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The Promise of Mixed-Methods for Advancing Latino Health Research

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Abstract

Mixed-methods research in the social sciences has been conducted for quite some time. More recently, mixed-methods have become popular in health research, with the National Institutes of Health leading the impetus to fund studies that implement such an approach. The public health issues facing us today are great and they range from policy and other macro-level issues, to systems level problems to individuals' health behaviors. For Latinos, who are projected to become the largest minority group bearing a great deal of the burden of social inequality in the U.S., it is important to understand the deeply-rooted nature of these health disparities in order to close the gap in health outcomes. Mixed-methodology thus holds promise for advancing research on Latino health by tackling health disparities from a variety of standpoints and approaches. The aim of this manuscript is to provide two examples of mixed methods research, each of which addresses a health topic of considerable importance to older Latinos and their families. These two examples will illustrate a) the complementary use of qualitative and quantitative methods to advance health of older Latinos in an area that is important from a public health perspective, and b) the “translation” of findings from observational studies (informed by social science and medicine) to the development and testing of interventions.

Keywords

Mixed methods; Latino health research; Case examples; Depression; Men's health; Dementia; Caregiving; Observational; Interventions

Introduction

Mixed-methods research has become increasingly popular in health-related inquiry, with the National Institutes of Health recently leading the impetus to fund studies that implement such an approach. This renewed interest has also propelled the establishment of peer reviewed journals, new curricula, and a growing number of professional conferences. Even

though mixed-methods has been debated for some time, this revival has provided a platform for considering it as a third methodological paradigm. Those who embrace mixed-methods typically view it as integrating quantitative and qualitative traditions in complementary ways to answer complex questions.

A host of public health issues face us today, ranging from policy to systems level problems to individual health behaviors. The changing ethnic diversity of the U.S. population coupled with an aging demographic and unprecedented levels of social inequality beckon for innovative methodological approaches to understand the mechanisms and context in which health risks occur. For Latinos, a highly diverse group projected to be the largest ethnic minority in the U.S., mixed-methods may be the most effective approach in analyzing health beliefs and behaviors on the way to closing the gap in health outcomes. Latino health disparities, ranging from lack of adequate access, differential patterns in health service utilization, discriminatory processes in clinical trials to structurally embedded views and experiences of health and illness do not happen in a vacuum but are contextually-bound and culturally-grounded. Advancing our understanding of Latino health requires research methods that permit us to “unpack” health as a socio-cultural phenomenon and to generate important hypotheses to inform subsequent steps in the research process. For example, qualitative methods can be used following a quantitative study to understand the sociocultural processes that underpin quantitative associations in observational studies or help generate hypotheses about sources of unexplained variance in clinical trials (Hinton 2010; Hohmann 1999).

The aim of this article is to provide two examples of mixed methods research, each of which addresses a health topic of considerable importance to older Latinos and their families: depression in older Mexican-heritage men and dementia care-giving among Latinos. These two examples will illustrate a) the complementary use of epidemiological and structured surveys with in-depth interviewing and participant observation methods, and b) the “translation” of findings from observational studies examining the experience of depression to the development and testing of an intervention to alleviate the burden of dementia care-giving.

Mixed-Methods and Cultural Analysis

Mixed-methods, herein used in a broad sense to mean “mixed methodologies,” can be positioned between quantitative and qualitative research methods (Creswell and Plano Clark 2011; Morse and Niehaus 2009; Burke Johnson et al 2007). While there is disagreement regarding what exactly “qualifies” as mixed-methods, in the U.S. the term is commonly used to characterize the simultaneous or sequential use of methodological designs and techniques to gather and analyze different types of data to address a single (health) phenomenon of interest (Creswell and Plano Clark 2011; Castro et al. 2010; Morgan 2007). It is not unusual to find studies integrating quantitative and qualitative methods and others combining a variety of methods within a quantitative or qualitative approach (Creswell et al. 2010; Creswell and Plano Clark 2011; Teddlie and Tashakkori 2009; Burke Johnson et al. 2007; Morse 2003; Palinkas et al 2011). It is our view that mixed-methods taps into the strengths of different types of data collection and analyses and synthesizes diverse “worldviews” of

various epistemological perspectives (i.e. from post-positivism to constructivism to pragmatism [Creswell and Plano Clark 2011; Greene 2007; Hesse-Biber 2010; Mertens 2009; Morse and Niehaus 2009]; for examples, see Torrance 2012; Flick et al 2012; Hesse-Biber 2012). One of the strengths of mixed-methods continues to be triangulation despite ongoing debates about what this is and how it is done (Denzin 2012; Mertens and Hesse-Biber 2012). By triangulation we mean a process of systematic comparison of findings to enhance convergent validity (Webb et al 1966; Campbell and Fiske 1959) but also of mixing datasets and putting interpretations through “testing” in order to enrich analytical depth, identify contradictions and inconsistencies, and develop more nuanced conceptual frameworks (Fielding 2012; Howe 2012; O’Cathain et al. 2010; Pasick et al 2009; Jones and Sumner 2009; Sandelowski et al. 2009; Teddlie and Yu 2007; Bryman 2006; Collins et al. 2006; Morse 2003; 1991; Denzin 1978; Sieber 1973). Reconciling conflicting findings from qualitative and quantitative components of a mixed method study may be quite challenging but can ultimately lead to important insights to advance the research process, as illustrated by Wagner and colleagues in a description of three mixed methods case studies involving injection drug users (Wagner et al 2012).

Mixed-method designs that allow for inferences through “constant comparison” and triangulation approaches offer better explanations of how and why culture, via ethnicity for example, influences conceptions and behaviors. We could then consider socio-cultural heterogeneity among Latinos as yet another source of symbolic and behavioral distinction warranting appropriate intervention models. It is worth noting that these constant comparison and triangulation goals require some movement toward a grounded theory or a social constructivist perspective because the ability to identify and theorize cultural specificity is often obscured by reified categories of behaviors. For example, in analyzing people’s conceptions of their own ethnic identities vis-à-vis census data, Mary Waters (1990) found that census categories did not convey how individuals constructed their ethnicity, obscured how these categories forced people’s choices of how to report ethnic identification, and clouded how ethnicity and race were conflated as forms of social location and exclusion. Similarly, in their comparative analysis of Japanese industrial organization, Lincoln and McBride (1987) found that large scale survey data comparing Japanese and American employee attitudes missed how their distinct cultural scripts differently reconciled apparently discordant findings on levels of work satisfaction and commitment. In other words, mixed-method inferences are culturally grounded (whether convergent or dissonant) and thus allow us to understand how groups experience what sociologists refer to as “social structure;” that which is more amenable to quantitative measurement across large samples and is hence more generalizable. Qualitative methods such as interviews and ethnography enable us to see how these structures are built and sustained upon the micro-based interpretive frames characteristic of social interaction. Based on these inferences, practical applications are likely to be more appropriate (e.g. resonate with how Latinos view and “do” health) and hence render interventions more effective.

In what follows, we present two examples of how a mixed-method approach was applied to distinct areas of inquiry on Latino health. The first example focuses on how a sequential quantitative-qualitative-quantitative observational design led to an emergent finding on the role family plays in the depression help-seeking attitudes of white-non-Hispanic and

Mexican-heritage older men. The second example offers a long-term view of how a mixed-method program of research led to a culturally-informed intervention for Latino dementia caregivers. Both examples highlight the significance of socio-cultural factors in taking more effective steps toward improving the health and wellbeing of Latinos.

Example I: The Men's Health and Aging Study (MeHAS)

Under-treated and untreated depression in older adults is associated with low quality of life, higher mortality, cognitive decline, and poor comorbid management. Men 65 and older have eight times higher rates of completed suicide than women, with white non-Hispanics followed by Latinos leading this trend (Hinton et al. 2012). Depression, a treatable condition, is considered the best predicting risk factor for completed suicide. Further, older minority men, especially Latinos, have high rates of undiagnosed and untreated depression (Hinton et al. 2012). The Men's Health and Aging Study (MeHAS) is a cross-sectional mixed-method study of older white non-Hispanic (WNH) and Mexican-heritage (MH) men with depression in primary care (R01-MH080067, Hinton PI). The overall objective of MeHAS is to identify barriers to and facilitators of depression care from the perspective of depressed older men and primary care physicians. The specific aims of MeHAS are: 1) to examine how forms of masculinity and age-related changes and attitudes influence men's depression illness meanings and experience, 2) to systematically examine older men's preferences for depression treatment, and 3) to identify factors that impede or facilitate depression care from the perspectives of primary care physicians.

Design and Methods

In order to accomplish these specific aims, MeHAS was designed as a single mixed-method study using quantitative and qualitative approaches for sampling, data collection, and analysis. Because we have a limited understanding of the influence of socio-cultural factors in older Mexican-heritage men's experience and attitudes toward depression, this mixed-method design provided the tools to generate unavailable data that would help us examine barriers and facilitators of depression care.

During Phase I of MeHAS, we obtained a sample of older men with depression which involved recruitment through consecutive screening of men over the age of 60 in primary clinics using a structured screening survey and the structured clinical interview per DSM-IV (SCID). Men who met study criteria (age, ethnicity/race, major and/or chronic depression and/or depression treatment in the past year, non-cognitively impaired, non-psychotic, non-institutionalized) were invited to participate in Phase II of MeHAS. The purpose of this consecutive, systematic quantitative approach to building our sample was to find men age 60 and older with a history of depression that would be representative of men in these ethnic groups who receive services in primary care. Phase II entailed the completion of an in-depth semi-structured qualitative interview on the experience of depression and a conjoint survey focusing on preferences for depression treatment (see Fig. 1 below). With regards to primary care physicians (PCPs) we used a purposive, non-probability, approach to recruit doctors in family and primary care medicine at the clinics from which older men were recruited.

The process described in Phase I of MeHAS yielded quantitative data on men's overall health, if they were depressed, what depressive symptoms they reported, and/or whether they had received depression treatment in the past year, along with extensive socio-demographic information. Phase II of MeHAS provided both qualitative and quantitative data. The in-depth, semi-structured interviews with older men followed an interview guide covering a priori identified inquiry domains covering background, explanatory models of depression (e.g. what is like to be depressed, how it is expressed, how it is explained, how it is coped with), and help-seeking (formal and informal). All domains in the interview guide were covered with each older man following traditional qualitative interviewing techniques involving open-ended questions in order to elicit depression experience information. Conjoint surveys involved a close-ended, structured tool constructed in consensus with MeHAS interdisciplinary team (social scientists, physicians, health services researchers, and epidemiologists) regarding significant domains of depression treatment and potential enhancements or incentives to elicit older men's treatment preferences. The administration of conjoint surveys followed a scripted protocol that required participants to select their preferred choice for treatment when presented with several alternatives involving a variety of factors. These factors included type, frequency, location, and cost of depression treatment, gender and ethnic background and type of practitioner as well as having family involved or receiving treatment for other problems such as insomnia or physical pain. Finally, in-depth interviews with primary care physicians yielded qualitative data on their experience with identifying, diagnosing, treating, and managing WNH and MH older men with depression. As was the case with the older men, the in-depth, semi-structured interviews with PCPs followed an interview guide covering a priori identified inquiry domains covering physician background, clinical experience with depression in older men, and suggestions for improving depression management in older men in the primary care setting. All domains in the interview guide were covered with each primary care physician following traditional qualitative interviewing techniques involving open-ended questions in order to elicit their experiences.

Data Analysis

Once data were collected, cleaned, and entered into their respective software for management (Stata for quantitative data from screening and conjoint surveys, NVivo for qualitative data from in-depth semi-structured interviews), analyses proceeded in tandem and approached a convergent model whereby the quantitative and qualitative data were used for triangulation and further interpretation of results (see Fig. 2).

MeHAS quantitative data analyses involved standard regression models to determine phenomena such as differences in rates of depression treatment and symptoms between WNH and MH older men and rates of disclosure of suicidal ideation among the two ethnic groups. All statistical analyses were performed using STATA 8.0 (Authors). Univariate analyses were conducted using chi-square and rank sum tests. Multivariate logistic regression models were used to compare ethnic groups' past-year depression care and to examine correlates of use.

Qualitative data analyses proceeded in traditional iterative fashion by first performing open coding by independent coders and then proceeding with more refined coding to identify themes, subthemes, and patterns in the data. Further qualitative analyses were also conducted to examine cross-ethnic and sociodemographic differences in the data. A constant comparison technique in the context of a social constructivist approach was followed. Data from qualitative interviews with PCPs were treated and analyzed in the same fashion as those from older men's interviews.

The conjoint surveys to identify older men's treatment preferences used univariate and bivariate analyses to describe the sample. A random utility model was used to create binary logit estimates of treatment, provider, and barrier-reduction preference parameters (Dwight Johnson et al. 2013). For each regression model, the dependent variable was a binary indicator of patient's willingness to accept or not accept treatment, and independent variables were the attribute levels. Conjoint data were analyzed by using the SPSS 11.5 multinomial logit regression procedure.

A Convergent Finding: Family as Facilitator of and Barrier to Older men's Depression Care

MeHAS continues to yield a range of findings both quantitative and qualitative in nature. For the purpose of this discussion, however, we have decided to focus on our findings about the dual role of family in older men's depression care because it illustrates how quantitative and qualitative data converge in the process of triangulation thus validating independent analyses and interpretation of both data sources. First, MeHAS demographic data show that older men are likely to have a partner or spouse and be married both among those who met study criteria and among those who completed in-depth qualitative interviews. We also have quantitative data collected during screenings suggesting that men are likely to have someone (most often a family member) with them either assisting them with transportation or accompanying them to the clinic. Table 1

Upon ongoing analyses of the in-depth interviews with WNH and MH older men with depression we found that family emerged as a prominent theme in the data. This led us to develop a line of inquiry on the family in subsequent interviews and analyses of the qualitative data. In addition to our screening data indicating the presence of family in the lives of our participants, our conjoint analyses examining older men's preferences for depression treatment demonstrated that most men (both WNH and MH) were more likely to accept treatment that included family involvement (compared to none). Based on conjoint results, family involvement remained statistically significant when controlling for participant socio-demographic characteristics (Dwight Johnson et al. 2013). Finally, initial interviews with PCPs also pointed to the family and we decided to pursue this line of inquiry more systematically in interviews with physicians and analyses of this data. Table 2

Specifically, our qualitative findings indicated that family (whether spouses, children, and in some case grandchildren for MH men) plays a dual role in the formal and informal management of depression in older men by facilitating and/or impeding depression care in the home or during the clinical encounter with primary care physicians. The words of one of our participants illustrate how family can play a facilitating role informally by helping to cope with depressive symptoms:

"I called them up [children] 'hey guys, I'm not feeling too good.' [Children respond] 'Oh, Dad, come over tomorrow for barbecue... It's always something positive that will come from them. As long as I share with them, they will come up [be there for me]..."

Another man spoke of how his wife assists him with medication management:

"It's just that my wife is in charge of my medication [antidepressant] because... I forget because to me there is no difference in taking one pill or the other, but my wife knows how to distinguish one pill from another and she sets them apart and knows at what time I have to take them and all..."

Yet men across both ethnic groups also discussed how family can be a barrier in their depression care. As one of them told us regarding the lack of family support:

"They [family] simply ignore me, sometimes they do see that I am nervous and they don't do anything to help me... That is why sometimes when I am very stressed I leave the house. ...Perhaps they think I am crazy. The most support one could have is the support of the family, but because of their ignorance, because they don't have time, or for any reason, they don't pay attention to me"

Another man described how his family deters him from continuing his depression treatment, "oh, those around [family] say, 'don't take that [anti-depressant-, that's for locos [crazies], 'this and that..." Finally, illustrative of how family can be a barrier, one of the men told us:

"If one accepts going to a psychologist [for example], I think that is a way of curing the mind... That is what I would like to do but I would want my wife to come with me but she doesn't want to go... I have told my wife many, many times but she says she doesn't need to do that."

Findings from interviews with these men allow us to identify the duality of a family's role in depression care pathways and the initial mechanisms through which it affects men's help-seeking. While the commonalities between WNH and MH men on the issue of the family are more salient, so far our analyses suggest that MH men are more likely to report having children and grandchildren involved (as opposed to wives/partners for WNH men) both formally (e.g. being present during clinical encounters) and informally (e.g. providing emotional support). At the same time, MH men described family as an important source of distress, often feeling conflicted between how they think "ideally" their families should be and how they actually are (both in the context of their depression and as aging men).

The coding results of the qualitative data from our PCP interviews have led to similar findings. We found that PCPs also viewed the family as playing this dual role, sometimes facilitating and sometimes impeding men's depression care. As a PCP said when describing how helpful family can be:

"...[family is] a very valuable asset, especially in older people. Their [older men] kids are giving them medications or doing other caretaking things. I... use it [family] as a check and balance to see if I am really actively reflecting on how they [older men] are behaving. ...they [family] are a key component... and it's very

important to have them onboard with the plan and to give me information. I think that's very, very important.”

While PCPs viewed the family as a potential ally, they also expressed that family can be barrier to older men's depression care. After considering the benefits of having family involved, one of the PCPs said:

“I would like to [have the family members of older men involved] but of course within limits. Confidentiality [is an issue]... Often I see depressed [older men and] the family members are the ones that are causing all the stressors. And stressors cause the depression. So I can see what their [family members'] perspective is and see how they interact [but]... If the family member is the stressor, you don't want it there all the time because I don't want my patient to be more nervous and anxious”

Our findings from PCP interviews show that family is a potential resource in the management of depression care. However, the views of older men and PCPs highlight the tenuous nature of family involvement, at times an ally and at others an impediment to men's depression care. Only in light of the qualitative data we can see how the conjoint data obscures the contradictions of family involvement in older men's depression care. Men and PCPs express, above all, a degree of ambivalence about family that would have been difficult to identify and hard to contextualize without the screening, conjoint, and qualitative data put together.

Preferences for family involvement in depression care are constrained by how men perceive their relationships with family members, who is available to help with what, and, among other things, what they think the most salient cause/s of their depression is. For example, given the often intergenerational structure of Mexican-heritage households, as our qualitative data show, Mexican-heritage older men commonly have grandchildren involved in their interface with the health care system (e.g. as interpreters, helpers, navigators). In this context, as many of the men indicated, their disclosure of suffering (e.g. depression) may be seen as inappropriate, and hence family is an impediment to men's disclosure and engagement in depression care. Likewise, MH men disclosed during interviews that a reason they were depressed was their fractured relationships with children, and thus involving family in a transitory way in the primary care setting may actually be detrimental to men's management of depression. In another analogy, MH men often believed that the “love of family as you get older” “cures” everything and that depression was caused by “social problems” such as unemployment or the bad economy. Because family was conceived of or idealized as their locus of control, then these men were likely to adopt the position that having family involved was good; family helped them distance themselves from the things that were making them depressed and find solace (and perspective) on things that they often had little control over in light of their role in the family.

While our quantitative data provide us with statistical evidence of this association, our qualitative data allow us to contextualize and build an explanation about the mechanisms underlying such an association (i.e. typology, a theory of family's dual role). This has implications for when and how practitioners may tap into family as a resource to support their clinical interventions to manage depression in this population, which is central to

development of culturally-informed interventions to reduce the depression care gap. It is important to note that our work surrounding the role of family in depression care is not simply emergent in MeHAS but it is part of a line or program of research that has moved from initial work with IMPACT (Unützer et al. 2002; Hinton et al 2006a) to MeHAS (observational) to the development of a primary care-based intervention involving family in the depression care of older men (R34 MH099296-01A1, Hinton PI). This program of research has built upon the advantages of mixed-methodology and the strengths of interdisciplinary collaboration across the health and the social sciences.

Example II: Advancing Latino Caregiver Health

In this section, we describe an example showing the value of combining qualitative and quantitative methods sequentially in the development of a program of research to advance our knowledge in an area of considerable public health importance to older Latinos: dementia-related behavioral problems and their impact on families. This program of research is translational (moving from observational work to intervention development and testing) and interdisciplinary (involving social scientists, epidemiologists and interventionists). In contrast to the previous example, which focused on the combined use of qualitative and quantitative methods within the context of a single study, this example demonstrates the use of qualitative and quantitative methods in tandem and sequentially to advance knowledge. This interdisciplinary program of research also highlights a variety of qualitative approaches, including open-ended questions embedded in a survey, ethnography and focus groups.

A decade ago, there was considerable evidence that dementia-related behavioral problems (e.g. depression, agitation, aggression, irritability) were very common in older adults with dementia and were associated with considerable caregiver distress. Large-scale epidemiological studies demonstrated the high frequency of neuropsychiatric symptoms in older adults with dementia (Lyketsos et al 2000, 2002) and that these symptoms were highly associated with caregiver depression and even physical health outcomes (Schulz and Martire 2004). However, existing research was based primarily on work with white non-Hispanics with relatively little involvement Latino populations. Prior work on ethnicity and dementia, both qualitative and quantitative, had not focused specifically on dementia-related behavioral problems. The program of research we now describe addressed this gap in the literature in a series of studies focused specifically on dementia behavioral symptoms in Latinos, and that led to the development and testing of a culturally tailored intervention. Figure 3

The initial foundational study in this program of research was a sub-study of a larger survey of Latino elders with cognitive impairment who were participants in the Sacramento Area Latino Study on Aging (SALSA), a longitudinal study of cognitive and functional decline among predominantly Mexican-heritage older adults in the Sacramento area of California (Haan et al. 2003). The SALSA study used a community-based recruitment approach to that was successful in enrolling more than 1800 Latino elderly in the Sacramento region. SALSA participants went through a comprehensive assessment of health and functioning that included an evaluation of their cognitive status and cognitive syndrome (i.e. cognitively normal, cognitively impaired not demented, demented) that mirrored methods used in other

large epidemiological studies, such as the Cardiovascular Health Study. Within this larger study, a caregiving sub-study was conducted. From the more than 1800 SALSA participants, 95 cognitively impaired participants and conducting interviews with their family caregivers. The primary focus of the caregiver survey was to characterize the frequency, impact and patterns of help-seeking, cultural meanings and unmet needs associated with dementia neuropsychiatric symptoms. The caregiver sub-study included a standard instrument, the Neuropsychiatric Inventory (Cummings 1997) that assesses the presence, frequency and severity of 10 neuropsychiatric symptoms (i.e. depression, anxiety, irritability, agitation, hallucinations, delusions, inappropriate elation). For each neuropsychiatric symptom, probes were developed to assess caregiver attribution of the neuropsychiatric symptoms (open-ended question), help-seeking in primary care (yes/no), perception of need for additional professional help (yes/no) and the nature of unmet needs for professional help (open-ended item). The embedded qualitative queries were useful in studying new phenomenon (i.e. the interpretation of dementia behavioral symptoms and the sources of caregivers needs) where our knowledge of the range of responses was not sufficient to construct closed-ended questions.

The results of this study were reported in a series of publications (Hinton et al. 2003, 2006b; Flores et al. 2009; Hinton et al 2008, 2009). First, dementia-related neuropsychiatric symptoms were common in elderly Latinos with dementia and present at levels that were significantly above those reported for other epidemiological studies using similar methods (Hinton et al 2003). Second, behavioral neuropsychiatric symptoms were highly associated with Latino family caregiver depression, particularly among non-spousal caregivers (Hinton et al 2003). Third, caregivers reported seeking help for these symptoms in primary care but also reported high levels of unmet need for professional help (Hinton et al 2006b), particularly with respect to counseling and education. Finally, caregivers often attributed behavioral symptoms to causes other than dementia, viewing them as due to social, environmental or personality factors more often than they did the underlying degenerative brain disease (Hinton et al 2009).

While the prior studies demonstrated the importance of dementia behavioral symptoms from a quantitative perspective, there were still important gaps in how the meaning of these symptoms and how they generated distress in the day-to-day lives of older Latinos. To address this gap, we designed and conducted an ethnographic study of the meaning and social responses to dementia behavioral problems (Apesoa-Varano et al. 2012). From the SALSA study, we identified six wife caregivers to husbands with significant cognitive impairment and high levels of behavioral disturbances. The ethnographer—a postdoctoral fellow and medical anthropologist and bilingual in English and Spanish—followed families over the course of a twelve-month period, for a total of ten visits each, with most visits lasting 5–7 h. Data collected were detailed field notes of each visit that included: (a) direct observations of particular behaviors or events triggered by the impaired spouse and his caregiver's (and family members or others) verbal and non-verbal responses to these; (b) reports about past episodes of behavioral disturbance, their consequences and caregiver responses; (c) narrative accounts in which caregivers relate their understandings of and feelings towards the husband's disruptive behaviors, and (d) replies to specific questions posed by the ethnographer about behavioral problems and the meanings attributed to them.

The ethnographer usually met with the caregivers in their homes but also accompanied them to doctor's appointments, on errands and social visits they made to friends and family, and was present during any such visits in their homes.

The ethnographic findings complemented the earlier quantitative findings in several important ways. The ethnographic findings confirmed the importance of dementia behavioral symptoms, particularly aggression and interpersonal violence, as a source of suffering and distress in the everyday lives of Latino families. The ethnographic study also provides a deeper understanding of the contextual factors (e.g., specific triggers for behavioral symptoms in the flow of everyday activities, home and neighborhood environment, co-morbid medical issues, socioeconomic stressors) and interpersonal processes (e.g. cultural meaning of symptoms, emotional tone of interactions, family relationships and roles, negotiation of routines based on illness trajectory, redefinition of self in relation to caregiver/care-receiver system) contribute to both similarities and differences in how these Latino families respond to the challenge of dementia behavioral problems. The analysis uses the sociological concept of "work" to provide "a more nuanced and richly complex understanding of how specific "problems" arise, how they are entangled in complex ways with other historical and contemporary aspects of family life, and how they are addressed in a larger social field" (Apesoa-Varano et al. 2012). Within Latina families, responses (i.e. meaning-making, emotional and behavioral) to aggression in the person with dementia are shaped by a number of factors, including gender, generation, culture and socioeconomic resources. From an intervention perspective, these ethnographic data highlighted the importance of moving beyond the caregiver-care recipient dyad to understand the social response to behavioral symptoms within the larger context of multi-generational families.

The next phase of this research program involved the development of a culturally-tailored educational intervention to address the unmet needs of Latino caregivers. This intervention approach built directly on our earlier work demonstrating that Latino caregivers expressed a desire for more counseling and education about behavioral problems and that these symptoms were often attributed to causes other than dementia. To address this gap, we used qualitative and quantitative methods in a sequential process to develop and then test the efficacy of a fotonovela to help Latino family caregivers understand and cope with dementia behavioral symptoms. The intervention development process involved three phases: an initial focus group study with Latino family caregivers and care providers, the creation of the psycho-educational materials (i.e. the fotonovela) and a randomized controlled trial to assess the efficacy of the intervention compared with a control condition. The focus groups confirmed prior studies about the salience of behavioral problems for Latino caregivers, confirmed the acceptability of the fotonovela as an intervention tool, and provided critical content for the development of the fotonovela and demonstrated the acceptability of this intervention approach. For example, the focus group study underscored the importance of agitation and aggression and highlighted the importance of five distinct approaches to managing or coping with behavioral problems were identified: acceptance, love, patience, adaptability, and the establishment of routines (Turner et al., submitted). In addition, the focus groups identified importance of family stress, based in part on differences among family members in how dementia behavioral symptoms are understood. This thematic

content directly informed the storyline and content for the fotonovela. The fotonovela was then tested in a randomized controlled trial with standard psycho-educational materials as the control condition. The preliminary results of the analysis of this intervention show that it is more effective than standard psycho-educational materials..

In conclusion, the combined and strategic use of both qualitative and quantitative in this overall program of research was instrumental in advancing the health of older Latinos with dementia and their families. This example shows the sequential triangulation of findings from both qualitative and quantitative methods: the quantitative analyses in Phase 1 demonstrated the significant relationship of care recipient behavioral problems with caregiver depression (as well as the unmet need for professional help) and the follow-up ethnographic study (and later focus groups) confirmed the importance of this issue in the lived experience of Latino families. This triangulation provided powerful evidence for the importance of an intervention to alleviate the suffering and distress of families. Qualitative and quantitative approaches were complementary, allowing the investigative team to develop a richer and more comprehensive understanding of the sociocultural context of neuropsychiatric symptoms and their impact older Latinos and their families than would be possible with the use of either approach by itself.

Final Comment

Mixed method studies are increasingly common in health research and this approach is being recognized as a third methodological paradigm. Mixed methodology affords researchers a toolkit to tackle complex questions and validate findings from diverse perspectives. As the examples above illustrate, mixed methodology involves careful planning and design, well-articulated research questions, and a good understanding of both quantitative and qualitative methodologies and their respective assumptions. For instance, while quantitative approaches put a premium in random sampling and quantifiable data from structured instruments such as close-ended questions to be analyzed statistically, qualitative approaches seek to produce attitudinal and behavioral data gathered through interactive and open-ended tools leading to “thick description” or “rich data” from a non-probabilistic sample.

There are many benefits from combining these research methodologies, the most important of which is that cultural differences that may be alluded to in quantitative data are more likely to be highlighted as modes of reasoning and interpretation become more vivid through qualitative data. Irony, contradiction, and ambivalence become more understandable and coherent, but also these “fuzzy” areas of subject response may then be the basis for reformulating survey instruments for use with larger sample sets. For example, depression care may benefit from understanding how effective family involvement may rest upon avoiding certain “emotional triggers,” such as culturally informed ideas about masculinity, marital or parental role obligations, or even the relevance of work in the context of the life course. Likewise, large scale patterns noted in quantitative data sets can direct researchers in designing and conducting more precise interviewing, focus groups, or ethnographic observation that may yield a clearer view of how to proceed in constructing effective intervention strategies or programs (such as the fotonovela noted in example two or under

what conditions PCPs might avoid or pursue more family involvement in depression care as noted in example one).

Given extant health disparities and many pressing public health issues, innovative and collaborative approaches are needed in order to address the various health needs of Latinos in our country. The strength of mixed method approaches rest on their ability to build knowledge from various sources, including the views and experiences of Latinos themselves. This is perhaps an unacknowledged aspect of mixed methods research; the qualitative dimension more directly integrates the voice of subjects *as they understand* their health issues, and in this respect potentially make them research partners in their own treatment and healing. To the degree that various cultural scripts are brought to the health care table, the quantitative dimension of mixed methods research is also enhanced by constructing response categories that more effectively tap into cultural modes of reasoning. Irrespective of the ethnicity or subculture being studied, this third methodological paradigm may potentially bring about more egalitarian, and hence more effective, health care provision.

Undoubtedly, as our examples illustrate, there are many ways to carry out mixed method research. Further, mixed method research may be pursued not only to confirm through convergence but also to contradict by refuting extant knowledge or telling a different story within a study. Conducting thoughtful and useful mixed method research hence requires expertise in both traditional approaches that can only come from a critically engaged trans-methodological (and arguably, trans-disciplinary) team. The development of a well-established tradition of mixed method research in health will require concerted efforts at improving the availability of training and mentoring opportunities as well as systematic dissemination across disciplinary boundaries. In this sense, mixed methods can and do lead to fruitful collaborations across fields to build translational programs of research—from observation to intervention. These collaborations can be sustainable on the grounds of mutual respect for epistemic and ontological differences because the complexity of issues facing the Latino health agenda demands so.

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Fig. 1.
MeHAS mixed method sequential design and data collection

Fig. 2.
MeHAS data analysis approach

Fig. 3.
Sequential use of mixed methods in translational research

Table 1

MeHAS socio-demographics

	Qualified %(N=108)	Qualitative interview % (N=77)
Age 60-64	52 (56)	51 (39)
Mexican origin	44 (47)	39 (30)
Married	55 (59)	60 (46)
High school or above education	36 (39)	35 (27)
Self-rated health Good to Excellent	31 (33)	35 (27)
Born in Mexico	26 (28)	26 (20)
Interviewed in Spanish	24 (26)	22 (17)

Table 2

MeHAS conjoint results

Characteristic	WNH <i>n</i> =45 OR	Mex Or <i>n</i> =18 OR	All <i>n</i> =63 OR
Family involved (reference is not)	1.60*	3.31*	1.75*
Convenience (reference is none)			
Telephone	1.77*	2.67	1.80*
Bus tokens	1.51	4.74*	1.72*
Depression screening (ref is questionnaire)			
Doctor	1.90*	1.79	1.82*
Nurse	0.75	0.73	0.75
Help with other problems (ref is insomnia)			
Insomnia	1.50*	3.93*	2.02*
Pain	1.27	1.32	1.27
Loneliness	2.02	1.27	1.50