


Variability of Pain Outcomes and Physical Activity Among a Diverse Sample of Older Men: Is It More Than Just Race?

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Abstract

There is a compendium of data documenting the increasing number of older adults. This suggests the continued need to understand identified health outcomes across domains of pain and physical activity, particularly among older men. Therefore, the aim of this study was to evaluate race similarities and/or differences in pain and rates of physical activity among White, Black, and Hispanic men 60+ years of age. Data were taken from the Health and Retirement Study, a longitudinal panel study surveying a representative sample of people in the United States. Logistic regression analysis was used to examine associations between race and pain and the odds of regular physical activity. Results showed that Black men were less likely to participate in light or moderate/vigorous physical activity. Similarly, pain increased the odds of physical activity among Hispanics, but decreased the odds of physical activity among White men. Findings may reflect a number of factors that impact the well-being of what it means to experience pain and physical functioning, while also assuming a masculine identity. This perspective may allow for a better understanding of short- and long-term implications of the pain experience and the pain and physical functioning dyad among this group of men.

Keywords

pain, physical activity, older men, race

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Introduction

The national guidelines of the U.S. Department of Health and Human Services (USDHHS) suggest at least 150 min a week of moderately intense physical activity (e.g., a brisk walk; DHHS, 2018). Despite these recommendations, an estimated one-quarter of Americans do not engage in any type of physical activity (Roesch, Norman, Villodas, Sallis, & Patrick, 2010), with only one in five (21%) adults meeting the 2018 Physical Activities Guidelines. Western culture contends with these guidelines and dictates a more sedentary lifestyle, by which individuals spend a substantial amount of time in prolonged inactivity (Brownson, Boehmer, & Luke, 2005; Dunstan et al., 2010; Haskell et al., 2007; Howard et al., 2015; Owen, Sparling, Healy, Dunstan, & Matthews, 2010).

More often than not, individuals are frequently employed in low-activity jobs and spend much of their day sitting, thereby decreasing the amount of movement and muscular activity (Owen et al., 2010). Analyses of

the National Health and Nutrition Examination Study (NHANES) data (2009–2010) show the average time spent in sedentary behavior in the form of sitting time was 285 min/day for men and 281 min/day for women (Harrington, Barreira, Staiano, & Katzmarzyk, 2014). In addition, results from the American Time Use Survey suggest that watching television accounted for about half of time spent in leisure activities by the working adult population (Tudor-Locke, Johnson, & Katzmarzyk, 2010). Recent population-based estimates of accelerometer-derived sedentary time report that U.S. adults spend an average 54.9% of their waking hours sedentary. There

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is also a trend for increased sitting time with increasing age for Mexican American and Hispanic females, and non-Hispanic Black (NHB) males, even after adjusting for education. These sedentary lifestyles are uniquely accompanied by short- and long-term health concerns, including increased mortality and susceptibility to more debilitating chronic medical diseases (Dunstan et al., 2010; Katzmarzyk, Church, Craig, & Bouchard, 2009). These findings are all the more apparent particularly when addressing the needs among men.

Epidemiological evidence suggests that (White) men are more likely to engage in vigorous physical activity more than women, regardless of their health status or pain severity (Lakoski & Kozlitina, 2014; Rahim-Williams et al., 2007). Although pain is recognized as a barrier to performing daily functional tasks, physical activity can serve as both a preventive and protective factor to painful chronic medical conditions (Centers for Disease & Prevention, 2007; Crespo, Smit, Andersen, Carter-Pokras, & Ainsworth, 2000; Howard et al., 2015; Marshall et al., 2007; Roesch et al., 2010). This corroborates the positive relationship between pain and such illnesses as diabetes mellitus, cancer, depression, hypertension, and obesity (Howard et al., 2015; Marshall et al., 2007; Roesch et al., 2010). This is all the more relevant when discussing the short- and long-term implications of a painful medical diagnosis, particularly among older adults. The Centers for Disease Control and Prevention (2007) estimate that more than half (54%, 117 million people) of all persons in the United States have at least one chronic disease, with three-in-four adults 65+ years of age reporting two or more medical conditions.

Epidemiology of Pain

With advancing age, individuals are more likely to be diagnosed with a pain-related medical condition(s). Data from the 2010 National Health Interview Survey show that an estimated 19% of U.S. adults report persistent pain, with higher rates shown among women, older adults, and those reporting their health as fair or poor (Kennedy, Roll, Schraudner, Murphy, & McPherson, 2014). This substantiates the notion that identifying the variability and significance of the pain experience is not without difficulty (Institute of Medicine, 2011).

Yet, the difficulty is not in the experience of pain, but rather the operationalization of (chronic) pain, which is multidimensional and does not always account for activity limitations (Von Korff et al., 2016). The National Pain Strategy has proposed high-impact chronic pain as a significant new classification that characterizes individuals with debilitating chronic pain to those with less impactful chronic pain (Pitcher, Von Korff, Bushness, & Porter, 2018; Von Korff et al., 2016), which may be directly associated with rates of physical activity. This classification may have both

short- and long-term implications in how men, for example, define their pain experience.

Men and Pain

The health status of men continues to be a public health concern. This is observed across domains of physical and mental health, social adjustment, and emotional well-being. Beliefs on the socially contrived messages regarding masculinity and manhood are important to acknowledge in defining said behavioral patterns among this group (Addis & Mahalik, 2003). These social constructions may increase health risks and risk-taking behaviors, emotional distress, while diminishing health-promoting behaviors and daily functional tasks (Mahalik, Pierre, & Wan, 2006). This is similarly projected with certain disease outcomes, such as pain, which may be complicated by experiences throughout the life course.

In documenting these findings, data further show that men are diagnosed with a significant number of terminal chronic diseases (e.g., chronic obstructive pulmonary disease, cancer, HIV/AIDS; Brown, Nicassio, & Wallston, 1989; Hayward, Miles, Crimmins, & Yang, 2000; Kuri-Morales et al., 2009; Orfila et al., 2006), and experience greater pain intensity relative to their medical diagnosis (Lochner & Cox, 2013; National Center for Health Statistics, 2017). Although population-based studies consistently show women reporting greater pain frequency than men (11%-59%; women vs. 10%-49%; men; Fillingim, King, Ribeiro-Dasilva, Rahim-Williams, & Riley, 2009), other data show sex/gender differences in pain prevalence by disease type. From a listing of 47 chronic pain comparisons (e.g., back pain, migraine, osteoarthritis pain, etc.), Mogil (2012) found that men reported a higher pain prevalence of only one condition compared to 45 comparisons among women. These varied findings acknowledge the inconsistencies of pain reports among both genders.

Specifically, conditions such as chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) are shown to be disproportionately diagnosed among men. Data show that by 80 years of age, a substantial number of men will sustain symptomatic outcomes of this disease, causing long-term pain and lower quality of life (Tripp et al., 2004). Accounting for an estimated 8% and 1% of urology and primary care visits, respectively, more than 90% of men with symptomatic prostatitis are believed to have CP/CPPS, which is neither properly diagnosed nor treated (Zhang et al., 2015). Similarly, symptoms of more advanced stages of pain-related prostate cancer may go under reported and/or misdiagnosed. These clinical diagnoses attest that men are similarly just as vulnerable in experiencing pain, even when not verbally presented during a clinical assessment (Keogh, 2015).

However, what is known regarding the pain experience among older men in particular remains scarce and conflicting. However, one consistent argument is that pain is often under reported among men. This not only questions the reason(s) as to why some men deny their physical pain, but more importantly the rigid avoidance of stereotypical feminine pain behaviors (Myers, Riley, & Robinson, 2003). This stereotypic rejection suggests the adoption of a masculine guise that influences mental, physical, and social health and emotional well-being (Galdas, Cheater, & Marshall, 2005; Rice et al., 2017). This identity further supports the ideal that masculine characteristics (e.g., endurance, stoicism), among men, are more highly regarded than feminine identities (e.g., sensitivity; Samulowitz, Gremyr, Eriksson, & Hensing, 2018). Yet, this gendered persona may serve as a protective characteristic defined by semblances of strength and independence and discouraged by actions of weakness (Himmelstein & Sanchez, 2016). While these characterized representations may be an attempt to conform to prescribed gender roles, they may also serve as a hindrance to men seeking help, thus ignoring more serious medical problems. To the detriment of this gendered group, seeking medical attention often comes too late, whereby the symptoms and disease states are more aggressive and advanced (Orfila et al., 2006; Spiers, Jagger, Clarke, & Arthur, 2003).

Yet, while there is evidence documenting gender differences in pain reports in general, pain and physical activity, among men and women, in particular (e.g., Danise, Turk, Martin, Van Domelen, & Patel, 2014), there remains a lack of data documenting the heterogeneity (within group variability) of the pain experience exclusively among men, independent of physical functioning (Andersson, 1999; Kaur, Stechuchak, Coffman, Allen, & Bastian, 2007). Therefore, in describing the pain experience, along with identifying domains of the pain and physical activity dyad, this study aimed to evaluate race similarities and/or differences in pain and rates of physical activity among White, Black, and Hispanic men 60+ years of age. As there is a lack of empirical data assessing the pain experience specifically among older men, this study is a significant contribution to extant literature assessing the pain experience and the relationship between pain and physical activity among this gendered group.

Method

Participants

Data were taken from the Health and Retirement Study (HRS), a nationally representative panel survey of community-dwelling adults. The initial sample, drawn in 1992 from a multistage, clustered area probability design of households, targeted individuals born between 1931 and 1941. Follow-up interviews and new cohort additions have occurred at regular intervals and have resulted in a

nationally representative sample of American adults 50+ years of age. Specifically, the HRS is a longitudinal panel study that surveys a representative sample of people in the United States. A detailed description of sampling procedures and study design are available elsewhere (see also, <http://hrsonline.isr.umich.edu>; Heeringa & Connor, 1995; Vasquez, Botoseneanu, Bennett, & Shaw, 2016).

The sample for the current study included non-Hispanic White (NHW), NHB, and Hispanic men, 60+ years of age, who were interviewed in the 2008 survey. Non-Hispanics of other races (i.e., Asian, American Indians) consisted of less than 2.5% of all respondents and were not included in subsequent analyses. Therefore, the analytic sample included a total 4,486 men. Less than 1% of cases were excluded due to list-wise deletion of missing values.

Measures

Physical activity. Two binary outcome measures (regular moderate/vigorous physical activity and regular light physical activity) were constructed based on a series of questions assessing physical activity/exercise participation. Respondents were asked how often they participated in vigorous exercise, moderate exercise, and mild activity. Vigorous exercise was defined as “sports or activities that are vigorous, such as running or jogging, swimming, cycling, aerobics or gym workout, tennis or digging with a spade or shovel.” Moderate activity included “sports or activities that are moderately energetic such as gardening, cleaning the car, walking at a moderate pace, dancing, and floor or stretching exercises.” Mild activity was described as “sports or activities that are mildly energetic such as vacuuming, laundry, and home repairs.” Response choices for each activity level included “every day,” “more than once a week,” “once a week,” “one to two times a month,” or “hardly ever or never.” While others (He & Baker, 2005; Tucker-Seeley, Subramanian, Li, & Sorensen, 2009) have combined the different levels of physical activity into one index, for purposes of this study, light and moderate/vigorous were assessed as separate variables to measure differences in the influence pain has on light physical activity versus moderate/vigorous physical activity. Respondents who reported participating in mild activity 2 times a week or more were characterized as regular participants in light activity (0 = *once a week or less often*; 1 = *more than once a week*). The moderate/vigorous activity outcome was similarly defined with respondents who reported exercising moderately or vigorously more than once a week (0 = *once a week or less*; 1 = *more than once a week*).

Pain. Pain was measured with two single-item questions: (a) “Are you often troubled with pain?” and (b) “How bad is the pain most of the time: mild, moderate or severe?” Four dummy variables were created to represent each pain level. If respondents answered the first

question with “no,” they were classified as having “no pain.” However, those who responded in the affirmative to the first question were then directed to answer the second question. This then classified participants in experiencing either “mild pain,” “moderate pain,” or “severe pain.”

Covariates

Sociodemographic characteristics. Two sociodemographic variables were included in subsequent models as controls. Age and education were measured as continuous variables (in years), with education included as an indicator of socioeconomic status (SES).

Health variables. Comorbid health conditions was included with an index ranging from zero to eight, thus reflecting the total number of (self-reported) chronic conditions, which included high blood pressure, cancer (excluding skin), diabetes, stroke, heart disease, lung problems, arthritis, and psychological problems. In addition, the effects of functional ability on activity were controlled for with a measure of functional limitations ranging from zero to five (i.e., the total number of affirmative responses in experiencing some difficulty with activities of daily living—bathing, dressing, eating, walking across a room, and getting in or out of bed).

Statistical Analyses

Analyses included a series of bivariate assessments measuring the prevalence of light and moderate/vigorous physical activity, as well as levels of pain and physical functioning between the three race/ethnic groups. Continuous variables are presented as means (standard errors), and categorical values as counts (%). *T*-tests of unequal variance compared characteristics between race/ethnicity for continuous variables and chi-square or Wilcoxon-signed rank for categorical variables. Next, logistic regression was used to evaluate race differences in the odds of light and moderate/vigorous activity participation, while adjusting for age, education, health conditions, and physical functioning. The measure of pain was then entered into models to assess its association with physical activity, as well as its role in the reported race differences in physical activity. Finally, an additional set of logistic regression models were estimated to determine the association between pain and physical activity within each of the three race groups. All data were managed and processed using SAS software version 9.3 (SAS Institute, Cary, NC). Results were weighted using HRS respondent-level weights for physical measures including adjustments for sample selection probability and nonresponse (<http://hrsonline.isr.umich.edu>). A *p* value <.05 and confidence intervals (CIs) excluding 1.0 were considered statistically significant. The HRS parent study is funded by the National Institute on Aging, and because of the de-identified nature of the data, it was

not necessary for data used in the current study to receive Institutional Review Board approval.

Results

Results of the bivariate analyses showed the majority of the sample was NHW (80%) followed by NHB (12%) and Hispanics (8%) men. NHW had more years of education (13.1 ± 3) when compared to NHB (10.8 ± 3.7) and Hispanics (8.6 ± 4.7). Participation in both light physical activity and moderate/vigorous physical activity was most prevalent among NHW men (50.2% and 61.1%) and least prevalent among NHB (32.7% and 56.0%). The rate of moderate/vigorous physical activity among Hispanic men was lower than that among NHWs, but higher than the rate for Black men.

Race differences in pain follow a different pattern. Pain-free prevalence rates are highest among NHB (76.6%) and lowest among Hispanics (70.6%), but not statistically significant. Relatively low rates of moderate pain are observed among NHB (12.9%), while relatively low rates of severe pain are observed among NHW (3.3%). Levels of difficulty with physical functioning were lower among NHW (Table 1).

As reported in Table 2, Model 1 shows that after adjusting for group differences in age, education, health conditions and physical functioning, NHWs were more likely to engage in regular light physical activity compared to NHB older adults and Hispanics. In particular, this model shows that compared to NHWs, the odds of engaging in frequent light physical activity were about 47% lower among NHB, odds ratio (OR) = 0.52; 95% CI: [0.41, 0.67], and 31% lower among Hispanics (OR = 0.69; 95% CI: [0.53, 0.91]). Similarly, the odds of engaging in frequent moderate/vigorous physical activity were about 37% lower among Black men (OR = 0.63; 95% CI: [0.50, 0.81]) compared to NHWs and that the likelihood of engaging in this level of physical activity was roughly equivalent between Hispanics and NHWs (OR = 1.12; 95% CI: [0.84, 1.50]).

In Model 2 (Table 2), the association between pain and light physical activity is considered. These results indicate a graded inverse association between levels of pain severity and the odds of regular light physical activity. Neither mild nor moderate pain was significantly associated with light physical activity, while moderate/vigorous physical activity and moderate pain was associated with a 23% decrease in the odds of moderate/vigorous physical (OR = 0.77; 95% CI: [0.65, 0.92]). Furthermore, accounting for levels of pain may substantially alter the association between race and moderate/vigorous physical activity.

Data from Table 3 further show that for White men, pain was associated with the odds of physical activity in a graded and inverse fashion, ranging from a 2% (and nonsignificant) reduction among those with mild pain (OR = 0.98; 95% CI: [0.77, 1.24]) to a 23% reduction

Table 1. Weighted Descriptive Statistics by Race and Ethnicity.

	Non-Hispanic White N = 3,583	Non-Hispanic Black N = 537	Hispanic N = 366
Age			
65-98 years, M (SD)	74.3 (7.2)	73.0 (6.7)	72.4 (6.7)
Years of education			
M (SD)	13.1 (3)	10.8 (3.7)	8.6 (4.7)**
Level of pain (%)			
No pain	71.5	76.6	70.6
Mild pain	9.3	6.1	8.3**
Moderate pain	15.9	12.9	17.6**
Severe pain	3.3	4.3	3.5
ADL count			
0-5	0.3 (0.8)	0.5 (1.1)	0.5 (1.1)***
Light physical activity (housework) 2× a week			
Yes	50.2	32.7	39.0***
No	49.8	67.3	61.0
Moderate/vigorous physical activity 2× a week or more			
Yes	61.1	45.0	56.0***
No	38.9	55.0	44.0

Note. ADL = activities of daily living.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2. Odds Ratios for the Association Between Pain and Physical Activity.

	Light physical activity				Moderate/vigorous physical activity			
	Model 1		Model 2		Model 1		Model 2	
	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI
Race								
White	Reference category		Reference category		Reference category		Reference category	
Black	0.524	[0.41, 0.67]*	0.525	[0.41, 0.67]*	0.633	[0.50, 0.81]*	0.618	[0.49, 0.79]*
Hispanic	0.691	[0.53, 0.91]*	0.689	[0.52, 0.91]*	1.121	[0.845, 1.50]	1.110	[0.84, 1.47]
Age	0.969	[0.96, 0.98]	0.969	[0.96, 0.98]	0.973	[0.96, 0.98]	0.971	[0.96, 0.98]
ADL count	0.688	[0.61, 0.74]*	0.668	[0.62, 0.75]*	0.588	[0.54, 0.65]*	0.608	[0.55, 0.67]*
Education			1.039 [1.02, 1.06]					
Pain								
No pain			Reference category					
Mild pain			1.055	[0.85, 1.31]			0.893	[0.72, 1.11]
Moderate pain			0.960	[0.81, 1.14]			0.774	[0.65, 0.92]*
Severe pain			0.767	[0.55, 1.15]			0.763	[0.53, 1.10]
Constant	9.205		9.587		7.899		9.36	
Log Likelihood	6,102.0		6,083.6		5,717.2		5,739.9	
N	4,493		4,487		4,483		4,489	

Note. CI = confidence interval; ADL = activities of daily living.

* $p < .05$. ** $p < .01$. *** $p < .001$.

among those with severe pain (OR = 0.77; 95% CI: [0.51, 1.17]; nonsignificant). In contrast, no clear inverse association between any level of pain and light physical activity was evident among Hispanics. Although the estimated increase in the odds of light physical activity among NHB with moderate and severe pain was 35% and 17%, respectively, the variability of these estimates was substantial enough to render them nonsignificant. Among Hispanics with mild pain, the odds of

participating in regular light physical activity were increased by more than twofold relative to those with no pain (OR = 2.83; 95% CI: [1.24, 6.45]).

In addition, among NHWs, pain was associated with a 25% reduction on the odds of moderate/vigorous physical activity for those with moderate pain (OR = 0.75; 95% CI: [0.62, 0.92]). In contrast, among NHB and Hispanics, no level of pain was significantly associated with the odds of moderate/vigorous physical activity.

Table 3. Odds Ratios for the Association Between Pain and Physical Activity by Race.

	Light physical activity			Moderate/vigorous physical activity		
	White	Black	Hispanic	White	Black	Hispanic
	Exp(B) (CI)	Exp(B) (CI)	Exp(B) (CI)	Exp(B) (CI)	Exp(B) (CI)	Exp(B) (CI)
Age	0.963 [0.95, 0.97]	1.001 [0.97, 1.03]	1.04 [0.97, 1.08]	0.969 [0.96, 0.98]	0.986 [0.96, 1.01]	0.987 [0.95, 1.02]
Education	1.041 [1.02, 1.07]	1.041 [0.99, 1.10]	1.067 [1.02, 1.12]	1.104 [1.08, 1.13]	1.066 [1.01, 1.12]	0.999 [0.95, 1.05]
ADL count	0.664 [0.59, 0.77]*	0.772 [0.62, 0.97]*	0.658 [0.50, 0.87]*	0.566 [0.50, 0.64]*	0.699 [0.56, 0.87]*	0.761 [0.61, 0.95]
Pain						
No pain			Reference category			
Mild pain	0.977 [0.77, 1.24]	0.932 [0.43, 2.04]	2.831 [1.24, 6.45]	0.914 [0.72, 1.17]	0.418 [0.19, 0.94]	1.053 [0.48, 2.29]
Moderate pain	0.925 [0.76, 1.12]	1.354 [0.78, 2.36]	1.247 [0.65, 2.38]	0.753 [0.62, 0.92]*	0.879 [0.51, 1.52]	1.314 [0.72, 2.39]
Severe pain	0.773 [0.51, 1.17]	1.173 [0.44, 3.11]	0.563 [0.27, 2.49]	0.969 [0.96, 0.98]	0.353 [0.12, 1.09]	0.303 [0.09, 1.18]
Constant	14.233	0.462	0.059	8.206	2.352	6.085
Log likelihood	4,869.8	698.7	453.8	4,495.2	720.0	491.5
N	3,583	537	367	3,580	537	366

Note. CI = confidence interval; ADL = activities of daily living.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

In addressing the pain and physical activity dyad among this group of men, results from this study aimed to understand the general pain experience in older men, while also assessing the relationship between pain and physical activity levels. To facilitate the discussion of these findings, it is important to provide context of what is known (or not) regarding the pain experience of men in general and older men in particular. A recent review by Baker, Minahan, and Atakere (2019) summarizes the multiple domains of the pain experience among men, while similarly highlighting the need for more data documenting how pain is purposely reported and managed among this gendered group.

To address some of these domains, findings of this study showed that Black men were less physically active (overall) than their respective counterparts. Scholarly work support this finding showing that those from diverse race groups are less likely to participate in physical activities (e.g., leisure time, occupational) than majority groups (Marquez, Neighbors, & Bustamente, 2010). This may be a reflection of a number of factors, such as access to resources and the availability of structured recreational activities.

What can be assessed if that physical activity is relatively subjective. Although it was found that Black men were less likely to participate in physical activities, responses by this group may have differed if different questions were asked. For example, the questions asked in this survey may not have fully captured the level of

activity whereby Black men are regular participants (e.g., gardening, swimming, etc.). As noted, vigorous to moderate physical activity, for purposes of this study, were defined as exercises such as running, jogging, swimming, cycling, aerobics or gym workout, and so on; with moderate activity described as gardening, cleaning the car, walking at a moderate pace, etc. As defined, these type of activities may not be a typical daily (weekly or monthly) activity that these older men would either participate in (or have an interest in) or have access to (e.g., the gym). As a result, their responses would suggest non-participation.

Another plausible explanation is the adaption of the National Pain Strategy's classification of high-impact chronic pain, which was previously described and represents substantial pain that limits participation in daily activities. Janevic, McLaughlin, Heapy, Thacker, and Piette (2017) acknowledge the significance of this classification in a recent study showing that Black adults (in particular) experience greater pain-related disability than White adults.

Further results from this investigation found that pain increased the odds of physical activity among Hispanic men. This finding suggests that participating in certain types of activities is beyond the biological manifestation of pain, but more so socially and culturally defined. While the data are limited, finding that Hispanic adults continue with their daily activities despite reporting more pain-related physical health outcomes suggests a degree of resilience and/or persistence that may be more apparent for this ethnic and gender group when

compared to others. This sends a message that despite the circumstances there is a level of determination and physical strength that circumvents everyday situations (Ruiz, Hamann, Mehl, & O'Connor, 2016). This is a significant contribution to what we know about the pain and physical activity dyad among older (minority) men.

While lifestyle differences, marked by variability in SES and psychosocial characteristics, are significant influences in the pain experience, less is known regarding the intersection of race, gender, and pain particularly among (older) minority men (Green & Hart-Johnson, 2010). The literature suggests that men, from a diverse race group, are more likely to experience greater functional impairment due to their pain-related diagnosis, have limited access to resources, and experience significant barriers to pain care (Cook, Doksum, Chen, Carle, & Alegria, 2013; Hayward et al., 2000; Welch, Teno, & Mor, 2005). These are all areas which suggest further investigation.

Although this study showed interesting findings, there are a few limitations that must be acknowledged. First, pain was measured with only two questions, with one of the questions having a more negative connotation. This, of course, did not help capture the full pain experience, such as frequency and/or severity. The binary responses only allowed for merely the presence or absence of the health outcome. Second, the study sample was limited to only men, thereby limiting generalizability of some of the study's findings to women. Another limitation was that the physical activity measure may not have fully captured what it means to be physically active among certain groups. As noted, one's involvement in any form of physical activity is subjective and may differ within and between groups. Finally, data were collected via self-reports and may result in potential reporting bias (e.g., social desirability). Reactions to social desirability may have yielded responses favorable to the participant.

Despite these limitations, the strengths of this study contribute to what is known regarding pain and physical activity among older men. While results complement the current literature, what cannot be ignored is the necessity to further understand how older men experience pain from various social, psychological, behavioral, and/or cultural milieus. With targeted educational pain campaigns, it is important that promotion focuses on endorsing awareness of pain treatment, not as a one-size-fits-all approach, but rather as a medically personalized management program that allows for a more detailed explanation of healthy living, while correcting misconceptions of pain diagnoses among older men. Taking this necessary step may decrease barriers in diagnosing, treating, and managing pain, while encouraging an improved quality of life.

Yet, this cannot be done if older men are not represented in pain research. Despite comparative data suggesting sex/gender differences, we remain uninformed as to why these differences not only occur, but also what can be

done to make sure that this aged and gendered cohort have their pain (primary or secondary) adequately managed. By dispelling the stereotypes associated with masculinity and health, we can begin to comprehensively capture the meaning of pain while acknowledging the need for more rigorous models that define the experience. This formative evaluation will contribute to more effective legislation promoting safe and cost-effective approaches to the prevention, treatment, and management of pain among this population. Yet, more importantly, to fully appreciate the gendered pain experience, there must be a commitment to creating a multidisciplinary overview of what it means to first, age as a man; second, recognize the interpretation of pain among men; third, understand the impact pain has in their identity and daily lived experiences; and fourth, establish best practices that confirm more adaptive and healthy coping skills. This approach concedes the need to understand what it means to experience physical pain across the life course. This may begin with funding educational programs, and to incorporate into residency programs, that there is no longer a one-size-fits-all approach to pain care, but rather a more prescribed and personalized medical paradigm, whereby health decisions are tailored to the individual based on predicted risks and health behaviors.

This may similarly apply to what is recommended by the DHHS's 2018 Physical Activity Guidelines for Americans (2nd ed.), where key guidelines specific to older adults suggest a better understanding to how medical conditions impact the older person's ability to perform regular physical activities safely. In the same way, emphasizing the importance of the adult taking part in "multicomponent" physical activity, whereby activity would include aerobic and muscle-strengthening activities (USDHHS, 2018). This campaigns the benefits of continued physical activity (e.g., reduced cancer risk, improved brain health, reduced risk of falls), while addressing pain outcomes, particularly among older men. This may guide policy, while also adopting a "healthy living, healthy aging" way of thinking.

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References

- Addis, M. E., & Mahalik, J. R. (2003). Men, masculinity and the contexts of help seeking. *American Psychologist, 58*, 5-14.

- Andersson, G. B. (1999). Epidemiological features of chronic low-back pain. *Lancet*, *354*, 581-585. doi:10.1016/S0140-6736(99)01312-4
- Baker, T. A., Minahan, J. A., & Atakere, D. K. (2019). Pain and men. In R. J. Thorpe (Ed.), *Annual review of gerontology and geriatrics: Men's health and aging* (Vol. 39, pp. 95-106). New York, NY: Springer.
- Brown, G. K., Nicassio, P. M., & Wallston, K. A. (1989). Pain coping strategies and depression in rheumatoid arthritis. *Journal of Clinical Psychology*, *57*, 652-657.
- Brownson, R. C., Boehmer, T. K., & Luke, D. A. (2005). Declining rates of physical activity in the United States: What are the contributors? *Annual Review of Public Health*, *26*, 421-443. doi:10.1146/annurev.publhealth.26.021304.144437
- Centers for Disease Control and Prevention. (2007). Prevalence of regular physical activity among adults—United States, 2001 and 2005. *Morbidity and Mortality Weekly Report*, *56*, 1209-1212. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18030281>
- Cook, B. L., Doksum, T., Chen, C. N., Carle, A., & Alegria, M. (2013). The role of provider supply and organization in reducing racial/ethnic disparities in mental health care in the U.S. *Social Science & Medicine*, *84*, 102-109. doi:10.1016/j.socscimed.2013.02.006
- Crespo, C. J., Smit, E., Andersen, R. E., Carter-Pokras, O., & Ainsworth, B. E. (2000). Race/ethnicity, social class and their relation to physical inactivity during leisure time: Results from the Third National Health and Nutrition Examination Survey, 1988-1994. *American Journal of Preventive Medicine*, *18*, 46-53. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/10808982>
- Danise, E. J., Turk, D. C., Martin, K. R., Van Domelen, D. R., & Patel, K. V. (2014). Association of chronic widespread pain with objectively measured physical activity in adults: Findings from the National Health and Nutrition Examination Survey. *The Journal of Pain*, *15*, 507-515. doi:10.1016/j.jpain.2014.01.489
- Dunstan, D. W., Barr, E. L., Healy, G. N., Salmon, J., Shaw, J. E., Balkau, B., . . . Owen, N. (2010). Television viewing time and mortality: The Australian Diabetes, Obesity and Lifestyle Study (AusDiab). *Circulation*, *121*, 384-391. doi:10.1161/CIRCULATIONAHA.109.894824
- Fillingim, R. B., King, C. D., Ribeiro-Dasilva, M. C., Rahim-Williams, B., & Riley, J. L. (2009). Sex, gender, and pain: A review of recent clinical and experimental findings. *The Journal of Pain*, *10*, 447-485.
- Galdas, P. M., Cheater, F., & Marshall, P. (2005). Men and health help-seeking behaviour: Literature review. *The Journal of Advanced Nursing*, *49*, 616-623. doi:10.1111/j.1365-2648.2004.03331.x
- Green, C. R., & Hart-Johnson, T. (2010). The impact of chronic pain on the health of black and white men. *Journal of the National Medical Association*, *102*, 321-331.
- Harrington, D. M., Barreira, T. V., Staiano, A. E., & Katzmarzyk, P. T. (2014). The descriptive epidemiology of sitting among US adults, NHANES 2009/2010. *Journal of Science and Medicine in Sport*, *17*, 371-375.
- Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., . . . Bauman, A. (2007). Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Medicine & Science in Sports & Exercise*, *39*, 1423-1434. doi:10.1249/mss.0b013e3180616b27
- Hayward, M. D., Miles, T. P., Crimmins, E. M., & Yang, Y. (2000). The significance of socioeconomic status in explaining the racial gap in chronic health conditions. *American Sociological Review*, *65*, 910-930.
- He, X. Z., & Baker, D. W. (2005). Differences in leisure-time, household, and work-related physical activity by race, ethnicity, and education. *Journal of General Internal Medicine*, *20*, 259-266.
- Heeringa, S. G., & Connor, J. (1995). *Technical description of the health and retirement study sample design*. Ann Arbor: Institute for Social Research, University of Michigan.
- Himmelstein, M. S., & Sanchez, D. T. (2016). Masculinity impediments: Internalized masculinity contributes to healthcare avoidance in men and women. *Journal of Health Psychology*, *21*, 1283-1292.
- Howard, B., Winkler, E. A., Sethi, P., Carson, V., Ridgers, N. D., Salmon, J. O., . . . Dunstan, D. W. (2015). Associations of low- and high-intensity light activity with cardiometabolic biomarkers. *Medicine & Science in Sports & Exercise*, *47*, 2093-2101. doi:10.1249/MSS.0000000000000631
- Institute of Medicine. (2011). *Relieving pain in America: A Blueprint for transforming prevention, care, education, and research*. Washington, DC: The National Academies Press.
- Janevic, M. R., McLaughlin, S. J., Heapy, A. A., Thacker, C., & Piette, J. D. (2017). Racial and socioeconomic disparities in disabling chronic pain: Finding from the health and retirement study. *The Journal of Pain*, *1*, 1459-1467. doi:10.1016/j.jpain.2017.07.005
- Katzmarzyk, P. T., Church, T. S., Craig, C. L., & Bouchard, C. (2009). Sitting time and mortality from all causes, cardiovascular disease, and cancer. *Medicine & Science in Sports & Exercise*, *41*, 998-1005. doi:10.1249/MSS.0b013e3181930355
- Kaur, S., Stechuchak, K. M., Coffman, C. J., Allen, K. D., & Bastian, L. A. (2007). Gender differences in health care utilization among veterans with chronic pain. *J Gen Intern Med*, *22*(2), 228-233. doi:10.1007/s11606-006-0048-5
- Kennedy, J., Roll, J. M., Schraudner, T., Murphy, S., & McPherson, S. (2014). Prevalence of persistent pain in the U.S. Adult population: New data from the 2010 National Health Interview Survey. *The Journal of Pain*, *15*, 979-984. doi:10.1016/j.jpain.2014.05.009
- Keogh, E. (2015). Men, masculinity, and pain. *Pain*, *156*, 2408-2412. doi:10.1097/j.pain.0000000000000328
- Kuri-Morales, P., Emberson, J., Alegre-Diaz, J., Tapia-Conyer, R., Collins, R., Peto, R., & Whitlock, G. (2009). The prevalence of chronic diseases and major disease risk factors at different ages among 150,000 men and women living in Mexico City: Cross-sectional analyses of a prospective study. *BMC Public Health*, *9*, 9. doi:10.1186/1471-2458-9-9
- Lakoski, S. G., & Kozlitina, J. (2014). Ethnic differences in physical activity and metabolic risk: The Dallas Heart Study. *Medicine & Science in Sports & Exercise*, *46*, 1124-1132. doi:10.1249/MSS.0000000000000211
- Lochner, K. A., & Cox, C. S. (2013). Prevalence of multiple chronic conditions among Medicare beneficiaries, United States, 2010. *Preventing Chronic Disease*, *10*, E61. doi:10.5888/pcd10.120137
- Mahalik, J. R., Pierre, M. R., & Wan, S. S. C. (2006). Examining racial identity and masculinity as correlates of self-esteem and psychological distress in Black men. *Journal of Multicultural Counseling and Development*, *34*, 94-104.

- Marquez, D. X., Neighbors, C. J., & Bustamente, E. E. (2010). Leisure time and occupational physical activity among racial and ethnic minorities. *Medicine & Science in Sports & Exercise*, *42*, 1086-1093.
- Marshall, S. J., Jones, D. A., Ainsworth, B. E., Reis, J. P., Levy, S. S., & Macera, C. A. (2007). Race/ethnicity, social class, and leisure-time physical inactivity. *Medicine & Science in Sports & Exercise*, *39*, 44-51. doi:10.1249/01.mss.0000239401.16381.37
- Mogil, J. S. (2012). Sex differences in pain and pain inhibition: Multiple explanations of a controversial phenomenon. *National Review of Neuroscience*, *13*, 859-866.
- Myers, C. D., Riley, J. R., & Robinson, M. E. (2003). Psychosocial contributions to sex-correlated differences in pain. *The Clinical Journal of Pain*, *19*, 228-232.
- National Center for Health Statistics. (2017). *Health, United States, 2016: With chartbook on long-term trends in health*. Hyattsville, MD.
- Orfila, F., Ferrer, M., Lamarca, R., Tebe, C., Domingo-Salvany, A., & Alonso, J. (2006). Gender differences in health-related quality of life among the elderly: The role of objective functional capacity and chronic conditions. *Social Science & Medicine*, *63*, 2367-2380. doi:10.1016/j.socscimed.2006.06.017
- Owen, N., Sparling, P. B., Healy, G. N., Dunstan, D. W., & Matthews, C. E. (2010). Sedentary behavior: Emerging evidence for a new health risk. *Mayo Clin Proc*, *85*, 1138-1141. doi:10.4065/mcp.2010.0444
- Pitcher, M. H., Von Korff, M., Bushness, C., & Porter, L. (2018). Prevalence and profile of high-impact chronic pain in the United States. *The Journal of Pain*, *20*, 146-160. doi:10.1016/j.jpain.2018.07.006
- Rahim-Williams, F. B., Riley, J. L., III, Herrera, D., Campbell, C. M., Hastie, B. A., & Fillingim, R. B. (2007). Ethnic identity predicts experimental pain sensitivity in African Americans and Hispanics. *Pain*, *129*, 177-184. doi:10.1016/j.pain.2006.12.016
- Rice, S.M., Telford, N.R., Rickwood, D.J., & Parker, A.G. (2018). Young men's access to community-based mental health care: qualitative analysis of barriers and facilitators. *Journal of Mental Health*, *27*(1), 59-65.
- Roesch, S. C., Norman, G. J., Villodas, F., Sallis, J. F., & Patrick, K. (2010). Intervention-mediated effects for adult physical activity: A latent growth curve analysis. *Social Science & Medicine*, *71*, 494-501. doi:10.1016/j.socscimed.2010.04.032
- Ruiz, J. M., Hamann, H. A., Mehl, M. R., & O'Connor, M. (2016). The Hispanic health paradox: From epidemiological phenomenon to contribution opportunities for psychological science. *Group Processes & Intergroup Relations*, *19*, 462-476. doi:10.1177/1368430216638540
- Samulowitz, A., Gremyr, I., Eriksson, E., & Hensing, G. (2018). "Brave men" and "emotional women": A theory-guided literature review on gender bias in health care and gendered norms towards patients with chronic pain. *Pain Research and Management*, *2018*, Article 6358624. doi:10.1155/2018/6358624
- Spiers, N., Jagger, C., Clarke, M., & Arthur, A. (2003). Are gender differences in the relationship between self-rated health and mortality enduring? Results from three birth cohorts in Melton Mowbray, United Kingdom. *Gerontologist*, *43*, 406-411; discussion 372-375.
- Tripp, D. A., Nickel, J. C., Landis, J. R., Wang, Y. L., Knauss, J. S., & CPCRN Study Group. (2004). Predictors of quality of life and pain in chronic prostatitis/chronic pelvic pain syndrome: Findings from the National Institutes of Health chronic prostatitis cohort study. *BJU International*, *94*, 1279-1282. doi:10.1111/j.1464-410X.2004.05157.x
- Tucker-Seeley, R. D., Subramanian, S. V., Li, Y., & Sorensen, G. (2009). Neighborhood safety, socioeconomic status, and physical activity in older adults. *American Journal of Preventive Medicine*, *37*, 207-213.
- Tudor-Locke, C., Johnson, W. D., & Katzmarzyk, P. T. (2010). Frequently reported activities by intensity for U.S. adults: The American Time Use Survey. *American Journal of Preventive Medicine*, *39*, e13-e20.
- U.S. Department of Health and Human Services. (2018). *2018 physical activity guidelines for Americans*. Hyattsville, MD: Author. Retrieved from <http://www.health.gov/paguidelines/guidelines/default.aspx>
- Vasquez, E., Botosaneanu, A., Bennett, J. M., & Shaw, B. A. (2016). Racial/ethnic differences in trajectories of cognitive function in older adults: Role of education, smoking, and physical activity. *Journal of Aging and Health*, *28*, 1382-1402.
- Von Korff, M., Scher, A. I., Helmick, C., Carter-Porkas, O., Dodick, D. W., Goulet, J., . . . Mackey, S. (2016). United States National Pain Strategy for population research: Concepts, definitions, and pilot data. *The Journal of Pain*, *17*, 1068-1080. doi:10.1016/j.jpain.2016.06.009
- Welch, L. C., Teno, J. M., & Mor, V. (2005). End-of-life care in black and white: Race matters for medical care of dying patients and their families. *Journal of the American Geriatrics Society*, *53*, 1145-1153. doi:10.1111/j.1532-5415.2005.53357.x
- Zhang, R., Sutcliffe, S., Giovannucci, E., Willett, W. C., Platz, E. A., Rosner, B. A., . . . Wu, K. (2015). Lifestyle and risk of chronic prostatitis/chronic pelvic pain syndrome in a cohort of United States male health professionals. *The Journal of Urology*, *19*, 1295-1300. doi:10.1016/j.juro.2015.05.100