Published in final edited form as:

Phys Occup Ther Geriatr. 2014 December ; 32(4): 368–380. doi:10.3109/02703181.2014.955623.

Achieving Ecological Validity of Occupation-Based Interventions for Healthy Aging

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Abstract

Aim—To develop a culturally sensitive occupation-based health promotion intervention for older Hispanic adults who live alone.

Methods—We used a mixed method design for the content validation of the intervention and the Ecological Validity Model (EVM) to culturally center the intervention. In the quantitative phase, aging experts as well as community members from two activity centers for the elderly in Puerto Rico completed a content validity ratio exercise. In the qualitative phase, we conducted three focus groups with these participants. Data analysis included content validity ratio and a directed content analysis.

Results—This resulted in a working version of the intervention protocol addressing the eight dimensions of the EVM.

Conclusions—The EVM can be used to culturally center preventive interventions to other ethnic minority groups to augment the external validity and cultural competence of interventions. Future research must test the feasibility of this new intervention.

Keywords

Cultural competence; occupation-based intervention; preventive interventions

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DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

This publication was supported by National Institute of Health (NIH), National Institute of Minority Health and Health Disparities (NIMHD), Clinical Research Education and Career Development (CRECD) [R25RR017589] in collaboration with Puerto Rico Clinical and Translational Research Consortium (PRCTRC) [8U54 MD 007587-03] and the National Center for Research Resources (NCRR) [8U54RR026139-01A1]. The second author was supported by the National Institute of Drug Abuse (NIDA) (1K02DA035122-01A1). Its content is solely the responsibility of the authors and do not necessarily represent the official views of the NIH, NIMHD, or NCRR.

Hispanics, 65 years and older, living in Puerto Rico have a *twofold higher rate* of independent living disabilities (33.9%) as compared to older adults (OA) living in the U.S. (17.2%), highlighting a persistent and growing health disparity (Rehabilitation Research and Training Center on Disability Statistics and Demographics, 2011). Living alone in old age aggravates existing health disparities by increasing the risks of experiencing functional decline, as compared to those living with others, due to higher levels of falls, disabilities, inactivity, depression, and social risks (Kharicha et al., 2007). These disparities will continue to grow if occupational therapists do not address important challenges to health care faced by Hispanic elders, the National largest minority group, such as cultural and language barriers. Since cultural and contextual considerations influence treatment outcomes, (Bernal et al., 2012) it is imperative that occupational and physical therapists develop or adapt services for older people to meet the need of an ethnically diverse population.

National organizations have endorsed the use of culturally competent interventions to reduce health disparities among minority groups and to improve the quality of services and health outcomes (National Prevention Information Network, 2013; U.S. Department of Health & Human Services Office of Minority Health, 2005). However, two main challenges arise from this call. First, few evidenced-based interventions addressing treatment efficacy for ethnic minority populations, particularly elderly Hispanics, have been tested. Second, there are few guiding frameworks to provide guidance on developing culturally sensitive interventions, and less published examples illustrating the specific process and procedures used to consider culture in the intervention protocol (see Domenech-Rodríguez et al., 2011; Matos et al., 2006 for examples).

We sought to address the existing gap by using the Ecological Validity Model (EVM; Bernal et al., 1995) as a guiding framework to systematically develop and document the process for achieving ecological validity of a behavioral intervention. The EVM consists of eight dimensions of interventions with culturally sensitive elements that researchers or practitioners have to consider when developing behavioral interventions (language, persons, metaphors, content, concepts, goals, methods, and context). The EVM has been reported effective as a guide for developing culturally sensitive behavioral interventions to specific minority groups (Domenech Rodríguez et al., 2011; Matos et al., 2006; Nicolas et al., 2009; Rosselló & Bernal, 1999).

Given the health risks for functional decline of older Hispanic adults who live alone, and the importance of culturally competent interventions to better address existing health disparities, the purpose of this study was to develop a culturally sensitive occupation-based health promotion intervention for older Latinos who live alone in Puerto Rico by using the Ecological Validity Framework. When researchers and providers use a guiding framework to culturally center interventions, they are better able to better meet the health needs, culture, and context of an ethnically diverse population.

METHODS

Theoretical Framework

We used the Person Environment Occupational Performance (PEOP) Model as the theoretical foundation for the occupation-based program (Baum & Christiansen, 2005). The PEOP model's assumption is that participation in meaningful occupations, defined as goal-directed activities of daily life, is essential to maintaining health, wellbeing, and quality of life. To achieve a desired level of participation, people require the support of enablers and must overcome barriers that limit their participation in activities that are important and meaningful to them. The model describes an interaction of person factors (intrinsic factors, including psychological/emotional factors, cognition, neurobehavioral, and physiological factors as well as spirituality) and environmental factors (extrinsic factors, including social support, societal policies and attitudes, natural and built environments, and cultural norms and values) that support, enable, or restrict the performance of daily activities.

The health promotion program was also inspired by concepts of the Lifestyle Redesign[®] (Mandel et al., 1999), which is based on an occupational approach to healthy aging to help older people improve their quality of life and avoid the negative spiral of decline. Participants meet in a weekly group over several months, and have monthly individual sessions with one of the occupational therapy facilitators. The emphasis throughout is the identification of participants' own goals, and empowerment through sharing the strengths and skills possessed by group members. Lifestyle Redesign[®] was found to be effective in enhancing the physical and mental health, occupational functioning and life satisfaction of community living OA in Los Angeles, USA (Clark et al., 1997, 2011).

Study Design

We conducted this study during summer 2012. The Institutional Review Board (IRB) of the local public university approved the study protocol. We used a concurrent transformative mixed-methods design, which involves the collection of quantitative and qualitative data at the same time in one data collection phase (Creswell & Plano-Clark, 2011). We selected this design because of its strength to use qualitative data to enrich the quantitative results, thus providing a holistic approach to incorporate culturally sensitive elements into intervention development.

The collection of quantitative data consisted of focus groups participants' completion of a Content Validity ratio (CVR) exercise (Lawshe, 1975) to determine the culturally sensitive themes for the health promotion program. The collection of qualitative data consisted of a focus group guide with open-ended questions to explore additional themes as well as cultural and contextual elements necessary to culturally center the new intervention.

Research Site

This study was conducted in two Activity and Multiple Services Centers (AMSC) in the metropolitan area of San Juan, Puerto Rico. These are part of a non-profit private community-based organization with 10 Centers around the Island that provide services to

support social, emotional, physical, spiritual, and economic needs of adults > 60 years, who live below the federal poverty level.

Participants

We convened two focus groups of key community members, each including four OA (three women and one man in each group) who attended one of the AMSC sites and two community key members who provide services in these centers. Community key members included the centers' director, social worker, a nurse, and a voluntary service provider. We also convened a focus group of experts composed by two occupational therapists, each with at least 5 years of experience working with OA; two occupational therapy researchers on aging; one gerontologist; and one social gerontologist, all of Puerto Rican origin. Focus group sample size was determined based on established sample size guidelines (Krouger & Casey, 2000). Inclusion criteria for OAs were: 1) Hispanic adults > 70; 2) living alone in the San Juan, Puerto Rico metropolitan area, and 3) willing to participate in a focus group. Inclusion criteria for key community members were: (1) adults > 21 years and (2) providing services to OA in either Activity Center of the metropolitan area.

Recruitment Procedures

After the Activity Centers' director provided a written approval to the Principal Investigator (PI) to conduct the study, the PI directly approached the aging experts and key community members of both centers to provide them with a complete explanation of the study. After the PI addressed all potential participants' questions, they agreed to participate and signed the consent form prior to their participation in the focus groups. The centers' social worker directly approached potential participants whom she considered would be interested and able to participate in a focus group discussion. The social worker asked interested participants to call the PI, who would provide them with a complete explanation of the study. All participants who contacted the PI agreed to participate, and an appointment was set-up in each Activity Center where the participants signed the consent form prior to their participation in the focus groups.

Data Collection Procedures

The PI and four graduate students of occupational therapy (OT) collected the research data during focus group sessions at the two research sites. This study's procedure included four steps, depicted in Figure 1 and described later.

Topic Revision Panel—We created a Topic Revision Panel (TRP) composed of four Master's degree OT students and the PI. At first, members of this panel worked independently to generate a list of key relevant themes and topics for the intervention. The lists were derived from themes included in previous occupation-based programs, as well as the results of previous studies with older Puerto Ricans (Craig & Mountain, 2008; Mandel et al., 1999; Orellano et al., 2014; Orellano et al., 2012). Afterwards, the TRP met to combine, refine, and edit the five lists of key relevant themes and topics for the intervention to ensure comprehensiveness. We categorized the domains into common themes and subgroups of topics, eliminated duplications, and reworded the existing categories to reduce ambiguities.

Focus groups—The PI conducted one focus group with aging experts at the local public university and two focus groups with community members of two Activity Centers. Focus groups participants completed the CVR exercise in which they rated each proposed theme and topic that resulted from the TRP. Afterwards, participants responded to open-ended questions about what other new themes should be included in the intervention, as well as culturally sensitive considerations about their preferred program's structure, facilitator, methodology, context, and desired goals.

Data analysis—The PI and four OT graduate students analyzed the qualitative and quantitative results to determine the program structure as well as important culturally sensitive elements for shaping the intervention to the target community.

Development of the preliminary version of the intervention—The PI and four OT graduates integrated the research findings to develop the working version of the intervention protocol, specifying treatment procedures.

Data Analysis

The PI conducted the analysis of the quantitative data using Lawshe's criteria for CVR (Lawshe, 1975) to empirically evaluate the intervention content validity. This process established the minimum CVR values needed to consider the inclusion of the rated topic in the new intervention. These values were based on a one-tailed test at the $\alpha = 0.05$ significance level, requiring a 0.98 for a panel consisting of six aging experts, 0.69 for a panel made of 12 community members, and 0.49 for a panel made up of 18 individuals from the combined group. The PI and four OT graduate students conducted the analysis of the qualitative data by using a directed thematic content analysis (Hsieh & Shannon, 2005) with the support of QSR International NVivo 9 software. In the directed approach, we used the EVM as the basis for analyzing the text data and as a guide for initial coding.

RESULTS

This study resulted in the development of the Actívate (get active) Program, an occupation-based intervention with culturally sensitive elements described later.

Quantitative Results

The results of the independent work of the TRP resulted in five lists with a total of 89 themes and 33 topics that were considered relevant and thus were included in the occupation-based health promotion program. The combined list, as revised by the TRP, consisted of seven key themes and 21 topics used in the CVR exercise.

Table 1 presents the CVR value of the themes and topics rated by the combined sample of aging experts and community members. The CVR exercise resulted in a total of 7 themes and 19 sub-topics that reached the minimum CVR of .49 for a panel of 18 persons. Of the 21 topics, 19 (90%) were above the significance level.

Qualitative Results and Applications in the Development of the Intervention Manual

The aging experts, as well as the community members, identified culturally sensitive elements that needed to be included in the occupation-based health promotion program across the eight dimensions of the EVM. We present a summary of the culturally sensitive elements that this intervention must address in selected dimensions and examples of their application in the resulting Actívate Program manual.

Language—The dimension of language refers to the use of culturally appropriate and cultural syntonic language in the intervention to ensure that it is received as intended. It involves cultural knowledge of the expression of emotional experiences and verbal style. Appropriate language of the studied community was captured through observations of the focus groups discussion and reviewed during research team meetings.

Participants from the focus groups of the Centers used simple and common words in their expressions. For example, one of the OA used “I’m always careful not to fall down” instead of “I always prevent risks of falls.” Therefore, we used an informal verbal style free of technical jargon in the development of the Actívate Program manual, to be appropriate and syntonic with the studied population.

Person—The dimension of *person* refers to the racial and ethnic similarities and differences between the client and therapist, as well as how comfortable the client feels with the therapeutic relationship. Aging experts, as well as community members, agreed that the program’s facilitators should be a known community member or service provider, as stated by the following OA: “someone here who knows us fully... like the social worker or the director who knows us and are always aware of our problems and needs.” Experts on aging stated that these facilitators could be older peers or community service providers with flexible level of education, as long as they receive appropriate training in the program’s concepts and structure as well as in important aspects of the aging process. Community facilitators will have the advantage of supporting the continuity of the program in response to scarcity of occupational therapy resources in Puerto Rico, as stated by the following expert:

“I think that a member of the community that knows the program, the objectives and aspects of getting old, could facilitate the continuity. It seems to me that putting it into the hands of an occupational therapy practitioner is not going to work, as there is no budget for this, nor are there any openings for such a position”.

Based on these recommendations, the researchers will train lay community facilitators, regardless of the level of education, in the concepts, methods, and purpose of the Actívate Program as well as in the aging process. Lay community facilitators could include OA peers as well as community service providers.

Metaphors—This dimension refers to the use of symbols, pictures, concepts, and relevant examples of the population’s culture in the intervention program. Since the Actívate Program will be delivered in the community context, the use of relevant cultural symbols will naturally evolve from the decorations of the activity centers.

In terms of concepts, an analysis of the focus groups participants' narratives revealed the common use of *dichos* or popular sayings in their expressions to convey meaning. For example, one of the OA used the following saying to express perceived gender differences within her community: "*women here are lit candles and men are unlit.*"

Therefore, *dichos* were incorporated generously into the intervention manual and generated from community members' narratives during the focus groups, the Puerto Rican media, and consultation with the research team. For example, in the module of Finance Management and Daily Activities, we used the *dicho* of '*how do you stretch the dollar?*' to stimulate discussion about strategies used by the participants to participate in meaningful occupations within a restrictive budget.

Content—The dimension of content refers to cultural knowledge about clients' values, customs, and traditions. It also refers to considerations of the cultural, social, economic, and political uniqueness of the group as part of the assessment and treatment planning. We found that important cultural values of the studied community were service, friendship, happiness, and independence. For example, community members demonstrated the value of service by expressions reflecting community eagerness to help others in situations of needs: "they (older neighbors) always give me a hand," and "I took him a healthy meal (to a sick person) like I always do."

We designed all activities for the Actívate Program to reflect these important community values. For example, in the module of *Daily Activities and Relationships*, participants are guided to work collaboratively to plan and enact a fun day with another member of the group. Important components of this activity include the selection of enjoyable activities, developing friendship, sharing resources, and providing the necessary support to others to achieve the activity goals.

We also identified meaningful customs and traditions such as listening to Latin music ("*they are very dynamic and active... here everyone likes music*"), dancing ("*here we dance everything*"), celebrations ("*we have parties here that never end*"), and table games such as playing "dominoes" and "bingo."

We incorporated these relevant customs and traditions in the Actívate Program manual as choices of healthy activities that the participants can use to build a healthy routine of daily activities. For example, we are using dancing, instead of a typical exercise routine, in the module of *Physical Activity and Health*, as a culturally sensitive modality of promoting engagement in physical activities.

We also identified community socio-cultural uniqueness such as having low socio-economic levels, low educational levels, and living in a high crime area. The Actívate Program addressed these socio-cultural considerations by: 1) using visual materials instead of written text when possible in the handouts, 2) focusing on the selection of free or low cost lifestyle choices (i.e., affordable, healthy food choices and free community activities), and 3) selecting the activity centers as the context of the group interventions in which participants stated that they felt "safe."

Concepts—Here, concepts refer to the degree to which treatment concepts and theory are consonant with the culture and the context of the client. We found that the conceptualization of health through occupational participation was consistent with the belief system of the community members. OA from the studied community defined a healthy lifestyle as keeping active in fulfilling activities (*“once in a while partying, that maintain a happy spirit,”* maintaining relationships with others (*“sharing with my neighbors”*), engaging in activities to maintain physical and mental health (*“I do a lot of exercise, I run, I walk a lot, I lift my little weights at home”*), and practicing spirituality (*“having a super good praying book”*). These healthy lifestyle practices were included throughout the different modules of the Activate Program as culturally sensitive examples of healthy choices of daily activities.

Goals—The dimension of goals considers the congruence between therapist and client as related to the goals of the intervention. In order to frame goals of treatment within the values, customs, and traditions of the community, researchers asked the focus group participants to provide informative feedback in relation to the benefits that this type of program could have for OA from their community. We framed the perceived benefits through five primary community goals generated by the focus groups: mental and emotional health (*“the mind clears up”*); quality of life (*“have a better quality of life, not only physically, but mentally”*); functional independence (*“we want the OA to continue being functional and that they continue to live in a more adequate manner by themselves”*); and social support (*“besides other things, being able to maintain a support group where you socialize”*). Therefore, these community goals became important stated goals of the Activate Program. For example, in the module of *Relationships with others and health*, one of the objectives is to empower participants to identify meaningful activities they can use to develop relationship with others.

Methods—This dimension refers to the tasks and procedures for achieving the intervention goals. The procedures for problem solving have to be compatible and acceptable to the clients’ culture to increase the likelihood of treatment success. Narratives from aging experts and community members revealed that the health promotion program needed to be framed within two key elements: OA as experts and active participation. Aging experts express that OA not only have *“their own voices,”* but also are the ones who *“have to make the decisions of what happens with their lives.”* Aging experts expressed that the intervention methods has to stimulate discussions within the participants about *“how they are solving daily life challenges”* by focusing on their *“daily experiences”* instead of *“moving off from theory.”* In addition, aging experts indicated that an intervention approach in *“which older adults feel that they are participating and that they feel that their ideas and opinions are being valued... usually is well received.”*

Similarly, OA voices revealed their preferences to participate using interactive and “dynamic” methods as opposed to didactic presentations, as evidenced by the following excerpt: *“I don’t listen much, it’s that I get bored...I prefer talking with others about the subject, to see what one person thinks, what another thinks, give ideas.”*

Focus group participants also provided recommendations related to the preferred program’s structure. All participants agreed that the program must be delivered using a group format

due to its benefit for social interaction, as voiced by the following expert: *“being with other elderly people is socially good.”* These participants also agreed that sessions should be once a week, lasting between one and a half and two hours, and with no restrictions on time limit for the total duration of the intervention, as evidenced by the following statement of an OA: *“the more time the better.”* This demonstrates the community eagerness to participate in health promotion program initiatives.

Based on these results, the Activate Program will employ an autonomous style of facilitation, in which the facilitator’s role is to empower participants to find their own way and to use their own judgment for problem solving. The program structure will employ weekly two hour group sessions of 10 to 12 participants. In addition, future participants will establish the preferred total duration of the program that could range between four to eight months. Teaching and learning strategies will include group discussions, direct engagement, and personal application of the learned skills to their life.

Contexts—This dimension takes into consideration the social, economic, and political context of the intervention, including treatment barriers. For example, a potential challenge to recruit participants for the intervention expressed by community members was community mistrust of social service system, as expressed by the following participant: *“if you go to their homes (of the community older adults) they seem to refuse the help because they think you go there to snoop.”* This mistrust is founded in the community’s fear of losing important governmental benefits. We will address this contextual issue by employing a trusted community leader to make direct contact with potential participants to promote the program and recruit participants.

Integration of the Quantitative and Qualitative Findings

All topics reaching the minimum CVR for the combined group were included in the Activate Program. We re-classified some of the topics to improve their fitness with its assigned theme. We also re-worded the themes and topics to be culturally sensitive to the verbal style of the studied community. We incorporated the culturally sensitive elements of all of the dimensions of the EVM in all of the selected themes, topics, and structure of the Activate Program.

DISCUSSION

Our findings support the results obtained in other studies with minority populations in which the EVM proved effective as a guiding framework to incorporate culture into intervention (Bernal and Saez-Santiago, 2006; Domenech-Rodríguez et al., 2011; Matos et al., 2006; Nicolas et al., 2009; Roselló & Bernal, 1999). In addition, the analysis of the CVR exercise as well as focus groups’ data, revealed that the use of a mixed method design to systematically incorporate culturally sensitive elements as part of the intervention was essential to tailoring the Activate Program to the needs of OA in Puerto Rico who live alone. Active participation of experts in aging, as well as community members as partners in the research enterprise, was also instrumental in culturally shaping the intervention to the target population. This process of community engagement was the most critical in shaping the intervention to the community’s socio-cultural reality.

Although the topics addressed by the Actíivate Program, for the most part, were topics addressed by other occupation-based health promotion programs (Clark et al., 1999, 2011; Craig & Mountain, 2008), knowledge of cultural values and traditions required the incorporation of important socio-cultural elements for the studied community that are distinguished from other programs. For example, culturally sensitive elements of this program for older Latinos living in Puerto Rico were the use of idiomatic expressions such as *dichos* (popular sayings) as an intervention modality to convey important information, use of literacy-appropriate materials, such as the use of visual instead of written materials when possible, active participation instead of didactic presentations, OA as experts instead of a facilitator-driven intervention, group format instead of individual sessions, and community facilitators instead of OT personnel. The use of *dichos* has been described as a useful means of presenting educational material in behavioral interventions with Latinos (Bernal et al., 1995; Domenech-Rodriguez et al., 2011). In addition, research has found effective the use of trained lay community leaders to deliver health promotion programs for OA (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001).

Implication for Practice

The results of this study have several implications for occupational and physical therapy practice and research. First, researchers and practitioners that use a cultural guiding framework when developing behavioral interventions will better meet the broad spectrum of culturally sensitive elements required to make interventions relevant to specific ethnic groups. Second, through the use of culturally-sensitive interventions, occupational and physical therapists have the potential to improve quality of services and treatment outcomes for ethnic minorities. Third, researchers and practitioners must pay careful attention in the documentation of each step of the process of developing culturally-sensitive interventions for replication purposes.

Conclusions, Limitations, and Future Research

The EVM can be used as a guiding framework to incorporate culture into intervention. The systematic process for the development of culturally sensitive interventions described in this paper provides more evidence of the need to culturally center behavioral interventions for use with different ethnic groups. Since treatment tailoring is part of standard treatment practice, tailoring intervention programs becomes essential to accommodate the variety of experiences, traditions, and circumstances of those seeking health promotion services. For this reason, real world practice requires tailoring programs to fit diverse needs for individuals and distinct groups. Failures in accounting culture when developing or delivering health promotion programs increases the health disparities in treatment and service utilization. Therefore, our study contributes to the small, yet growing field of understanding of the development of preventive health services for ethnic minorities as an effort to address existent health disparities.

Main limitations of this study include a small purposive sample and small representation of male adults. Future studies must assess the feasibility, acceptability, and effectiveness of the Actíivate Program, a cultural sensitive intervention for older Hispanic adults who live alone in Puerto Rico. More broadly, further research is needed to apply and assess the systematic

process provided by the EVM for the development of new health promotion treatment research for diverse and multi-cultural populations.

Acknowledgments

We acknowledge the support of the participants who took part in this study. We also thank Ana L. Colón-Arce and Luis A. Colón-Arce for their contributions in the translation of the manuscript and Dr. Mary Helen Mays for providing editorial support.

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FIGURE 1.

Study's procedures for the development of the Actívate (Get Active) Program.

TABLE 1

Content Validity Ratio Values for Content Domains Rated by Aging Experts, by Community Members, and by the Combined Sample

Themes and Topics	Focus Group Participants <i>N</i> = 18
Activity, Health, and Active Aging	
Impact of activity on health	1 *
Impact of aging on activities routines	1 *
Time use and fatigue management	
Time use, daily energy patterns, and fatigue management	.89 *
Joint protection and activity adaptations	.67 *
Social Relationships	
Impact of aging on social relationships	.33
Building social support through activity participation	1 *
Effective communication and social interactions	1 *
Coping with loneliness	.89 *
Home and Community Safety	
Protection against crimes at home and the community	1 *
Fall hazards and home safety	1 *
Activity adaptations, assistive devices and home modifications for safety	.64 *
Participation in the Home and Community	
Leisure and voluntary activities and health	.89 *
Transportation use	1 *
Experiencing modern technologies	0
Finance management	.78 *
Resources in the community for participation in activities	1 *
Maintaining Physical and Mental Wellbeing through Occupations	
Keeping mentally active	1 *
Keeping physically active	1 *
Nutrition	1 *
Personal enablers of occupational participation	
Role of personal attributes in daily participation	.78 *
Spirituality as an enabler for occupational participation	.67 *

Note.

* $p < 0.05$ = Topics rated as essential more than is expected by chance.