Theses and Dissertations   Graduate School

2010

The Relationship between Treatment-Seeking and Characteristics of Depression among African Americans

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Master of Public Health Research Project

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April 2010

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Dedication

This work is dedicated to my mother, E. Ann Scott. Her passion and dedication to her community and improving health outcomes for our most vulnerable populations has truly been an inspiration. My life's work will be of service to my community, just as the example she has set for me.

Acknowledgements

I would like to acknowledge the unwavering support and guidance from both my preceptor, Dr. Briana Mezuk, and my advisor, Dr. Robin Matsuyama. Both were extremely helpful in my completion of this project and I am truly thankful for their advice and commitment.

Abstract

Objective: Depression is a common psychiatric condition, and despite the availability of effective treatments, this condition is largely under-recognized and undertreated, particularly among African Americans. One reason for this discrepancy may be that depressive symptoms often co-occur with physical health conditions, which can influence both the reporting of depressive symptomology, willingness to seek care, and the type of healthcare provider sought. The purpose of this study was to explore the relationship between treatment-seeking characteristics and diagnostic attributions of depression among community-dwelling African American adults.

Methods: Data come from the National Survey of American Life, a nationally representative sample of African Americans, Caribbean blacks and non-Hispanic whites. Analysis is limited to African Americans (N = 3,432), of whom 64% were women. Lifetime history of Major Depressive Disorder (MDD) was assessed using the Composite International Diagnostic Inventory (CIDI). Participants were categorized into four diagnostic groups: Never MDD, MDD never attributed to physical health problems (e.g., typical depression), MDD sometimes attributed to physical health problems (e.g., complicated depression), and MDD always attributed to physical health problems (e.g., physical depression). Whether or not care was sought for depression, and the type of healthcare provider seen, was assessed by self-report. Multinomial logistic regression was used to assess the cross-sectional relationship between treatment-seeking characteristics and diagnostic type of depression. Models were adjusted for age, sex, insurance status, health behaviors, and comorbid health conditions.

Results: 441 (12.8%) of the sample met CIDI criteria for MDD, and of these 66.7% were classified as typical depression, 18.1% were complicated depression, and 15.2% were physical depression. In fully-adjusted models, seeking treatment from a mental health professional was significantly associated with diagnosis of complicated depression (Odds ratio (OR): 5.53; 95% Confidence Interval (CI): 2.27 – 13.43) as opposed to typical depression. In adjusted analysis treatment-seeking from a family doctor was significantly associated with diagnosis of physical depression (OR: 2.94; 95% CI: 1.20 – 7.19) as opposed to typical depression. Seeking care from three or more different types of healthcare providers was significantly associated with diagnosis of complicated depression (OR: 2.10; 95% CI: 1.13 – 3.92) relative to typical depression. There was no significant relationship between seeing multiple providers and physical depression.

Conclusions: Type of healthcare provider sought for care for depressive symptoms is significantly related to how those depressive symptoms are diagnosed. These findings are consistent with the hypothesis that healthcare providers influence whether depressive symptomology is attributed to physical health problems. However, this study cannot definitively differentiate the role of personal choice in seeking particular types of care providers from differences in assessment and attribution of depressive symptomology by types of providers. Future research is necessary to determine the factors related to both choosing a care provider when experiencing psychiatric symptoms and how different types of providers assess depressive symptoms and confer diagnosis.

INTRODUCTION

Background

Mental illness and psychiatric symptoms are highly prevalent in the general population. The World Health Organization estimates that some form of at least mild psychological distress or illness affects more than 350 million people worldwide (WHO,2010). In fact, about 25% of people who are connected to a health care system have some form of mental illness. (WHO, 2010). Yet even with this connection to care, mental illness is largely undiagnosed or untreated (WHO, 2010). As with most illnesses, early detection and treatment of psychiatric symptoms are essential for optimal clinical outcomes. Therefore, understanding how treatment-seeking is related to diagnosis of psychiatric conditions is an important issue for public mental health.

Determinants of treatment-seeking

A variety of social and psychological factors, including personal attitudes about mental health care, perceptions of the need for treatment, availability of treatment, and social stigma, contribute to low rates of treatment-seeking for psychiatric conditions (Mojtabai, Olfson, & Mechanic, 2002). Though negative attitudes towards mental illness have declined and acceptance of mental health treatment has improved over the past decade (Mojtabai, 2007), there are still many factors that may influence whether a person experiencing mental distress will seek care. One important predictive factor of treatment-seeking is the severity of distress (e.g., number of symptoms and associated impairment). Higher levels of psychological distress are associated with both higher willingness to seek care and greater likelihood of seeking care via talk therapy or healthcare practicioners (Walters, Buszewicz, Weich & King, 2008). However, the evidence linking symptom severity to treatment-seeking is not unequivocal (Knisely and Northouse, 1994). Mental health literacy (i.e., knowledge about the symptoms, causes, and

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available treatments for psychiatric conditions) may also have a significant influence on both the recognition of symptoms and willingness to seek mental health treatment. Jorm (2000) found that the majority of persons (61 to 73%) are unable to correctly recognize the signs and symptoms of mental illness or mental distress, which reduces the likelihood that persons will specifically seek out mental health professionals for care (Jorm, 2000).

Treatment-seeking behavior for psychiatric conditions varies according to age, sex, race, and socioeconomic status. These differences may arise from attitudes toward mental health in general, differences in accessibility of mental health treatment (Zuvekas & Meyerhoefer 2006; Wolff & Clark, 2005; Frank, Conti, & Goldman, 2005), differences in attitudes about acceptable treatment (Kuppin & Carpiano, 2008; Schnittker, Freese & Powell, 2000; Jorm, Korten, Rodgers, Pollitt & Jacomb, 1997), and differences in awareness of the impairment associated with psychiatric disorders (Young, Davilla & Sher, 1993; Williams & Collins, 2002). Recent research demonstrates that attitudes about mental health care and coping strategies for psychological distress are stronger predictors of treatment-seeking than demographic characteristics (Wells, Robins, Bushnell, Jarosz & Oakley-Browne, 1994) and although characteristics like age, gender and race/ethnicity are only modestly predictive of treatment-seeking behavior, it is important to recognize that the determinants and experience of psychological distress, and the means used to cope with such distress, may differ both across and within population subgroups. For example, Neighbors (1984) showed that among African Americans, there are significant differences in symptom experience and likelihood to seek care; he found that having a lower income was associated with both higher levels of psychological distress and increased likelihood to report that these symptoms were caused by physical (as opposed to psychiatric) illness (Neighbors, 1984). However, income was not related to seeking

treatment from a clinician, a surprising finding because cost is often assumed to be a significant factor in access to care (Neighbors, 1984). In a second study also focused on African Americans, Neighbors, Jackson, Bowman and Gurin, (1983) found that younger age and being female, but again not income, were associated with greater likelihood to seek professional treatment than their older and male counterparts (Neighbors, Jackson, Bowman, & Gurin, 1983). These studies demonstrate the importance and utility of examining the factors related to experiences of distress and treatment-seeking *within* a defined population (e.g., African Americans); such studies can help tailor existing public health strategies aimed at improving awareness and reducing stigma towards treatment seeking for the specific needs of particular groups.

Treatment preference settings

An important corollary to the research on general behavior and attitudes toward treatment-seeking for psychiatric conditions pertains to the preferences and determinants of care settings where such treatment is sought (e.g., treatment *from whom*). For example, older adults are more likely to discuss their psychological symptoms with a medical doctor than a mental health professional (Phillips & Murrell, 1994). There are also differences in the reasons people prefer a particular treatment setting; for example, although both men and women feel it is acceptable to obtain mental health care from a general practitioner, the key determinants of this preference for men are psychological and socioeconomic factors, whereas for women access to care and social factors are more important (Tedstone Doherty & Kartalova-O'Doherty, 2010). The preference for treatment from general practitioners versus mental health clinicians may be due to familiarity and comfort associated with the provider and having regular contact with medical care. In fact, comfort in speaking with a professional about psychological symptoms

have been associated with higher rates of treatment (Gonzalez, Alegria, Prihoda, Copeland & Zeber, 2009). This highlights an opportunity for improving mental health care in family medicine and general practice clinics, as most people will go to his/her family physician, at least initially, to seek care. It is during this window of opportunity that physicians must recognize and properly treat the psychiatric symptoms and/or refer the patient to specialty mental health care.

Barriers to effective diagnosis and appropriate symptom management still exist even in instances where a person does seek treatment. One notable barrier to both diagnosis and treatment is the common co-occurrence of psychological symptoms with physical complaints and ailments. As discussed above, most of the literature on treatment-seeking focuses explicitly on attitudinal, social, or structural characteristics and largely ignores the fact that physical health status may play an important role in both willingness to seek treatment for psychiatric distress, as well as type of healthcare provider from which treatment is sought (Gadalla, 2008). Non-specific symptoms that may be due to a wide range of both mental and physical health conditions (e.g., fatigue, sleeping problems, irritability, concentration problems, and appetite changes) may be the primary indicator that a person should seek some type of healthcare. Whether these symptoms are attributed (whether by the individual or care provider) to mental, physical, or a combination of mental and physical health sources is hypothesized to influence both treatment-seeking behavior and type of care received. This study aims to understand how personal characteristics and various treatment-seeking settings influence the attribution of psychological symptoms to mental health, physical health, or a combination of these sources.

OBJECTIVES

The present study examines the relationship between treatment-seeking behavior and Major Depressive Disorder (MDD). The focus on depression is warranted as the Global Burden of Disease 2020 projections show that major depression will be the 2nd leading cause of disability adjusted life years world-wide, and the leading cause among developing regions (Murray & Lopez, 1997). Depression also often co-occurs with physical symptoms or illness (Katon, 2003; Moussavi, Chatterji, Verdes, Tandon, Patel & Ustun, 2007) and is associated with both onset and prognosis of cardiovascular disease and diabetes. In the United States, approximately 17% of adults will experience MDD at some point in their lifetime (Kessler, McGonagle, Zhao, Nelson, Hughes, Eshleman, Wittchen & Kendler, 1994; American Academy of Family Physicians,2001). The symptoms of depression also vary widely and can mimic other psychological illnesses, although certain symptoms, such as sadness, loss of interest and tiredness and trouble sleeping, are more readily associated with depression occurrence (Nair, Nair, Kashani, Reid, Mistry & Vargas, 1999).

Because depression is so common, and the fact that this condition is associated with an array of physiological and psychological symptoms, one would expect treatment-seeking from mental health professionals for this disorder to be quite high. However, the CDC estimates that only 15.6%, 24.3% and 39.0% of people with mild, moderate, and severe depression, respectively, ever contact a mental health professional. People with depression may seek treatment from other types of providers, as data from the National Mental Health Association show that more than 40% those with clinically diagnosed depression were first diagnosed by their primary care provider (National Mental Health Association, 2000). Even among those with MDD, the expression of this illness can vary and may be different depending on race or

ethnicity, as one study suggests that African Americans may have more somatic symptoms than their white counterparts (Das, Olfson, McCurtis & Weissman, 2006). It is within this context that the present study will focus on both those with MDD and those with a compilation of depressive symptoms that mimic depression but co-occur with physical illness. Specifically, the purpose of the study is to describe and analyze the relationship between treatment-seeking characteristics and MDD in the context of physical health sources of depressive symptomology.

METHODS
Sample

Data come from the National Survey of American Life, which is one of three surveys within the National Institute of Mental health Collaborative Psychiatric Epidemiology Surveys (CPES). The goal of the CPES initiative was to describe the occurrence of mental illness and related impaired functioning and treatment in a culturally relevant way . The CPES was the first dataset of its kind to assess this topic in selected racial/ethnic groups that had a large enough sample for statistically relevant results (Jackson, Neighbors, Neese, Trierweiler, & Torres, 2004). The National Survey of American Life is a nationally representative survey of adults who live within the United States (Jackson, et al., 2004).

Data collection for the NSAL was conducted between 2001 and 2003. Participants were selected using multistage sampling frames and were interviewed, either in person or by telephone, after giving their consent (Jackson, et al., 2004). Participants in the NSAL included a sample of 3,570 African Americans, 1,621 blacks of Caribbean descent, and 891 non-Hispanic whites who reside in predominately Black neighborhoods (see Table 1 in Appendix). Analysis for the present study was limited to African Americans participants who had complete data on MDD and covariates (N = 3432). Compared to those with complete data, the "missing" sample had a higher percentage of African Americans, had a higher percentage of people with incomes

of $20,000 to $39,999, had higher percentages of those with 12 years or 13 to 15 years of education, had a smaller percentage of people in the 18 to 29 and 30 to 39 year old age groups, and had a higher percentage of people who had some form of insurance (see Table 2 in Appendix).

Measures

Covariates: The demographic variables for the study include gender, marital status, income, education and age. Insurance status was assessed by the response to items that address what type of insurance, if any, the respondent has and if that insurance covers mental health expenses.

Predictors: Having a usual place for care was assessed by asking respondents if they have one place or person that they seek for medical advice (yes or no). The usual place for care was determined by the response to where the identified usual place of care is housed (clinic, doctor's office, health center or hospital). Smoking status was determined by self report and categorized as current smoker (smoked at least 100 cigarettes in lifetime and is a current smoker), former smoker (smoked at least 100 cigarettes in lifetime and is not a current smoker) or never a smoker (has not smoked at least 100 cigarettes in lifetime). The number of health conditions was assessed by using a simple count of health conditions and was categorized as zero health conditions, one or two health conditions, or three or more health conditions. Seeing a particular type of professional in regards to depressive symptoms was measured by self report and collapsed to a four tier variable with the following choices: mental health professional, family doctor, other type of doctor, and a religious/spiritual counselor or healer. Lastly, seeing multiple providers was assessed by the creation of a variable that sums each type of provider seen (two professionals seen and three or four professionals seen).

<u>Outcome</u>: The National Survey of American Life uses a slightly modified version of the World Mental Health CIDI scale to diagnose depression and other DSM-IV mental disorders (Kessler, Uston, 2004). Reliability of the CIDI scale when measuring depression was determined by concordance with the Structured Clinical Interview (SCID) which is administered by clinicians for diagnosis (Williams, Gonzalez, Neighbors, Neese, Abelson, Sweetman, & Jackson, 2007). Measures of concordance show that the CIDI scale is reasonably concordant ($\kappa= 0.43$; 95%CI: 0.26-0.59) with the SCID for African Americans (Williams, Gonzalez, Neighbors, Neese, Abelson, Sweetman, & Jackson, 2007). Sensitivity (SN: 44.4; 95% CI: 24.9-65.8) and specificity (SP: 96.3; 95% CI: 93.2-98.0) of the CIDI scale further show moderate concordance for MDD (Williams, Gonzalez, Neighbors, Neese, Abelson, Sweetman, & Jackson, 2007). As illustrated by Figure 1, depression was categorized using a series of self-report questions. From these questions, four groups of depression symptomology are coded as follows: Never MDD, MDD never attributed to physical health problems (e.g., typical depression), MDD sometimes attributed to physical health problems (e.g., complicated depression), and MDD always attributed to physical health problems (e.g., physical depression).

Analysis

Rao-Scott chi square statistics were used to determine preliminary associations between the outcome and predictor variables in order to select variables for the regression models. Because the outcome variable, type of depression, had more than two levels and is purely categorical, multinomial logistic regression using the generalized logit model was performed to analyze relationships between the outcome and predictor variables and odds ratios were computed (Allison, 1999). The reference group for the models was typical depression and the odds ratios for each predictor variable were interpreted as the likelihood for being diagnosed with physical

or complicated depression as compared to typical depression. A series of nested models were fit to determine the influence of potential confounders on each of the predictor variables. For the usual place of care predictor variable, models were adjusted for a combination of the following: age, sex, marital status, income, insurance, education, and the number of health conditions. For each "type of professional" predictor variables, the model was adjusted initially for sex, age, and insurance status. The subsequent model was also adjusted for number of health conditions. Survey weighting procedures were used to adjust estimates for the complex sampling design. All analyses were performed using SAS 9.2 Software.

RESULTS

As shown by Table 1, the majority of the sample, 87.2% had never had MDD, 8.6% had typical depression, 2.3% had complicated depression and 1.9% had physical depression. The typical depression group were more likely to be female, more likely to be non-smokers and were less likely to have seen an "other" type of doctor for their depression relative to the other types of depression. The complicated depression group were more likely to be divorced, had fewer years of education, were more likely to have a doctor's office as their usual place of care, and had a higher burden of health conditions as compared to the other depression groups. The physical depression group was more likely to be 30 to 39 years old, was more likely to have insurance, and was more likely to have a usual place for care. However, x^2 analysis show that only sex, type of care facility, smoking status, the number of health conditions, seeing a particular type of professional and seeing multiple providers were significantly related to type of depression.

As shown by Table 2, initial analyses were performed to determine whether having a usual place of care was related to having any type of depression (typical, complicated, or

physical) as apposed to not being depressed. Four nested multinomial regression models were run to account for confounding effects. Even after accounting for age, sex, marital status, income, insurance, education, and the number of health conditions, having a usual place of care was not significantly related to any of the depression groups as compared to the not depressed group.

We then examined whether the specific kind of care provider seen (i.e., mental health specialist, religious healer, family doctor) for depression was associated with depression type. As shown by Table 3, there was a significant association between seeing a mental health professional, a family doctor, or other type of doctor and being diagnosed with either typical, complicated, or physical depression. These associations were determined by the Rao-Scott chi square estimates (see Table 3). We then conducted a series of multinomial regression models to determine whether type of professional seen for depression was associated with type of depression diagnosed after accounting for confounding factors (see Tables 4 – 7).

<u>Association between seeing a mental health professional on type of depression (Table 4)</u>

In the unadjusted model, those who saw a mental health professional were significantly more likely to have complicated depression as opposed to typical depression when compared to those who did not see a mental health professional (OR: 6.07; 95% CI: 2.75 – 13.42). This relationship remained even after adjusting for demographic and health characteristics in Models 2 and 3 (Model 2: OR: 6.17; 95% CI: 2.46 – 15.49; Model 3: OR: 5.53; 95% CI: 2.27 – 13.43). In addition, female gender was also consistently associated with type of depression diagnosed, with women being significantly less likely to have complicated depression relative to typical depression (Adjusted OR: 0.27; 95% CI: 0.12 – 0.62) and physical depression relative to typical

depression (Adjusted OR: 0.17; 95% CI: 0.08 – 0.38) than their male counterparts. Age was also significantly related to type of depression. Young adult (aged 30 to 39) and middle adulthood (aged 40 to 49) participants were more likely to have physical depression as opposed to typical depression (Adjusted OR: 7.53; 95% CI: 1.86 – 30.42 and OR: 6.03; 95%CI: 1.25 – 29.09, respectively) relative to the youngest age group (aged 18 to 29). In the fully-adjusted model, participants with three or more health conditions were significantly more likely to have complicated depression as opposed to typical depression (OR: 2.93; 95%CI: 1.01 – 8.52) relative to participants with no health conditions other than depression.

Association between seeing a family doctor on type of depression (Table 5)

Seeking care from a family doctor was significantly related to type of depression diagnosis. Participants who saw a family doctor for their depression were more likely to have physical depression rather than typical depression (Adjusted OR: 2.94; 95% CI: 1.20 – 7.19). Similar to the results concerning seeing a mental health professional, women were less likely to have complicated depression as opposed to typical depression relative to men (Adjusted OR: 0.23; 95% CI: 0.10 – 0.54). Women were also significantly less likely to have physical depression than typical depression relative to men (Adjusted OR: 0.13; 95% CI: 0.05 – 0.36).

Association between seeing another type of doctor on type of depression (Table 6)

Seeing a medical doctor other than a family or mental health provider was significantly associated with likelihood of having complicated depression. Participants who saw other types of medical professionals were more likely to have complicated depression (Adjusted OR: 2.56; 95% CI: 1.36 – 4.78) as opposed to typical depression. Participants who saw other types of

medical professionals were also significantly more likely to have physical depression rather than typical depression (Adjusted OR: 2.61; 95% CI: 1.76 – 5.82). Consistent with the previous analyses, women were significantly less likely to have complicated depression (Adjusted OR: 0.25; 95% CI: 0.12 – 0.55) and physical depression (Adjusted OR: 0.18; 95% CI: 0.08 – 0.42) as opposed to typical depression.

Association between seeing a religious, spiritual or other healer on type of depression (Table 7)

Although those who saw a religious or spiritual healer were slightly more likely to have complicated depression and were slightly less likely to have physical depression rather than typical depression, these associations were not statistically significant. However, consistent with the results from the other types of professionals seen, women were significantly less likely to have complicated depression rather than typical depression (Adjusted OR: 0.26; 95% CI: 0.12 – 0.58) and were also less likely to have physical depression (Adjusted OR: 0.17; 95% CI: 0.08 – 0.38).

Association between seeing multiple professionals on type of depression (Table 8)

Descriptive analyses indicated that among those who had sought any care for depression, all participants had seen at least two types of professionals for this condition. Those who saw three or four types professionals (i.e., family doctor, mental health professional, and religious healer) were significantly more likely to have to have complicated as opposed to typical depression when compared to those who only saw two professionals for all three models (Adjusted OR: 2.10; 95% CI: 1.13 – 3.92). Seeing multiple professionals was not significantly associated with likelihood of having physical depression in the fully-adjusted model. Those who

had three or more health conditions were significantly more likely to have complicated rather than typical depression when compared to those who have no health conditions (OR: 3.29; 95% CI: 1.18 – 9.17). Finally, relative to those with mental health insurance, those who had insurance but without mental health coverage were significantly more likely to have physical depression rather than typical depression (Adjusted OR: 3.38; 95% CI: 1.27 – 9.02).

<u>Association between place of usual care on type of depression (Table 9)</u>

The majority of the sample had a usual place they went to for care (Table 1), and we conducted a final set of analyses to examine whether care setting (i.e., doctor's office, clinic, hospital, etc) was related to type of depression. Compared to a doctor's office, those who use a clinic for their usual place of care were significantly more likely to have complicated than typical depression (Adjusted OR: 3.04; 95% CI: 1.28 – 7.24). Those who go to a hospital for usual care were also significantly more likely to have complicated versus typical depression (Adjusted OR: 2.20; 95% CI: 1.08 – 4.48). Finally, considering the influence of comorbid health problems, those who had three or more health conditions were significantly more likely to have complicated versus typical depression compared to those with no health conditions (Adjusted OR: 5.87: 95% CI: 2.56 – 13.46).

DISCUSSION

Main Findings and Importance

The major finding in this study is that the type of treatment setting and healthcare provider seen for depression is related to the type of depression diagnosis. Unexpectedly, seeing a mental health professional was related to diagnosis of complicated depression rather than

typical depression. Persons who receive care from a family doctor are more likely to be diagnosed with physical depression rather than typical depression. Finally, persons who sought care from three or more types of professionals were more likely to have complicated cases of depression rather than typical depression, consistent with the notion that seeing multiple professionals would produce differing clinical opinions about the nature and source of depressive symptoms. Finally, compared to those who use a doctor's office as their usual place of care, those whose usual place of care was a clinic or a hospital were more likely to be diagnosed with complicated rather than typical depression. In sum, the manifestation and presentation of depression syndrome, particularly concerning the attributed "cause" of this syndrome, varies in the population, and these findings demonstrate that how these differing manifestations and presentations are diagnosed is substantially related to the type of health professional seen for care.

Part of the association between treatment settings and depression diagnosis is likely due to self-selection into particular treatment settings (e.g., persons who feel their depressive symptoms are due to a comorbid physical health problem such as diabetes may preferentially seek out their family doctor for care). However, the association between treatment settings and type of professional seen persisted even accounting for physical health comorbidities, suggesting that other factors are important. One of these factors may be healthcare provider comfort or perceived competence in treating psychiatric conditions. A large body of research has demonstrated that family doctors and other general providers do not feel competent in either identifying or treating depression (Mitchell, Vaze, & Rao, 2009), and this may influence how they interpret depression syndrome when individuals do present in their clinics (i.e., interpreting these symptoms as being a consequence of a physical health problem, as these findings suggest).

Another important finding from the literature is that women, regardless of treatment setting, were consistently more likely to have typical depression as opposed to either complicated or physical depression. There are several potential explanations for this finding. Healthcare providers may be more likely to label women with depression symptoms as having typical or psychologically-based depression whereas men's depressive symptoms may be linked to physical health, possibly because of biased associations of women being more emotional or affected more by emotions than their male counterparts. Another possible explanation for this finding is that women and men may present to treatment with different symptomology of depression. Future research should explore both provider and patient-level characteristics that contribute to this consistent gender difference.

Age was also found to be related to the type of depression quite frequently in many of the analysis. Specifically, 30 to 39 year olds, as compared to 18 to 29 year olds, were more likely to have physical depression as opposed to typical depression. Again, the reasons for this finding are beyond the scope of this research, but it is quite interesting that the 30 to 39 year old group held significant throughout most of the analyses.

One interesting finding about the sample is that everyone within one of the 3 depression groups sought care from at least 2 different types of providers. This could be interpreted in one of two ways: 1) That people were not satisfied with their diagnoses or care plans and "shopped-around" until they were satisfied with diagnosis, or 2) That providers referred these people to other sources of care. Another interesting finding associated with seeing multiple care providers is that insurance variables were not significant until this particular analysis. Compared to those with mental health coverage, those with insurance but without a mental health care component were significantly more likely to have physical versus typical depression. This seems logical as

one would expect that someone who is experiencing depressive symptoms would present to whatever care they have access to, which in this case would be some sort of primary care or other type of physician. As previously discussed, who a person seeks care from is related to the type of depression, so if someone only has coverage to see a primary care of other type of doctor, their depressive symptoms are more likely to be labeled as related to physical illness.

These findings emphasize the heterogeneity of depression presentation within the African American population; of the 441 cases that met DSM-IV criteria for MDE, 18% were complicated (e.g., sometimes attributable to a physical health cause) and another 15% were always attributed to a physical health case. These findings are important because the differential diagnosis of depressive symptomology may result in differing treatment strategies or treatment priorities. Such tailoring is likely beneficial when based on characteristics of the clinical presentation, but if provider characteristics are driving these differences such tailoring may be unwarranted and inefficient at best. For example, if a provider determines that a patient's depressive symptoms are simply a consequence of a physical illness or injury rather than an independent clinical condition, he or she may decide to focus on treating this purported physical cause rather than treating the depressive syndrome directly with psychotherapy or medication.

Strengths and Limitations

The primary strengths of this study are the use of a nationally-representative sample of African Americans (one of the few datasets of its kind) and use of a diagnostic measure of depression. The study also explored multiple aspects of treatment-seeking, including care settings and type of professional seen for depression. However, these results should be interpreted in light of study limitations. The data set is a cross-sectional survey which precludes

assessment of causality. Also, data were collected using an interview questionnaire and therefore all the variables, including treatment seeking and health conditions, were determined by self-report which may be subject to recall or information bias. Finally, some analyses were based on limited sample size due to incomplete data. This may impact both statistical power to detect significant relationships and the generalizability of these findings.

CONCLUSION

Next Steps

These findings suggest many avenues for future research. Foremost, longitudinal analyses would be useful in unraveling the likely bi-directional relationship between treatment-seeking and type of depression diagnosis. Qualitative research designs could also inform understanding of the constructs related to a person's decision-making when choosing a care provider for depression, and the providers' decision-making when assessing a patient's symptoms and declaring a diagnosis.

As always, increased health education may be an important next step to make sure patients and care providers are both aware of the many presentations and symptoms of depression, and the availability of effective treatments. Improved diagnostic tools for primary care physicians and other types of doctors may help these practitioners to distinguish between symptoms of MDD and depressive symptoms related to physical illness. Surveys like the My Mood Monitory (M-3) checklist, are quick to give to patients and have a specificity and sensitivity of more than 0.80 for depression screening (Gaynes, et al, 2010). Implementation of regular depression screening in all care settings could raise awareness of both providers and patients about mental health promotion and treatment. A final step relates to the need for

improved communication between care providers, which could possibly be remedied by electronic health record systems (DesRoches, et al., 2008). Because persons with depression may seek out treatment from multiple types of providers, it is important that care providers have a complete picture of a person's health history in order to give the most accurate diagnosis.

Relevance

Although depression is more common among whites than African Americans in the United States (Blazer, Kessler, McGonagle, & Swartz, 1994; Kessler, et al., 2003; Williams, Gonzalez, Neighbors, Neese, Abelson, Sweetman, Jackson, 2007), it is still a major health concern. Indeed, recent evidence suggests that depression among African Americans is more likely to be severe and disabling - and more likely to be untreated – compared to depression among whites (Williams, Gonzalez, Neighbors, Neese, Abelson, Sweetman, Jackson, 2007).   In this climate it is necessary to have a better understanding of how African Americans who have depressive symptoms seek care and how depression is diagnosed by healthcare practitioners. The research presented attempts to add to this field by providing evidence that diagnosis of depression and its cause is related to the care provider seen.

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Tables and Figures

Figure 1: Flowchart of the characterization of depression

Tamara Scott
MPH Project
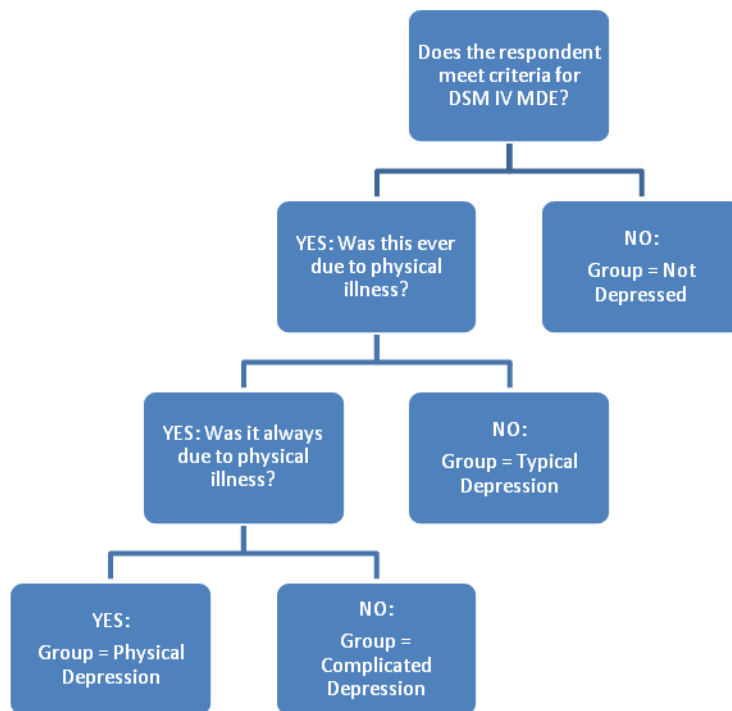
Table 1: Demographic characteristics according to depression status: African American subsample of the National Survey of American Life

	Not Depressed	Typical Depression	Complicated Depression	Physical Depression	Rao-Scott Chi Square
	N (weighted %)	N (weighted %)	N (weighted %)	N (weighted %)	(p-Value)
Total	2991(87.2)	294 (8.6)	80 (2.3)	67 (1.9)	
Female	1887 (54.4)	231 (73.6)	53 (54.1)	45 (56.3)	**9.65 (<0.01)**
Marital status					
Married/Cohabitating	1062 (43.0)	87 (34.9)	17 (25.7)	16 (35.2)	
Divorced/Separated/Widowed	955 (25.8)	90 (27.3)	37 (43.9)	29 (32.5)	5.82 (0.21)
Never Married	974 (31.2)	117 (37.8)	26 (30.4)	22 (32.3)	
Income					
< $20,000	1252 (35.5)	125 (35.4)	49 (47.0)	37 (43.0)	
$20,000 to $39,999	869 (29.4)	82 (27.5)	21 (29.7)	17 (26.4)	4.64 (0.59)
$40,000 to $69,999	591 (22.4)	57 (22.2)	5 (11.3)	8 (19.0)	
$70,000 and above	279 (12.7)	30 (14.8)	5 (12.0)	5 (11.5)	
Education					
0 to 11 years	759 (23.9)	78 (23.0)	30 (37.8)	18 (22.4)	
12 years	1145 (38.3)	100 (32.9)	29 (31.1)	24 (36.1)	10.25 (0.11)
13 to 15 years	691 (23.9)	63 (25.7)	15 (23.1)	16 (22.9)	
16 or more years	396 (13.9)	53 (18.4)	6 (7.9)	9 (18.6)	
Age group					
18 to 29	681 (24.5)	87 (32.0)	15 (23.6)	9 (11.2)	
30 to 39	706 (22.4)	69 (21.9)	18 (18.5)	19 (36.1)	
40 to 49	641 (22.5)	68 (23.3)	24 (29.5)	21 (29.7)	14.13 (0.08)
50 to 64	564 (18.4)	56 (18.1)	18 (23.0)	14 (18.7)	
65 and older	399 (12.1)	14 (4.8)	5 (5.4)	4 (4.4)	
Insurance status					
No Insurance	583 (19.3)	61 (20.8)	24 (25.0)	10 (14.5)	1.78 (0.78)
Insurance w/ no MH coverage	651 (22.2)	51 (15.1)	13 (15.0)	11 (16.4)	

Insurance w/ MH coverage	1756 (58.5)	182 (64.1)	43 (59.9)	46 (69.2)	
Has a usual Place for Care	2593 (86.0)	252 (86.5)	64 (81.1)	62 (92.4)	3.36 (0.19)
Type of Usual Care Facility					
Clinic	370 (14.9)	37 (14.0)	20 (29.9)	11 (20.4)	
Doctors Office	1623 (61.6)	154 (64.4)	27 (40.8)	41 (63.3)	**13.71 (0.03)**
Health Center	194 (8.0)	27 (11.0)	6 (7.5)	4 (4.9)	
Hospital	360 (15.5)	30 (10.5)	11 (21.7)	6 (11.4)	
Smoking Status					
Current Smoker	764 (26.5)	96 (32.1)	41 (41.1)	30 (48.3)	
Former Smoker	441 (15.0)	38 (12.7)	9 (16.9)	12 (17.9)	**9.90 (0.04)**
Not a Smoker	1766 (58.5)	158 (55.2)	30 (42.0)	24 (33.8)	
Number of Health Conditions					
Zero	1060 (36.7)	71 (26.6)	18 (23.2)	7 (14.8)	
1 or 2	1275 (42.9)	141 (46.1)	21 (19.3)	30 (42.0)	**23.34 (<0.01)**
3 or more	656 (20.4)	82 (27.3)	41 (57.5)	30 (43.3)	
Type of Professional Seen for Depressive Symptoms					
Mental Health Professional	11 (73.4)	116 (76.4)	50 (95.1)	34 (75.2)	**11.43 (<0.01)**
Family Doctor	7 (40.6)	86 (52.1)	28 (58.8)	31 (73.0)	**6.85 (0.03)**
Other type of Doctor	1 (2.3)	53 (33.2)	26 (54.7)	24 (55.9)	**13.22 (<0.01)**
Religious or other healer	5 (23.3)	87 (55.4)	27 (60.7)	22 (43.1)	3.21 (0.20)
Saw <=2 professionals	4 (81.0)	60 (57.1)	19 (35.1)	11 (37.2)	**11.4 (<0.01)**
Saw 3 or more professionals	2 (19.0)	55 (42.9)	23 (64.9)	21 (62.8)	

Chi Square and P-value refers to comparison of typical, complicated and physical depression.

Table 2: Multinomial logistic regression of the relationship between having a usual place of care predicting depression category

Model	Typical Depression vs. Not Depressed Odds Ratio (95% Confidence Interval)	Complicated Depression vs. Not Depressed Odds Ratio (95% Confidence Interval)	Physical Depression vs. Not Depressed Odds Ratio (95% Confidence Interval)
1 (Unadjusted) (N=3431)	.960 (0.628 , 1.466)	1.439 (0.722 , 2.870)	0.507 (0.169 , 1.522)
2 (N=3431)	1.013 (0.658 , 1.559)	1.373 (0.676 , 2.787)	0.483 (0.155 , 1.505)
3 (N=3430)	1.063 (0.666 , 1.696)	1.366 (0.706 , 2.643)	0.535 (0.158 , 1.805)
4 (N=3430)	1.104 (0.697 , 1.748)	1.587 (0.790 , 3.190)	0.608 (0.184 , 2.012)

Model 2 is adjusted for usual place of care, age, sex and marital status. Model 3 is adjusted for Model 2 and income, insurance and education. Model 4 is adjusted for Model 3 and number of health conditions.

Table 3: Relationship between depression category and type of professional seen for depression care

Type of Professional Seen*	Overall	Typical Depression	Complicated Depression	Physical Depression	Rao-Scott Chi Square**
	N (weighted %)	N (weighted %)	N (weighted %)	N (weighted %)	p-value
Mental Health Professional	212 (79.53)	116 (76.35)	50 (95.15)	34 (75.23)	**11.43 (<0.01)**
Family Doctor	152 (56.28)	86 (52.1	28 (58.83)	31 (72.97)	**6.85 (0.03)**
Other type of Doctor	104 (39.40)	53 (33.19)	26 (54.70)	24 (55.92)	**13.22 (<0.01)**
Religious or Spiritual Healer	141 (52.30)	87 (55.42)	27 (60.74)	22 (43.06)	3.21 (0.20)

* Categories are not mutually exclusive

Chi Square and P-value for comparison across categories of depression.

Table 4: Relationship between seeing a mental health professional on the type of diagnosed depression.

Variables	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Saw Mental Health Professional *(ref. No)*	**6.071 (2.746 , 13.422)**	0.941 (0.401 , 2.205)	**6.171 (2.458 , 15.491)**	0.814 (0.292 , 2.266)	**5.527 (2.274 , 13.434)**	0.807 (0.294 , 2.216)
Age *(ref. 18 – 29)*						
30 to 39			0.841 (0.237 , 2.985)	**7.598 (1.912 , 30.203)**	0.746 (0.200 , 2.778)	**7.529 (1.864 , 30.418)**
40 to 49			1.369 (0.488 , 3.838)	**6.504 (1.407 , 30.053)**	1.143 (0.385 , 3.394)	**6.029 (1.249 , 29.094)**
50 to 64			1.840 (0.568 , 5.958)	5.095 (0.946 , 27.447)	1.149 (0.320 , 4.125)	4.378 (0.836 , 22.925)
65 and older			0.507 (0.044 , 5.805)	2.117 (0.231 , 19.395)	0.195 (0.017 , 2.284)	1.455 (0.148 , 14.277)
Sex *(ref. Male)*			**0.386 (0.192 , 0.779)**	**0.220 (0.100 , 0.483)**	**0.274 (0.122 , 0.616)**	**0.171 (0.076 , 0.383)**
Insurance *(ref. Has mental health coverage)*						
Insurance but no MH component			0.550 (0.211 , 1.429)	1.456 (0.658 , 3.222)	0.496 (0.182 , 1.353)	1.479 (0.644 , 3.399)
No Insurance			1.445 (0.568 , 3.676)	0.486 (0.136 , 1.732)	1.495 (0.561 , 3.985)	0.584 (0.157 , 2.177)
Number of Health Conditions *(ref. None)*						
1 or 2 Health conditions					0.808 (0.301 , 2.165)	1.901 (0.443 , 8.151)
3 or more health conditions					**2.926 (1.005 , 8.524)**	2.512 (0.546 , 11.565)
Total N	253		253		253	

Table 5: Relationship between seeing a family doctor on the type of diagnosed depression.

	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Variables	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)
Saw Family Doctor *(ref = No)*	1.314 (0.644 , 2.678)	**2.481 (1.266 , 4.861)**	1.633 (0.789 , 3.379)	**3.000 (1.283 , 7.017)**	1.689 (0.814 , 3.504)	**2.941 (1.203 , 7.187)**
Age *(ref = 18 to 29)*						
30 to 39			0.709 (0.220 , 2.286)	**5.127 (1.298 , 20.242)**	0.593 (0.169 , 2.073)	**5.169 (1.302 , 20.520)**
40 to 49			1.245 (0.444 , 3.494)	**4.864 (1.045 , 22.649)**	1.020 (0.353 , 2.947)	4.740 (0.973 , 23.090)
50 to 64			1.275 (0.375 , 4.339)	3.574 (0.677 , 18.869)	0.805 (0.238 , 2.726)	3.129 (0.610 , 16.049)
65 and older			0.377 (0.039 , 3.607)	1.296 (0.126 , 13.392)	0.146 (0.015 , 1.414)	0.912 (0.080 , 10.441)
Sex *(ref = male)*			**0.310 (0.155 , 0.621)**	**0.168 (0.068 , 0.411)**	**0.233 (0.101 , 0.537)**	**0.134 (0.051 , 0.355)**
Insurance (ref = mental health insurance)						
Insurance but no MH component			0.552 (0.207 , 1.471)	1.833 (0.74 , 4.337)	0.536 (0.199 , 1.446)	1.808 (0.727 , 4.495)
No Insurance			1.395 (0.569 , 3.421)	0.550 (0.160 , 1.889)	1.455 (0.606 , 3.490)	0.626 (0.176 , 2.221)
Number of Health Conditions (ref = no health conditions)						
1 or 2 Health conditions					0.607 (0.221 , 1.668)	1.599 (0.403 , 6.347)
3 or more health conditions					2.495 (0.915 , 6.806)	2.183 (0.468 , 10.189)
Total N	n = 253		n = 253		n = 253	

Table 6: The relationship of seeing another type of doctor on the type of diagnosed depression.

	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Variables	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)
Saw Other Type of Doctor *(ref = no)*	**2.431 (1.194 , 4.949)**	**2.554 (1.312 , 4.971)**	**2.858 (1.465 , 5.575)**	**2.810 (1.285 , 6.143)**	**2.555 (1.361 , 4.797)**	**2.613 (1.175 , 5.815)**
Age (*ref = 18 to 29*)						
30 to 39			0.759 (0.219 , 2.636)	7.083 (2.024 , 24.790)	0.683 (0.191 , 2.449)	**7.012 (1.930 , 25.477)**
40 to 49			1.582 (0.578 , 4.330)	7.405 (1.732 , 31.656)	1.332 (0.466 , 3.805)	**6.911 (1.564 , 30.533)**
50 to 64			1.421 (0.460 , 4.389)	5.050 (1.157 , 22.036)	0.975 (0.288 , 3.297)	4.398 (0.985 , 19.642)
65 and older			0.316 (0.032 , 3.109)	1.488 (0.156 , 14.178)	0.145 (0.014 , 1.470)	1.088 (0.096 , 12.377)
Sex (*ref = male*)			**0.314 (0.155 , 0.634)**	**0.218 (0.096 , 0.496)**	**0.251 (0.115 , 0.548)**	**0.179 (0.076 , 0.423)**
Insurance (*ref = mental health insurance*)						
Insurance but no MH component			0.496 (0.186 , 1.327)	1.573 (0.701 , 3.528)	0.524 (0.204 , 1.344)	1.554 (0.650 , 3.717)
No Insurance			1.292 (0.512 , 3.264)	0.478 (0.120 , 1.904)	1.335 (0.531 , 3.354)	0.551 (0.134 , 2.272)
Number of Health Conditions (*ref = no health conditions*)						
1 or 2 Health conditions					0.613 (0.237 , 1.585)	1.607 (0.398 , 6.491)
3 or more health conditions					2.210 (0.845 , 5.777)	2.072 (0.490 , 8.764)
Total N	253		253		253	

Table 7: The relationship of seeing a religious or other healer on the type of diagnosed depression.

Variables	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Saw Religious or other Healer *(ref = no)*	1.245 (0.657 , 2.357)	0.608 (0.288 , 1.287)	1.341 (0.717 , 2.507)	0.596 (0.269 , 1.318)	1.189 (0.601 , 2.352)	0.550 (0.238 , 1.274)
Age *(ref = 18 to 29)*						
30 to 39			0.774 (0.246 , 2.440)	**7.785 (1.960 , 30.921)**	0.666 (0.196 , 2.266)	**7.508 (1.848 , 30.514)**
40 to 49			1.382 (0.508 , 3.756)	**6.505 (1.482 , 28.558)**	1.133 (0.395 , 3.254)	**5.785 (1.228 , 27.245)**
50 to 64			1.459 (0.445 , 4.778)	5.503 (0.936 , 32.365)	0.975 (0.281 , 3.388)	4.604 (0.810 , 26.181)
65 and older			0.403 (0.044 , 3.711)	2.464 (0.240 , 25.267)	0.168 (0.017 , 1.622)	1.571 (0.147 , 16.802)
Sex *(ref = male)*			**0.342 (0.172 , 0.680)**	**0.226 (0.103 , 0.500)**	**0.260 (0.115 , 0.584)**	**0.171 (0.077 , 0.382)**
Insurance *(ref = mental health insurance)*						
Insurance but no MH component			0.473 (0.188 , 1.191)	1.500 (0.676 , 3.328)	0.472 (0.179 , 1.249)	2.786 (0.555 , 13.976)
No Insurance			1.329 (0.527 , 3.355)	0.472 (0.143 , 1.556)	1.377 (0.560 , 3.385)	0.583 (0.163 , 2.088)
Number of Health Conditions *(no health conditions)*						
1 or 2 Health conditions					0.652 (0.241 , 1.759)	1.974 (0.441 , 8.837)
3 or more health conditions					2.565 (0.949 , 6.931)	2.786 (0.555 , 13.976)
Total N	253		253		253	

Table 8: The relationship of seeing multiple professionals on the type of diagnosed depression.

	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Variables	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)
Saw Multiple Professionals (*ref = 2 professionals*)	**2.456 (1.485 , 4.061)**	2.244 (0.958 , 5.253)	**2.649 (1.574 , 4.459)**	**2.453 (1.141 , 5.276)**	**2.104 (1.130 , 3.916)**	2.306 (0.969 , 5.486)
Age (*ref = 18 to 29*)						
30 to 39			0.604 (0.164 , 2.222)	**4.521 (1.157 , 17.667)**	0.528 (0.134 , 2.083)	**4.358 (1.172 , 16.200)**
40 to 49			1.713 (0.653 , 4.494)	3.381 (0.739 , 15.460)	1.341 (0.464 , 3.877)	3.282 (0.715 , 15.057)
50 to 64			1.844 (0.705 , 4.828)	3.062 (0.649 , 14.436)	1.274 (0.423 , 3.839)	2.693 (0.562 , 12.910)
65 and older			0.201 (0.017 , 2.332)	0.443 (0.021 , 9.409)	**0.073 (0.006 , 0.905)**	0.307 (0.012 , 7.801)
Sex (*ref = male*)			**0.197 (0.092 , 0.424)**	**0.189 (0.060 , 0.597)**	**0.132 (0.059 , 0.298)**	**0.166 (0.051 , 0.545)**
Insurance (*ref = mental health insurance*)						
Insurance but no MH component			0.344 (0.067 , 1.766)	**3.373 (1.274 , 8.930)**	0.389 (0.073 , 2.071)	**3.381 (1.267 , 9.019)**
No Insurance			1.215 (0.446 , 3.310)	0.715 (0.173 , 2.966)	1.336 (0.405 , 4.408)	0.754 (0.165 , 3.448)
Number of Health Conditions (*ref = no health conditions*)						
1 or 2 Health conditions					0.694 (0.210 , 2.300)	0.900 (0.159 , 5.083)
3 or more health conditions					**3.294 (1.184 , 9.165)**	1.529 (0.236 , 9.908)
Total N	189		189		189	

Table 9: The relationship of the location for the usual place of care on the type of diagnosed depression.

Variables	Model 1		Model 2		Model 3	
	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression	Complicated vs. Typical Depression	Physical vs. Typical Depression
	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Where Go for Usual Care *(ref = doctor's office)*						
Clinic	**3.364 (1.516 , 7.466)**	1.476 (0.435 , 5.010)	**3.359 (1.505 , 7.499)**	1.329 (0.431 , 4.095)	**3.043 (1.280 , 7.236)**	1.219 (0.341 , 4.362)
Health Center	1.078 (0.281 , 4.132)	0.454 (0.120 , 1.717)	0.913 (0.236 , 3.533)	0.421 (0.093 , 1.916)	0.704 (0.172 , 2.881)	0.357 (0.058 , 2.208)
Hospital	**3.265 (1.491 , 7.149)**	1.108 (0.333 , 3.686)	**3.096 (1.467 , 6.536)**	0.855 (0.267 , 2.736)	**2.197 (1.079 , 4.477)**	0.690 (0.204 , 2.337)
Age *(ref = 18 to 29)*						
30 to 39			0.977 (0.351 , 2.714)	6.342 (2.000 , 20.112)	0.783 (0.234 , 2.618)	**5.855 (1.874 , 18.295)**
40 to 49			1.284 (0.471 , 3.500)	**5.504 (1.767 , 17.143)**	0.784 (0.277 , 2.224)	**4.415 (1.312 , 14.854)**
50 to 64			1.673 (0.711 , 3.936)	**4.324 (1.011 , 18.504)**	0.873 (0.312 , 2.444)	3.055 (0.740 , 12.612)
65 and older			1.307 (0.211 , 8.098)	3.325 (0.677 , 16.337)	0.384 (0.050 , 2.973)	1.858 (0.364 , 9.485)
Sex *(ref = male)*			0.610 (0.353 , 1.056)	**0.513 (0.268 , 0.984)**	**0.411 (0.196 , 0.861)**	**0.344 (0.160 , 0.737)**
Insurance *(ref = mental health insurance)*						
Insurance but no MH component			1.157 (0.565 , 2.366)	1.446 (0.599 , 3.491)	1.168 (0.521 , 2.615)	1.410 (0.576 , 3.453)
No Insurance			0.629 (0.249 , 1.588)	0.692 (0.263 , 1.823)	0.742 (0.318 , 1.732)	0.771 (0.273 , 2.174)
Number of Health Conditions *(ref = no health conditions)*						
1 or 2 Health conditions					1.053 (0.454 , 2.440)	2.654 (0.653 , 10.788)
3 or more health conditions					**5.868 (2.558 , 13.458)**	3.862 (0.731 , 20.405)
Total N	374		374		374	

Appendix

Table 1: Demographics of the entire sample

	Total Sample	Not Depressed	Depression Never Physical	Depression Sometimes Phyical	Depression Always Physical	Rao-Scott Chi Square*
	n(weighted%)	n(weighted %)	n (weighted %)	n(weighted %)	n(weighted %)	(p-value)
Total	6082	5092	552	126	115	
Gender						
Male	2286 (45.9)	1985 (47.2)	138 (37.3)	50 (44.4)	37 (46.7)	1.122 (0.57)
Female	3796 (54.1)	3107 (52.7)	414 (62.7)	76 (55.6)	78 (53.3)	
Race						
White	891 (49.9)	690 (47.8)	127 (64.7)	25 (58.8)	26 (58.8)	
Carribean-born Black	1621 (3.1)	1259 (3.1)	114 (2.3)	18 (3.8)	16 (2.6)	1.662 (0.79)
African American	3570 (47.0)	2991 (49.1)	294 (32.9)	80 (37.4)	67 (38.6)	
Marriage						
Married/Cohabitating	2344 (48.1))	2036 (49.1)	177 (45.5)	36 (30.2)	36 (55.5)	
Divorced/Separated/Widowed	1836 (25.1)	1495 (23.9)	174 (29.5)	52 (35.2)	44 (26.1)	6.738 (0.15)
Never Married	1892 (26.8)	1561 (27.0)	201 (25.0)	38 (34.7)	35 (18.3)	
Income						
< $20,000	2196 (28.9)	1803 (28.9)	207 (27.6)	58 (36.3)	57 (28.6)	
$20,000 to $39,999	1843 (28.3)	1542 (27.8)	166 (29.4)	38 (28.2)	27 (26.8)	3.073 (0.80)
$40,000 to $69,999	1327 (25.8)	1126 (25.9)	122 (25.2)	16 (16.2)	23 (33.6)	
$70,000 and above	716 (17.0)	621 (17.4)	57 (17.9)	14 (19.3)	8 (11.2)	
Education						
0 to 11 years	1375 (19.6)	1156 (20.4)	108 (15.1)	38 (19.7)	27 (11.8)	
12 years	2136 (34.2)	1797 (34.8)	179 (31.2)	36 (23.6)	39 (34.8)	1.875 (0.93)
13 to 15 years	1468 (24.4)	1227 (23.7)	136 (26.0)	33 (27.1)	30 (29.5)	
16 or more years	1103 (21.8)	912 (21.1)	129 (27.8)	19 (29.6)	19 (23.9)	

Age

18 to 29	1392 (22.8)	1166 (23.6)	161 (20.4)	26 (30.9)	13 (6.1)	
30 to 39	1403 (22.3)	1168 (21.1)	142 (32.1)	28 (20.7)	27 (25.1)	
40 to 49	1337 (21.5)	1097 (20.8)	118 (23.5)	35 (23.9)	39 (31.7)	13.34 (0.10)
50 to 64	1180 (20.2)	982 (20.3)	100 (19.0)	28 (17.2)	28 (24.8)	
65 and older	770 (13.2)	679 (14.2)	31 (5.0)	9 (7.4)	8 (12.3)	

Insurance

No Insurance	1206 (17.5)	1034 (17.1)	123 (19.5)	31 (23.2)	17 (12.7)	
Insurance w/ no MH coverage	1271 (21.4)	1137 (22.9)	89 (13.6)	21 (13.6)	21 (17.2)	1.344 (0.85)
Insurance w/ MH coverage	3417 (61.1)	2920 (60.0)	340 (66.9)	74 (63.2)	77 (70.1)	

Usual Place for Care

Yes	5024 (84.6)	4350 (84.8)	464 (86.3)	99 (70.6)	102 (85.6)	**10.09 (0.01)**
No	869 (15.4)	740 (15.2)	88 (13.7)	27 (29.4)	13 (14.4)	

Type of Usual Care Facility

Clinic	737 (15.1)	636 (15.3)	59 (13.9)	26 (21.4)	16 (9.9)	
Doctors Office	3230 (66.9)	2813 (66.3)	298 (73.3)	50 (59.3)	62 (62.9)	7.847 (0.25)
Health Center	370 (6.7)	309 (7.0)	44 (5.0)	9 (4.8)	8 (7.4)	
Hospital	613 (11.2)	527 (11.3)	55 (7.8)	14 (14.5)	15 (19.8)	

Smoking Status

Current Smoker	1153 (26.9)	951 (25.7)	119 (31.5)	49 (42.5)	34 (44.9)	
Former Smoker	667 (14.7)	583 (14.8)	50 (12.2)	16 (16.5)	18 (17.5)	**9.95 (0.04)**
Not a Smoker	3166 (58.4)	2840 (59.5)	252 (56.3)	36 (41.0)	36 (37.5)	

Number of Health Conditions

Zero	2331 (37.1)	1949 (37.5)	144 (23.7)	29 (31.7)	16 (13.2)	
1 or 2	2475 (41.3)	2127 (41.8)	263 (51.1)	40 (32.5)	44 (38.6)	**9.81 (0.04)**
3 or more	1276 (21.6)	1016 (20.7)	145 (25.2)	57 (35.8)	55 (48.2)	

Type of Professional Seen for Depressive Symptoms

Mental Health	403 (75.1)	26 (82.4)	237 (69.8)	76 (92.7)	62 (75.0)	**6.32 (0.04)**

Professional - Yes					
No	111 (24.9)	9 (17.6)	73 (30.2)	9 (7.3)	20 (24.0)	
Family Doctor - Yes	297 (61.3)	14 (37.9)	175 (60.6)	48 (59.2)	59 (77.5)	2.47 (0.29)
No	217 (38.7)	21 (62.1)	135 (39.4)	37 (40.8)	23 (22.5)	
Other type of Doctor - Yes	183 (33.5)	4 (9.1)	92 (28.5)	39 (29.7)	48 (69.9)	**15.83 (<0.01)**
No	330 (66.5)	31 (90.9)	217 (71.5)	46 (70.3)	34 (30.1)	
Religious or other healer - Yes	254 (46.1)	13 (24.4)	161 (51.0)	41 (35.3)	38 (47.1)	2.37 (0.31)
No	260 (53.9)	22 (75.6)	149 (49.0)	44 (64.7)	44 (52.9)	
Multiple professionals - 2 professionals	184 (49.9)	11 (76.3)	125 (53.7)	27 (53.5)	21 (29.5)	4.27 (0.12)
3 or 4 professionals	183 (50.1)	5 (23.67)	98 (46.3)	37 (46.5)	42 (70.5)	

*Chi Square of depression never physical, sometimes physical and always physical by demographics

Tamara Scott
MPH Project

Table 2: Demographics of missing sample

	Missing*	Answered	Rao-Scott Chi Square
	n(weighted%)	n(weighted %)	(p-Value)
Total	194	5888	
Gender			
Male	75 (44.1)	3677 (54.1)	0.13 (0.72)
Female	119 (55.9)	2211 (45.9)	
Race			
White	22 (36.4)	869 (50.3)	
Carribean-born Black	31 (3.0)	1407 (3.1)	5.64 (0.06)
African American	136 (60.5)	3434 (46.6)	
Marriage			
Married/Cohabitating	59 (43.2)	2285 (48.3)	
Divorced/Separated/Widowed	69 (28.9)	1767 (25.0)	1.50 (0.47)
Never Married	56 (27.9)	1836 (26.8)	
Income			
< $20,000	68 (26.4)	2128 (29.0)	
$20,000 to $39,999	70 (38.9)	1773 (28.0)	8.13 (0.04)
$40,000 to $69,999	40 (27.9)	1287 (25.7)	
$70,000 and above	16 (6.8)	700 (17.3)	
Education			
0 to 11 years	46 (21.4)	1329 (19.5)	
12 years	83 (39.4)	2053 (34.1)	10.41 (0.02)
13 to 15 years	42 (31.1)	1426 (24.2)	
16 or more years	23 (8.1)	1080 (22.2)	
Age			
18 to 29	26 (15.1)	1366 (23.0)	10.74 (0.03)

30 to 39	37 (17.8)	1366 (22.4)	
40 to 49	47 (21.3)	1290 (21.5)	
50 to 64	41 (21.4)	1139 (20.2)	
65 and older	43 (24.5)	727 (12.9)	
Insurance			
No Insurance	1 (55.1)	1205 (17.4)	
Insurance w/ no MH coverage	2 (8.6)	1269 (21.4)	5.23 (0.07)
Insurance w/ MH coverage	4 (36.4)	3413 (61.1)	
Usual Place for Care			
Yes	7 (100)	5017 (84.6)	n/a
No	0	869 (15.4)	
Type of Usual Care Facility			
Clinic	0	737 (15.2)	
Doctors Office	6 (88.6)	3224 (66.9)	n/a
Health Center	0	370 (6.7)	
Hospital	1 (11.4)	612 (11.2)	
Smoking Status			
Current Smoker		1153 (26.9)	
Former Smoker		667 (14.7)	n/a
Not a Smoker		3166 (58.4)	
Number of Health Conditions			
Zero	192 (98.2)	2139 (35.1)	
1 or 2	1 (0.5)	2474 (42.6)	329.27 (<0.01)
3 or more	1 (0.7)	1275 (22.3)	
Type of Professional Seen for Depressive Symptoms			
Mental Health Professional - Yes		403 (75.1)	n/a
No		111 (24.9)	

Family Doctor - Yes	297 (61.3)	
		n/a
No	217 (38.7)	
Other type of Doctor - Yes	183 (33.5)	
		n/a
No	330 (66.5)	
Religious or other healer - Yes	254 (46.1)	
		n/a
No	260 (53.9)	
Multiple professionals - 2 professionals	1848 (49.9)	
		n/a
3 or 4 professionals	183 (50.1)	

*Did not answer DSM_MDE