1-1-2007

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This article will present an in-depth exploration and synthesis of current literature that informs nursing knowledge of diabetes self-management for the migrant Latino population. Extensive research in diabetes care has been conducted, however, there is a significant knowledge gap related to the factors that influence the achievement of glycemic control and self-management practices of the Latino population. Based on well-documented disparities in complications and health outcomes among Latinos when compared with White Americans, there is sufficient evidence to question whether traditional White beliefs about self-management are successful or appropriate for the Latino population in general and migrants specifically. Traditional models view self-management as an individual's responsibility. Whether this view is congruent with the collectivist cultural tradition held by many Latinos is unclear. Equally unclear is the degree to which using traditional models of self-management in teaching about managing type 2 diabetes influences health outcomes in this population. Culturally congruent care and nursing interventions involve much more than an understanding of language and dietary preferences.

Este artículo presentará la exploración y síntesis a fondo de la literatura actual que informa el conocimiento de enfermería de la auto-administración de la diabetes para la población Latina migrante. Se ha conducido la investigación extensiva, sin embargo, hay una diferencia de conocimiento significativa relacionada a los factores que influyen el logro del control de la glicemia y de las prácticas de auto-administración de la población Latina. Basado en las disparidades bien documentadas de las complicaciones y de los resultados de salud entre los Latinos comparados a los Anglo-Americanos, hay suficiente evidencia para poner en duda de si las creencias Anglo tradicionales sobre la auto-administración tienen éxito o son apropiadas para la población Latina, en general, y para los migrantes específicamente o no. Los modelos tradicionales consideran la auto-administración como una responsabilidad individual. Es poco claro si esta opinión es congruente o no con la tradición cultural colectivista la cual muchos Latinos mantienen. De la misma manera, es poco claro el grado al cual la utilización de los modelos tradicionales Anglo-Americanos de la auto-administración, al enseñar acerca de la administración de la diabetes tipo 2, influye los resultados de salud de esta población. El cuidado y las intervenciones de enfermería culturalmente congruentes involucran mucho más que un entendimiento de las preferencias del idioma y dietéticas.

Keywords: diabetes; self-management; familism; Hispanic; health disparities

Extensive research in diabetes care has been conducted (e.g., American Diabetes Association, 1998; Brown, 1988, 1999; Brown, Garcia, Kouzekanani, & Hanis, 2002; Centers for Disease Control and Prevention [CDC], 1997, 1999, 2003; Diabetes Control and Complications Trial Research Group [DCCT], 1993, 1996; Poss, Jezewski, & Stuart, 2003; UK Prospective Diabetes Study Group, 1998a, 1998b; Wen, Parchman, & Shepherd, 2004; Wen, Shepherd, & Parchman, 2004); however, there is a significant gap in the research literature related to factors that influence the achievement of glycemic control and self-management practices of the Latino population.

The vast majority of research available has focused on diabetes management and self-management practices of non-Hispanic/-Latino, White, middle-class Americans and the strategies for improved health in this population. Based on well-documented disparities (CDC, 1999, 2003) in complications and health outcomes among Latinos compared with White Americans, there is sufficient evidence to question whether traditional beliefs about self-management are successful or appropriate for the Latino population in general, and migrants specifically. Traditional models view self-management as an individual's responsibility (Brown, 1999; Clement, 1995; Lewis, 2003; Orem, 2001). Whether this view is congruent with the collectivist cultural tradition held by many Latinos is unclear. Equally unclear is the degree to which using traditional models of self-management when teaching about the management of type 2 diabetes influences health outcomes for the migrant Latino.

Diabetes

Diabetes poses a significant public health challenge in the United States. It is estimated that 1.5 million new cases are diagnosed each year, or 4,109 each day (CDC, 2005). Diabetes is a chronic disease, the prevalence of which has increased steadily over the past decade. Presently 14.6 million persons in the United States have been diagnosed with the disease, while 6.2 million persons are estimated to have the disease but are undiagnosed (CDC, 2005). Diabetes is the sixth leading cause of death in the United States, primarily from diabetes-related cardiovascular disease. Additionally, diabetes is the leading cause of non-traumatic amputations in the United States (82,000 each year or 225 each day), blindness among working-age adults (22,000 each year or 60.2 each day), and end-stage renal disease (44,400 each year or 122 each day [CDC, 2003]).

The devastating cardiovascular, renal, retinal, and microvascular health problems associated with diabetes contribute to an impaired quality of life and substantial disability among people with diabetes (CDC, 2003). Diabetes is also a very costly disease, with an estimated $132 billion attributed cost annually in 2002 (National Diabetes Information Clearinghouse [NDIC], 2005). Hospitalization for diabetes-associated illnesses, rehabilitation, disability-related loss of income and employment, and long-term kidney dialysis account for the largest portion of these costs (American Diabetes Association, 1998; Hodgson & Cohen, 1999; NDIC, 2005). This cost estimate is especially disturbing given the validated efficacy and economic benefits of secondary prevention such as controlling glucose, lipid, and blood pressure levels, and tertiary prevention such as screening for early diabetes complications followed by appropriate treatment and prevention strategies (DCCT, 1993, 1996). Poor glucose control leads to cardiovascular, renal, retinal, and microvascular complications. It is well established that motivated individuals with diabetes who understand their disease and how to manage it experience fewer complications (American Diabetes Association, 2003; DCCT, 1993, 1996; UK Prospective Diabetes Study Group, 1998a, 1998b). Therefore, understanding how to support and enhance self-management is critical for reducing disability and improving quality of life among those with diabetes. This critical need extends to understanding cultural and ethnic variations that might impact how diabetes is self-managed. (DCCT, 1996; Clement, 1995; Leenerts & Magilvy, 2000; U.S. Department of Health and Human Services, 2000).

Diabetes is one of the fastest growing disease classifications within the United States, especially among the Latino population (CDC, 2005). Nationally, 2.5 million or 9.5% of all Latinos 20 years of age or older have diabetes. Latinos are 1.7 times as likely to have diabetes compared with non-Hispanic Whites of similar age (CDC, 2005). These numbers are on a steady increase and only account for diagnosed cases of diabetes. Prevalence rates for the common complications of diabetes, obtained from the 2002 and 2005 CDC data for the Latino population, clearly imply that developing strategies for preventing the complications from diabetes is a critical need. For example, 16.5 per 100 Latino adults with diabetes have visual impairments; 430.4 per 100,000 Latino adults with diabetes have end-stage renal disease; and 26.9 per 100 Latino adults aged 35 years or older with diabetes have self-reported cardiovascular disease (CDC, 2005). Comparable figures for non-Hispanic Whites are 19.5, 262.7, and 34.9, respectively. In addition, less than 60% of Latinos receive annual eye and foot exams or participate in daily blood glucose monitoring (CDC, 2005).

Among Mexican Americans, type 2 diabetes has reached epidemic proportions with concomitant devastating health complications, morbidity, and mortality. Fortunately, many of these complications can be prevented through self-management techniques that promote tight glucose control. The financial, physiological, and psychological costs associated with this disease and its complications are extreme. The need to explore culturally congruent, cost-reducing and health-promoting disease self-management strategies is imperative for this high-risk population. New insights gained from this exploration may provide a mechanism to improve health outcomes and decrease costs associated with this chronic disease and move away from the belief that "diagnosis of diabetes is a death sentence" in the Latino population (Hakes, Blanco, Foxcroft, Compean-Rincon, & Sanchez, 2003, p. 18).

Vulnerability Among the Latino Migrant Population With Diabetes

The term "Hispanic," for which no precise definition of group membership exists, was created by federal statisticians. Hispanics/Latinos do not agree among themselves

on an appropriate group label. The labels "Hispanic" and "Latino" obscure variations in the family characteristics of Latino groups whose differences are often greater than the overall difference between Latinos and non-Latinos (Baca-Zinn & Wells, 2000). Individuals from several ethnic backgrounds are lumped together under these terms, including Cuban, Mexican, and Puerto Rican. Each of these ethnic groups has unique views and approaches to health and illness and therefore must be explored separately (Baca-Zinn & Wells, 2000; Luna et al., 1996; Rodriguez-Reimann, Nicassio, Reimann, Gallegos, & Olmedo, 2004).

Latino families are not merely an expression of ethnic differences but, like all families, are products of social forces. "Family diversity is an outgrowth of distinctive patterns in the way families and their members are embedded in environments with varying opportunities, resources, and rewards. Economic conditions and social inequalities associated with race, ethnicity, class, and gender place families in different 'social locations.' These differences are the key to understanding family variation" (Baca-Zinn & Wells, 2000, p. 254). It is anticipated that these variations influence the process of disease management for the migrant Latino with type 2 diabetes.

Within the diverse Latino population in the United States are those individuals who are long-term residents of the United States and are well acculturated (a process in which members of one cultural group adopt the beliefs and behaviors of another group, as evidenced by changes in language preference, adoption of common attitudes and values, membership in common social groups and institutions, and loss of separate political or ethnic identification); individuals who have recently immigrated to the United States; and those who are migrant farm workers (individuals who relocate in order to work in agriculture and are unable to return to their permanent residence at the end of the work day) (Hakes et al., 2003). These characteristics have differential effects on cultural beliefs and practices, health outcomes, and self-management practices.

Extensive research has been completed related to vulnerability and the identifying factors that produce the greatest risk for poor health outcomes, which include ethnic/racial, economic, educational, and health care-related factors (Aday, 2001; Flaskerud & Winslow, 1998; Rogers, 1997). Latino migrants meet all of these criteria. First, ethnic/racial factors, which include language barriers, apply because cultural norms of this group may not be well understood by health care providers and may clash with typical White American approaches to health. This group may experience a lack of support or feelings of isolation when migrating from region to region in search of work. Economic factors apply because migrants frequently do below-minimum-wage field work that does not provide for health coverage, and experience increased financial burden related to migration from state to state and from work area to work area, with periods of unemployment (U.S. Census Bureau, 2003). Educational factors apply because few have a high school education (U.S. Census Bureau). In addition to lack of education, they are confronted by a new society and legal system. Health care-related factors apply because of inconsistency of health care caused by frequent moving. Many of these individuals move from provider to provider and often run out of medications in the process.

The consequences for diabetes control are monumental. Extended periods with elevated blood glucose levels increase the likelihood of retinopathy, cardiovascular disease, and kidney failure (DCCT, 1993, 1996). If and when these individuals seek medical assistance, often no records are available to the provider, who must then start over (Hakes et al., 2003). This often leads to new medications and dosages that may have already proven ineffective, in turn extending the time frame of poor glucose control (Clement, 1995). The expense of repetitive laboratory work, medication changes, and office visits increases the financial burden for this population, leading to further delays in treatment and follow-up. In addition, routine screening and evaluation is limited or omitted due to lack of continuity of care. Typically, only the acute management issues are addressed, leaving recommended annual exams (dental, dilated eye, urine protein and creatinine) incomplete, further leading to increased risk of complications from nonintervention (Clement; Hakes et al.). Additionally, these individuals are at increased risk for work injuries due to the nature of fieldwork (Clement; Hakes et al.; National Council of Farmworker Health [NCFH], 2005). When the risk of "unidentified" injury secondary to peripheral neuropathy (resulting from prolonged blood glucose elevation) is added, these individuals are likely to become disabled and unfit to continue working. Unfortunately, these individuals do frequently continue to work, due to financial needs, often resulting in further injury that leads to lower extremity amputation (American Diabetes Association, 1998; CDC, 1997, 2003; Clement, 1995; DCCT, 1993, 1996; Hodgson & Cohen, 1999).

Diabetes significantly increases the risk of serious debilitating and life-threatening complications if not aggressively treated and tightly controlled. Many devastating disabilities can be minimized if the client has the knowledge and ability to follow through on self-management. All of these issues point toward the need for strong self-care management skills since the Latino migrants are the major directors of their own care.

As a migrant population, issues of border and border crossing may also influence the health disparities and/or vulnerability of this population. Crossing borders, including the United States-Mexico border and state borders within the United States, influences access to health care. Of particular concern with this migrant population is the issue of legal documentation to enter the United States. Although the majority of this population has entered the

United States legally, some lack this legal documentation (NCFH, 2005). As a result, fear of exposure and identification as undocumented, resulting in deportation, may hinder efforts to seek out health care providers. Knowledge of where and from whom to access care becomes an ongoing challenge along the migration path. In addition, members of this population may avail themselves of health care on both sides of the border, in the United States and in Mexico, further fragmenting care. Health care availability, funding, and access also vary across U.S. state borders as each state's regulations and requirements for low-income assistance vary. Additionally, these assistance programs are not transferable to neighboring states, further increasing the vulnerability of this migrant population. Border crossing can also result in separation from family and social networks, decreasing, abolishing, or at the very least disrupting resources of social support for health maintenance. Each of these "border" factors further heightens the risks for poor health. The issues that increase vulnerability of this population are further accentuated by and not separable from border health issues in general.

Self–Management

There is an extensive body of literature related to self-care/self-management and health management practices: a Medline database search resulted in 5,432 citations. However, only 133 of these related to Mexican Americans or Latinos. None were specific to migrant workers. Only one article, focusing on chronic pain management in Latinos, was found that recommended family involvement and recognition and acceptance (by health care providers) of treatment and complementary health practices. A majority of research in this area has investigated compliance with chronic disease management regimes but the unique problems that contribute to poor glycemic control have not been studied.

Self-management, also referred to as self-care in the literature, has been defined in a number of ways depending on the disciplinary focus (i.e., sociological, physiological, ecological, medical, or related to nursing or health promotion). Because of this diverse array of historic roots for self-management, there is no universally agreed-upon definition of the concept. Despite this, the concept of self-management consistently reflects individual behavior that is voluntary, universal, and self-limited (Leenerts & Magilvy, 2000; Lewis, 2003; Peterson & Vinicor, 1998).

Orem's theory of self-care has been used often in self-care research. Orem defined self-care as "the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (Orem, 2001). Orem also states that knowledge about cultural group norms that influence self-care is best obtained from the client's perspective.

Self-management has also been described as "caring about oneself," "not harming oneself," and "having relationships that motivated self-care practices" (Leenerts & Magilvy, 2000). In their research with White, non-Hispanic, English-speaking, HIV-positive women, Leenerts and Magilvy identified four self-care categories: focusing self, fitting resources, feeling emotions, and finding meanings. According to Maddox (1999), "self-care activities are actions directed toward self or environment to regulate one's functioning in the interest of one's life, integrated functioning, and well-being" (p. 31). This definition is based on research with elderly non-Hispanic White females. The utility of these self-care models with a culturally diverse population appears not to have been researched.

A large knowledge gap related to self-management in the Latino population exists. This group has a high rate of diabetes complications (CDC, 1997, 1999, 2003) despite interventions extensively documented in the White population to decrease complication rates. Perhaps the problem relates to a mismatch between the assumptions of self-management among the Latino migrant population (familism worldview) compared with White Americans (individualistic worldview). Culturally influenced self-management beliefs and practices must be explored and culturally congruent nursing interventions developed. Research is needed to fill this important knowledge gap.

Mexican Cultural Traditions

The term "familism" was first introduced in the 1940s to describe the commitment of family members to family and family relationships (Heller, 1970). Familism was defined by Burgess and Locke (1945) in terms of family members focusing activities on the achievements of family rather than individuals and identifying the social environment as "insiders" (that of family and extended family) and "outsiders" (anyone outside the family structure). In addition family resources are used for the good of the whole and unconditional support of other family members. Arce (1978) further delineated three types of familism: (1) demographic (emphasizing family intactness and size), (2) structural (emphasizing the attitudes of the importance of family), and (3) behavioral (emphasizing ongoing contact with family and the exchange of mutual aid).

Culture is the driving force behind familism. Family structure and attitudes toward family are rooted in cultural traditions and are passed intergenerationally (Arce, 1978). Although research on familism has been conducted among Anglos, Canadians, Greeks, Portuguese, Indians, and Arabs, it has come to be viewed as a defining characteristic of Mexican families (Aldrich, Lipman, & Goldman, 1973; Bardis, 1959; Blair, 1968; Kassess, 1976; Luna et al.,

1996; Roa & Roa, 1979) and their attitudes toward caring for themselves (Crist & Escandón-Dominguez, 2003). Some researchers believe familism is the most important value embedded in the Latino culture (Arce, 1978).

Mexican familism includes expression of family solidarity, ethno-cultural determinants of informal care giving, distrust of culturally alien institutions, and a desire to care for individual members within the family context regardless of personal cost or consequences (John, Resendiz & De Vargas, 1997). Mexican culture is characterized by the strong value attached to family. Multigenerational households and active extended family networks provide support to family members. This is accompanied by cultural beliefs, attitudes, and values that place the needs of the family above the needs of the individual, an orientation to fulfill the needs of the family instead of the needs of the individual (John et al., 1997). This family-oriented worldview, and the impact poor diabetes control for the individual can have on the health and well-being of the entire family, provides a compelling rationale for proposing that the focus for diabetes control shift from an individual responsibility to a family responsibility.

Most Mexicans are socialized to believe that the needs and welfare of the family as a whole (or of other individual family members, particularly the very young or very old) should take precedence over one's own needs. Thus children and older adults alike are often reminded that during good times or bad, *la familia* comes first (John et al., 1997, p. 146). These values and beliefs translate into a normative expectation of familial responsibility and duty among Mexicans, a need for loyalty to the family institution. The family is the dominant source of advice and help in all generations. For the migrant Latino worker, the family structure may be disrupted. Often workers must live apart from their families; they travel, work, and live in groups of single men, often under the supervision and control of a crew leader. Other workers travel with some or all of their family members. Migrant Latino households may include families with children, single men, and older men and women (NCFH, 2005).

Community is viewed as a family-based personal network made up of people living within a limited geographical area in which face-to-face interaction occurs frequently. A strong commitment to family is present. Regardless of acculturation levels, Latinos perceive a high level of family support and desire geographic closeness to their families (Luna et al., 1996). In addition to blood relatives, Latinos include *compadres* and *comadres* (godparents) as well as other community members as part of "family." For the migrant Latino, who is separated from the nuclear family, the role that "community family members" assume in the process of diabetes management is unknown. Exploration of this topic is likely to provide significant insight into diabetes management practices in this population.

Women in Latino families tend to be relied upon for health matters. Family members of the same gender are relied upon to help with financial issues and personal problems, and feelings of solidarity are greater with same-sex family members as well. Multigenerational families are common and appreciation of this fact is important in understanding Latino family life (Luna et al., 1996). "Men have power and authority relative to outside institutions and women are responsible for the daily affairs of the family." (Luna et al., p. 55). Based on these cultural characteristics, it is anticipated that the process of diabetes management will vary based on gender and its associated cultural characteristics.

Longitudinal studies exploring White families living with renal disease suggest that family beliefs and structures have a significant effect on disease management and patient survival (Reiss, Gonzalez, & Kramer, 1986). Linkages between characteristics of the family and changes in disease management over time suggest family context merits attention in long-term diabetes management (Chesla et al., 2003).

Summary

A paucity of available research, and the strong cultural ties to familism in the face of the sometimes disrupted family structures characteristic of migrant status, leave much to conjecture regarding diabetes management practices in this population. The epidemic rate of diabetes in the Latino population, coupled with the vulnerabilities that arise as a result of migrant status, highlights the need for research on the social processes of diabetes management within the families/households of Latino migrant workers. Understanding gained from research would guide development of interventions and education programs to improve the health of this population utilizing culturally appropriate methods.

Implications for Research

With this new information, interventions could be developed and tested to ascertain their effectiveness and impact on diabetes management and control. Further studies of the applicability of intervention strategies could then be tested for other disease classifications.

Additionally, the barriers faced in diabetes management as migrant workers moving from state to state also needs to be explored. What is seen from the etic viewpoint may not be important or challenging from the emic view. How better to serve this population than to ask them what challenges they face, and how they see them resolved? This is best approached from a community action research design.

The paucity of research focused specifically on the migrant farm worker population leaves much to speculation and trial and error. Much more information is needed to better meet the health needs of this population. As new information comes forward, nurses will have the ability to expand the knowledge base regarding this dynamic cultural group.

Implications for Clinical Practice

Healthy People 2010 identifies the goal for diabetes as: "Through prevention programs, reduce the disease and economic burden of diabetes, and improve quality of life for all persons who have or are at risk for diabetes" (U.S. Department of Health and Human Services, 2000). Multiple objectives are listed, many of which are issues of self-care behaviors. Included are education, annual dental and eye exams, and self-monitoring of blood glucose. Currently, the proportion of Latinos with diabetes who participate in annual eye exams is 38%, annual dental exams 32%, daily self-monitoring of blood glucose 36%. These percentages are far below goal targets outlined in Healthy People 2010 (U.S. Department of Health and Human Services, 2000). These statistics illustrate the need for improved health care interventions for this high-risk population.

Unfortunately, many health care providers view poor diabetes control in this population as noncompliance to the prescribed regime and fail to explore why diabetes management goals are not being met. This failure is viewed as the individual responsibility of the patient, with no recognition that the providers may be approaching education and care from a culturally incongruent framework. The unanswered question is, "What are we as health care providers failing to provide for the patient that would improve their health and promote disease management?"

Clinical practice and health promotion for this population of migrant farm workers could be improved through the identification and support of social capital resources present in the environment as identified by the population itself. Asking the members what they need and value in relation to disease management would be the springboard to improved health outcomes.

Health policy changes, informed by research, are likely a needed outcome. Provisions for trans-state prescription refills and access to medical records via electronic sources (such as community health clinics or health departments nationwide) would improve the health of this unique population. These policy changes would decrease the likelihood of missed screening exams, improve continuity of care, and eliminate some of the challenges faced in obtaining medications and treatments key to diabetes management. Additionally, developing strategies that are culturally congruent, rather than dictating care based on traditional White American beliefs, is imperative to improving outcomes in diabetes management for the migrant Latino.

Conclusion

Despite extensive diabetes research, overwhelming gaps exist in the literature specific to migrant populations of Mexican descent. The social processes utilized by this population to manage their diabetes need exploration in order to advance nursing knowledge and improve health outcomes for this at-risk population.

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