

**REDUCING THE BURDEN OF**

# **ARTHRITIS**

**IN HISPANIC POPULATIONS**

## **Literature Review**

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## Introduction

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This document provides findings of a literature review ORC Macro is conducting on behalf of the Centers for Disease Control and Prevention (CDC) for the Formative Research Aimed at Reducing the Burden of Arthritis in Hispanic Populations (English-speaking, Spanish-speaking) project. The first priority is to identify appropriate audience segments within the Hispanic population (aged 45–64) that would be responsive to a physical activity campaign.

As described in the Formative Research Plan, the purpose of the literature review, along with an environmental scan using an Internet analysis, is to provide CDC with information that will assist in conducting qualitative formative research with Hispanics/Latinos with arthritis, in order to develop a communication plan to increase physical activity. Building on the findings from the literature review, the formative research will help shape future programs and interventions that seek to reduce the negative effects of arthritis, as well as reduce the disproportionate disability due to arthritis for the underserved populations of the United States, with particular attention to Hispanic/Latino populations (English- and Spanish-speaking). The literature review report will summarize, document, and report information related to knowledge, attitudes, beliefs, and behaviors pertaining to physical activity among Hispanic/Latino people with arthritis (HPWA).

To supplement this literature review, an environmental scan is currently being conducted. The Internet, with its World Wide Web sites and listservs, provides means of identifying new trends and issues and confirming that issues in the literature review are relevant. Internet resources are being scanned for information on arthritis and physical activity, Hispanic/Latino people with arthritis, and related terms. Potentially competitive or duplicative programs, as well as clinical and psychosocial trends that might enhance or threaten future communication activities, will be researched.

The literature review and the Internet analysis will inform the logic model for the formative research (please refer to Appendix A for the Logic Model) and will sharpen the segmentation criteria for the focus groups and interviews with the two audiences selected for this project.

## Methods

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The following section details the methods used in the information gathering for this literature review. In addition to the information provided by CDC and the University of South Florida, ORC Macro has identified a body of recent research and academic literature on an array of topics that will inform this project.

Computerized searches were conducted both by our research team and by trained ORC Macro library services staff, identifying appropriate materials using MEDLINE, PsychInfo, Combined Health Information Database (CHID), and other online sources. They also searched the bibliographies of review and meta-analysis articles to identify additional citations. A total of 91 articles were identified from all combined sources. Most of the articles included came from these academic journals:

- Alternative Therapies in Health & Medicine
- American Journal of Preventive Medicine
- American Journal of Public Health, Arthritis & Rheumatism
- Arthritis Care & Research, Current Opinion in Rheumatology
- Ethnicity & Disease
- Health Care for Women International
- Health Education & Behavior
- Health Psychology
- Journal of the American Geriatrics Society
- Medical Care
- Medicine & Science in Sports & Exercise, and
- Psychosomatic Medicine.

The following list of relevant keywords were used for the searches:

- Arthritis
- Activities for Daily Living
- Aging
- Chronic Disease
- Cross-Cultural Comparison
- Educational Factors
- Exercise
- Hispanic
- Latino
- Musculoskeletal Diseases
- Osteoarthritis
- Physical Activity
- Socioeconomic Factors
- Spanish

From the original 91 articles, 32 were excluded in this review due to several factors. Some articles were omitted because they did not meet criteria specified by the original RFTP (e.g., articles from 1998 to present); others were too specialized and based on clinical research not of immediate interest to the scope of this review. The remaining articles were reviewed and clustered into themes. The resulting themes are disability and disease outcomes, health behaviors and cultural profiles, acculturation, use of and access to health care services, determinants of physical activity, and physical activity interventions. These themes provide the structure for discussion in the following section.

## Findings

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The review has identified a number of issues relevant to the purposes of this project and Hispanic/Latino people with arthritis (HPWA); general information about minority (specifically Latina) women's attitudes toward arthritis and arthritis treatment, including self-management; prevalence of and attitudes toward physical activity; communication factors; and Hispanic/Latino cultural beliefs on arthritis and physical activity in the target age group (determinants and interventions). These issues will be explored after a basic discussion of arthritis and Hispanics/Latinos. Please refer to Appendix B for a Summary Table of our findings. This table provides succinct information per article reviewed on key themes addressed, the population or subgroups studied, methods of data collection and sample size, and findings relevant to this project.

### What is Arthritis—Brief Background

Arthritis is a common term to cluster over 100 forms of rheumatic diseases; the word literally means joint inflammation. Arthritis is the number one cause of disability in the United States, affecting an estimated 69.9 million people,<sup>1</sup> as arthritis and related conditions are the first or second leading cause of self-reported activity limitations (such as working, keeping house, and living independently). Arthritis prevalence ranked ahead of other self-reported common conditions such as heart disease, hearing impairment, chronic bronchitis, asthma, and diabetes (MMWR, 2002). Arthritis is a chronic condition that causes pain, stiffness, and swelling in joints and other supporting structures of the body such as muscles, tendons, ligaments, and bones. Osteoarthritis (OA), or degenerative joint disease, is the most common form of arthritis. It most often affects middle-aged and older people, involving the neck, lower back, knees, hips, and fingers, and affects more than 21 million people in the U.S. Rheumatoid arthritis (RA) is a chronic disease that causes pain, stiffness, swelling and loss of function in the joints, and inflammation in other body organs. It affects more than 2 million people in the U.S. and more than 75% of RA patients are women.

### Disability and Disease Outcomes

Studies reviewed found that the disabling effects of arthritis are felt more strongly in racial and ethnic minority and lower socioeconomic status (SES) populations (Anderson & Armstead, 1995; Escalante & Rincon, 2001). Studies have consistently found that besides physical pain and disability, disease outcomes in minority populations include physical inactivity, loss of self-esteem, depression, and increased co-morbidity, among other chronic conditions. In many cases, chronic conditions in low SES populations share several risk factors, such as obesity and inactivity, which are risk factors for heart disease and diabetes as well as for arthritis, and have been of special concern in the Mexican-American population.

The disproportionate distribution of pain and disability due to arthritis has many negative repercussions in populations where health burdens have higher potential for disrupting multiple aspects of peoples' lives. For people without health insurance, those with little

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<sup>1</sup> This statistic is higher than the projected statistic from the 1996 MMWR report, which predicted 60 million PWA by the year 2020. This difference may reflect changes in data gathering methods employed in the survey.

access to health care, those who cannot afford to pay for medication or to see a doctor, and those with little trust or belief they can get help from a health care provider, arthritis imposes a serious economic, social, and psychological threat. Literature on chronic disease in racial and ethnic minority populations and populations of low SES has highlighted this finding.

Comparing the health profile of Hispanics/Latinos to that of the general U.S. population reveals numerous disparities. Disproportionate numbers of adult Hispanics/Latinos suffer from chronic diseases and conditions, including arthritis, high blood pressure, diabetes, and obesity. Moreover, arthritis is an unrecognized major racial and Hispanic/Latino health problem, as it ranks as the second most common chronic condition among Hispanics/Latinos in the U.S. While there is a higher percentage of non-Hispanic Whites and African-Americans who report having arthritis or related conditions,<sup>2</sup> Hispanics/Latinos report a greater percentage of disability or activity limitation due to arthritis (Escalante & Rincon, 2001). This fact reflects a need to better address the management of this disease in the Hispanic/Latino population.

### **Health Behaviors and Cultural Profiles: Knowledge, Attitudes, Beliefs, and Behaviors (KABB)**

This section will discuss knowledge, attitudes, beliefs, and behaviors surrounding arthritis in the Hispanic/Latino population. A central finding in this review is that studies conducted among different subgroups of this population produced varied results and revealed a spectrum of attitudes and behaviors. Among the factors or variables that are studied in academic literature are SES, country of birth (COB), and gender, making difficult to generalize among Hispanics/Latinos. For example, Hispanics/Latinos of higher SES show different health practices and beliefs than those of lower SES in many of the studies reviewed (Abraido-Lanza, Guier, & Levenson, 1996; USF, 2001), and there is evidence that there may be significant differences in how Hispanic/Latino men and women respond to different problems related to arthritis according to different social roles they are involved in (Eyler, Baker, Cromer, King, Brownson, & Donatelle, 1998).

Three studies reviewed, for example, focused on arthritis in three distinct Hispanic/Latino populations, including a study among mostly Cubans in south Florida, who in general have higher levels of education and SES than their Hispanic/Latino counterparts (USF, 2001). Two other studies included one in New York among a majority Puerto Rican female population (Abraido-Lanza et al., 1996) and one in the Southwest among elderly Mexican-Americans (Goodwin, Black, & Satish 1999). Such dissimilar populations likewise yielded different results. Abraido-Lanza et al. (1996) summarize clearly in this sentence; “The extent to which findings illustrate cultural, gender, or socioeconomic status factors requires further study.”

All of these findings are important for developing communications plans for Hispanic/Latino populations, but literature on audience segmentation pertaining to physical activity and arthritis within Hispanic/Latino subgroups is still scarce. As Escalante and Rincon (2001)

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<sup>2</sup> After accounting for differences in age, however, the National Health Interview Survey (NHIS) shows that the prevalence of arthritis and musculoskeletal diseases among Hispanic populations is similar to the rates in the majority non-Hispanic White population (Escalante & Rincon, 2001).

point out, “Each of the Hispanic groups in the United States has its own set of racial and cultural characteristics, Spanish vernacular, dietary preferences, music, and so forth” (p.105).

It is therefore important to acknowledge the complexity of relationships between culture, SES, gender, and other factors, and the effects they have on chronic diseases such as arthritis. Recurring themes serve to anchor attention to what may be some of the more important research findings.

Beyond internal cultural differences that may affect disease outcomes, Escalante and Rincon (2001) explore some of the broader issues that may impede research or affect outcomes within this population. These issues are summarized below.

- *Lower levels of educational attainment* in Hispanic/Latino communities may limit the success of the complex medication regimens often used in chronic diseases, with negative impact on disease outcomes. Low education can also be an obstacle to participation in health studies, resulting in a paucity of research in this population.
- Careful *cross-cultural adaptation of research instruments* is necessary to overcome the potential problem of finding spurious ethnic differences caused by inadequate questionnaire translation. Many scales that are widely used in arthritis research have been adapted for use in Hispanic/Latino populations, but have seldom included field-testing of validity before widespread use of translated instruments.
- *Lack of health care* affects Hispanics/Latinos disproportionately, although few studies have examined the possible impact in Hispanic/Latino populations
- *Access to medications across the Mexican border* may further complicate proper treatment in the U.S.
- Hispanic/Latino patients may *cope with arthritis symptoms* differently than non-Hispanic White patients (Abraido-Lanza, Guier, & Revenson, 1996, as cited in Escalante & Rincon, 2001). Some successful Spanish-language self-help programs that account for the cultural characteristics of Hispanic/Latino patients have been developed, and are discussed later in this report (Lorig, Gonzalez, & Ritter, 1999, as cited in Escalante & Rincon, 2001).

Attitudes about arthritis and other chronic conditions have been addressed by several studies (Abraido-Lanza, Guier, & Revenson, 1996; Escalante & Rincon, 2001; Gordon-Larsen, Adair, & Popkin, 2002; USF, 2001). Some studies focus on the interplay between cultural variables (such as care giving duties) and external environmental factors (such as sidewalks, etc. further detailed in Table 1) as they relate to arthritis in the Hispanic/Latino population (Cantero, Richardson, Baezconde-Garbanati, & Marks, 1999; Eyler et al., 1998; Eyler et al., 1999; King et al., 2000; Tortolero, Masse, Fulton, Torres, & Kohl, 1999). These relationships will be discussed in further detail in the sections below.

Goodwin, Black, & Satish (1999) found an association between beliefs about disease and health behaviors, such as the use of health services and primary care. Specifically, Goodwin et al. (1999) found a prevalence of nihilistic and fatalistic attitudes towards chronic conditions such as arthritis, and this was a finding consistent across racial and ethnic minority groups of similar ages, not specific to Hispanics/Latinos alone.

The study defines various health beliefs and attitudes held by older adults in minority populations such as fatalism and nihilism. Where fatalistic attitudes refer to the belief that arthritis or other chronic conditions are just part of the aging process, and nihilistic attitudes refer to those beliefs that there is nothing one can do about his or her condition, fatalistic subjects were less likely to use preventative health measures, and nihilistic subjects were less likely to have a regular physician. While these findings point to a lack of access and under-use of systems of care by older Mexican-Americans participants in this study, they might also reflect prior cultural attitudes towards these systems, as well as negative experiences in attempting to utilize them.

Other studies explore different coping strategies employed by participants that reflect certain cultural orientations and traditions, such as religion and the use of metaphors (USF, 2001). Coping strategies include important use of social support networks that serve to reinforce self-esteem and have been shown to increase measures of self-efficacy. For example, Abraido-Lanza et al. (1996) identified the importance of social support and mother–daughter relationships as important coping strategies.

Finally, attitudes surrounding exercise and physical activity also point to a need to better understand and to redefine relationships between Hispanics/Latinos and physical activity. For example, findings from the University of South Florida indicated positive attitudes toward physical activity as an arthritis management tool, although there was a generally held notion that exercise was not part of Hispanic/Latino culture. These studies on physical activity will be discussed in the section on physical activity interventions, as they relate to issues of communication and relevancy within the target population.

## **Acculturation**

In several of the articles reviewed, acculturation is a dominant theme. For the purposes of public health, the idea of acculturation is useful in explaining vast discrepancies in health status and health behaviors—a reality experienced by many culturally and linguistically diverse groups in the United States. One possible explanation for its usefulness in this respect is that the measures employed by most public health academicians and practitioners to quantify acculturation (namely, language use and length of stay in the U.S. or country of birth) have been closely correlated with other factors used to explain health discrepancies such as educational attainment and SES (Goodwin, Black, & Satish, 1999). As another example, two recent studies (Crespo, Smit, Carter-Pokras, & Andersen, 2001 and Cantero et al., 1999), which examine the association between *acculturation* and physical activity among Hispanics/Latinos in the U.S., found a positive correlation between acculturation and physical activity<sup>3</sup>—a finding that is consistent with the literature examining health discrepancies in low SES populations in our nation.

However, it is becoming clear that acculturation is more than just a marker for SES. According to one study, when measures of acculturation are expanded to include additional markers such as ethnicity of peers and measures of value orientation, SES and education alone account for little of the discrepancies in self-reported health status once they are adjusted for

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<sup>3</sup> Cantero et al. (1999) find, however, that increased physical activity is the only positive health practice examined that is associated with acculturation; alcohol and tobacco use are shown to increase with acculturation as well.

(Shetterly, Baxter, Mason, & Hamman, 1996). The findings from this study indicate that measures for acculturation, when expanded beyond language use and proficiency to include more sensitive markers of cultural practices and beliefs, have the ability to highlight cultural subtleties not accounted for by more basic markers (i.e., language use). Somatization, for example—the expression of psychological or emotional stress through physical symptoms—has been reported to be more common among more traditionally oriented Hispanics/Latinos than among non-Hispanic Whites. It has also been found that Hispanics/Latinos whose practices and beliefs most closely resemble those of non-Hispanic Whites have remarkably similar self-rated health scores regardless of socioeconomic variables, contradicting previous studies that have employed less rigorous acculturation scales (Anderson & Armstead, 1995; Shetterly et al., 1996).

In summary, when measures of acculturation are expanded, they can offer more insights into how to better communicate with the Hispanic/Latino target population. This is as opposed to the more general measures for acculturation that seem to reflect SES rather than important cultural traits, which should not be overlooked.

## **Use of and Access to Health Care Services**

While physical activity interventions developed from this research will not target the health care system in particular, it is important to better understand the relationship between this system and Hispanic/Latino audiences. The literature focused on in this section addressed barriers to health care access in the Hispanic/Latino population and, in particular, lack of health insurance. The findings described below will help to inform how interventions approach issues of trust, efficacy, and authenticity as they relate to receiving structured health care. These issues may impact how HPWA receive health-related messages about their arthritis, and should be carefully considered when developing such messages or interventions.

Major barriers to regular health care in the Hispanic/Latino community present an even greater need for non-health care-related interventions among this community. Carrillo, Travino, Betancourt, and Coustasse (2001) describe primary, secondary, and tertiary barriers to health care experienced by the Hispanic/Latino population, which are summarized below.

A central primary barrier to health care access is lack of insurance. Of over 30 million Hispanics/Latinos who make up the U.S. population (not counting the 3.8 million Hispanics/Latinos in the island of Puerto Rico), approximately 40% lack basic health insurance. This makes up about a quarter of the uninsured U.S. population, whereas Hispanics/Latinos make up just over one-tenth of the entire population in the continental U.S. (Carrillo et al., 2001; Families USA, 2001). Of the uninsured, over one-third who suffer from a chronic condition do not receive health care due to its cost alone. Of uninsured arthritis sufferers in particular, 26% had difficulty obtaining care in the last year, most of whom could not afford it because of other necessary expenditures such as food, clothing, or housing (Families USA, 2001).

The U.S. Hispanic/Latino population has a significantly higher proportion of those who lack health insurance than both Whites and African-Americans. Of those in the workforce whose jobs provide health care benefits, 69% are non-Hispanic Whites, 52% are African-American,

and 44% are Hispanics/Latinos (Hall, 1999, as cited in Carrillo et al., 2001). Citizenship, education, and workforce characteristics all are important factors in this discrepancy.

Workers who are not U.S. citizens, for example, are far less likely to be insured by their employers than workers who are, due in part by the type of work they have (unskilled and non-managerial positions). This fact may explain some of the discrepancies between Hispanic/Latino and African-American uninsured workers.

Furthermore, lack of education—a major problem in Hispanic/Latino communities—accounts for a great amount of the divergence between insured and uninsured workers. According to Carrillo and colleagues (2001), individuals with a college degree or higher education are twice as likely to have health care coverage than those with less than a high school education (p.57).

Both education and citizenship status probably contribute to the last factor mentioned above—that is, workforce characteristics. It comes as no surprise that the types of jobs held more often by Hispanics/Latinos in the U.S., including service industry jobs, agricultural work, mining, domestic work, and construction, are less likely to provide insurance than “white collar” jobs, which Hispanics/Latinos are less likely to hold (Carrillo et al., 2001).

Beyond these primary barriers to health care, however, many Hispanics/Latinos, even those who have access to health care coverage, experience what the authors refer to as secondary and tertiary barriers. These barriers include structural, organizational, and institutional aspects of health care systems that make obtaining and receiving proper health care difficult or impossible. Poor communication and understanding between providers and recipients, for example, is one structural barrier that limited-English-proficient Hispanics/Latinos have to cope with. From an organizational standpoint, the lack of Hispanics/Latinos in the health care workforce severely confounds this issue. As Carrillo and colleagues (2001) point out, “In cases where there is a lack of diversity in the leadership and workforce of health care organizations, the result may be structural policies, procedures, and delivery systems inappropriately designed or poorly suited to serve diverse patient populations” (p.66).

Not only is linguistic interpretation at issue here, but also cultural, psychological, and social aspects of adequate health care delivery. Indicators of dissatisfaction with health care services among Hispanics/Latinos, as well as African-Americans, measured in several studies (Cooper-Patrick, Gallo, Gonzales, Vu, Power, Nelson, & Ford, 1999; David & Rhee, 1998; Detailed Occupation and other Characteristics from the EEO File for the United States, Census of Population Supplementary Reports, 1990; Morales, Cunningham, Brown, Liu, & Hayes, 1999) reflect this gross under-representation of minorities in the health care workforce<sup>4</sup> and its effects on health care services for minority populations. “Given the small proportion of Latino physicians,” write Carrillo et al. (2001), “Spanish-speaking patients are often cared for by physicians who may not speak their language, understand their social situation, or value their cultural beliefs” (p.67).

Finally, intrinsic problems such as lack of convenient locations or proper transportation, over-bureaucratization of patient processing, and long delays in obtainment of care prevent those who may have insurance for health care from actually receiving it. Carrillo et al. (2001) write,

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<sup>4</sup> In 1990, Hispanics/Latinos made up only 2% of the health care workforce in the U.S. (Carrillo et al., 2001).

*These barriers all clearly complicate Latinos' ability to obtain quality health care. The result is patient dissatisfaction, poor comprehension of critical health messages, non-adherence to health-promotion and disease prevention interventions, lower quality of care, and poorer health outcomes, even in those Latinos who supposedly have access (p.67).*

In summary, it is clear that Hispanics/Latinos are underrepresented both in the health care workforce and among the beneficiaries of quality health care. This fact has significant bearing upon how best to approach health promotion outside of the health care system, without losing sight of the potential contribution of individual health care providers in health promotion activities. Interventions should be tailored to address the specific shortcomings of health care systems described above, and should be sensitive in their delivery to these culturally pertinent issues. The following section will continue to discuss the literature review findings, focusing on how Hispanics/Latinos relate to physical activity/exercise.

## **Determinants of Physical Activity**

Up to this point we have examined a wide scope of factors relating to Hispanics/Latinos and health, namely through a discussion of some coping strategies, attitudes and behaviors of cultural subgroups, and issues of health care access. How these factors come to bear upon a more narrowly defined issue—Hispanics/Latinos and physical activity—becomes more apparent.

In order to develop successful physical activity interventions and communication plans for a specific population, there is a set of determining factors that must be investigated. Messages, education, and physical activity programs must be relevant for the target audiences, must avoid offending those targeted, and should arouse interest in participating in the activities or programs being promoted. Beyond general attention to cultural sensitivity, physical activity interventions should be informed by a well-studied set of variables specific to the relationship between the target audience and the promoted practice(s). These variables, or determinants, may change or may differ very little between different populations.

Recent studies, however, highlight the paucity of research on determinants of physical activity among ethnically and culturally diverse groups (Cantero et al., 1999; Eyler et al., 1998; Eyler et al., 1999; King et al., 2000; Tortolero et al., 1999). Findings from several studies (Cantero et al., 1999, among others) on culturally and linguistically diverse populations have shown a positive correlation between acculturation and physical activity, for example. This may suggest that minority or immigrant status brings with it a disruption in health practices that subside after a relative amount of incorporation into mainstream society is achieved. It also points to the need, however, to better understand not only how diverse populations conceptualize health practices, but also how this conceptualization is confounded by a given set of external circumstances particular to minority populations in the United States.

Gender, SES, prejudice, education, language, and employment are just a few of a number of risk factors that need to be addressed by physical activity interventions in order for them to be effective. Once determinants are identified, appropriate communication, based on research

relevant to the target population, will be a vital factor in the success of any given intervention. Some of the issues brought to the forefront by a recent body of literature on physical activity determinants in minority, and, specifically, Hispanic/Latino, populations, are addressed below, followed with a discussion on how the current research will respond to the available literature.

An interesting finding in itself is the limited amount of studies that include Hispanic/Latino men in their sample. Several studies on physical activity among minority women (Bull, Eyler, King, & Brownson, 2000; Cantero et al., 1999; Duffy, 1997; Eyler et al., 1998; King et al., 2000; Tortolero et al., 1999) have identified determinants for physical activity particular to their roles as caregivers that have special implications for marketing physical activity interventions towards this population. This is especially important given women, and minority women in particular, have been shown to be more at risk for both arthritis and for inactivity (Tortolero et al., 1999).

Investigation into health attitudes and behaviors of Hispanic/Latinas reveals some negative responses to terminology commonly employed by physical activity interventions, such as negative attitudes toward the idea of leisure-time and physical activity, as well as exercise. These ideas have been shown to invoke counterproductive imagery for women whose caregiving duties supercede personal needs. Research has indicated that these women are less likely to respond positively to interventions that employ such terminology, calling for the need to better understand activities that women may already participate in that could be viewed as a form of physical activity (Eyler et al., 1998; Tortolero et al., 1999). Interventions could work toward helping to redefine familiar activities in terms of health practices in order to reinforce the value of physical activity in ways that are relevant to this population.

This is just one example of how determinants for physical activity vary greatly among different populations. It calls for a need to develop a conceptual framework through which these determinants can be evaluated and assessed. King et al. (2000), as well as Duffy (1997), offer a framework that incorporates *an ecological model*, through an understanding of the interplay between personal and environmental factors related to the target audience, that could be more effective in understanding determinants of physical activity among that audience.

Under an ecological framework, King et al. (2000) focuses on neighborhood factors as determinants for physical activity. The study finds that beyond specific attitudes toward exercise and physical activity there are many:

- Environmental barriers, such as lack of pleasant places to walk and lack of safety,
- Personal barriers, such as lack of energy and caregiving duties, and
- Education and SES variables, which are often associated with lower levels of physical activity.

Given that these last variables mentioned—education and SES—are not tenable targets for physical activity interventions, it is important to understand and incorporate into interventions factors that can reasonably be targeted, such as access to programs and information, beliefs about physical activity benefits, and social support networks. Because of the expected interplay between demographic, psychological, social, and environmental factors,

determinants can be evaluated for interventions at several different levels. An ecological model helps to understand the relationships between these levels.

King et al. (2000) list five different conceptual domains that delineate these levels and their associated factors, which are organized in Table 1 below:

**Table 1. Ecological Model Domains and Associated Factors/Variables**

Domain	Associated Factors or Variables
<b>Socio Demographic</b>	<ul style="list-style-type: none"> <li>• Race and ethnicity</li> <li>• Age</li> <li>• Marital status</li> <li>• Employment</li> <li>• Education</li> </ul>
<b>Health Related</b>	<ul style="list-style-type: none"> <li>• Activity limitation due to health problem</li> <li>• Number of days with impaired health</li> </ul>
<b>Psychosocial</b>	<ul style="list-style-type: none"> <li>• Presence of others who discourage PA</li> <li>• Self-consciousness</li> <li>• Fear of injury</li> <li>• Lack of time</li> <li>• Fatigue</li> <li>• Perceived safety of environment</li> <li>• Caregiving duties</li> <li>• Lack of energy to exercise</li> </ul>
<b>Program Based (and type of preferred program)</b>	<ul style="list-style-type: none"> <li>• Access and cost</li> <li>• Group program vs. individual</li> <li>• Amount of instruction</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>• Sidewalks</li> <li>• Traffic lights</li> <li>• Unattended dogs</li> <li>• Pleasant scenery</li> <li>• Observation of others exercising</li> <li>• Crime levels (safety factors)</li> </ul>

These variables represent some of the important determining factors for physical activity among minority women as per studies reviewed. An important next step in the current study would be to identify those factors most relevant to HPWA, men in particular. Drawing from the existing literature, it is apparent that Hispanic/Latino subgroups should be considered for audience segmentation differentiated along the lines of age, gender, presence or absence of disease, acculturation (country of birth—COB, language use, cultural beliefs and values), SES and access to health care, and other aspects yet to be investigated. This suggestion illustrates the complexity of marketing health promotion, and more specifically physical activity interventions, to a general population of Hispanics/Latinos, rather than developing an understanding of what types of messages would be relevant and effective for specific segments of the target population.

Duffy (1997) presents a valuable model for predicting various health-promoting activities among employed Mexican-American women that could be adopted to include other

Hispanic/Latino populations, or specifically HPWA. Similar to King, Castro, Wilcox, Eyer, Sallis, & Brownson, (2000), this study incorporates modifying factors, including demographic, biologic, situational, behavioral, and interpersonal factors, with cognitive-perceptual factors, such as those relating to self-efficacy, locus of control issues, and perception of health practices, among others. The outcome is a picture of the interplay of these factors and the impact they have on health promotion behaviors and beliefs. Interestingly, the study finds that *demographic variables make less of a statistical contribution to explaining health promotion behaviors than do age, education, self-efficacy, locus of control, and prior, future, and current health status*. The author suggests that the current health promotion model may not adequately explain modifying factors' role in health promotion activity.

However, this study does provide important evidence for the role of perceptual-cognitive factors in such behaviors. To take a step further, consideration should be given to how to integrate King et al.'s ecological model, which draws variables from proven social cognitive theory, with Duffy's health promotion model, in order to gain an understanding of how interactions with immediate environments, such as physical aspects of neighborhoods, as well as their social makeup, are mediated through broader modifying factors, which may or may not actually serve as determinants of physical activity. Armed with some of these ideas, it is helpful to look at how some other studies reviewed have identified, organized, and evaluated various determinants for physical activity.

Eyer et al. (1998) has compiled an important set of focus group findings on determinants of physical activity among different groups of minority women. Determinants, coded as personal factors, environmental factors, and enablers (also split into personal and environmental), reflect specific and general aspects of participants' roles both as women and as ethnic and racial minorities, and are therefore significant on more than one level.

### **Personal Factors**

- *Lack of Time.* As mentioned above, lack of time was highlighted as one of the main barriers to leisure-time physical activity. This was directly related to participants' role as caregivers, and to a lesser extent, to their work outside the home. Many women described their roles to be ethnically traditional gender roles, and ascribed some value to this aspect, although distinctions often made between men and women brought up issues of personal time and freedom. Interestingly, however, when considering alternative definitions for physical activity, most women determined that their duties as caregivers included recommended amounts of physical activity.
- *Health Concerns.* Among the participants, **arthritis** was listed as the primary health concern that was a barrier to physical activity. Women also mentioned past heart problems and fear of a heart attack, as well as concerns about falling or injuring their back during exercise. In addition, asthma, diabetes complications, cancer diagnosis, high blood pressure, and depression were cited as health barriers to becoming more physically active.
- *Lack of Self-Motivation.* Many women felt that they knew what to do to become more physically active, but were just "lazy" when it came to acting on it.
- *Lack of Social Network.* Having someone to exercise with was listed as a motivator. The idea that somebody expected them to show up was one that women

mentioned would motivate them to exercise. In a separate study (Eyler et al., 1999), physical activity social support (PASS) score was quantified and measured. It was found that higher PASS scores were associated with higher levels of physical activity. Hispanic/Latina women were more likely to have high scores than other racial and ethnic groups. The authors conclude based on their results that “enhancing social support may be an important aspect of interventions aimed at increasing physical activity in a population of sedentary women of various racial/ethnic backgrounds.”

### **Environmental Factors**

- *Safety.* Safety concerns were mentioned by all focus groups. Fear of crime, lack of proper places to walk, and fear of going out after dark were concerns in both urban and rural areas.
- *Lack of Available Programs and Cost.* Lack of exercise programs, or concerns regarding lack of age- and culturally appropriate programs in their communities, was mentioned as a barrier to exercising and becoming more physically active. Women of various minority groups and ethnic backgrounds expressed a need for specific programs geared toward them. Cost was the main environmental barrier to joining a structured exercise program.

### **Enablers**

- *Social Support.* Social support from friends, family, and spouses was listed most often as the most important enabler for increased physical activity. Help with caregiving duties was one form of social support listed, allowing women to take time to walk or to exercise in other ways. Another aspect of social support came from group exercise programs, where women felt they had an opportunity to socialize and get support from their peers.
- *Access.* For women in the workforce, exercise facilities at the job site were encouraging, as were programs at community centers where culturally similar people could exercise together. Access to scenic areas for exercising was an enabler for some groups as well.
- *Other Enablers.* Table 2 below lists enablers and examples from most often mentioned to least often mentioned, and divided into personal and environmental categories.

**Table 2. Enablers for Physical Activity and Examples**

	<b>Enablers</b>	<b>Examples</b>
<b>Personal</b>	<ul style="list-style-type: none"> <li>• Social support (<i>more often</i>)</li> <li>• Self-motivation</li> <li>• Knowledge</li> <li>• Self-esteem</li> <li>• Time management (<i>less often</i>)</li> </ul>	<ul style="list-style-type: none"> <li>- Friends, family, community</li> <li>- Willpower</li> <li>- Past experience and success with exercise</li> <li>- Positive attitude</li> <li>- Scheduling exercise</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>• Access (<i>more often</i>)</li> <li>• Weather</li> <li>• Scenery (<i>less often</i>)</li> </ul>	<ul style="list-style-type: none"> <li>- Job, home, community, church</li> <li>- Nice to be outside</li> <li>- Nature</li> </ul>

In support of these findings, King et al. (2000) also found *lack of time* and *care giving duties* to be the principal perceived barriers to physical activity. For Hispanic/Latina women, self-consciousness about physical appearance ranked second among barriers to physical activity, an issue that was not addressed in Eyler’s study.

A study examining the assessment of physical activity among minority women (Tortolero et al., 1999) identifies a problem in both terminology and definitions of physical activity, similar to findings cited by Eyler et al. (1998). The participants’ perceptions of physical activity and exercise, leisure time, and sports were all related to values that they did not identify with, did not hold important, or felt very negatively about. Hispanic/Latina women in particular found the idea of leisure time objectionable because it suggested they had no contributions to make to their families, or were not being productive. The study acknowledges that in order to assess more accurately those levels and define areas appropriate for interventions, there is a need to reexamine the roles of minority women in regard to levels of physical activity involved. Table 3 below summarizes focus group findings included in this study from examples of activities reported by participants from Life Spheres, Women On The Move, 1996 study. Items listed are ordered from most frequently mentioned (top) to least frequently mentioned (bottom).

**Table 3. Women’s Life Spheres and Examples of Activities**

<b>Life Sphere</b>	<b>Examples</b>
<b>Household activities</b>	General cleaning, vacuuming, mopping, light and heavy dusting, moving furniture, washing the car, home repair and maintenance, yard care, scrubbing floors, cleaning bathrooms, washing windows
<b>Family care</b>	Carrying small children, cooking, running and playing with children, playing sports with children, walking with children, caring for older adults, walking dog, bathing dog
<b>Walking</b>	To and from places (as transportation), with children, for exercise, shopping, during occupation, to and from parking, delivering flyers for community activities
<b>Occupation</b>	Walking, patient care, moving boxes

Life Sphere	Examples
<b>Community activities</b>	Walking, dancing, cleaning, repair and maintenance, yard work
<b>Sports, exercise, leisure</b>	Walking, stretching, yoga, calisthenics, jogging, exercise classes, dancing

Findings on physical activity determinants among HPWA, though scarce, are important nonetheless. Not only do they point in the right direction, but they also enable researchers to identify gaps in the research and think creatively about how to fill those gaps. The literature illustrates that the Hispanic/Latino population is a diverse and dynamic audience. There are many factors that interact with this audience, creating a spectrum where, in any given situation, some may act more powerfully upon the population than others. Within this audience, for example, lines of race, ethnicity, and culture blur when confounded by other variables such as age, gender, SES, and education. As illustrated in the KABB section in the discussion on different findings among different populations of study, it is not always clear whether cultural differences are as powerful determining factors as are sociodemographic and/or SES differences. The literature is unclear about how to address this issue.

One answer may be to look toward different kinds of information. As mentioned in the Formative Research Plan, the environmental scan through the Internet analysis will help deepen our understanding of the target audience through an assessment of alternative sources of information. Information from unpublished and ongoing studies and interventions, resources on the Internet, and publications not discovered through traditional literature searches will augment what is already known and help bring fresh perspectives to the literature in academic journals that have been discussed so far. This fugitive literature will help fill some of the gaps that have been identified.

## Physical Activity Interventions

Literature on physical activity interventions among Hispanic/Latino and other minority populations in order to identify successes and failures that may guide this and future research is discussed below. Owing to the lack of literature on Hispanic/Latino populations in particular, but also to the overlap in issues faced by all minority groups, studies on minority populations were included in this review. The combination of traditional and nontraditional sources of information that is currently addressed through the environmental scan is intended to add an important dimension to the understanding of the dynamics of health-related behaviors in the Hispanic/Latino community.

With very little literature available on interventions among HPWA specifically, the focus turns to literature pertaining to racial and ethnic minorities, including Hispanics/Latinos and women in particular, as well as minorities with disabilities. A recent meta review (Taylor, Baranowski, & Young, 1998) yielded very few studies on successful physical activity interventions among racial and ethnic minority, low SES, or disabled populations. Of the 14 studies reviewed, only one study was conducted exclusively among Hispanics/Latinos (Mexican-Americans), and three studies on multiethnic populations included Hispanic/Latino participants.

Two factors found to be most important to physical activity interventions were a) community involvement or meaningful participation of the community and b) a comprehensive assessment of needs, attitudes, and unique barriers to implementation of the intervention, using survey instruments, focus groups, and in-depth interviews. Communities became involved in the interventions in several different ways. One intervention involved the community in studying actual and perceived social and health problems in order to decide what the focus of the intervention would be. In another study, the community helped define needs, identify strategies, and conduct the program themselves. In a third study, community organizations and suborganizations chose from a list of interventions, and then helped tailor those interventions for the community, implementing them as well. In all cases it appeared that organized communities benefited from interventions far more than unorganized communities (Taylor et al., 1998).

While some of the interventions were successful, conditions for success are not totally clear. Furthermore, with possible exception of one study (Lorig et al., 1999), *no studies of long-term effects of interventions have been found*, probably owing to the limited short-term success of most studies. Taylor et al. (1998) identifies a need to understand the unique characteristics for each community in order to develop appropriate interventions, and warns that generalizations based on population profiles can be misleading and should be avoided. Generalizability, therefore, needs to be tested to discover what aspects of interventions can be tailored to specific communities and how this can be accomplished.

One theme present in many of the studies on physical activity interventions (Lorig et al., 1999; Poston, Haddock, Olvera, Suminski, Reeves, Dunn, Hanis, & Foreyt, 2001; Taylor, Baranowski, & Young, 1998) is the importance of a theoretical framework through which to develop and implement effective interventions and to predict outcomes. One may question (as does Taylor et al., 1998) whether one can rely on existing theoretical models to predict physical activity in the target population, or to indicate how to measure determinants of physical activity to maximize predictability. Theory-based research has yielded results pointing to the importance of community assessment, involvement, and capacity building, as well as special attention to cultural nuances in the implementation of successful interventions. Suggestions for community capacity building include:

- Building a research infrastructure,
- Hiring community residents as co-investigators,
- Training community residents to implement interventions, and
- Forming advisory committees of community residents.

The California Department of Health Services initiated a program called “On the Move!” using some of these precepts, including community-based ownership, family-centered recreation, cultural traditions, environmental and policy changes, and combined efforts with public and private agencies. Another California-based program that has demonstrated promising results is the Spanish Arthritis Self-Management Program (SASMP), a derivative of the Arthritis Self-Help Course developed at Stanford University. This culturally tailored intervention is a 12-hour community-based program given in weekly 2-hour sessions over a period of 6 weeks. The course is given in community settings such as churches and neighborhood centers, and is taught by trained lay leaders, most of whom are HPWA. All aspects of the course are in Spanish, including a formal protocol detailing the content and

process of the course, as well as materials including books written for the course, an audio exercise tape, an illustrated book of routines, and an audio relaxation tape. Furthermore, content for the course was rewritten, rather than translated from the English version, to include cultural adaptations of concepts, content, and processes, all developed through extensive focus groups with patients.

The SASMP is a good example of theory in practice, as it is taught using techniques to enhance patients' sense of self-efficacy. Self-efficacy theory posits that the strength of belief in one's capability is a good predictor of behavior and motivation. In Lorig et al.'s (1999) study, a measure of self-efficacy was found to be one of the most important variables contributing to and correlated with a reduction of pain and disability, depression, and improvement in self-reported health associated with arthritis 1 year after the course was given. In fact, it appears that changes in self-efficacy mediated the outcomes of the intervention more so than changes in behaviors, leading to the conclusion that changes in self-efficacy appear to be at least one mechanism by which the SASMP affects health status (Lorig et al. 1999).

Another aspect of the intervention to consider, while not explicitly addressed by Lorig et al. (1999), is that classes included not only HPWA, but friends and family of participants as well. It may be important to control for the effects of that measure as well in order to evaluate the role of community support in the improvement of participants' health status, self-efficacy, pain, and disability. Findings might be expected to support Taylor et al.'s (1998) conclusion that active community participation is an important factor in sustaining positive effects of physical activity interventions among HPWA by reinforcing social support mechanisms.

However, an intervention among obese Mexican-American women designed specifically to address both internal social support (through health locus of control measures) and external social support (through a social support for exercise, or SSFE, scale) in a culturally appropriate manner failed to yield significant positive results. Authors of that study (Poston et al., 2001) recognize the possibility that "other, more important barriers to physical activity were not adequately addressed, such as time, exercise skills, transportation, family and work obligations; environmental factors such as climate and temperature (e.g., summer temperatures in excess of 100 F° and a lack of air-conditioned malls); and program characteristics" (p.403).

This issue points again to the need to recognize the interplay between personal and environmental barriers when developing culturally appropriate physical activity interventions, especially if they are rooted in specific theories. The authors suggest that beyond the applicability of certain theoretical models such as the social cognitive model and social support theories upon which that intervention was based, interventions should incorporate a community assessment through focus groups or other means to identify specific barriers and come up with solutions to those barriers prior to their implementation.

Another way to conceptualize effective interventions, then, would be through incorporating multiple theoretical models in a way that addresses both personal and environmental barriers to physical activity. Since it has been demonstrated that not any one of the theoretical models employed by various interventions reviewed here has been able to successfully predict and affect outcomes of physical activity interventions, it has become apparent that each aspect or stage of an intervention must address interrelated barriers through multiple means.

It is becoming apparent that a theory-based approach to physical activity interventions is key in both development and implementation of those interventions. Also important, however, is determining what theoretical models are most appropriate for use in a specific population, if indeed there are models that work better in some communities than in others. Lorig et al.'s (1999) findings suggest that self-efficacy may be a more effective target than those more focused on behavior change, which may have special implications for a specific community or population with certain characteristics. Taylor et al. (1998) finds that community participation is another condition under which physical activity interventions have been more successful in minority populations, a finding also supported by Lorig et al. (1999).

Unique experiences of the Hispanic/Latino community, as well as other communities of lower SES in the United States, have created unique conditions for success of physical activity interventions, reflecting a combination of culture-specific KABB and an experience of poor access to health resources. Community health models and self-efficacy models have proven most effective in these communities when compared to other social cognitive and behavioral models, unless they address certain barriers to physical activity particular to Hispanic/Latino populations. The degree to which interventions and theories need to address specific cultural characteristics of Hispanic/Latino subgroups is still unclear, however, and will be a topic to be further explored during focus group sessions and any other future research.

## Discussion

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This report has provided the findings of this literature review in the section above. Several important findings have emerged. These findings suggest the following relevant and significant issues to our project:

- There is not a uniform body of literature in academic journals on KABB on physical activity with HPWA.
- This lack of uniformity is compounded with the complexity of the not fully elucidated interrelationships between behavior change and health promotion within Hispanic/Latino communities.
- Acculturation as a concept for this project needs to expand its operational definition to include COB, length of stay in the U.S. (if foreign born), language use, and cultural values. A few short points are worth mentioning here pertaining to its use in the literature as a variable.
  - First, there is a lack of consistency surrounding the definition of acculturation across academic fields. While current themes in the field of anthropology, for example, have opted to favor the term *transculturation* over acculturation, the public health field still finds use for the term for specific reasons.
  - To illustrate, some recent trends in anthropology have shifted to focus on the dynamic process of culture change, explaining phenomena that occur during this process as a multidimensional exchange of ideas, practices, and meanings. This idea replaces a more commonly held notion that acculturation is a linear transition, where an uprooted or colonized culture slowly acquires the qualities of the more powerful or dominant culture under which it lives.
- Most work with HPWA has been found to focus on Latinas, not with Hispanic/Latino men.
- Primary, secondary, and tertiary barriers to physical activity have been identified.
- Determinants of physical activity should be better framed under an ecological model that incorporates perceptual–conceptual factors such as self-efficacy (as a target for health promotion activities rather than sole behavior change).
- Specific determinants of physical activity include the terminology and concepts of exercise and physical activity held by the target audience, gender and gender roles (including caregiving), personal and environmental factors, social support networks, SES, and access to health care.
- Physical activity interventions that have shown success have involved a theory-based approach in development and implementation, community participation (operationalized in any of several ways), and a prior comprehensive assessment of community needs and resources.

- Identified gaps such as further description of the demographic profile of Hispanics/Latinos in the U.S. aged 44 and older, current interventions with HPWA, and different stakeholders for potential partnerships may be addressed through the current environmental scan via Internet analysis.

The issues discussed in this literature review report support and expand our initial understandings presented in the logic model, with no major changes nor inconsistencies found.

## Next Steps: Directions for Data Collection

For next steps, the findings reported in this literature review will inform the environmental scan currently underway. The environmental scan will include review of materials in Spanish in the U.S. and in other English-speaking countries addressing the needs of culturally and linguistically diverse older populations.

The findings in this report help in the discussion of audience segmentation issues on HPWA in several ways. Foremost, they confirm the *need to segment by gender and by language group*. Also, *proxies for acculturation* need to be included in the demographic profile of the target audience. *Identified physical activity barriers and enablers* should be probed, as well as *the different roles of potential partners* (health care providers, community leaders and centers, lay health educators, churches, and others) in future interventions.

In the Formative Research Plan, the following audience mix was suggested for CDC consideration and approval. Table 4 lists the audience segmentation mix for the consumer focus groups:

**Table 4. Audience Segmentation**

HPWA Audience (aged 45–64)	Cities		
	Audience	Existing Markets (e.g., Los Angeles, San Antonio)	New Markets (Atlanta or another hypergrowth city)
	English speakers	2 male groups 2 female groups	2 male groups 2 female groups
Spanish speakers	2 male groups 2 female groups	2 male groups 2 female groups	

Total: 8 FGs per city times 2 = 16 FGs

In addition to the 16 focus groups, 9 interviews with health care providers who treat HPWA will be conducted (English- and Spanish-speaking). As a result of these data collection activities, CDC will be provided with information to help identify appropriate audience segments within the Hispanic population (aged 45–64) to be targeted by a physical activity campaign. When all formative research is concluded, CDC in collaboration with the creative and research contractors will select target segments and develop behavioral goals. Once segments and goals are determined, development of creative concepts will begin. The creative contractor will provide feedback on the mini-profiles based on its understanding of the formative research. ORC Macro will convene a 1-day meeting in Atlanta to facilitate selection of target segments based on the formative research and to discuss behavioral goals.

# **APPENDIX A**

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## **Logic Model**



# **APPENDIX B**

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## **Summary Table of Findings from Literature Review**

## Summary Table of Findings from Literature Review

### Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Abraido-Lanza, Guier, &amp; Revenson, 1996.</b>	Coping and social support resources among Latinas with arthritis.	109 Latinas of low socioeconomic status with arthritis (over 50% Puerto Rican, 25% South American, 10% Central American).	Interviews: Most interviews were conducted in Spanish. In open-ended responses, participants described how they cope with their illness. Respondents also named the two individuals who help them most when they do not feel well because of their illness.	Engaging in activities was the most commonly reported coping strategy, followed by the use of religion or prayer. Respondents relied more on family members (especially daughters) than friends for support.  Coping responses to arthritis may reflect culture-based notions of "coping," as well as culturally valued norms, such as familism. The extent to which findings illustrate cultural, gender, or socioeconomic status factors requires further study.
<b>Anderson &amp; Armstead, 1995.</b>	Associations between socioeconomic background (SES), ethnicity, and health.	N/A; review article.	Literature review.	The authors find that SES is a ubiquitous aspect of health functioning, and as such, requires a multidisciplinary approach to research in order to address problems which cross various fields of study.
<b>Brady, Harben, &amp; Sniezek, 2000</b>	Racial/ethnic differences in beliefs about arthritis	3000 adults nationwide	The 1999 HealthStyles Survey data were analyzed to identify the prevalence of myths about arthritis overall, and among specific subpopulations.	Overall, less than half the respondents (48.2%) recognized that "seeing a doctor soon after the first signs or symptoms can help arthritis." Approximately 40% of the respondents endorsed the myths "there is nothing a doctor can do for arthritis," and "arthritis is just part of getting older."  Hispanics were more likely to reject the idea that seeing a doctor early can help arthritis. Public health efforts to reduce health disparities will need to utilize interventions that address sub-population specific arthritis beliefs.

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<p><b>Bull, Eyler, King, &amp; Brownson, 2001.</b></p>	<p>Exercise readiness in ethnically diverse women.</p>	<p>Data were collected from a total of 2912 U.S. women over 40 via telephone survey over a 1-yr period (black 26%, American Indians/Alaskan Natives 25%, Hispanics 23%, and whites 26%).</p>	<p>The prevalence of readiness for each stage of change (1-5) was determined and compared across race/ethnicity. In addition, the level of misclassification between self-report of stage of readiness to exercise/be physically active and self-reported participation in specific exercise behavior was evaluated.</p>	<p>The study uses the transtheoretical model, or stages of change, to explain the process of intentional health behavior change, which consists of five stages describing the readiness to begin PA/exercise. Correctly identifying stage of readiness to change in the target population can help refine and target the components of an intervention aimed at increasing levels of activity in diverse ethnic populations and promote more effective use of resources.</p>
<p><b>Cantero, Richardson, Baezconde-Garbanati, &amp; Marks, 1999.</b></p>	<p>The association between acculturation and health practices among middle-aged and elderly Latinas.</p>	<p>The study sample consisted of 573 Latinas, aged 46 to 92 years.</p>	<p>Information was obtained through interviews and analyzed using regression analyses.</p>	<p>The data indicate that acculturation negatively affects the health practices of middle-aged Latinas, who are at a particularly critical age during which chronic diseases emerge. Acculturation and PA, however, were positively correlated, possibly reflecting increased SES. Intervention programs are needed to encourage adoption of healthy practices, particularly exercise and weight control, at an earlier stage in life.</p>
<p><b>Carrillo, Travino, Betancourt, &amp; Coustasse, 2001.</b></p>	<p>Barriers to Hispanic/Latino access to health care.</p>	<p>N/A; review chapter.</p>	<p>Literature review.</p>	<p>The authors present a multi-layered set of barriers Hispanics/Latinos face in accessing health care.</p> <p>Primary barriers include lack of insurance due to job and SES status, while secondary and tertiary barriers include systemic problems such as the difficult navigability of health care bureaucracy, language barriers, and cultural barriers that hinder the efficacy of managed care for those who have access to it.</p>

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Coleman and Gonzalez, 2001</b>	Health promotion and education	Hispanics/Latinos	Observations of stair, elevator, and escalator use were collected over a 6-month period at 4 sites throughout El Paso, Tx.	Stair use increased in response to both individual and family promotion health messages. These results underscore the importance of considering the physical characteristics of the environments targeted for health promotion campaigns.
<b>Cooper-Patrick, Gallo, Gonzales, Vu, Powe, Nelson, &amp; Ford, 1999.</b>	Describes how the race/ethnicity and gender of patients and physicians are associated with physicians' participatory decision-making (PDM) styles.	1816 adults aged 18 to 65 years (mean age, 41 years) who had recently attended 1 of 32 primary care practices associated with a large mixed-model managed care organization in an urban setting. Sixty-six percent of patients surveyed were female, 43% were white, and 45% were African American.	Telephone survey conducted between November 1996 and June 1998.	Improving cross-cultural communication between primary care physicians and patients and providing patients with access to a diverse group of physicians may lead to more patient involvement in care, higher levels of patient satisfaction, and better health outcomes. Although Hispanics/Latinos were not included in this study, the findings suggest implications for that population as well.
<b>Crespo, Smit, Carter-Pokras, &amp; Andersen, 2001.</b>	Measures relationship between acculturation and leisure-time physical inactivity among Mexican American adults.	Mexican Americans aged 20 and older.	Using data from the Third National Health and Nutrition Examination Survey (NHANES III), prevalence of physical inactivity was estimated according to place of birth and language used at home.	Spanish-speaking Mexican Americans had a higher prevalence of physical inactivity during leisure time than those who spoke mostly English, independent of place of birth. <b>CONCLUSIONS:</b> Acculturation seems to be positively associated with participation in leisure-time physical activity.

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>David &amp; Rhee, 1998.</b>	Impact of language as a barrier to effective health care in an underserved urban Hispanic/Latino community.	Hispanics/Latinos.	Survey.	Lack of explanation of side effects to medication appeared to correlate negatively with compliance with medication. The language barrier correlated negatively with patient satisfaction. Cases reported more preventive testing; test ordering may replace dialogue.
<b>Duffy, 1997.</b>	Determinants of reported health promotion behaviors.  Health Promotion Model (HPM).	397 employed Mexican-American women.	Self-administered test packets, which contained measures of demographic characteristics, health locus of control, self-efficacy, health status, and six health promotion practices.	Age; education; self-efficacy; internal and powerful others health locus of control; and prior, current, and future health status made statistically significant contributions. However, the demographic variables made only a minimal contribution, confirming the recent conclusions of researchers that the HPM as currently configured provides an inadequate explanation of the modifying factors' role in health promotion activity. Study results make an important addition to the understanding of how lifestyle factors contribute to Mexican American women's health and well-being.
<b>Escalante &amp; Rincon, 2001.</b>	Arthritis outcomes in Hispanic/Latino populations.	Hispanics/Latinos in the U.S.	National survey data (HANES and NHIS).	Five characteristics influencing clinical outcomes:  <ol style="list-style-type: none"> <li>1. Lower education attainment;</li> <li>2. Limited English skills;</li> <li>3. Lack of health insurance;</li> <li>4. Dangerous use of cheap, OTC drugs across the border in Mexico;</li> <li>5. Different coping strategies.</li> </ol>

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Espino, Palmer, Miles, Mouton, Wood, Bayne, &amp; Markides, 2000.</b>	Risk factors associated with hip fractures in the community-dwelling older Mexican-American population.	Community-dwelling older Mexican-American population.	1993-1996 Hispanic Established Population for the Epidemiologic Study of the Elderly (H-EPESE).	This study indicates that older Mexican-American people may have hip fracture incidence rates that place them at highest risk among the Hispanic subgroups.
<b>Eyler, Baker, Cromer, King, Brownson, &amp; Donatelle, 1998.</b>	Patterns of physical activity among minority women.	Hispanic, Asian, American Indian, and African American women over 40.	Focus group Data were analyzed using NUD*IST qualitative analysis program.	While participants did not identify themselves as "exercisers," they indicated they got enough physical activity from caregiving, housekeeping, and workday activities. The most common environmental barriers to becoming more physically active included safety, availability, and cost. Personal barriers included lack of time, health concerns, and lack of motivation. Results indicate the importance of terminology and assessment when conducting physical activity research in these populations. Also, results suggest many barriers are changeable with policies and interventions.
<b>Eyler, Brownson, Donatelle, King, Brown, &amp; Sallis, 1999.</b>	Physical activity social support and middle- and older-aged minority women.	2912 Black, Hispanic, American Indian/Alaskan Native, and White women aged 40 and older.	The US Women's Determinants Study was conducted in 1996-1997. The survey was a modified-random sample, telephone survey. A composite score of physical activity social support (PASS) was analyzed as the independent variable in logistic regression analyses.	Based on results, enhancing social support may be an important aspect of interventions aimed at increasing physical activity in a population of sedentary women of various racial/ethnic backgrounds. Also, "regular exercisers" in this population appear to be less reliant social support to maintain their behavior.

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Families USA Foundation, 2001</b>	The uninsured with chronic health conditions	Uninsured vs. insured population in the U.S.	Data from the 1996 Medical Expenditure Panel Survey (MEPS) and NHANES III were examined and analyzed to control for differences in race, age, gender, and incomes. Data from household interviews and health care providers were also examined.	40% of Hispanics/Latinos lack basic health insurance. Over one quarter of HPWA do not have access to care for their condition. Low SES and lack of health insurance prevent many Hispanics/Latinos from getting needed medical attention through the health care system.
<b>Goodwin, Black, &amp; Satish, 1999.</b>	Opinions of older subjects about the cause and treatment of common diseases and how they are related to health behaviors.	Non-institutionalized black, Hispanic, and non-Hispanic white American men and women aged 75 and older in Galveston County, Texas.	In-home interview of a population-based sample (n = 601).	Substantial numbers of older subjects are fatalistic about the cause of disease and/or nihilistic about its treatment. These attitudes are associated with decreased utilization of health services. Attempts to improve the health of underserved groups should employ interventions that are sensitive to the health beliefs of the targeted group.
<b>King, Castro, Wilcox, Eyler, Sallis, &amp; Brownson, 2000.</b>	Personal, program-based, and environmental barriers to physical activity.	U.S. population-derived sample of 2,912 women 40 years of age and older.	Telephone survey; modified BRFSS.	Factors significantly associated with inactivity included American Indian ethnicity, older age, less education, lack of energy, lack of hills in one's neighborhood, absence of enjoyable scenery, and infrequent observation of others exercising in one's neighborhood.  The results underscore the importance of a multifaceted approach to understanding physical activity determinants in this understudied, high-risk population segment.

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<p><b>Lorig, Gonzalez, &amp; Ritter, 1999.</b></p>	<p>Intervention: Evaluation of the Spanish Arthritis Self-Management Program (SASMP).</p>	<p>Spanish speaking participants of the Spanish Arthritis Self-Management Program.</p>	<p>Data were collected via mailed questionnaires with telephone follow up</p> <p>Measures included:</p> <ul style="list-style-type: none"> <li>• PA scale;</li> <li>• Health assessment questionnaire (HAQ);</li> <li>• Disability scale;</li> <li>• Depression scale;</li> <li>• Self rated health;</li> <li>• Visual analogue pain scale;</li> <li>• Marin Short; acculturation scale (measures language use and preference).</li> </ul>	<p>Intervention/course was taught using techniques to increase self-efficacy. Self-efficacy theory states that the strength of belief in one's capability is a good predictor of behavior and motivation. The study found that changes in self-efficacy could predict future levels of pain, depression self-rated health, and disability.</p>
<p><b>Morales, Cunningham, Brown, Liu, &amp; Hays, 1999.</b></p>	<p>Examines associations of patient ratings of communication by health care providers with patient language (English vs. Spanish) and ethnicity (Hispanic/Latino vs. white).</p>	<p>A random sample of 7,093 English and Spanish-speaking patients receiving medical care from a physician group association concentrated on the West Coast.</p>	<p>Questionnaires with five questions were administered with a 7-point response scale.</p>	<p>This study documents that Hispanic/Latino Spanish-speaking respondents are significantly more dissatisfied with provider communication than Hispanic/Latino English-speaking and white respondents. These results suggest Spanish-speaking Latinos may be at increased risk of lower quality of care and poor health outcomes. Efforts to improve the quality of communication with Spanish-speaking Latino patients in outpatient health care settings are needed.</p>

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Mouton, Calmbach, Dhanda, Espino, &amp; Hazuda, 2000.</b>	Barriers and benefits to leisure-time physical activity among older Mexican Americans.	98 Mexican American and 112 European American adults, aged 60 years and older.  210 total	MEASUREMENTS: The perceived benefits and barriers summary score from the San Diego Health and Exercise Questionnaire, the Minnesota Leisure Time Physical Activity Questionnaire, body mass index, chronic diseases, depressive symptoms, and demographics.	Although Mexican Americans reported lower levels of physical activity than older European Americans, they perceived greater benefits and fewer barriers to physical activity. These attitudes about physical activity held by older Mexican Americans may present an opportunity to encourage greater levels of physical activity throughout this population.
<b>Nacif De Brey &amp; Gonzalez, 1997.</b>	Recruitment methods based on community outreach principles:  1. Explore and gather information about targeted communities;  2. Identify key community leaders and service providers;  3. Establish collaborative working relationships with these contacts.	Spanish-speaking Hispanic/Latino people with arthritis (HPWA).  Study I: n=151  Study II: n=245	Randomized comparison of data collection methods:  <ul style="list-style-type: none"> <li>• Word-of-mouth;</li> <li>• Community talk;</li> <li>• Flyer/poster/ brochure;</li> <li>• Other studies;</li> <li>• Newspaper/news-letter;</li> <li>• Clinic;</li> <li>• Physician referral;</li> <li>• Radio/TV.</li> </ul>	Word-of-mouth and community talks were most fruitful methods of recruitment.  Initial labor and resource-intensive strategies such as personal contact with key community members is important in developing sustained and broad access to communities.  Authors place importance on utilizing skills of bilingual, bicultural personnel, and use of diversified recruitment strategies.

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<p><b>Poston, Haddock, Olvera, Suminski, Reeves, Dunn, Hanis, &amp; Foreyt, 2001.</b></p>	<p>Evaluation of a culturally appropriate intervention to increase physical activity.</p>	<p>Overweight Mexican American women, ages 18-65.</p>	<p>Randomized trial, using intact groups of women (prospective block design) randomized to treatment or control conditions.</p>	<p>The intervention was based on social cognitive theory, and was designed to increase physical activity primarily by encouraging participants to seek social supports, better manage negative social influences, and restructure personal environment.</p> <p>The culturally-appropriate intervention included modifications such as use of bilingual materials and instructors/peer leaders, modification of native diets, culturally tailored rationales for diet and activity modification, and use of established social support networks.</p>
<p><b>Shetterly, Baxter, Mason, &amp; Hamman, 1996.</b></p>	<p>Differences in self-rated health status between Hispanics and non-Hispanic Whites,  Possible determinants of self-rated health among Hispanics.</p>	<p>429 Hispanics and 583 non-Hispanic Whites aged 20 through 74.</p>	<p>Health ratings were analyzed with logistic regression.</p>	<p>Adjustment for socioeconomic factors accounted for a portion of Hispanics' lower health rating, but the strongest explanatory factor was acculturation.</p> <p>Because of cultural and economic influences on definitions of health, ethnic differences in self-assessed health may not accurately reflected patterns resulting from objective health measurements.</p>

## Findings

Source	Key Themes	Population Studied	Methods	Findings
<b>Taylor, Baranowski, &amp; Young, 1998.</b>	Physical activity interventions in low-income, ethnic minority, and populations with disability.	Low-income, racial and ethnic minorities, and populations with disabilities.	Literature Review: Computer and manual searches were performed to identify manuscripts published from 1983 to 1997. Interventions in which physical activity was part of the intervention, and activity or cardiorespiratory fitness were outcome measures, were included in the review.	Research that involves the community at all steps in the design and implementation of the intervention shows greatest promise for promoting behavior change. Future intervention studies should include: (1) rigorous experimental designs; (2) theoretically based interventions; and (3) validated assessment instruments to detect physical activity change.
<b>Tortolero, Masse, Fulton, Torres, &amp; Kohi, 1999.</b>	Assessing physical activity among minority women.	84 Hispanic and African American women.	Focus group data coded and analyzed with AFTER 2.1 software.	Focus group findings indicate a need to develop physical activity surveys that are more relevant for women, that include well-defined, inoffensive terminology, and that improve recall of unstructured and intermittent physical activities.
<b>University of San Francisco, 2001.</b>	HPWA, determinants and barriers to physical activity and exercise.	55 HPWA, aged 37-54; Mostly Cuban Americans (56%), Colombians (15%), and Hondurans (9%).	Focus Groups.	Among focus group participants, motivation to become or to stay physically active came from the desire to manage pain, minimize stiffness, and to avoid becoming disabled. Some said they exercise to fight depression and improve overall health. Promotional methods should use the words "physical activity" and recommend exercises that are easily incorporated into daily routines.

# **APPENDIX C**

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**List of References for Articles Reviewed**

## List of References for Articles Reviewed

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