/HIP-Taking-a-Pulse_web.pdf

4. Joseph TD: Falling through the coverage cracks: how documentation status minimizes immigrants' access to health care. *J Health Polit Policy Law* 2017; 42:961-984;doi:10.1215/03616878-3940495
5. Yaffe K: Modifiable risk factors and prevention of dementia: what is the latest evidence? *JAMA Intern Med* 2018; 178:281-282;doi:10.1001/jamainternmed.2017.7299
6. Livingston G, Sommerlad A, Orgeta V, et al: Dementia prevention, intervention, and care. *The Lancet* 2017; 390:2673-2734; doi:10.1016/S0140-6736(17)31363-6
7. Lima S, Teixeira L, Esteves R, et al: Spirituality and quality of life in older adults: a path analysis model. *BMC Geriatr* 2020; 20:259; doi:10.1186/s12877-020-01646-0
8. Hastings OP: Not a lonely crowd? Social connectedness, religious service attendance, and the spiritual but not religious. *Soc Sci Res* 2016; 57:63-79;doi:10.1016/j.ssresearch.2016.01.006
9. Atchley RC. Continuity and adaptation in aging: creating positive experiences. In: 1999. doi:10.2307/3089326
10. Lavretsky H: Spirituality and aging. *Aging Health* 2010; 6:749-769;doi:10.2217/ahc.10.70
11. Koenig HG: Religion, spirituality, and health: a review and update. *Adv Mind Body Med* 2015; 29:19-26
12. Avis NE, Colvin A, Hess R: Midlife factors related to psychological well-being at an older age: study of women's health across the nation. *J Womens Health* 2002 2021; 30:332-340; doi:10.1089/jwh.2020.8479
13. Dolcos F, Hohl K, Hu Y, et al: Religiosity and resilience: cognitive reappraisal and coping self-efficacy mediate the link between religious coping and well-being. *J Relig Health* 2021; doi:10.1007/s10943-020-01160-y, Published online
14. O'Brien B, Shrestha S, Stanley MA, et al: Positive and negative religious coping as predictors of distress among minority older adults. *Int J Geriatr Psychiatry* 2019; 34:54-59;doi:10.1002/gps.4983
15. Rotter JB: Generalized expectancies for internal versus external control of reinforcement. *Psychol Monogr* 1966; 80:1-28; doi:10.1037/h0092976
16. Welton GL, Adkins AG, Ingle SL, et al: God control: the fourth dimension. *J Psychol Theol* 1996; 24:13-25
17. Hilton JM, Child SL: Spirituality and the successful aging of older latinos. *Couns Values* 2014; 59:17-34;doi:10.1002/j.2161-007X.2014.00039.x
18. Dedoose: SocioCultural Research Consultants. LLC, 2019 www.dedoose.com
19. Boyatzis RE: *Transforming Qualitative Information: Thematic Analysis and Code Development*. Sage Publications, Inc, 1998:184.
20. Tong A, Sainsbury P, Craig J: Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007; 19:349-357; doi:10.1093/intqhc/mzm042
21. Coyle J: Spirituality and health: towards a framework for exploring the relationship between spirituality and health. *J Adv Nurs* 2002; 37:589-597;doi:10.1046/j.1365-2648.2002.02133.x
22. Thomas T, Blumling A, Delaney A: The influence of religiosity and spirituality on rural parents' health decision-making and human papillomavirus vaccine choices. *ANS Adv Nurs Sci* 2015; 38:E1-E12;doi:10.1097/ANS.0000000000000094
23. Alcorn SR, Balboni MJ, Prigerson HG, et al: "If God wanted me yesterday, i wouldn't be here today": religious and spiritual themes in patients' experiences of advanced cancer. *J Palliat Med* 2010; 13:581-588;doi:10.1089/jpm.2009.0343
24. Peteet JR, Balboni MJ: Spirituality and religion in oncology. *CA Cancer J Clin* 2013; 63:280-289;doi:10.3322/caac.21187
25. Jurkowski JM, Kurlanska C, Ramos BM: Latino women's spiritual beliefs related to health. *Am J Health Promot* 2010; 25:19-25; doi:10.4278/ajhp.080923-QUAL-211
26. Harvey IS: Spiritual self-management: a look at older adults with chronic illness. *J Relig Spiritual Aging* 2009; 21:200-218; doi:10.1080/15528030902803871
27. Schulz E, Holt CL, Caplan L, et al: Role of spirituality in cancer coping among African Americans: a qualitative examination. *J Cancer Surviv* 2008; 2:104-115;doi:10.1007/s11764-008-0050-5
28. Laurin D, Verreault R, Lindsay J, et al: Physical activity and risk of cognitive impairment and dementia in elderly persons. *Arch Neurol* 2001; 58:498-504;doi:10.1001/archneur.58.3.498
29. Committee on Preventing Dementia and Cognitive Impairment: Board on health sciences policy, health and medicine division, national academies of sciences, engineering, and medicine. In: Leshner AI, Landis S, Stroud C, Downey A, eds. *Preventing Cognitive Decline and Dementia: A Way Forward*, National Academies Press, 2017. p. 24782.;doi:10.17226/24782
30. Hawkey LC, Cacioppo JT: Loneliness matters: a theoretical and empirical review of consequences and mechanisms. *Ann Behav Med Publ Soc Behav Med* 2010; 40;doi:10.1007/s12160-010-9210-8
31. Campesino M, Schwartz GE: Spirituality among Latinas/os: implications of culture in conceptualization and measurement. *ANS Adv Nurs Sci* 2006; 29:69-81
32. Hoffman R: A wave of spirituality: how our faith is transforming America. *Hispanic* 2006; 18:44-45
33. Zuniga Rojas Dahlia, Torres Sara: Spiritual well-being and its influence on the holistic health of hispanic women. In: *Hispanic voices: hispanic health educators speak out*. Jones & Bartlett Learning 1996: 213-229
34. Levin JS, Markides KS, Ray LA: Religious attendance and psychological well-being in mexican americans: a panel analysis of three-generations data. *Gerontologist* 1996; 36:454-463; doi:10.1093/geront/36.4.454
35. Hilton JM, Gonzalez CA, Saleh M, et al: Perceptions of successful aging among older latinos, in cross-cultural context. *J Cross-Cult Gerontol* 2012; 27:183-199;doi:10.1007/s10823-012-9171-4
36. Dalby P, Sperlinger DJ, Boddington S: The lived experience of spirituality and dementia in older people living with mild to moderate dementia. *Dementia* 2012; 11:75-94;doi:10.1177/1471301211416608
37. Sutton MY, Parks CP: HIV/AIDS prevention, faith, and spirituality among black/African American and Latino communities in the United States: strengthening scientific faith-based efforts to shift the course of the epidemic and reduce HIV-related health disparities. *J Relig Health* 2013; 52:514-530;doi:10.1007/s10943-011-9499-z
38. Markides KS, Coreil J: *The health of Hispanics in the southwestern United States: an epidemiologic paradox*. *Public Health Rep* 1986; 101:253-265
39. VanderWeele TJ, Balboni TA, Koh HK: Health and spirituality. *JAMA* 2017; 318:519;doi:10.1001/jama.2017.8136
40. Rodriguez FS, Aranda MP, Lloyd DA, et al: Racial and ethnic disparities in dementia risk among individuals with low education. *Am J Geriatr Psychiatry Off J Am Assoc Geriatr Psychiatry* 2018; 26:966-976;doi:10.1016/j.jagp.2018.05.011