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Authors

Albarrán, Cynthia R
Nyamathi, Adeline

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HIV and Mexican Migrant Workers in the United States: A Review Applying the Vulnerable Populations Conceptual Model

Cynthia R. Albarrán, RN, MS, CNS, ACRN
Adeline Nyamathi, ANP, PhD, FAAN

Mexican migrant workers residing in the United States are a vulnerable population at high risk for HIV infection. This article critically appraises the published data surrounding HIV prevalence in this vulnerable group, as seen through the lens of the Vulnerable Populations Conceptual Model. This model demonstrates how exposure to risk and resource availability affect health status. The health status of Mexican migrants in the United States is compromised by a number of factors that increase risk of HIV: limited access to health services, multiple sexual partners, low rates of condom use, men having sex with men, and lay injection practices. Migration from Mexico to the United States has increased the prevalence of HIV in rural Mexico, making this an issue of urgent binational concern. This review highlights the implications for further nursing research, practice, and policy.

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Key words: *HIV, Mexican migrant workers, risk, vulnerable populations conceptual model*

Mexican migrant workers residing in the United States, both farm workers and day laborers, are part of a marginalized group that lacks resources and suffers from poor health outcomes (Apostolopoulos et al., 2006; Villarejo, 2003), including an increased risk of acquiring HIV (Sanchez et al., 2004). In 2007, Latinos accounted for 18% of all new HIV infection

cases and 17% of the total number of people living with HIV in the United States (Centers for Disease Control and Prevention, 2009). In 2008, the Pew Hispanic Center (Passell & Cohn, 2009) estimated that there were 12.7 million Mexican immigrants living in the United States, more than half (55%) of whom were undocumented. Although the current global economic crisis has decreased the numbers of undocumented Mexican migrants coming to the United States for work, it has not prompted those who were already living in the United States before the economic downturn to leave (Fix et al., 2009). The remaining workers are left in a particularly vulnerable position because of the abounding federal and state health care budget cuts, and the recent health care reform law which does not indicate provisions for undocumented workers (Farmworker Justice, n. d.). The fact that these individuals are at a high risk for HIV but still have little access to testing and service provision is an issue of particular importance to nurses and other health professionals working in the field of HIV and public health. Moreover, it affects policy officials and those influencing the structure of service provision for migrants.

Cynthia R. Albarrán, RN, MS, CNS, ACRN, is a Doctoral Student, University of California, Los Angeles, School of Nursing, Los Angeles, California. Adeline Nyamathi, ANP, PhD, FAAN, is a Professor and Associate Dean for International Research and Scholarly Activities, University of California, Los Angeles, School of Nursing, Los Angeles.

Previous reviews of published data regarding HIV in migrant workers have focused on the Southeastern United States (Painter, 2008). These reviews have analyzed the epidemiology of HIV in migrants (Sanchez et al., 2004), reviewed U.S. health care services for Mexican migrants (Solorio, Currier, & Cunningham, 2004), reviewed and critiqued HIV prevention strategies for migrants (Organista, Carrillo, & Ayala, 2004), and given an overview of migration and AIDS in Mexico (Magis-Rodriguez et al., 2004). Only one review offered an overall analysis of migrants and HIV in the United States; however, this review is now outdated (Organista & Organista, 1997). None of these reviews used a conceptual model for understanding and organizing the knowledge available on resources, relative risk, and health status of the U.S. Mexican migrant laborer population. Using a conceptual model to understand this phenomenon is necessary to recognize relationships between concepts, to advance the nursing science, and to influence health policy surrounding migrant health and HIV risk.

This review examines the issue of HIV and migrant health through a search of the electronic databases PubMed and the Cumulative Index to Nursing and Allied Health Literature, to locate studies published between 1996 and 2009. In addition, the reference lists of identified studies were examined as links to supplementary studies. Key words used to locate these studies included the following: *Hispanic/Latino/Mexican migrant workers, HIV, AIDS, farm workers, day laborers, and the United States*. The study design, location, data collection methods, sample characteristics, and results in relation to the Vulnerable Populations Conceptual Model (VPCM; Figure 1) were examined, yielding a total of 32 studies included in this review. This article will review the previously published data on Mexican migrant workers and HIV through the lens of the VPCM (Flaskerud & Winslow, 1998), with the goal of discussing the implications of this understanding for nursing practice, science, and policy.

Overview of the Phenomenon of Migration

Migration has been described as a structural, social, and economic process that exists predictably;

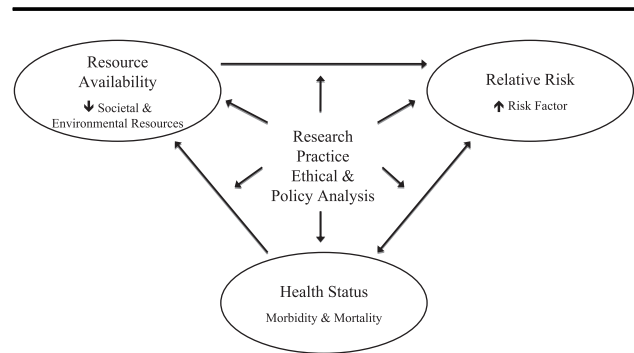


Figure 1. Vulnerable Populations Conceptual Model (Flaskerud & Winslow, 1998).

it is the allocation of workers from low- to high-wage areas (Massey, 1987). This is an inevitable phenomenon when a country with many resources shares a border with one that has fewer resources. Characteristics of the sending society involve “push” factors, including inequality of land, labor, and capital. In contrast, in the receiving society, “pull” factors exist, which include economic segmentation and low paying jobs with limited chances for advancement (Massey, 1987). In the case of countries such as Mexico and the United States, structures supporting labor migration have existed for many years since the formation of the Bracero Program in 1942. Such structures allowed and even invited laborers from Mexico to function as a cheap labor source for the U.S. agribusiness. Although this program ended in 1964, the demand for a source of cheap labor in the United States and the supply of these workers coming from Mexico has persisted. The act of migration is a structural process, creating a higher standard of living in the sending society but also contributing toward the structural oppression of the migrant workers themselves (Duke & Carpinteiro, 2009). This has created a population of marginalized, low-wage workers who have fewer legal rights, lack health insurance, and are therefore at a risk for poor health outcomes.

The phenomenon of HIV among migrant agricultural workers in the United States was first identified as a problem just over 20 years ago. Since then, a number of exploratory studies have demonstrated that this population is at risk for HIV infection. Recently, attention has been given to the migration-HIV nexus, which points to the burden of HIV carried by Latinos in the United States and the spread of HIV from the

United States down to Mexico with return migration streams (Hirsch, Munoz-Laboy, Nyhus, Yount & Bauermeister, 2009).

HIV prevalence in the United States is twice that of Mexico. Data from the Joint United Nations Programme on HIV/AIDS (UNAIDS, 2008a) show that the HIV prevalence among adults ages 16 to 49 in the United States is .6% (.4%-1%), whereas in Mexico the HIV prevalence among the adult population is .3% (.2%-.5%; UNAIDS, 2008b). Among those originally born in Mexico, 11% are currently living in the United States (Passell & Cohn, 2009). Recently, cases of HIV in rural areas of Mexico have been on the rise, and many of these areas are both origins and destinations for U.S.-bound migrants (Magis-Rodriguez et al., 2004). One of the greatest risk factors for HIV in rural Mexico is a history of migration to the United States, and women whose husbands are returning migrant workers are at a higher risk for heterosexual transmission of HIV (Sowell, Holtz, & Velasquez, 2008). Migration to the United States has contributed an increase in the HIV epidemic in Mexico, pointing to the importance of binational collaboration and policy efforts to decrease risk through bolstering health resources and intervention efforts for this population on both sides of the border (Magis-Rodriguez et al., 2004).

Migrant Worker Demographics

The following two main groups of migrant workers emerge from previously published data: farm workers and day laborers. Although they are fairly distinct groups, the data available tend to either overlap or not specify labor type in Mexican migrant samples. This article will discuss these groups together, keeping in mind that the findings might not apply to both groups. Distinctions will be made in the cases where the published data have specified findings for one group. The National Agricultural Workers Survey (NAWS) annually collects demographic, employment, and health characteristics from the United States crop labor force. The most recent report from 2001 and 2002 (Carroll et al., 2005) showed that 75% of the farm workers in the United States were born in Mexico, 53% were undocumented, and 79% were men who earned an hourly average wage of \$7.25.

In all, 44% could not speak English and 53% could not read English. The average highest grade completed was seventh grade.

A 2003 study found that day laborers shared similar demographics with farm workers: 59% were of Mexican origin, and most of them were undocumented and lacked English proficiency skills. The majority of day laborers (79%) worked from informal hiring sites (congregating at open-air markets to solicit temporary jobs) and relied on day labor as a sole source of income (Valenzuela, 2003).

The Vulnerable Populations Conceptual Model

Vulnerable populations are defined as groups that lack sufficient resources and are at risk for increased morbidity and mortality (Flaskerud & Winslow, 1998). The VPCM views the health status of the individual within the context of the structure of society, stressing that society as a whole plays a part in the assurance of health, justice, and human rights for the individual (Figure 1). This model has previously been applied to several groups including rural populations (Leight, 2003), Mexican immigrants (Heilemann, Lee, & Kury, 2002), and the family members of mentally ill individuals (Copeland, 2007). Mexican migrant farm workers have been previously identified in published data as a vulnerable population (Flaskerud et al., 2002). Health care access and other structural forces affecting this population have been shown both facilitate and mitigate HIV risk and affect health status. Although the VPCM has not been previously applied to migrant workers, the importance of viewing HIV risk through a structural, instead of a personal, lens has been stressed (Hirsch, Higgins, Bentley & Nathanson, 2002; Hirsch et al., 2007). Efforts to mitigate HIV risk at the personal level, by altering individual beliefs and behaviors of Mexican migrants, have been critiqued for their failure to contribute toward health improvement at the population level (Munoz-Laboy, Hirsch, & Quispe-Lazaro, 2009).

In the VPCM, the three constructs of resource availability, health status, and relative risk interact in a dynamic relationship. Lack of resources positively affects relative risk, which, in turn, influences health status and vice versa. Finally, decreased health

Table 1. VPCM Model Concepts and Findings in Mexican Migrants

| Constructs | Concepts | Empirical Indicators | Findings in Mexican Migrants |
|-----------------------|-------------------------------------|---|---|
| Resource availability | Socioeconomic resources | | |
| | Social status | Power differentials | Gender inequalities in marital relationships Language: 44% do not speak English Documentation status: 53% undocumented Family separation and loneliness Societal discrimination 30% have income below the federal poverty line |
| | Social connectedness or integration | Marginalization Lack of family support | |
| | Human capital | Income Employment Education Housing | Average highest grade completed: seventh grade |
| | Environmental resources | | |
| Relative risk | Increased risk factors | Health care | Health care quality Access to care |
| | | Health-promoting behaviors | Between 65% and 80% lack health insurance Hesitation to access conventional care Language, cost, and transportation barriers |
| | | Exposure to stress | Infidelity and use of commercial sex workers Condom use Drug/alcohol abuse Lack of primary care Depression and anxiety are common Widespread intimate partner violence Workplace violence/abuse, unsafe working conditions |
| Health status | Morbidity | Lifestyle behaviors and choices | |
| | Mortality | Increased illness Delayed diagnosis Premature death | HIV prevalence |

NOTE: VPCM = Vulnerable Populations Conceptual Model.

status at the population level can lead to depletion of resources. Resources are conceptualized as the availability of environmental and socioeconomic resources, which influence the ability of an individual to avoid risk. Relative risk is conceptualized as the ratio between groups that are exposed to high risk and have fewer resources and those groups that are not exposed to risk but still have many resources. In other words, relative risk refers to the exposure to risk factors that can influence health outcomes. Finally, health status is conceptualized as morbidity and mortality. The model focuses on morbidity, which is defined by “pathophysiologic and psychopathologic processes and changes” (Flaskerud & Winslow, 1998, p. 2).

Each concept within the model can be measured using generic empirical indicators that might be operationalized depending on the context within which the model is used (Table 1). For example, social status might be measured using power differentials; social connectedness by examining marginalization and lack of family support; and human capital by examining income, employment, housing, and educa-

tion. Therefore, the construct of resource availability is determined by considering both macro (community, government, policy, system) and micro (individual, family) levels. The construct of relative risk expands on the individual at the micro level by exploring how resources and health status affect lifestyle behaviors and choices, health-promoting behaviors, and exposure to stress. This in turn, affects health status, as measured by increased illness, delayed diagnosis, and premature death. This model will be applied to the phenomenon of HIV in Mexican migrant workers in the United States, delineated in this review under each of the model’s three constructs: resource availability, relative risk, and health status.

Resource Availability

Socioeconomic Resources

Social status. This concept is viewed through the lens of power differentials. Those in positions

of power control decision-making and distribute resources, whereas those who lack power are disenfranchised (Flaskerud & Winslow, 1998). At the structural level, migrant workers lack power because they are undocumented (53%), they lack health insurance (65%-80%), and many do not speak English (44%; Carroll et al., 2005). In a study of health and legal status, 39% of undocumented individuals were reluctant to seek help from government services for fear of deportation (Cavazos-Rehg, Zayas & Spitznagel, 2007). Therefore, it is not surprising that migrants are hesitant to access health care from county- or federally-funded clinics—a common source of care for those who lack health insurance in the United States.

At the micro level, persistent gender power inequalities exist in the marital relationships of Mexican migrants (Hirsch et al., 2002). In a survey of 354 migrants from two municipalities in western Mexico, gender views were constructed from a combination of patriarchal ideologies imparted during childhood and ideologies of change learned during the migration experience (Caballero-Hoyos et al., 2008). Sowell et al. (2008) found that women in Mexico accepted the dominance of their husbands in all aspects of their lives and experienced powerlessness on the basis of both economic factors and cultural traditions.

Social connectedness or integration. With relation to power differentials, this concept recognizes that groups of people who are marginalized, stigmatized, or discriminated against are vulnerable to adverse health outcomes (Flaskerud & Winslow, 1998). In a sample of migrant farm worker women, many spoke openly of societal discrimination and racial profiling (Clingerman, 2007). Indigenous Mexican migrants experience a kind of “double discrimination,” from both U.S. residents or citizens and their nonindigenous Mexican counterparts (Holmes, 2006). In general, other studies have identified discrimination against migrant workers (Apostolopoulos et al., 2006).

Migration has been described as a “process of spatial mobility” (Caballero-Hoyos et al., 2008, p. 561) in which male migrants are viewed as *hombres ausentes* (absent men; Hernandez-Rosete, Garcia, Bernal, Castaneda, & Lemp, 2008). This spatial separation of spouses, where the husbands migrate north and their wives are generally left in Mexico, can contribute

to social disconnectedness and result in infidelity (Munoz-Laboy, Hirsch, & Quispe-Lazaro, 2009).

Many studies report that male migrants experience a great deal of social isolation and loneliness during the migration period (Aranda-Naranjo, Gaskins, Bustamonte, Lopez & Rodriguez, 2000; Sowell et al., 2008). Previously published data on migrant workers and HIV have discussed that geographic location, or “local sexual geography” (Hirsch et al., 2007, p. 990), greatly influences risk behavior, leisure time, and social interactions (Hirsch et al., 2009; Munoz-Laboy et al., 2009). These spaces most broadly include the *casa* (home, or the woman’s domain) and the *calle* (street, or the man’s domain; Hirsch et al., 2007). This could be expanded to include a third domain: the workplace (Munoz-Laboy et al., 2009). Although men seek camaraderie and sexual adventures in semiprivate spaces (cantinas, pool halls, table-dance bars; Hirsch et al., 2007), there have also been reports on some who seek out social spaces to cope with loneliness (street corners, bars, soccer fields, dance clubs, and Catholic churches; Munoz-Laboy et al., 2009). Lack of documentation status (53%) and English proficiency (44%; Carroll et al., 2005) exacerbate social disconnectedness and increase health risks.

Human capital. Human capital refers to income, employment, education, and housing (Flaskerud & Winslow, 1998). In the most recent NAWS survey, 30% of farm workers reported incomes that were below the federal poverty line, and the highest average grade completed by respondents was seventh grade (Carroll et al., 2005). In a survey study of 366 migrants in California, the average annual income was just over \$11,000, placing this group of migrant laborers well below the poverty line (Denner, Organista, Dupree, & Thrush, 2005).

Environmental Resources

Health care. Although services do exist for migrant workers (Solorio et al., 2004), the federal Migrant Health Program has been critiqued for having inadequate resources to meet the needs of this large population (Villarejo, 2003). Previously published data show that migrant workers have little interaction with the traditional U.S. health care

system, seeking costly emergency care only when absolutely essential. This is related to hesitation on the part of the migrant as well as structural service barriers. Migrant workers report that the cultural and language barriers to communicating with U.S. providers are difficult to overcome (Anthony, Williams, & Avery, 2008). Other barriers to care include cost, transportation, and time conflicts (Anthony et al., 2008). The most recent NAWS report indicated that only 15% of farm workers were receiving Medicaid, 11% were receiving Women, Infants, and Children (WIC) benefits, 8% used food stamps, and 1% were benefiting from public housing (Carroll et al., 2005).

Migrants' cultural beliefs regarding health contribute to their hesitation to access traditional medical care. Qualitative interviews have revealed a commonly held belief in Mexican culture that the injection of antibiotics, vitamins, and hormones by family members or minimally-trained lay personnel can help prevent and heal illnesses (McVea, 1997). In a survey of 291 male day laborers in the Bay Area, 3.6% reported at least one occasion of having shared a needle to inject a drug/vitamin/antibiotic (Ehrlich, Tholandi, & Martinez, 2006).

The NAWS data reported that 23% of farm workers had health insurance for illnesses unrelated to work, 52% either lacked worker's compensation insurance or lacked knowledge as to whether they had it or not (Carroll et al., 2005). Another study found that 65% of migrants were uninsured (Urizar & Winkelby, 2003). Among 331 male agricultural workers in six regions in California, 43% reported never having been to a health care clinic or a doctor, 79% lacked health insurance, and 35% reported being undocumented (Brammeier et al., 2008).

Relative Risk

Lifestyle Behaviors and Choices

Infidelity. Cultural beliefs strongly influence individual sexual behavior. Despite significant modern social change, the concepts of *machismo* and *marianismo* remain dominant in traditional Latin American culture (Smallman, 2007). *Machismo* views indicate that the husband takes a dominant role in the

relationship, is allowed to take risks and be aggressive, and is expected to have extramarital affairs. In contrast, *marianismo* is a term that indicates a woman is expected to be subordinate to her husband, to remain pure, sacrificial, and subservient, and to tolerate her husband's unfaithful behavior (Smallman, 2007). These cultural beliefs are indicative of extreme power imbalances in relationships.

Culturally laden views of *machismo* pervade migrants' beliefs regarding fidelity, gender roles, and condom use in studies conducted in the United States. In a study of 187 Mexican migrants in Atlanta who all had wives in Mexico, Hirsch et al. (2009) found that the cultural constructs of masculinity, emotional intimacy, sexuality, and marriage could be associated with sexual risk and behavior outside of marriage. Infidelity among Mexican migrant males is accepted and even expected. Migrants in Arizona and South Carolina agreed that it was natural for a married man to be promiscuous, whereas women were required to remain faithful and either ignore or accept their husband's behavior (Apostolopoulos et al., 2006). In a sample of 442 Hispanic migrant workers in North Carolina, 40% of married men living apart from their wives had visited a commercial sex worker (CSW) in the previous year (average annual frequency = 5.9; Parrado, Flippen, & McQuiston, 2004).

Migrants have reported having more sexual partners as compared with nonmigrants (28.4% vs. 20.4%, $p < .05$; Magis-Rodriguez et al., 2004). In almost half of those cases (41.8%), the partners were CSWs (Brammeier et al., 2008). In an analysis of 3,990 sexually active or cohabitating men in Mexico, 89% indicated that their primary partners were unaware of their secondary partners, and one third reported that their secondary partners had no knowledge about their primary partners (Pulerwitz, Izazola-Licea, & Gortmaker, 2001). Migrants have also reported that the decision to employ a CSW was often made in the context of drinking with friends (Duke & Carpinteiro, 2009). Because agricultural labor is physically difficult and laborers work long hours (Aranda-Naranjo et al., 2000), the workplace often promotes worker stress and sexual risk. Moreover, in cases where workers are housed in temporary labor camps, at times employers have arranged for CSWs to be available to the workers on paydays (Parrado et al., 2004).

Condom use. Infidelity and condom use are inextricably linked in this population. Of 497 migrants returning to Mexico from the United States, 83% perceived they did not have any risk of acquiring HIV, 44.5% had unprotected sex in the previous 6 months, and 7% had multiple partners and unprotected vaginal or receptive anal sex in the previous 6 months (Martinez-Donate et al., 2005). Lack of consistent condom use in this population may be related to misconceptions regarding the casual transmission of HIV (i.e., HIV can be transmitted through sneezing, touching, or working with someone with HIV; Urizar & Winkleby, 2003).

Hirsch et al. (2002) found that for Mexican women, negotiating for condom use could imply mistrust and was unthinkable, “tantamount to acknowledging or even giving permission for a husband’s infidelity” (p. 1230). Cultural and social perception of condom use greatly influences a couple’s willingness to use condoms. Women who live with their husbands in the United States are more likely than women who live in Mexico to ask their husbands to wear a condom (87% vs. 51%, $p < .001$) and to report having ever asked their husbands to wear a condom (73% vs. 37%, $p < .002$; Salgado de Snyder, Diaz-Perez, & Maldonado, 1996). Migrants have identified *machismo* as a reason for the husband to be upset when asked to wear condoms (McQuiston & Gordon, 2000). HIV-infected men in Mexico agreed that culture played a large part in the spread of HIV, citing *machismo* as part of the reason why condoms were not used: “it’s not cool to use a condom,” and “men are in charge” (Sowell et al., 2008, p. 276).

In general, condoms are used infrequently (Apostolopoulos et al., 2006; Brammeier et al., 2008; Caballero-Hoyos et al., 2008). Men also reported lower condom use specifically with girlfriends (Pulerwitz et al., 2001), CSWs (Magana, 1991), and their wives (Hernandez-Rosete et al., 2008). However, Parrado et al. (2004) found that 92% of migrants reported always using a condom with a CSW, although this decreased to 64% in cases where the migrant knew the CSW well. Munoz-Laboy et al. (2009) reported rates of 81.3% condom use with CSWs and 56% with new girlfriends. McQuiston and Gordon (2000) reported the “Catch 22” of condom use: Men stated they were unable to discuss condoms until there

was trust in the relationship, but that condoms were unnecessary once enough trust had accumulated.

Alcohol and drug abuse. Duke and Carpinteiro (2009) found that the long-term separation of migrant workers from their families, combined with stressful working conditions and worry about their undocumented status, led to problem drinking and sexual risk behaviors. Although there is limited drug and alcohol research on migrant workers, there is growing anecdotal evidence that this is a serious issue warranting further investigation (Garcia, 2007).

Alcohol has also been identified as a coping mechanism for migrants in dealing with loneliness, depression, and the physical difficulties of work (Apostolopoulos et al., 2006). Injection drug use has been reported as high as 19% in one sample (Denner et al., 2005); in another study, almost a quarter of respondents reported having used drugs at least on one occasion (Brammeier et al., 2008). Previous research has also shown that drug use is an avenue for migrants to increase productivity at work, demonstrating the effect of work stress on HIV risk (Apostolopoulos et al., 2006).

Health-Promoting Behaviors

Migrant workers access primary health care infrequently, leading to exacerbations of chronic illnesses in this population. Among all age cohorts, obesity has been found to be more prevalent among Mexican migrants than Mexican Americans. Higher levels of serum cholesterol, chronic respiratory diseases, and cirrhosis have also been reported in migrant worker populations (Villarejo, 2003).

Exposure to Stress

Although few studies have looked exclusively at worksite stress, abuse, and unsafe working conditions, the existence of these stressors have been documented throughout the published data on Mexican day laborers (Valenzuela, 2003) and farm workers (Apostolopoulos et al., 2006; Villarejo, 2003). An investigation of 75 Mexican migrant farm workers revealed high levels of overall anxiety and depressive symptoms, which were significantly associated with rigid work demands, poor housing conditions, and low family income or

living in poverty (Magana & Hovey, 2003). Another study in Canada correlated experiences of distress among Mexican farm workers to the cultural expression of *nervios*—an intense sequelae of somatic and emotional symptoms related to feelings of fear and being trapped (England, Mysyk, & Gallegos, 2007). Suicide-related outcomes have been correlated with Mexican migration to the United States (Borges et al., 2009). In relation to crime and abuse, it has also been found that female farm workers experience high levels of intimate partner violence (Villarejo, 2003). These findings show that migrant workers experience increased levels of stress and anxiety that can lead to problems with mental health and safety.

Health Status

Rates of tuberculosis, parasitic infections, occupational health injuries, obesity, and cirrhosis are high in farm worker populations (Villarejo, 2003). However, for the purposes of this review, emphasis is placed on HIV prevalence. Because migrant farm workers and day laborers are largely a hidden group, and because they are largely undocumented and on-the-move it is difficult to reliably estimate the prevalence of HIV in this population (Apostolopoulos et al., 2006; Sanchez et al., 2004). In addition, a large number of Mexican-born workers are thought to return to their homeland after retirement from farm work, precluding the collection of reliable morbidity and mortality data (Villarejo, 2003).

Very few studies have examined HIV prevalence rates in migrant populations in the United States, and those that have are currently outdated (Carrier & Magana, 1991; Centers for Disease Control and Prevention, 1988; Jones et al., 1991). These studies reported a range of HIV prevalence rates, from 0% (Carrier & Magana, 1991) to as high as 13% (Jones et al., 1991). The most recent seroprevalence study, from the California–Mexico border region, used a probability sample of 1,041 Mexican migrants and did not report any cases of HIV infection (Martinez-Donate et al., 2005). There were several limitations of this study: it only captured travel through one border region, it focused largely on documented immigrants, it used a probability sample,

and it did not focus on migrant farm workers or day laborers.

Sexually transmitted infection (STI) prevalence studies can assist in describing the potential burden of infection in this population. STI prevalence reports can be indicative of populations that are also vulnerable to HIV (Aral, 2001). Two recent studies on Mexican male agricultural workers and urban day laborers in California reported STI prevalence rates as high as 3.5% for chlamydia (Wong, Tambis, Hernandez, Chaw, & Klausner, 2003) and 1% for syphilis (Brammeier et al., 2008), suggesting that HIV rates in these populations were also likely to be quite high.

Implications for Nursing Research and Practice

Gaps exist within the knowledge available on these topics, which must be examined by nurse researchers. Some researchers have called for a next wave of research that links HIV risk to actual serological evidence in this population (Apostolopoulos et al., 2006). Given the broad amount of published data linking risk with a multitude of poor outcomes, efforts would be better spent understanding the root causes of risk and interventions to mitigate it. However, research programs that include an HIV testing component might not only measure prevalence but also—and more importantly—begin to connect HIV-infected migrants to available resources.

Further gaps relate to the specific sub-populations included in this research. Often, studies do not distinguish between farm worker and day laborer samples. Although these workers appear similar, there may be different characteristics that drive some migrants to rural agricultural work and others to urban day labor, thereby complicating the generalizability of results (Ehrlich, Organista & Oman, 2007). Additionally, even though the majority of migrant workers are men (Carroll et al., 2005), research on the effect of HIV on migrants from Mexico must expand to include women who work in domestic urban jobs and in rural agricultural labor (Clingerman, 2007).

In relation to the VPCM, it is important to note that the majority of studies have focused on relative risk. Although these findings are important and validate

the socioeconomic and environmental processes in the area of resource availability, for interventions to be effective, it is imperative that findings be directed at resource management in order to create lasting change. For example, very little is known as to how migrant workers engage in health care and HIV testing. One avenue for advancing the nursing science in this field is to know more about migrants who have HIV, so as to better tailor interventions and service provision in relation to their unique needs. Only one study was found that examined the experiences of migrant workers living with HIV in the United States (Aranda-Naranjo et al., 2000). This study indicated that those living with HIV described living in secrecy, experiencing a great deal of stigma associated with their diagnosis, and being afraid to tell family members. These participants related language barriers, transportation issues, and illiteracy as major barriers to their receipt of HIV care (Aranda-Naranjo et al., 2000).

These unique aspects of the migrant experience must be acknowledged by providers. Nurses are on the front lines to care for migrant workers at community clinics, emergency departments, and occupational health sites around the country. Having knowledge of the background and risk status of this population can help to guide appropriate care and interventions. Clinicians must recognize that undocumented individuals live in a precarious position and worry about being turned over to immigration authorities. In addition, aftercare instructions must take into account the limitations faced by migrants in taking days off work, performing wound dressing changes, or seeing a specialist. Migrant workers have identified that a major barrier to seeking health care is that providers do not understand their needs (Walter, Bourgois, Loinaz & Shillinger, 2002).

Coordination of care between international HIV clinics is necessary because migrants are mobile within the United States and may go back and forth across the U.S.–Mexico border. Binational collaborations between the United States and Mexico are required to integrate HIV care for individuals who migrate for work. One such collaboration is the Migrant Clinician's Network (www.migrantclinician.org/home), which hosts a medical record database for mobile individuals and offers advice and resources to both providers and patients. Another

resource is the U.S.–Mexico Border AIDS Education and Training Center (AETC) Steering Team (www.aidsetc.org/aidsetc?page=ab-01-10), which offers a resource directory for care on both sides of the border and other information for providers who care for mobile migrant workers (i.e., a chart containing the antiretroviral drugs that are currently available in Mexico). The nonprofit organization Farmworker Justice (2005) also provides an online directory (in both English and Spanish) of HIV service providers throughout the United States and Mexico. Other binational projects in the border region along southern California and Texas exist, but the challenge is to scale-up these programs to include migrants who are dispersing to other regions of the United States including the Southeast (Painter, 2008).

Policy Implications

Although the nonprofit sector has made strides toward linking providers on both sides of the border, these efforts must be scaled up by way of public–private partnerships, with the involvement of government funds to make electronic health records available for mobile populations. The Mexico–U.S. Binational Commission on Border Health is one such partnership, with government officials on both sides of the border appointed to oversee migrant health issues (<http://www.borderhealth.org/>). Policy is needed to strengthen these partnerships.

The topic of Mexican migration is currently under hot debate in the U.S. policy arena, particularly in the areas of immigration reform and health care reform. The VPCM indicates that the ethical obligation of policymakers is to protect the health of migrant workers by recognizing that health status is influenced by structural forces. In this case, lack of documentation contributes to inaccessible care and poor health outcomes. If the United States is unable to provide health care for undocumented individuals, aggregate poor health outcomes will in turn place financial strain on an already taxed system.

Structural discrimination against Mexican migrants contributes toward their vulnerable position (Holmes, 2006). Scholars have indicated that current U.S. immigration policy perpetuates the stigmatization

of Mexican migrants because of the need for low-skilled labor and the concurrent denial of rights for those who fill those roles (Telles & Otiz, 2008). Mexican-origin individuals have been perceived as foreigners (even when they are second generation immigrants), have been stereotyped as impoverished and crime-ridden, and have experienced nativist backlash in the United States (Telles & Ortiz, 2008). This is largely because the need for cheap labor is perpetuated, leading to continuation of undocumented Mexican migrant replenishment and solidification of ethnic boundaries (Jiménez, 2008). As long as demand continues and undocumented individuals are informally able to work in farms and meatpacking plants around the country, workers will continue to migrate.

Finally, although those without insurance can access costly emergency care, this is not sustainable and will not provide continuity of care for HIV or testing. Individuals who work in the United States, regardless of immigration status, must be able to access health care coverage that is financially as well as culturally appropriate. Undocumented workers in California can currently access HIV medication through the AIDS Drug Assistance Program (Solorio et al., 2004), but the state's funding crisis is threatening this service. Allowing HIV-infected migrant workers access to treatment is an issue of social justice and must therefore be protected.

Conclusion

Mexican migrant workers in the United States are a vulnerable population that experiences societal discrimination; undocumented status, low English proficiency, poverty, insufficient health insurance, and participation in high-risk behaviors that can lead to the spread of HIV. Community health nurses and others working in public health must be aware of the characteristics and needs of this population in order to offer appropriate and compassionate care. However, it is only when the structural issues surrounding health care for migrants are addressed that the needs of these vulnerable workers will begin to be met. Attention to binational health programs with cooperation between clinicians on both sides of the border for HIV testing and treatment is of

key importance. Most importantly, however, United States health policy must include provisions for undocumented workers that enable them access to care for chronic conditions such as HIV.

Clinical Considerations

- Testing considerations for migrant workers must be incorporated into routine episodic care, including urgent care and emergency department settings, so as to reach this mobile population.
- Clinicians must be cognizant of widespread fear of deportation among migrants, taking care to not ask individuals about their immigration status. Also, the discussion of reportable illnesses or the involvement of law enforcement for reports of abuse or trauma will cause particular anxiety for those who may have precarious legal status. This could further distance them from care.
- Cultural sensitivity is particularly important for nurses caring for migrant workers. Nurses must understand how difficult it can be for these individuals to access care and follow aftercare instructions in the midst of a stressful, resource-poor, and itinerant lifestyle.

Disclosures

The authors report no real or perceived vested interests that relate to this article (including relationships with pharmaceutical companies, biomedical device manufacturers, grantors, or other entities whose products or services are related to topics covered in this manuscript) that could be construed as a conflict of interest.

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