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Neighborhood, Socioeconomic, and Racial Influence on Chronic Pain

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Abstract

The purpose of this review is to highlight the neighborhood, socioeconomic, and racial influences on chronic pain. Negative influences on the experience of chronic pain are explored and defined as any adverse stressor common in low socioeconomic, urban neighborhoods that potentially contributes to health disparity in African Americans experiencing chronic pain. The multifactorial influences on chronic pain disparity in African Americans are explored and expounded upon in this review of existing evidence. Databases used for the search included CINAHL, PubMed, and PsycArticles. The experience of chronic pain is multifaceted, existing with multiple comorbidities and lasting consequences. To improve the burden of chronic pain requires a multifactorial assessment that considers neighborhood risk factors, emphasis on environmental stressors, limitations to support networks, barriers to physical activity, and access to primary care providers with whom communication is open and without bias. A comprehensive assessment of barriers will aid in the development of interventions that reach beyond the physical factors of chronic pain, also considering the psychosocial barriers to improving the burden of chronic pain in African Americans living in impoverished urban neighborhoods.

African Americans suffer from an increased incidence of chronic illness, both an increased number of illnesses and earlier age of chronic illness onset, compared with non-Hispanic Whites (Penner et al., 2016b; Senteio & Veinot, 2014; Shavers, Bakos, & Sheppard, 2010). This highlights a disparity in the health status of African Americans over their life span. The increased incidence of chronic illness includes an increased prevalence of chronic pain, worse chronic pain outcomes, and poorer treatment of chronic pain (Reyes-Gibby, Aday, Todd, Cleeland, & Anderson, 2007; Shavers et al., 2010), which is a call for action in the area of chronic pain management. Chronic pain has been reported to have repercussions on quality of life. Reports of increased pain intensity, more pain-related distress, and greater pain-related interference on function have been reported in African Americans experiencing chronic pain (Vallerand, Crawley, Pieper, & Templin, 2016).

Although individuals experiencing chronic pain have been identified as vulnerable to undertreatment, African Americans represent a particularly vulnerable subgroup with respect to treatment of chronic pain (Tait & Chibnall, 2014). Further, the challenge

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of adequately assessing pain is complicated by the subjective nature of pain, which is not directly observable by clinical-level diagnostic testing (Tait & Chibnall, 2014). The subjectivity of pain assessment leaves reports of pain open to interpretation by health care providers. It has been found that African Americans are subjected to increased negative stereotypes and greater scrutiny regarding prescription pain medication compared with non-Hispanic Whites (Becker et al., 2011; Burgess et al., 2008; Dovidio & Fiske, 2012; Tait & Chibnall, 2014). African Americans have also been reported to receive less aggressive treatment and fewer newly prescribed medications to manage pain (Bazargan, Yazdanshenas, Gordon, & Orum, 2016; Cintron & Morrison, 2006; Shavers et al., 2010), as well as decreased access to primary care providers and pain specialists (Shavers et al., 2010). This disparity is especially true of African Americans living in impoverished urban environments (August & Sorkin, 2010; Lavin & Park, 2014), highlighting the need for improved assessment and pain management strategies in African Americans.

In addition to decreased provider and treatment access, African Americans living in urban poverty lack safe access to physical activity, have decreased social support because of neighborhood characteristics, and face increased exposure to neighborhood violence, which have a cumulative effect on the experience of chronic pain. Although previous research has examined the influence of neighborhood stressors on chronic pain, there is strong rationale for examining the environmental context and impact of neighborhood and life stress in conjunction with outcomes such as physical activity and social isolation and the combined influence on the worsening experience of pain and overall perception of control. Bushnell et al. (2015, p. 11) wrote, "pain is only one aspect of the burden," suggesting that there is a cumulative effect of factors that contribute to a worsening pain experience. Neighborhood influences have been found to lead to psychosocial distress and to contribute to social isolation, poverty, decreased physical activity, and decreased access to primary care (Brown, Polsky, Barbu, Seymour, & Grande, 2016; Cantora, Iyer, & Restivo, 2016). Neighborhood factors coupled with race, ethnic, and socioeconomic issues have resulted in substantial disparities in chronic pain management for many urban African Americans. Socioeconomic status, primary care access, and homelessness have all been reported to contribute to a more negative experience of pain (Owen, Miner, Rockswold, & Biros, 2009).

The purpose of this article is to highlight the neighborhood environmental, socioeconomic, and racial influences of chronic pain that affect the experience of pain in African Americans living in low-income, urban neighborhoods. Little progress has been made in determining the social determinants that contribute to disparity in the chronic pain experience and determining how these contributing factors interact. Exploration of factors contributing to chronic pain disparity is the initial step in developing interventions aimed at reducing disparity in the experience of chronic pain.

NEIGHBORHOOD INFLUENCES

It has been well established that impoverished urban neighborhoods are associated with higher crime (Cantora, 2016; Friedson & Sharkey, 2015). Adverse neighborhood conditions and neighborhood stressors also include lower neighborhood socioeconomic status and violence, as well as dissatisfaction and distrust of police, concern with police response to

crime or overall neighborhood threat of crime, and compromised safety (Hajat et al., 2015; Karb, Elliott, Dowd, & Morenoff, 2012). Fear of crime has implications for quality of life and use of urban space in relation to both social isolation and physical activity (Snedker, 2015). Snedker (2015) addressed the physical disorder that exists in urban environments, explaining that abandoned cars, neglected buildings, stray dogs, poor lighting, overgrown trees and shrubs, trash, and empty lots encourage crime and decrease a sense of safety in urban neighborhoods. Also addressed is the concept of social disorder that includes public drinking and drug use, public drug sales, vandalism, prostitution, panhandling, loitering, and homelessness on streets (Snedker, 2015). Both physical disorder and social disorder in impoverished neighborhoods contribute to the burden of stress experiences through an overall decrease in feelings of safety of residents of the urban environment. Increasing stressors from psychosocial and environmental influences have been reported to lead to a hypersensitive stress response over time, with the potential of adversely affecting pain (Hruschak & Cochran, 2017). Adverse neighborhood influences lead to both physical and social isolation, as well as increased stress, all of which have been found to negatively affect the chronic pain experience.

HOUSING STATUS

Although there has been improvement in recent decades, segregation persists and neighborhoods remain segregated with continued geographical racial divides. African Americans remain more segregated in urban areas in the United States as compared with other countries (Iceland, 2014). Further, African Americans are more likely to reside in impoverished neighborhoods (de Souza Briggs & Keys, 2009; Senteio & Veinot, 2014), and individuals who are living in poverty are at increased risk of pain because of limited access to specialty care and lack of health insurance (Institute of Medicine, 2011; Vallerand et al., 2016). The disparity in the experience of chronic pain in individuals of low socioeconomic status living in poverty has been well documented (Tait & Chibnall, 2014). Further, the cumulative stress of traumatic neighborhood-related experiences has an increasing effect on chronic pain (Senteio & Veinot, 2014). The stress burden experienced in an impoverished urban environment occurs as a result of ongoing concerns associated with neighborhood safety and availability of resources to meet basic needs (Mair, Cutchin, & Peek, 2011), and this increased stress burden has been linked to increases in chronic pain severity (Campbell et al., 2012). Fear of crime, fearful attitudes, and threatening environmental behaviors add to the burden of stress and decrease the perceived sense of control of those living in impoverished urban neighborhoods (Bannister & Fyfe, 2001; Snedker, 2015). More specifically, Senteio and Veinot (2014) suggested that the ongoing burden on psychological resources resulting from the need to meet basic life needs in an impoverished environment requires copious energy and leaves little energy for other activities such as emphasis on physical activity, healthy eating habits, or socialization.

In the case of chronic pain, housing status and income have been reported to be predictors of pain because of the stress burden of homelessness or living in low-income neighborhoods (Owen et al., 2009). This implies that addressing a patient's housing status and overall state of poverty may be an important part of preventing or addressing a patient's chronic pain (Owen et al., 2009) because the limitations in health care access, decreased physical

activity resulting from neighborhood safety, limited access to healthy food choices, and social isolation potentially contribute to persistent chronic pain.

PHYSICAL ACTIVITY

Health care providers who promote physical activity often assume the availability of safe, walkable neighborhoods and may lack an understanding of the restrictive factors present in an impoverished urban community (Senteio & Veinot, 2014), which highlights the need for assessment of environmental factors contributing to pain. Participants in one study stated, “They [health care providers] say go take a walk. Can’t walk in this neighborhood” (Senteio & Veinot, 2014). Additionally, physical activity is also an avenue for social support and social relationships; thus, social isolation may be increased as physical activity decreases.

Avoidance, a response to the fear associated with chronic pain in an attempt to prevent or reduce pain experiences, is commonly a negative outcome of chronic pain that may lead to physical disuse and physical deconditioning (Kroska, 2016; Larsson, Hansson, Sundquist, & Jakobsson, 2016). Kroska (2016) addressed this relationship in a study that described a positive association between fear avoidance and pain; in other words, increased fear avoidance was associated with increased pain intensity (Kroska, 2016). Fear avoidance and disuse may have an additive effect in impoverished urban individuals experiencing chronic pain. Factors contributing to decreased physical activity in the urban environment worsen the risk of physical disuse and potential physical deconditioning, which may lead to the negative spiral of increased chronic pain during physical activity.

SOCIAL ISOLATION

The environment includes not only the physical element, but also the economic, medical, and cultural context in which pain is experienced and treated (Tait & Chibnall, 2014). Lack of social support has been found to have a negative impact on pain, and increased support has been found to serve as a buffer to increasing pain intensity and to increase ability for physical activity (Raichle, Hanley, Jensen, & Cardenas, 2007). In impoverished urban neighborhoods, risk of increased social isolation may exist if fear of crime or threat of personal safety is perceived. When social environments exist, but are negative in nature, as is the case if associated with criminal activity or threats to personal safety, social environments may then become an added source of stress leading to the work of “staying away” to protect one’s well-being (Senteio & Veinot, 2014). Or, in other words, “staying away” as described by Senteio and Veinot, is a continued effort to avoid the social environment in which one resides to maintain their own safety, further perpetuating social isolation. Despite the perception of strong social support networks in African American families and church communities, Schim, Vallerand, Hasenau, and Robinson (2014) found a lack of social support available to African Americans with cancer, with many unable to identify a caregiver or identifying multiple caregivers that are only intermittently involved in care. Often, neighbors or paid helpers are used as caregivers rather than family because of the lack of available family support (Schim et al., 2014). When neighbors were relied on as caregivers, availability was not always guaranteed (Schim et al., 2014). Many authors have found evidence supporting African Americans’ strong commitment to spirituality and

involvement with the church community (Conway-Phillips & Janusek, 2016; Jackson et al., 2014). However, some studies have found that support from the church is not always evident, leaving those in need alone and facing significant social isolation (Schim et al., 2014). In addition to worsening pain outcomes, lack of psychosocial support has been linked to increased use of analgesics in those with pain (Raichle et al., 2007), suggesting increased pain intensity with decreasing psychosocial support. Further, it has been found that pain and social functioning have a reciprocal relationship. As pain severity decreases, social and physical functioning increase in African Americans experiencing chronic pain (Vallerand et al., 2016). Conversely, unmanaged pain has been reported to contribute to decreased social and physical functioning in this population (Vallerand et al., 2016).

SOCIOECONOMIC INFLUENCES

For those living in poverty, low socioeconomic status haunts each financial decision, and many are unable to consistently afford prescribed interventions such as medications and ongoing visits to health care providers to manage their pain. Wealth is one of the best predictors of life span and years of productive life (Owen et al., 2009), and individuals of lower socioeconomic status have a greater risk of health adversities such as pain (Institute of Medicine, 2011). Reasons for increased incidence of pain in individuals of low socioeconomic status are multifaceted (Tait & Chibnall, 2014), with contributing factors including limited access to primary care providers, low employment status, and consistently inadequate insurance coverage contributing to the disparity.

Lower socioeconomic status overlaps both insurance and racial minority status. In 2016, 27.3 million Americans (8.6%) were uninsured, and of adults aged 18-64, 48.3% were poor or near poor based on U.S. poverty status (Cohen, Martinez, & Zammitti, 2016). Of those who had unstable or inconsistent insurance coverage, approximately one-quarter were members of minority groups (Meghani et al., 2012).

Additionally, individuals with a low income often lack adequate insurance coverage to meet their needs (Vallerand, Pieper, Crawley, Nordstrom, & DiNardo, 2013; Vallerand et al., 2016). The cost of prescription pain medication is a burden to individuals of low socioeconomic status, causing many to suffer from chronic pain because they skip doses (sometimes for an entire day or a week) to stretch the medication they have on hand (Senteio & Veinot, 2014). Although opioids are not the first-line treatment for chronic pain, for minorities residing in impoverished urban neighborhoods, a disparity exists regarding access to opioids. For those who are prescribed opioids as part of their treatment, pharmacies in zip codes inhabited predominantly by minority residents have been reported to have insufficient supplies in comparison to those in zip codes inhabited predominantly by non-Hispanic whites (Meghani et al., 2012). Inadequate insurance to cover costs or insurance types such as Medicare that limit access to specialty care or to beneficial prescriptions contribute to the disparity (Meghani et al., 2012). Decreased access to primary care providers or pain care specialists, resulting from barriers such as lack of transportation or off-shift working hours, leads to increased emergency center utilization for the management of pain (Meghani et al., 2012), which unfortunately perpetuates poor patient-provider relationships and further deteriorates the pain experience.

The economic impact of unrelieved chronic pain on the individual may include loss of employment, further exacerbating the challenges of living with a low income (Campbell et al., 2012). Individuals of lower socioeconomic status hold more physically demanding jobs that increase the risk for pain-related injury (Meghani et al., 2012) and may be less able to take time off to seek medical care (Penner et al., 2013), and job characteristics may be less stable overall.

Moreover, lack of socioeconomic resources may contribute to decreased feelings of perceived control over the chronic pain experience, worsening the pain-related distress. Lack of control over pain was reported to be significantly related to reports of pain intensity (Muller, 2010), and the belief in one's ability to control pain is a significant predictor of health outcomes in patients with chronic pain (Vallerand et al., 2016). The impact of socioeconomic status in low-income African Americans with chronic pain is multifaceted, far reaching, and a potentially devastating component of the pain experience that requires recognition when treating chronic pain.

THE INFLUENCE OF RACE

In racial minorities seeking relief of pain symptoms, health care treatment for pain has been found to be inadequate (Anderson, Green, & Payne, 2009; Campbell et al., 2012; Cintron & Morrison, 2006; Ezenwa, Ameringer, Ward, & Serlin, 2006, Shavers et al., 2010). Racial disparities are frequently ongoing and refractory to change, reflecting multiple factors that include the patient and provider, as well as societal and cultural influences that perpetuate disparities in chronic pain as experienced by African Americans (Penner et al., 2016b; Tait & Chibnall, 2014).

Racism in health care practice has been a long-standing issue (Byrd & Clayton, 2012; Penner et al., 2016a). Racial disparity in health care adds to the distrust African Americans have toward race-discordant patient-provider relationships, and racially disadvantaged minorities are more perceptive to the cues of discrimination (Penner et al., 2016b). African Americans who perceived racial inequity from health care providers shared not only the belief that racism leads to a decreased level of care and decreased ability for the individual to meet their health care needs (Burgess et al., 2013), but also the perception that racism is actually a predictor of increased pain (Goodin et al., 2013).

Perceived discrimination may be a life stressor for racial minorities who feel they are targets of racism, and this ongoing life stressor is a potential source of health disparity (Penner et al., 2013). Pain is potentiated by the stress response (Hannibal & Bishop, 2017), and African Americans reporting the stress of perceived lifetime discrimination have a higher likelihood of experiencing chronic pain than non-Hispanic whites who do not have this perception of discrimination (Edwards, 2008; Goodin et al., 2013). The studies explicitly evaluating the relationship between pain and perceived racial discrimination in African Americans are limited. Although not explicit in their evaluation of perceived racism and pain, other studies have examined the association between race and pain level through the suggestion that there is an increase in perception of pain associated with higher levels of stress from perceived racial discrimination (Green & Hart-Johnson, 2010; Herbert et al.,

2017). Perceived discrimination is a stressor often leading to stress-induced reactions (Carter & Forsyth, 2010). Williams and Mohammed (2009) suggested that perceived discrimination is a risk factor for disease because of the stress response.

HEALTH CARE ACCESS

Disparity in chronic pain management is not limited to neighborhood or socioeconomic influences. The multifaceted nature of disparity in chronic pain is often apparent in racially discordant relationships with health care providers and is compounded when little support is available from family or friends during interactions with health care providers. Access to health care providers and the establishment of a trusting patient-provider partnership have been reported to be an essential component in the effective management of chronic pain (Hadjistavropoulos et al., 2011; Senteio & Veinot, 2014). In addition, access to multidisciplinary care that reaches beyond opioid therapy to include multimodal assessment and support of psychological and psychosocial components of the pain experience has been found to be effective (Borys, Lutz, Strauss, & Altmann, 2015; Kaye, 2014). Lack of access to providers resulting from unstable or inconsistent insurance coverage, decreased access to multidisciplinary care, and decreased access to prescribed pain medication, coupled with mistrust of providers and poor communication between patient and provider, have led to disparities in African Americans with chronic pain (Hadjistavropoulos et al., 2011; Senteio & Veinot, 2014; Shavers et al., 2010).

In 2013, the National Healthcare Disparities Report, from the Agency for Health Care Research and Quality (AHRQ), spoke to health care access and addressed the disproportionate number of racial minorities experiencing barriers to quality health care. The report placed emphasis on breaking access barriers by ensuring health care providers are able to meet the individual needs of each patient. In response to the evidence that disparities exist in the management of pain, the 2010 Patient Protection and Affordable Care Act required the Department of Health and Human Services (HHS) to enlist the Institute of Medicine (IOM) in examining pain and pain management disparity as a public health problem (Institute of Medicine, 2011). In its 2011 report *Relieving Pain in America*, the IOM emphasized the need to expand the body of knowledge in the area of pain management. Further, it was recommended that the Department of Health and Human Services develop a plan that includes addressing disparities in the experience of pain among subgroups of Americans (Institute of Medicine, 2011). In a systematic literature review of pain in older adults, Lavin and Park (2014) looked at racial disparity in pain management. The results of this literature review supported the needs outlined in the IOM report that racial minorities receive significantly less prescription pain medication than Caucasians.

Several studies have found that racial variations in pain assessment and treatment exist despite an increased report of severity of pain in African Americans (Burgess et al., 2009; Green & Hart-Johnson, 2010; Minick et al., 2012; Tsai et al., 2012), and despite increased pain and report of higher pain scores, African Americans receive less analgesia than non-White Hispanics (Minick et al., 2012; Tsai et al., 2012). Once access to health care providers has been established, access to medications remains a concern, as African Americans have been reported to receive less prescription pain medication and, when prescribed,

fewer prescriptions for opioids to manage chronic pain (Shavers et al., 2010). Decreased access to pharmacies in impoverished urban neighborhoods, the hesitancy of pharmacies to maintain adequate supplies of prescription pain medications, and the difficulty that some residents of urban neighborhoods have with transportation to pharmacies compound the problem (Shavers et al., 2010). Consistent with the Institute of Medicine's report on health care disparities (Institute of Medicine [US] Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, 2003), the presence of racial, ethnic, and socioeconomic disparities in pain assessment and treatment across a variety of health care settings persists (Bhimani et al., 2017; Dineen, 2015; Grol-Prokopczyk, 2017).

Once access to care is established, times for initial assessment of pain or reassessment of pain are longer for African Americans despite the report of higher pain scores (Burgess et al., 2009; Tsai et al., 2012). Tait and Chibnall (2014) provided insight into the multifaceted nature of pain disparity, indicating that the factors contributing to assessment and treatment of pain are multifaceted and include provider stereotypes that affect clinical judgment both implicitly and unconsciously, provider affect and empathy, provider-patient communication, patient socioeconomic status, the patient's reporting of pain and level of disability, the patient's coping mechanisms, and finally the patient's mistrust of medicine. Tait and Chibnall (2014) confirmed that primary care providers are more likely to underestimate pain intensity in African Americans than in other sociodemographic groups. Additionally, African American minorities have been found to be less engaged in communicating with health care providers when the encounter is between individuals of different races compared with similar-race encounters, and more likely to report distressing pain to a same race provider (Tait & Chibnall, 2014; Penner et al., 2016a). Poor communication with providers has been reported to be related to perception of racial bias and, frequently, is the result of instability of care relationships caused by changes or gaps in insurance coverage, often resulting in participants lacking sustained, trusting relationships with providers (Penner et al., 2016a). This may lead to self-care decisions that are made in isolation without discussion of circumstances or decisions with providers. Lack of satisfactory patient-provider relationships has the potential to contribute to background stress for those dealing with the chronic pain experience in isolation (Senteio & Veinot, 2014). Because racially discordant patient-provider relationships involve approximately 80% of African American patients' medical interactions, ensuring the quality of the relationship and communication is a priority in decreasing disparity (Penner et al., 2016a). Further, an increased perception of control may be gained through trusting relationships with health care providers and a partnering between the primary care provider and the patient to promote the ability for self-management of pain (Institute of Medicine, 2011; Vallerand et al., 2016).

NURSING IMPLICATIONS

The lack of research emphasis on socioeconomic and neighborhood factors associated with chronic pain is a call to nursing. The nursing philosophical perspective on holistic health places nurses in a unique position to assess the socioeconomic and neighborhood factors surrounding the chronic pain experience, and there exists a moral imperative to do so. More specifically, it is essential that as nurses, we attempt to understand the lens through which the patient views the health care system and how that may influence the patient's perception

of control over chronic pain. Gaining insight into where the person was raised with respect to environmental factors that may negatively influence perceived control over chronic pain, in addition to the individual's unique cultural background including race and race-related stressors, must be considered if perception of the health care system and perceived control over chronic pain are to be understood. As nurses, our conversations with our patients have the ability to yield a great amount of insight into these factors that ultimately influence perceived control over pain.

Additionally, emphasizing multimodal therapy to address the holistic assessment of chronic pain is critical. Intervention must include not only a combination of pharmacological and nonpharmacological interventions to treat pain, but ideally a multimodal approach that includes a team of multidisciplinary health care providers including, but not limited to, psychological evaluation and support in addition to the primary health care provider. Nurses, as advocates of patient care, must play a role in ensuring chronic pain therapy includes multimodal intervention from a multidisciplinary perspective.

CONCLUSION

Improving the burden of chronic pain begins with the assessment of multifaceted risk factors that have been reported to exacerbate chronic pain, including biological, environmental, health care system, and cultural factors (Campbell et al., 2012; Raichle et al., 2007). Assessment to identify potential areas lacking support and placing emphasis on understanding and addressing environmental stressors commonly associated with impoverished urban neighborhoods may be key components in reducing disparities in chronic pain (Bazargan et al., 2016). Interventions targeting neighborhood, socioeconomic, and racial influences may assist in improving the pain experience.

Assessment and interventions that target increasing physical activity to relieve pain symptoms, improving social isolation to strengthen support systems, improving access to primary care providers to treat chronic pain as well as access to multidisciplinary chronic pain teams, and increasing access to pharmacotherapy with respect to both location and prescriber bias are vital components in shifting the disparity of chronic pain in African Americans.

Recommendations for future research include exploring the impact of early life stressors occurring in the urban environment, specifically by African Americans living in the impoverished urban environment, on the experience of pain and perception of control over pain. Whether urban trauma and environmental stress early in life contribute to the chronic pain experience is an important area for investigation. Additionally, risky family exposure early in life is a consideration in assessment of early-life trauma. Risky family exposure has been found to be associated with childhood poverty, and includes conflict, neglect, and abuse (Morton, Lee, Haviland, & Fraser, 2012). Risky family processes may have an adverse impact on health later in life, potentially influencing the experience of pain as well as perceived control over pain in adulthood (Brody, Yu, Chen, Beach, & Miller, 2016). Moreover, whether lack of perceived control develops because of burden early in life and perceived inability to change life stressors will contribute to

the understanding of the disparities faced by low-income, urban, African Americans with chronic pain. Finally, testing theories related to chronic pain coping in racial minorities has been understudied; additional research in this area may provide insight into factors contributing to disparity in the chronic pain experience. Multidisciplinary interventions aimed at improving pain management disparity are essential because of the disproportionate burden that impoverished minorities face.

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