

Psychological Distress: Is There a Difference between the Experience of African Americans and
Non-Black Americans?

by

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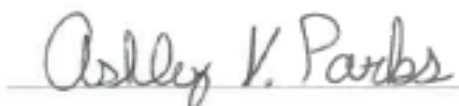
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Abstract

Health outcomes in minority ethnic groups are mostly negative when compared with outcomes of non-Hispanic Whites. This health disparity is often attributed to western diets and/or access to care. However, this explanation is over simplified. The negative outcomes seen in African Americans are consistent regardless of income, age, or social standing. Social disadvantage experienced by minorities, and the resulting chronic stress, can explain the health outcomes. This bears to question: how does the chronic stress stemming from social disadvantage affect minorities who also work in stressful careers? Psychological distress is direct result of stress, and this study measured this experience across race groups, employment categories, and genders. The dependent variable, self-reported psychological distress, shows no statistically significant difference through race, gender, or career choice. Accurate measurement of stress is required in order to examine the difference in health outcomes that contribute to health disparities.

Key words: social disadvantage, serious psychological distress, health outcomes.

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Literature Review

Introduction

Health disparities, according to the National Institute of Health (NIH), refer to a contrast in “incidence, mortality and burden of disease and other adverse health conditions that exist among specific population groups” (Djuric et al., 2008). In other words, health disparities are the disproportionate occurrence of negative health outcomes in certain groups within the general population. In the United States, racial minorities are on the losing end of the disparity continuum as they are more likely to receive poor quality health care and report poor patient-provider interactions (Office of Minority Health [OMH], 2011). Ethnic minorities, especially African-Americans, suffer more from chronic conditions like cardiovascular and chronic lung diseases than their non-Hispanic white counterparts (Institute of Medicine [IOM], 2011).

Health disparities between non-Hispanic White Americans and minorities represent an incredibly wide gap in health and quality of life, and several studies have illustrated a recent trend towards an increase in health disparities. According to Lang and Bird (2015), examples of these increasing disparities include, but are not limited to: a doubled rate of maternal mortality during live births when comparing African American and non-Hispanic White women (11.46 to 5.18 per 1000 live births); a total shorter average life span for African Americans; higher rates of mortality from cardiovascular disease among African Americans; and making up 44% of the HIV/AIDS cases in the US while only accounting for 12% of the US population. Further, White Americans are 30% less likely than African-Americans to die prematurely from a stroke; African Americans experience the highest rates of infant mortality in the US; and almost 50% of African American men and women have some kind of cardiovascular disease (National Academy of Science, Engineering, and Medicine (NASEM), 2017). A report published by the Office of

Minority Health ([OHM] 2011) claimed that these differences in health outcomes are strongly linked to social, economic, and environmental handicaps. These handicaps, or disadvantages, culminate in risk factors that include access to care, income, education, place of residence, employment, unequal access to resources, and most importantly, stress (IOM, 2011).

Certain groups tend to experience consistently heightened levels of stress. Stress is defined as the biological and physiological result of demands that surpass one's ability to adapt, thereby leaving one with possible disability or disease (Bulatao & Anderson, 2004). These attempts to adapt are called "allostatic load," which negatively affects the nervous system and cardiovascular system directly and indirectly affects the immune system (Djuric et al., 2008). The indirect relationship between stress and negative health outcomes is one that is still not fully understood, but there remains a need to address it in the community of healthcare professionals working in every capacity – from physicians to nurses to caregivers, etc.

There is limited research that targets health outcomes of ethnic minority health professionals. Moreover, while research has been done that examines stress within the health care professions, few changes are made to the stressful work environments. For instance, a female physician disclosed that after talking with administration about her mental health and work-life balance she was able to understand that all parties involved in management and scheduling are aware of the deleterious effects of health care work conditions (Stankovice, 2017). However, nothing is being done to warn or prevent the struggles with which health care and helping staff have to deal (Stankovic, 2017). The main goal of this study was to identify stress as a chronic issue within health care and helping professionals in efforts to improve the health outcomes of ethnic minorities.

Health Disparities

Minorities, especially those of African descent, are more likely to experience negative health outcomes than others in the same communities and/or with similar socioeconomic status (Colen, Ramey, Cooksey, & Williams, 2018). Healthy People 2020 described health disparities as avoidable differences in health that severely affect disadvantaged groups (Braveman et al., 2011). This description refers to the inequality that results in relatively higher rates of disease in ethnic minority groups (Colen et al., 2018). A key portion of the definition highlights social disadvantage as part of the definition of disparities, which is postulated as the actual reason for the negative health outcomes seen among minorities populations (Braveman et al., 2011).

Another important aspect of the disparities seen between groups is in the utilization of and access to health care services. Overall, healthcare utilization is disproportionately more common in Whites than it is in Blacks and Hispanics across all levels of health (Biener, 2019). Access to care is often cited as a key reason for the disparities in health outcomes among ethnicities, but with the recent changes to healthcare legislation, such as the Patient Protection and Affordable Care Act, recent research has shown that health insurance status is not the only determinant (Biener, 2019). Overall, African Americans and Hispanics are still least likely to seek medical care compared to non-Hispanic Whites and other ethnic groups (Biener, 2019).

Quintessentially, access to care is an essential factor in health outcomes, but it may not be as important as most health professionals think. Colen, Ramey, Cooksey, and Williams (2018) showed that when comparing non-poor minorities (African Americans) to non-poor non-Hispanic Whites, there was still a gap in negative health outcomes for the African Americans versus non-Hispanic Whites although both of these groups have improved access to care. Social

disadvantage may be a key factor in the negative outcomes experienced by minorities, and research has shown this disadvantage can contribute to stress.

Stress

Stress is described as a non-specific response to physical, mental, or emotional demands for change (American Institute of Stress [AIS], n.d.). The scientist who coined the term in 1936 was noted to have felt regret for naming the phenomenon “stress” as opposed to “strain” since it was too subjective for scientists to adequately study (AIS, n.d). In response to stress/strain, the human body makes efforts to maintain homeostasis. Homeostasis, a key concept of human physiology, refers to the self-regulated ability of the body to maintain a stable baseline for important systems regardless of any changes in the internal or external environment (Modell et al., 2015). For example, blood pressure will go up when an individual stands up quickly to prevent fainting, and during exercise sweat pores open to maintain core temperature. Similarly, the stress hormone (cortisol) is released into the blood stream when an individual faces stressful situations.

Due to the subjectivity of stress, an individual faces demands that he or she may perceive as surpassing his or her available resources (AIS, ND). This is the reason many people may not associate stress with health outcomes. Stress can be useful as it prompts the body to perform certain functions, but consistent stress is being shown to be harmful. A key element of homeostasis is “negative feedback,” or a pathway through which the body responds to change caused by any element (such as a hormone) by stopping the production of that element all in attempt to restore to baseline (Modell et al, 2015). For example, in a stressful situation the body releases fight or flight hormones, and negative feedback pathways halt the release of these hormones. However, when there is chronic stress, the body continues to respond to the stressor

which disrupts the loop that would stop the stress responses, leading to negative outcomes. Some of these negative outcomes from chronic stress include:

- Suppression of the immune T-cells which mount a response to pathogens, which in turn leads to infections and even cancer (Dhabhar, 2014), and
- Physical modification of neural networks in the brain's limbic system, which is responsible for emotion and mood, and neuronal networks in the prefrontal cortex of the brain that control decision-making, personality, social, and cognitive behavior (Mariotti, 2015).

If an individual remains chronically stressed, then he or she may enter a state of allostasis, when the processes and pathways used to maintain homeostasis remain stable through change (Ramsay & Woods, 2014). This process is used to describe the efforts made by the brain to adapt in the face of a physiological need (Logan & Barksdale, 2008). The result of the process is allostatic load, or in the case of chronic stress, allostatic overload (McEwan, 2005). Stress signals changes and release of hormones and neurotransmitters that are engineered to help people adapt to the stressor, but when stress is chronic, these chemicals and changes are continuous leaving individuals with a greatly increased allostatic load/overload (McEwan, 2005), and this, in turn, is very unhealthy. For example, a body with a high allostatic load generally has a continually increased blood pressure, increased rate of respiration, and increased heart rate (Ramsey & Woods, 2014; Colen et al., 2018). The chronic nature of social disadvantages and discrimination are considered to be responsible for an increased allostatic load and the resulting worse health outcomes (Colen et al, 2018).

Socioeconomic status (SES) is often considered an indicator for health outcomes – individuals with low SES are more likely to experience negative health outcomes and vice versa.

Low SES is representative of a lack of resources, especially financial resources, and as a result, low SES usually equals living in poverty. The amount of debt and poverty that many African Americans deal with is a source of considerable stress. The median White household wealth, as of 2013, ranged from \$102,000 to \$116,000, while median wealth for Black and Hispanic households is \$1,700 and \$2,000 respectively (Asante-Muhammed, Collins, Hoxie, & Nieves, 2017). This wealth gap is expected to continue widening, and while one might expect this to not be true for the African American health care workers, studies have shown poverty often persists from generation to generation. When considering the higher earners, it would be easy to assume that health outcomes are improved across the board regardless of ethnicity. Research has shown that is not the case. Health outcomes remain negative for minorities who move up as well as increased occurrences of discrimination (Colen et al, 2018).

Education and Employment

Education is believed to be a tool to increase upward mobility, but many Americans cannot afford higher education, and this is especially true for minorities (Bidwell, 2017). The research has found that Blacks carry the most amount of student loan debt even after completing extensive training for careers in the health care field. African Americans are more likely to borrow money for education, borrow more money than other ethnic groups, and are more likely to default on loan payments (Miller, 2017). Blacks also owe more right after graduating. According to Scott-Clayton and Lie (2016), Blacks owe about \$7,400 more in student loans than their White counterparts, and this difference triples over the next few years after graduating. This can be explained by understanding that almost half of all Black college graduates take on more student loan debt to complete a graduate education all in an effort to find better employment opportunities and increase their income.

In addition to overall higher student loan debts, Blacks also struggle to find employment after graduating. A 2017 study confirmed that over the last 25 years, nothing has changed in hiring discrimination against African Americans regardless of education (Quillian, Pager, Hexel, & Midtboen, 2017). It would be naïve to believe that debt and employment struggles do not add to psychological distress and overall health outcomes in minorities, which then maintains the health disparity in society. Arguably, this creates chronic stress for minority populations which then leads to an overwhelming allostatic load, contributing to higher probability of negative health outcomes later on in life that minorities tend to experience. Further, African Americans and Hispanics who are able to attain social mobility continue to face discrimination (Colen et al., 2018). Acute and chronic discrimination actually increases as minorities raise their profile in society, which would leave those in the health care and helping careers from African American and Hispanic populations more at-risk for negative health outcomes as a result of chronic stress (Colen et al., 2018).

Stigma

An additional source of stress is discrimination from colleagues, health care givers, and patients/clients alike. Stigma can be defined as “a social process, experienced or anticipated, characterized by exclusion of an adverse social judgement about a person or group” (Lyons & Dolezal, 2017). Stigma, born from mostly untrue bias, is attached to those who do not align with norms in society, and this concept has become a significant issue in healthcare. An example of the impact discrimination can have on health outcomes is the change in maternal health in Arab women after the 9/11 incidents. These women were more likely to have pregnancies end with pre-term birth and/or deliver babies with low birth weight (Colen et al., 2018).

In health care, there are numerous accounts of patients and/or patient's families not being confident in minority doctors, assuming minority doctors are non-medical staff, and expressing disinterest in being treated by minority doctors (Osseo-Asare et al., 2018). This is in addition to the discrimination that occurs within the health care organizations, and as a result, patient care becomes a moot point when the doctors cannot work together (Srivastava, 2015). The resulting lack of social support only serves to increase stress, anxiety, tension, and/or depressive symptoms of minority health care professionals (Koinis, Giannou, Drantaki, Angelaina, Stratou, & Saridi, 2015). Furthermore, African Americans are often racially stereotyped with numerous labels such as being violent or unable to provide necessary primary or preventative care (Geiger, 2003). This distrust also trickles down to African American health care and helping professionals (Geiger, 2003). This distrust and disregard stemming from undue prejudice is likely a source of additional psychological distress for African American health care professionals.

Statement of the Problem

This prompts the question: how is the health of individuals who already deal with higher levels of stress from social disadvantage affected when they choose to work in careers that come with intense workloads and stressful situations? For instance, work-related stress in a health care is estimated to consistently be at a high level. The concern here of this study was the connection work-related stress has with mental, emotional, and physical health, which high levels of stress have been known to negatively impact (Koinis et al., 2015).

It can be speculated that individuals who are classified as socially disadvantaged would be at-risk for even greater negative health outcomes within these fields. The awareness of the social disadvantages could allow researchers to consider how minority health professionals, especially African American health professionals, may be more likely to face higher levels of

cumulative stress. Aside from the stressful workload that leads to burnout and disengagement in healthcare (Willard-Grace, Knox, Huang, Hammer, Kivlaban, & Grumbach, 2019), there is also intense trauma that is enough to stress them to the point of changing jobs.

In addition, current research postulated that there is a difference in stress experienced by gender. Epidemiological research studies have shown the correlation between depression and gender, age, and marital status (Kessler & Bromet, 2013). The stress that women face in a workplace comes from more than just the work. Sexism is an unfortunate element in society, and women of color deal with more than just sexism; namely, the racism and intersecting bias they experience on a daily basis which leads to social, emotional, and psychological health implications (Remedios & Snyder, 2015). Ethnic minority women have more than just one disadvantaged status, and this works to compound the risk for all the negative health outcomes that follow experiencing social disadvantage (Colen et al., 2018). It is possible that social disadvantage can explain the higher rates of mortality that women of color experience in the United States. More so, the heightened level of discrimination could leave African American women with raised susceptibility to negative health outcomes.

Finally, an underdiscussed but equally important piece of social disadvantage is inheritance. Societal inheritance, more so than biological inheritance, can determine and influence health outcomes (Krieger, 2018). Intergenerational transfer of assets, wealth, knowledge, access to resources, in addition to policies that benefit the entitled few, lead to continuous generations of minorities who deal with negative health outcomes (Krieger, 2018). Social disadvantage can be inherited, and this characteristic is what leads to the trends seen in minority health, especially for African Americans. Added to this is the effect stress that can have

on genetic inheritance through the stress hormones, so the effect of stress not only impacts the individual but also affect future generations through negative genetic modification (Wein, 2010).

Purpose of Study

The purpose of the study was to establish the link between discrimination and health. This is in part, because the degree to which discrimination and institutionalized racism affect health is also not completely understood. There should be more research done to clarify this link. If negative health outcomes for a specific group are intensely influenced by discrimination and social disadvantage, how much more would that group be at-risk when they choose careers that come with intense amounts of stress? The gap between health outcomes is seemingly unaffected by advancement in medicine and technology, improved processes for screening, upward SES mobility, or improved access to care. As a result, African Americans who do better in life still maintain worse health outcomes than their well-to-do non-Hispanic White counterparts (Colen et al., 2018).

Research Questions

This study was driven by the following three research questions:

1. Do individuals working in healing and helping professions report increased levels of stress (as measured by self-reported serious psychological distress) compared to individuals working in other industries?
2. Do African Americans report increased levels of stress (as measured by self-reported psychological distress) compared to Non-Black Americans?
3. Does the experience of stress (as measure by self-reported psychological distress) differ between gender categories?

Hypotheses

Below are the alternative and null hypotheses of the three research questions.

H1_A: Individuals who work in healing and helping professions experience more psychological distress.

H1₀: There is no difference in psychological distress across employment categories.

H2_A: African Americans experience more psychological distress than Non-Black Americans.

H2₀: There is no difference between psychological distress experienced by the different ethnic groups.

H3_A: Women experience more psychological distress than men.

H3₀: There is no gender difference in psychological distress experienced.

Methods

Design

This study utilized data from 2017 California Health Interview Survey (CHIS). CHIS is the largest detailed health survey in the United States. CHIS is a telephone survey completed in the State of California that samples a calculated number of adults, adolescents, and children and is representative of the population (Hsu & Tuzzio, 2013). The data collected is often used to inform health policy decisions, health care practice, and research on diseases such as cancer (Hsu & Tuzzio, 2013).

A random sample of 300 participants was taken from the adult data based on effect size. The chosen statistical tests to analyze the three research questions were a one-way Analysis of Variance (ANOVA) and an Independent Samples t-test. The one-way ANOVA was used to identify differences in means of self-reported psychological distress across three or more groups, specifically determining differences of self-reported psychological distress experienced across employment categories and race. The Independent Samples t-test was used to identify differences in means of self-reported psychological distress across the two main gender categories.

Participants

The CHIS is conducted by UCLA Center for Health Policy Research (UCLA-CHPR), California Department of Public Health, and the California Department of Health Care services (CHIS, 2018). In 2017, 21,153 adults were interviewed by CHIS as part of the original sample, which surpassed the goal of 20,000 adults (CHIS, 2018). This de-identified data is freely available in public use files. Three hundred participants were randomly selected from the total

21,153 participants, each from a separate household, in order to generate a full representative subset of the larger California population.

In answering the first research question, the data split participants into 13 major employment categories: agriculture, construction, manufacturing, wholesale trade, retail trade, transportation, information, finance, professional/scientific, health care and education, arts, and other professional services. The racial/ethnic groups represented in participant data critical for answering the second research question were Hispanic, White (non-Hispanic), African American (non-Hispanic), Asian, American Indian/Alaskan native, and Other/two or more races. For the third research question participants were split into male and female.

Procedure

Utilizing the freely-available G*power statistical analysis, it was determined that for an 80% chance ($1-\beta=0.80$) of identifying the hypothesized effect, a sample size of 210 would suffice and a Type II error would be avoided (Beck, 2013). In order to ensure that the randomized sample would contain ethnic minority representation, the CHIS data was randomly sampled three times with the SPSS select sample function. The third random sample of 300 participants was used to run the statistical analyses. The effect size f of 0.30, α of 0.05, power of 0.80, gave us a sample size minimum of 210 with actual power of 0.80. The chosen random sample was then recoded to remove invalid and missing responses for the variables of interest. The CHIS interviews were completed in almost every language spoken in the State of California in order to include all races, which ensures a representative sample of the larger population that allows users reach generalizable conclusions (CHIS, 2018). This raises the external validity of findings as the survey makes an effort to ensure selected participants are representative of the

larger population, which allows statistically significant findings from the data to be generalizable (Pannucci & Wilkins, 2010).

The determined effect size is a strength of the completed research. An a priori power analysis determines the effect size that allows researchers see the effect that is believed or hypothesized to exist within the data. The G*power software determination is an important part of the process as it relies on the three factors that can affect veracity of the findings, thus preventing Type I and/or Type II errors. The three factors at work here are the sample size, the effect size, and the significance level (Beck, 2013). In addition, G*power software is compatible with all the research designs that were employed to answer the research questions (Beck, 2013).

Independent and Dependent Variables

Race, employment categories, and gender, were the independent variables.

The dependent variable, self-reported psychological distress, was the same for all three research questions. The means of self-reported psychological distress for the three independent variables were hypothesized to be significantly different. CHIS measured psychological distress using the Kessler-6 (K6) scale, which is a tool used to measure non-specific psychological distress with an emphasis on identifying the clinical severity of the symptoms (Kessler et al., 2010). The K6 is a six-question scale intended to measure psychological distress as a means of identifying serious mental illness (Kessler et al, 2010). The answers for the six questions vary from 0-4 (0 = none of the time, 4 = all of the time), with a maximum score of 24 (Prochaska, Sung, Max, Shi, & Ong, 2012). A cut-off point of 13 or greater is used to diagnose significant non-specific psychological distress that is a result of serious mental illness (Prochaska et al., 2012). These independent variables were expected to encapsulate the distress that socially

disadvantaged groups experience The CHIS interviewers verified the race, employment category, and gender of each participant.

Data Analysis

The data analysis compared means self-reported psychological distress scores between the main ethnic groups (White, Blacks, Hispanics, American Indians, and Asians) across genders, and across income categories. An ANOVA statistical test was used to determine a difference in self-reported psychological distress across 13 employment categories. A one-way ANOVA statistical test was also used to determine a difference in self-reported psychological distress across the seven racial/ethnic categories. An Independent Samples t-test was used to determine difference in self-reported psychological distress across genders.

Results

Participant Demographics

The statistical analyses were performed with data from the randomly sampled group of 300 participants. Of the 300 randomly selected participants, there were 18 non-Hispanic African American participants, 69 Hispanic participants, 181 non-Hispanic White participants, 24 non-Hispanic Asian participants, 2 non-Hispanic American Indian/Alaskan native participants, and 6 Other/two or more races” participants.

Major Findings

In order to verify the hypothesis that health care and helping careers experience more psychological distress, levels of self-reported psychological distress were compared across employment categories. A one-way ANOVA was conducted to compare psychological distress between employment categories. There was no statistically significant difference in self-reported psychological distress across the employment categories ($P = .56$, $F(12, 143) = 0.89$). This finding confirmed the null hypothesis illustrating there is no difference in stress experienced across different industries. (See Tables 1 and 2.)

For the second research question, a one-way ANOVA was conducted to compare the psychological distress across racial/ethnic groups. There was no statistically significant difference in self-reported psychological distress across racial/ethnic categories ($P = .50$, $F(5, 294) = 0.868$). (See Tables 3 and 4.)

The third research question focused on psychological distress mean scores between genders. An Independent Samples t-test was conducted to compare means for self-reported psychological distress by males and females. There was no statistically significant difference in the psychological distress reported by men ($M = 3.77$, $SD = 4.67$) and psychological distress

reported by women ($M = 4.87$, $SD = 5.07$; $t(298) = 1.94$, $P = 0.07$). The null hypothesis was confirmed – no difference in stress is experienced by men or women. (See Tables 5 and 6.)

Discussion

Summary of Major Findings

The results of this study suggested that there is no difference in self-reported psychological distress across race, employment, or gender. Reviewing the means for the racial groups, the group with the lowest means for self-reported psychological distress is the African American racial group ($M = 2.50$, $SD = 2.40$) and the group with the highest means value for self-reported psychological distress is the White (non-Hispanic) group ($M = 4.42$, $SD = 5.19$). In employment categories, construction work had the highest means value for self-reported psychological distress ($M = 7.33$, $SD = 7.07$), while the category of interest, Education/Health care/Social assistance had a relatively low value ($M = 3.60$, $SD = 4.65$). The independent samples T-test was used to compare gender and self-reported psychological distress and showed that although the means for the gender of interest, females, was indeed higher than that of the males, there was no statistically significant difference. In all three hypotheses, there was a failure to deny the null hypothesis, showing no statistically significance in difference in self-reported psychological distress.

However, this highlights the biggest threat to internal validity when using CHIS data, and that is whether or not psychological distress serves as an accurate and relevant outcome of overall stress. The CHIS survey does not directly measure stress that participants might experience; it measures feelings of distress using the K6 measurement of psychological distress. The K6 scale, which is used by CHIS interviewers, is a trusted method for assessing psychological distress in general populations regardless of background, age (adults and adolescents), or culture (Easton, Safadi, Wang & Hasson, 2017). It is effective at identifying mental illness on a clinically relevant level (Prochaska et al., 2012), but it is not directly intended

to accurately measure stress. Psychological distress is a brief or evanescent emotional response to stress and is strongly associated with a lack of capacity to cope (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014). It was chosen as a representative variable for this study as it speaks to daily social functioning, its relationship with negative cognitive effects, and its association to depression and anxiety (Deasy et al., 2014).

Public Health Implications

This study has failed to confirm any significant differences in self-reported psychological distress experienced across race, employment categories, and gender. However, chronic stress and its subjective nature may not terribly affect psychological distress, which is stress' transient effect. The concern here is overall health outcomes that are affected by decades of social disadvantage, and as such a more specific means of stress measurement will need to be employed in order to confirm the original purpose of the study.

The high level of stress health professionals deal with puts minorities even at more risk for the chronic conditions that plague the general population of minorities in the United States. Determining if stress experienced by minority health professionals is higher than that of their non-White Hispanic counterparts will require more accurate means of measurement. The chosen dependent variable, self-reported psychological distress, does not vary between the independent variables of race, career, or gender and cannot account for health disparity. Considering gender alone, research studies show women have a two-fold risk for major depression but only about 10-12% of the entire population are ever affected (Kessler & Bromet, 2013). This finding could mean that self-reported psychological distress, as measured by the Kessler scale, is not enough to determine overall stress across any category. More importantly, extensive research will be required to determine if chronic stress is indeed the culprit while simultaneously highlighting the

need for minorities working in stressful careers, such as the health and helping professions, so that they may learn coping mechanisms that improve health outcomes and tackle health disparities.

Study Limitations

To begin, CHIS data comes with a limitation that originates in the selection of participants; there is exclusion of specific groups of people. These groups were excluded based on Department of Finance data which identified people who lived with nine or more unrelated people like in nursing homes and prisons (CHIS, 2018). The missing portions of data in the significant variables can affect statistical veracity, cause bias, and affect representativeness of the data sample (Kang, 2013). All of these could lead to Type I and/or Type II errors. The CHIS data is adjusted to account for missing data by employing different methods such as the hot-deck method, which is expected to ensure researchers are not making errors when using the data (CHIS, 2018). The staff members inputting the data use data from individuals with similar characteristics in place of the missing data (CHIS, 2018).

Another threat to internal validity that could have affected the results is the low number of minority participation. A large percentage of participants represented a majority of the population who may not have to worry about racism/social disadvantage. Specifically, the low number of African American participants was an issue as this ethnic group, more often than not, is on the receiving end of social disadvantage and so a lack of participation in a study using self-reported data to identify effects of social disadvantage is problematic.

The demographics of the dataset and sample were a source of concern. A large number of the participants were non-Hispanic White, while the smallest portion of participants were African American, which affects the generalizability of findings. The self-reported nature of data

is regarded as unreliable, since most critics cite it vulnerable to self-reporting bias (Althubaiti, 2016). Interviewer effects and response bias can lead to exaggerated descriptions of discrimination (Colen et al., 2018). In addition, this kind of data is especially at-risk of being hampered by recall bias. This kind of bias, also called recall error, is a concern because the data relied heavily on the ability of participants to recall events that directly affect their responses to the survey questions (Pannucci & Wilkins, 2010). Another issue with self-reported data is the possibility of “social desirability bias.” This bias affects self-reported data when participants view the questions being asked as sensitive or private (Althubaiti, 2016). This would apply to questions about psychological distress as it is well-documented that members of minority communities, especially African Americans, do not openly acknowledge mental health issues (Ward, Wiltshire, Detry, & Brown, 2014). These biases are hard to overcome as the intent of the research study was to evaluate stress/psychological distress and as such, requires participants to self-report their experiences. CHIS is, however, a more reliable source of secondary data as it is validated in an effort to reduce occurrence of bias and effects of this bias.

Conclusion

Moving upward is not a fix-all for discriminatory effects on health outcomes. Recently, Colen et al. (2018) demonstrated that as Whites move up in SES, they experience less and less discrimination, but the exact opposite is seen in African Americans and Hispanics. Upward mobility put members of both minority groups in spaces where they experience more acute and chronic discrimination (Colen et al., 2018). For minority professionals in the healthcare and helping career fields, the chronic discrimination at work and in their personal lives can greatly affect health outcomes indirectly through consistently raised allostatic load.

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Appendix A: Tables

Table 1

ANOVA result summary for self-reported psychological distress across race

Variable	Sum of Squares	dF	Mean Square	<i>F</i>	P value (Significance)
Between Groups	105.08	5	21.02		
Within Groups	7120.32	294	24.22	0.87	0.50
Total	7225.40	299			

Table 2

One-way ANOVA results for self-reported psychological distress sorted for each racial category

Variables	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Hispanic	69	4.94	5.03	0.60	3.73	6.15	0	20
White, NH*	181	4.42	5.19	0.39	3.66	5.18	0	23
African American, NH*	18	2.50	2.40	0.57	1.30	3.70	0	7
American Indian/Alaskan Native only, NH*	2	5.50	0.70	0.50	-0.85	11.85	5	6
Asian only, NH*	24	3.54	3.88	0.79	1.90	5.18	0	15
Other/Two or more races	6	4.50	4.55	1.86	-0.27	9.27	0	12

*NH; Non-Hispanic

Table 3

One-way ANOVA results for Self-Reported psychological distress sorted by each employment category

Variable	N	M	SD	Std. Error	95% Confidence Interval		Minimum	Maximum
					Lower Bound	Upper bound		
Agriculture, Forestry, Fishing, Hunting, and Mining	9	5.78	5.23	1.75	1.75	9.80	0	14
Construction	9	7.33	7.07	2.36	1.90	12.77	0	19
Manufacturing	4	2.00	2.83	1.41	-2.50	6.50	0	6
Wholesale Trade	3	6.67	9.07	5.24	-15.87	29.21	0	17
Retail Trade	12	3.33	3.17	0.92	1.32	5.35	0	8
Transportation, Warehousing, and Utilities	5	4.80	7.05	3.15	-3.95	13.55	0	17
Information	2	1.00	0.00	0.00	1.00	1.00	1	1
Finance and Insurance, Real Estate, Rental and Leasing	8	3.25	3.58	1.26	0.26	6.24	0	10
Professional, Scientific, Management, Administrative, and Waste Management Service	27	4.89	5.15	0.99	2.85	6.92	0	23
Health Care and Social Assistance, Educational Services	43	3.60	4.65	0.708	2.18	5.03	0	21
Arts, Entertainment, Recreation, Accommodation and Food Services	14	6.00	5.96	1.59	2.56	9.44	0	19

Other Services, except Public Administration	9	5.22	4.24	1.41	1.97	8.48	0	13
Public Administration	11	6.18	6.13	1.85	2.06	10.30	1	21

Table 4

ANOVA result summary for self-reported psychological distress across employment category

	Sum of Squares	dF	Mean Square	<i>F</i>	P value (Significance)
Between Groups	282.57	12	23.55	0.89	0.56
Within Groups	3783.33	143	26.46		
Total	4065.90	155			

Table 5

Means and Standard deviations of Self-Reported Psychological Distress separated by Gender

Variable	Men		Women	
	M	SD	M	SD
Self-reported Psychological Distress	3.77	4.67	4.87	5.07

Table 6

Self-reported psychological distress across gender, T-test results

Variable	N	M	SD	Std. Error Mean	F	dF	t	Significance (p value)
Male	137	3.77	4.67	0.40	3.40	298	-1.94	0.07
Female	163	4.87	5.07	0.40				

Table 7

Random sample information sorted by race and gender

Self-Reported Race	Male	Female	Total
Hispanic	32	37	69
White, NH*	77	104	181
African American only, NH*	11	7	18
American Indian/Alaskan native only, NH*	1	1	2
Asian only, NH*	14	10	24
Other/Two or more races	2	4	6
		Total	300

**NH; Non-Hispanic.*