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Demographic and health-related correlates of obsessive-compulsive symptoms among African Americans

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Abstract

This study examined the correlates of the symptoms of obsessive-compulsive disorder (OCD) among a nationally-representative sample of African American adults (n = 3,570). Demographic and several self-rated health variables were examined. Although only 1.6% of the sample met DSM-IV diagnostic criteria for OCD, a sizeable proportion of the sample reported compulsions (12.5%) and obsessions (15.3%). Material hardship was positively associated with nearly all measured symptoms of OCD and fewer years of educational attainment was related to greater compulsive symptoms. Self-rated mental health was related to both compulsions and obsessions, and self-rated physical health was associated with counting and repeating compulsions. Implications and areas for further research with African Americans are discussed, including improving access to care for those most in need of services.

Keywords

Obsessive-compulsive disorder; African Americans; symptom dimensions

1. INTRODUCTION

Obsessive-compulsive disorder (OCD) is a severe and disabling condition consisting of intrusive obsessions and repetitive compulsions. According to the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013, p. 235), obsessions are defined as “recurrent and persistent thoughts, urges, or images that are experienced as intrusive and

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unwanted," and compulsions are defined as "repetitive behaviors or mental acts that an individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly." OCD among African Americans tends to be particularly persistent, highly comorbid with other psychiatric disorders, and associated with high functional impairment across multiple domains (Himle et al., 2008; Williams, Brown, & Sawyer, 2017). African Americans experience OCD at similar rates as the general population (White 2.6% vs. Black 2.3%, Zhang & Snowden, 1999; White 1.6% vs. Black 1.6%, Kessler, Berglund, & Demler, 2005; Himle et al., 2008), but are less likely to receive treatment or experience a remission. OCD is associated with poor quality of life in several areas, including physical health (Eisen et al., 2006). Understanding and addressing the difficulties posed by OCD for African Americans is an important public health challenge. The goal of this study is to investigate the demographic and health correlates of OCD symptoms among a national sample of African Americans.

OCD symptoms are highly variable. Although many have symptoms focused on behaviors such as cleanliness, arranging, and repeating, OCD is a multi-faceted disorder, which creates unique diagnostic challenges (Sussman, 2003). Recent studies of OCD symptom dimensions have generally converged upon four major obsession/compulsion groupings: contamination/cleaning, symmetry/ordering, doubts about harm/checking, and unacceptable thoughts/mental rituals (Williams, Mugno, Franklin, & Faber, 2013), although some studies have found variations in this pattern (e.g., Katerberg et al., 2010). Only one study, conducted at the University of Pennsylvania (Williams, Proetto, et al., 2012), has examined symptom dimensions in African Americans who were clinically diagnosed with OCD. The findings from that study were generally similar to prior studies with primarily White samples, but with a few notable differences. The unacceptable thoughts/mental rituals category was comprised of two separate components, described as sexuality concerns/reassurance and aggression/mental rituals; repeating compulsions were associated with the sexuality concerns/reassurance component; and counting compulsions were associated with aggression/mental rituals (Williams, Elstein, et al., 2012).

Understanding specific OCD symptoms is important because these dimensions have been differentially associated with various demographic correlates and clinical outcomes. For example, contamination/cleaning symptoms are more common in women than men, and more common in African Americans than European Americans (Labad et al., 2007; Williams et al., 2012). Unacceptable thoughts are more common in men than women, correlated with lower quality of life than other symptom dimensions, and do not respond as well to treatment compared to other symptom dimensions (Labad et al., 2007; Singh, Wetterneck, Williams, & Knott, 2014; Williams et al., 2014). Contamination/cleaning symptoms have been associated with lower physical health ratings compared to other symptom dimensions (Albert, Maina, Bogetto, Chiarle, & Mataix-Cols, 2010). For example, cleaning compulsions could lead to dermatologic problems resulting from excessive handwashing or prolonged contact with strong household cleaning products. Friedman, Hatch, Paradis, Popkin, and Shalita (1993) observed that some African Americans with OCD present first in dermatology clinics due to skin irritation. Furthermore, oral health could suffer if compulsions involve excessive tooth brushing, leading to a loss of tooth enamel (Albert et al., 2010).

Unfortunately, very little is known about OCD symptoms in African Americans. In the Williams, Proetto, et al., (2012) study, symptom dimensions were derived from the Yale-Brown Obsessive Compulsive Scale (Goodman et al, 1989) and then frequencies of symptoms were compared to observations from primarily White samples and findings from the NSAL study (Williams et al., 2012). However, specific symptoms have not been examined in the context of their relationship to important demographic factors such as gender, age, SES, education, and health indictors, including physical health, oral health, and mental health. In addition, we include material hardship which is a unique measure of socio-economic status that measures the degree to which individuals cannot meet basic expenses such as paying rent/mortgage or full utility bills. The Williams, Proetto, et al., (2012) study collected demographic information; however because the sample was not nationally representative, the demographic profile was unique to the locale in which the study was conducted (Philadelphia). Thus, there is a need to understand the correlates of OCD symptoms in a nationally representative sample of African Americans, which is the aim of the current investigation.

Given the dearth of research on ethnic minority groups, it is difficult to propose specific predictions about demographic correlates of OCD. However, we expect younger adults will have a greater likelihood of having OCD symptoms based upon previous research which found that older African Americans were less likely to have OCD (Himle et al., 2008). We expect that respondents with lower levels of socio-economic status to be more likely to have OCD symptoms. That is, respondents with lower levels of income, education and those who are unemployed and who experience material hardship will have a higher likelihood of having OCD symptoms. This is based on previous research indicating that adults with psychiatric disorders have lower socio-economic status (Kessler et al., 1995; Kessler et al., 2008) and are less likely to be employed (Breslau et al., 1998). As noted in prior work, we expect to see more contamination concerns in women and more unacceptable thoughts in men. Further, because OCD is typically comorbid with other disorders, we also expect poorer mental health to predict greater OCD symptoms. Lastly, we expect individuals with poorer physical health and poorer oral health to have more symptoms of OCD.

2. METHODS

2.1 Participants

The National Survey of American Life: Coping with Stress in the 21st Century (NSAL) was conducted by the Program for Research on Black Americans at the University of Michigan's Institute for Social Research. The NSAL was part of the National Institute of Mental Health (NIMH) Collaborative Psychiatric Epidemiology Surveys (CPES) initiative. It includes samples of African Americans, Black Caribbeans and non-Hispanic whites. The field work for the NSAL was completed by the Institute of Social Research's Survey Research Center, in cooperation with the Program for Research on Black Americans. The NSAL sample has a national multi-stage probability design. The African American sample is the core sample of the NSAL. The core sample consists of 64 primary sampling units (PSUs). Fifty-six of these primary areas overlap substantially with existing Survey Research Center National Sample primary areas. The remaining eight primary areas were chosen from the South in order for

the sample to represent African Americans in the proportion in which they are distributed nationally. The African American sample is a nationally representative sample of households located in the 48 coterminous states with at least one Black adult 18 years or over who did not identify ancestral ties in the Caribbean. Both the African American and non-Hispanic White samples were selected exclusively from these targeted geographic segments in proportion to the African American population. For all three race/ethnic samples, the NSAL weights were designed to correct for disproportionate sampling, non-response, and to provide representation across various demographic characteristics in the 48 coterminous states.

The NSAL is the largest and most comprehensive study of mental health and psychiatric disorders in African Americans ever completed. The purpose of the study was to explore differences in mental disorders, symptom presentation, psychological distress, disability, and service use in the context of a variety of stressors, risk and resilience factors, and coping resources unique to Black Americans. The methodology of this study and participant characteristics are described in detail by Jackson et al. (2004).

2.2 Procedure

The data collection period was from February 2001 to June 2003. Most of the interviews were conducted face-to-face (86%); the remaining 14% were telephone interviews. All interviews were conducted in English using a computer-assisted personal interview that lasted an average of two hours and twenty minutes. Interviewers were trained in cultural issues relevant to the populations studied and were race-matched to participants. Respondents were compensated for their time. A total of 6,082 interviews were conducted with persons aged 18 or older, including 3,570 African Americans, 891 non-Hispanic Whites, and 1,621 Blacks of Caribbean descent. The analysis conducted here included only the African American participants.

The overall response rate was 72.3% and the response rate for African Americans was 70.7%. These response rates are noteworthy given that African Americans (especially lower income African Americans) are more likely to reside in major urban areas which are more difficult and expensive with respect to survey fieldwork and data collection. The NSAL also had a larger proportion of high crime neighborhoods than found in general national population surveys. Final response rates for the NSAL two-phase sample designs were computed using the American Association of Public Opinion Research (AAPOR, 2006) guidelines (for Response Rate 3 samples see Jackson et al., 2004, for a more detailed discussion of the NSAL sample and methodology). The NSAL data collection was approved by the University of Michigan Institutional Review Board.

2.2.2 Measures

2.2.2.1 Dependent Variables—In the NSAL diagnostic assessment of psychiatric disorders was conducted using the Diagnostic and Statistical Manual (DSM-IV) World Mental Health Composite International Diagnostic Interview (WMH-CIDI; Kessler & Ustan, 2004). The WMH-CIDI is a structured, lay interviewer-administered diagnostic interview. Prior to the NSAL, no data existed on Black Americans with OCD based upon

probability samples. For that reason, it was considered important to collect information on the disorder. However, because of the numerous manifestations of OCD symptoms, and limits to the number of questions that could be asked during the NSAL interview, the CIDI short-form version (CIDI-SF) Obsessive-Compulsive Disorder diagnostic module (Kessler, Andrews, Mroczek, Ustun, & Witchen, 1989) was administered rather than the full WMH-CIDI OCD module. For this analysis, we investigate the CIDI-SF OCD questions which assess the presence of obsessions and compulsions. These are the dependent variables for this analysis. In particular, we assessed two types of obsessions: contamination (based on concerns about having dirty hands or germs) and unacceptable thoughts (harming someone or other shameful thoughts). We also assessed four types of compulsions: washing and checking (based on behaviors that included washing hands and checking doors), arranging (putting things in a certain order), counting, and repeating certain words. The exact question wording of these six items is presented in Table 1.

2.2.2.2 Independent Variables—

Demographic variables used in this analysis include age, gender, marital status (married, unmarried), education, family income, work status, material hardship, self-rated physical health, self-rated oral health, and self-rated mental health. Missing data for family income and education were imputed using an iterative regression-based multiple imputation approach incorporating information about age, gender, region, race, employment status, marital status, home ownership, and nativity of household residents. Age was measured in years and collapsed into 3 categories (18–34, 35–54, 55 and older). Work status has 3 categories (employed, unemployed and not in labor force). Educational attainment was measured in number of years and collapsed into 4 categories (11 years and less, 12, 13–15, 16 and more years). Marital status has two categories (married and cohabiting, not married). Family income has four categories (less than $15,000, $15,000-$27,999, $28,000- $46,999 and $47,000 and more).

Material hardship is a summary score comprised of 7 items assessing whether or not respondents could meet basic expenses, pay full rent or mortgage, pay full utilities, had utilities disconnected, had telephone disconnected, were evicted for non-payment, or could not afford leisure activities in the past 12 months. A higher score on this item indicates higher levels of economic hardship (Cronbach's α =.76).

Three subjective health items were used representing self-rated physical health, self-rated oral health, and self-rated mental health. The measure for self-rated physical health asked: How would you rate your overall physical health at the present time? Self-rated oral health was assessed by: How would you rate the overall condition of your teeth, gums, and mouth at the present time? Finally, self-rated mental health asked: How would you rate your overall mental health at the present time? All three self-rated health measures used response categories ranging from poor (1), fair, good, very good, to excellent (5). The distribution of the study variables is presented in Table 2.

2.3 Data Analytic Strategy

SAS 9.13 was used to analyze the distribution of basic demographic characteristics and conduct the multivariate analysis. The percentages reported represent weighted proportions

based on the distribution of African Americans in the population. All percentages are weighted. Logistic regression analysis was performed. Logistic regression is the appropriate multivariate analysis procedure to use for dichotomous dependent variables (e.g., whether or not a person has ever had a contamination obsession) and continuous and categorical independent variables (Hosmer, Lemeshow, & Sturdivant, 2013). Odds ratio estimates and 95% confidence intervals are presented. The comparison categories of multi-category dummy variables were selected based upon previous research. The upper level categories of education and income were used as comparisons, as prior research indicates the individuals with psychiatric disorders have lower socio-economic status (Kessler et al., 2008; Kessler et al., 1995). Similarly, the category of employed was utilized based on research indicating that individuals with psychiatric disorders are less likely to be employed (Breslau et al., 1998). We also used the oldest age group as our comparison category based upon research indicating that older African Americans are less likely to have OCD (Himle et al., 2008).

For each categorical variable, we conducted a design-corrected Wald chi-square test to minimize the likelihood of Type I error due to multiple comparisons. Statistical significance in all analyses was based on 2-sided tests with an alpha of .05. This approach minimizes the Type 1 error problem of false positives due to multiple comparisons while also avoiding the Type 2 error problem of not being able to detect true associations of moderate magnitude that is introduced by more conservative methods such as Bonferroni corrections (Nock et al., 2013; Perneger, 1998). Standard error estimates are corrected for unequal probabilities of selection, nonresponse, poststratification, and the sample's complex design (i.e., clustering and stratification); results from these analyses are generalizable to the African American adult population.

3. RESULTS

Descriptive characteristics of the sample (N=3,570) are presented in Table 2. The average age of the respondents was 42 years (range of 18 through 93) and 44% were male. Respondents had an average of 12.43 years of education and the average family income was $36,832. Around 42% of the respondents were married or living with a partner, and two-thirds of the sample was currently employed.

Although 1.6% of African Americans met criteria for OCD, the percentages for various symptoms are higher. As reported in Table 2, 7.9% of African Americans had obsessions about contamination, and 8.29% reported obsessions comprised of unacceptable thoughts. One out of 10 (10.63%) African Americans had compulsions involving washing or checking, 5.19% had compulsions involving arranging, 3.53% counting, and 6.85% about repeating words. Overall, 12.5% of African Americans reported having any obsession and 15.3% of African Americans reported having any compulsion.

Obsessions

Table 3 presents the logistic regression analysis of the two obsession variables. Age, material hardship, and self-rated mental health were significantly associated with contamination obsessions. African Americans 18–34 years of age were more likely to have contamination

obsessions than respondents 55 and older. African Americans who had more material hardship and those who had poorer self-rated mental health were also more likely to report having contamination obsessions. Age, material hardship, and self-rated mental health were also associated with unacceptable thoughts obsessions (Table 3). African Americans who were 18–34 and 35–54 were more likely to have unacceptable thoughts obsessions than respondents who were 55 and older. African Americans with higher levels of material hardship and those with poorer self-rated health were more likely to report that they had unacceptable thoughts.

Compulsions

The logistic regression analysis of the correlates of compulsion symptoms is presented in Table 4. Age, education, material hardship, and self-rated mental health were significantly associated with compulsions of washing and checking. African Americans who were 18–34 were more likely to wash/check than their older counterparts. Respondents with less than a high school degree (11 years of education or less) were more likely to wash/check than college graduates (16+ years). Those with higher levels of material hardship and poorer self-rated mental health were more likely than their counterparts to report that they had compulsions about washing/checking.

Education, material hardship, and self-rated mental health were significantly associated with arranging compulsions. African Americans with less than a high school degree (11 years or less) and those with 12 years of education were more likely than those with 16 or more years of education to report arranging compulsions. In addition, respondents with higher levels of material hardship and poorer self-rated mental health were more likely than their counterparts to report that they had arranging compulsions.

Self-rated physical health, and self-rated mental health were significantly associated with counting (Table 4). Respondents with poorer self-rated physical health and those with and poorer self-rated mental health were more likely than their counterparts to report that they had counting compulsions.

The logistic regression analysis of repeating certain words is also presented in Table 4. Age, education, material hardship, self-rated physical health, and self-rated mental health were significantly associated with repeating words. African Americans 18–34 years of age were more likely to have compulsions about repeating words than respondents 55 and older. African Americans with 0–11 years of formal education were more likely to repeat words than college graduates (16+ years). Respondents with more material hardship were more likely to report having compulsions about repeating words. Lastly, respondents with poorer self-rated physical health and those with poorer self-rated mental health were more likely than their counterparts to report that they had compulsions about repeating words.

4. DISCUSSION

African Americans have been virtually absent from OCD research, due to numerous barriers to participation, including the small number of African Americans included in most large-scale surveys, as well as the lack of African Americans in clinical convenience samples.

Most studies of OCD access participants through OCD specialty treatment programs and, due to barriers to treatment participation, African American tend to not be included (Williams, Powers, Yun, & Foa, 2010). Due to the large number of African Americans in the NSAL, this study is able to provide for the first time a comprehensive examination of the demographic and health correlates of OCD symptoms in a nationally representative sample of African Americans. The sample herein includes a sizable subclinical sample, as only 1.6% had an OCD diagnosis, but 12.5% reported an obsession and 15.3% reported a compulsion.

Several demographic variables demonstrated consistent associations with the symptoms of OCD. Age was negatively associated with the two symptoms of obsessions and two of the four symptoms of compulsions. Research indicates that OCD is a disabling condition that waxes and wanes and tends to be chronic without treatment (Fineberg et al., 2013). African Americans with OCD tend have particularly persistent OCD due to the barriers to care that leave most untreated (Himle et al., 2008; Williams, Domanico et al., 2012). Our findings are consistent with our expectations and previous research on African American mental health (Ford et al., 2007; Himle et al., 2008; Williams et al., 2007), indicating that fewer elderly African Americans have OCD symptoms. This same pattern is also observed with OCD in the general U.S. population (Kessler et al., 2005). Despite very little research on OCD among geriatric populations, one possible explanation for lower rates among the elderly could be that people with OCD have higher mortality rates than their unaffected counterparts. OCD is highly co-morbid with other mental health problems and individuals with psychiatric disorders have higher mortality rates (Walker et al., 2015). In one of the few studies of OCD and mortality, Meier and colleagues (2016) found that people with OCD had a significantly higher mortality rate from both natural and unnatural causes compared to the general population. This was a population-based study in Denmark, so the mortality rate might be even higher for African Americans with OCD, given their status as a stigmatized ethnic group facing relatively greater impediments to effective treatment (Williams, Domanico et al., 2012). Interestingly, no significant differences in symptom presentation emerged due to gender, which differs from findings in primarily White samples (e.g., Labad et al., 2007). We expected to see more contamination concerns in women and more unacceptable thoughts in men. It could be that these gendered behaviors are less salient in African Americans due to cultural differences surrounding flexibility of gender roles (Orbuch & Eyster, 1997).

In addition to the emotional toll of psychiatric disorders such as OCD, individuals with psychiatric disorders have lower levels of socio-economic status (Kessler et al., 2008). Our analysis did not find any income or employment status differences, but it did find that African Americans with compulsive symptoms have fewer years of educational attainment. Educational achievement is critically important, as this is a primary predictor for health behaviors and health outcomes and affects income, social networks, self-efficacy, and the ability to retrieve and process health information (Rogers, Everett, Zajacova, & Hummer, 2010). A person’s level of education is often established early in life and persists into later adulthood, independent of changes in health or labor force participation (Everett, Rogers, Hummer, & Krueger, 2011; Rogers et al., 2010). Previous analyses by Himle et al. (2008) indicated that African Americans with OCD showed lower educational attainment. Our

findings indicate that compulsions rather than obsessions are most strongly associated with decreased educational attainment, with those having ordering compulsions evidencing the greatest educational shortfall. This is consistent with research indicating that OCD interferes with academic performance (Fischer-Terworth, 2013), as ordering behaviors can directly interfere with school activities (e.g., arranging items on desk rather than competing a writing assignment).

Material hardship was positively associated with five of the six symptoms of OCD and bordered on significance for counting compulsions (p=.07). It is important to reiterate that material hardship represents difficulty in meeting basic expenses including pay rent or mortgage, paying utility bills, having utilities disconnected and being evicted for non-payment. Material hardship is a major source of stress and, further, our findings indicate that it is an important and independent correlate of OCD symptoms regardless of income level. This is an important issue especially for clinicians for they will need to address not only the emotional difficulty of the symptoms of OCD, but also the stress around the failure to meet the expenses of daily life.

Our analysis also examined three measures of self-rated health. Self-rated mental health was significantly associated with all four indicators of compulsions (Table 3) and both indicators of obsessions (Table 4). This is consistent with previous literature indicating that OCD is a highly distressing disorder across all symptom dimensions, and often begins in childhood or adolescence (Dell'Osso et al., 2016). We included a measure of self-rated physical health in this analysis because previous research indicates that, in some cases, psychiatric disorders are co-morbid with physical problems (Eisen et al., 2006; Woodward et al., 2013). Unfortunately, little research examines physical health and OCD, and even less explores specific OCD symptoms. Our analysis found that self-rated physical health was negatively associated with compulsive counting and repeating which is consistent with the few studies that have documented negative associations between physical health and compulsions more broadly (Albert et al., 2010; Moritz et al., 2005). In an Italian sample, Albert et al. (2010) found a connection between decreased physical health and the contamination/cleaning symptom dimension, but did not separate this by the specific obsession (contamination) versus the compulsion (cleaning). It is not clear why counting and repeating words would be correlated to negative physical health more so than other OCD symptoms. Future studies should examine health and OCD symptoms more specifically to better understand these relationships.

Overall, oral health is rarely investigated in relation to psychiatric disorders. Nonetheless, the pain, unattractiveness, and social stigma associated with poor oral health can be a significant stressor. We included self-rated oral health in the analysis because people with symptoms of OCD may be less likely to undertake the preventive care to ensure adequate oral health, or engage in compulsions that may compromise oral health. Contrary to our expectations, self-rated oral health was not associated with any of the six symptoms in our analysis. In comparison to other OCD symptoms, fewer people indicated that they had counting compulsions (3.53%) and there were fewer significant associations with counting compulsions. Typically, people with this symptom of OCD are counting for a purpose, as a means of measuring or assessing the amount of something deemed important to ensure

safety (i.e., crossing a door threshold using an even number of steps to prevent a feared catastrophe). In the general population, some types of compulsive behaviors are quite common and considered normal (Muris, Merckelbach, & Clavan, 1997), though counting specifically has not been studied. This is clearly an area where more research is needed.

Limitations and Strengths

Due to the limited nature of the CIDI-SF, not all common OCD symptom dimensions were fully investigated. Furthermore, OCD is challenging to diagnose (Sussman, 2003), and like most epidemiological studies, the diagnostic interview was not conducted by a clinician. The CIDI-SF OCD has been utilized in numerous studies in both the United States, as well as Australia and Europe; however, like most other structured interviews, the CIDI-SF OCD has not been validated in African American samples (Williams, Wetterneck, & Sawyer, 2015). It is important to note, however, that this study examines correlates of obsessive-compulsive symptoms, not a formal OCD diagnosis. Due to the cross-sectional nature of the data, we cannot draw cause and effect conclusions. Finally, the NSAL is 15 years old and some of the findings may be different if the survey was conducted today.

Despite these limitations, this paper has significant strengths. It is the first comprehensive examination of the symptoms of OCD among African Americans. It has the benefit of utilizing a national sample and thus the ability to investigate a wide range of demographic and health correlates. This study found that there are important socio-demographic correlates of OCD symptoms. The finding that individuals who suffer from the symptoms of OCD have high levels of material hardship and lower educational attainment has important implications both for clinicians as well as for poverty researchers. Given the well-known cost barriers to obtaining effective behavioral treatment for OCD (Tolin, Diefenbach, & Gilliam, 2011), our findings indicate that the most effective treatments are financially out of reach for African Americans with the most severe symptoms. Additionally, Williams, Domanico, and colleagues (2012) note that 50% of European Americans with OCD said they did not know where to find help, while for African Americans this percentage was 76.1%. Given the dearth of specialized treatment providers for OCD, it is likely that the number of providers in community mental health clinics in African American communities is inadequate (Goodwin, Koenen, Hellman, Guardino, & Struening, 2002; Williams & Jahn, 2017). Thus, finding ways to obtain treatment for those most in need is a pressing public health concern.

Future Directions

Future research should investigate additional risk and protective factors of OCD symptoms in African Americans (Williams & Jahn, 2017). Risk factors may include problems such as experiences with discrimination and lack of access to providers, whereas protective factors may include social support (Taylor et al., 2015; Taylor et al., 2016) and religious involvement (Himle et al., 2012; Taylor et al., 2014). Finally, it will be important to extend these findings and future research efforts downward to pediatric populations, an area of scientific inquiry that has been completely neglected (Williams & Jahn, 2017).

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Table 1.

Exact Question Wording for the Indicators of Obsessions and Compulsions

Obsessions	
Dirty Hands, Germs on Hand	I want to ask you next about whether you have ever been bothered by having certain unpleasant thoughts that kept entering your mind against your wishes. An example would be the persistent idea that your hands are dirty or have germs on them. Have you ever had any unpleasant thoughts like that?
Harm Someone	Another example of an unpleasant thought would be the persistent idea that you might harm someone, even though you really didn't want to. Or you might have had thought you were ashamed of, but couldn't keep them out of your mind. Have you ever had any unpleasant and persistent thought like that?
Compulsions	
Washing Hands/Checking Doors	Some people have the unpleasant feeling that they have to do something over and over again even though they know it is really foolish, but they can't resist doing it – things like washing their hands again and again or going back several times to be sure they've locked a door or turned off the stove. Have you ever had to do something like that over and over?
Putting Things in a Certain Order	Was there ever a time when you felt you had to do something in a certain order, like putting your clothes on in a certain way, and had to start all over again if you did it in the wrong order?
Counting	Has there ever been a period of time of several weeks when you felt you had to count something, like the squares in a tile floor, and couldn't resist doing it even when you tried to?
Repeat Certain Words	Did you ever have a period of time when you had to say certain words over and over, either aloud or to yourself?

Table 2.

Demographic Characteristics of the Sample and Distribution of Study Variables

	% (S.E.)	Mean (S.D.)	N
Contamination	7.90 (0.82)		3406
Unacceptable Thoughts	8.29 (0.62)		3407
Washing and Checking	10.63 (0.70)		3407
Arranging	5.19 (0.52)		3408
Counting	3.53 (0.39)		3409
Repeating Words	6.85 (0.45)		3408
Age			
18-34	35.73 (1.40)		1232
35-54	42.65 (0.87)		1501
55 and older	21.62 (1.06)		837
Gender			
Male	44.03 (0.83)		1271
Female	55.97 (0.83)		2299
Work Status			
Employed	66.83 (1.05)		2334
Unemployed	10.07 (0.71)		366
Not in Labor Force	23.10 (0.96)		861
Education			
11 years and less	24.19 (1.20)		920
12 years	37.86 (1.09)		1362
13-15 years	23.83 (0.97)		809
16 and more years	14.12 (1.13)		479
Marital and Romantic Status			
Married and Cohabitating	41.65 (1.03)		1220
Not Married	58.35 (1.03)		2333
Household Income			
Less than $15,000	24.70 (1.28)		1054
$15,000- $27,999	23.76 (0.97)		925
$28,000- $46,999	25.50 (1.04)		866
$47,000 and more	26.05 (1.67)		725
Material Hardship		0.89 (1.31)	3528
Self-Rated Physical Health		3.42 (0.95)	3437
Self-Rated Oral Health		3.11 (0.99)	3435
Self-Rated Mental Health		3.84 (0.91)	3436

Frequencies are unweighted; Percents and means are weighted to be nationally representative of the given population and subpopulations in the U.S.

Table 3.

Weighted Logistic Regression Analysis of Demographic and Self-Rated Health Variables and Obsessions among African Americans[1]

	Unpleasant Thoughts –Dirty Hands, Germs on Hand	Unpleasant Thoughts – Harm Someone
	OR (95% C.I.)	**OR (95% C.I.)**
Age		
18-34	1.89 (1.15,3.08) *	5.56 (3.32,9.30) ***
35-54	1.16 (0.72,1.89)	2.19 (1.48,3.23) ***
55 and older	1.00	1.00
χ^2	(8.32, p=0.02)	(49.93, p<0.0001)
Gender		
Female	1.00	1.00
Male	1.03 (0.80,1.34)	1.08 (0.77,1.53)
χ^2	(0.07, p=0.79)	(0.21, p=0.64)
Work Status		
Employed	1.00	1.00
Unemployed	0.93 (0.63,1.38)	0.87 (0.56,1.34)
Not in Labor Force	1.27 (0.78,2.07)	0.92 (0.54,1.56)
χ^2	(1.29, p=0.52)	(0.64, p=0.72)
Education		
11 years and less	0.93 (0.47,1.82)	1.44 (0.84,2.46)
12 years	0.97 (0.49,1.93)	1.10 (0.61,2.00)
13-15 years	0.97 (0.52,1.81)	1.00 (0.52,1.92)
16 and more years	1.00	1.00
χ^2	(0.06, p=1.00)	(3.46, p=0.33)
Marital and Romantic Status		
Married and Cohabitating	1.00	1.00
Not Married	1.00 (0.72,1.39)	1.05 (0.74,1.49)
χ^2	(0.00, p=1.00)	(0.07, p=0.79)
Household Income		
Less than $15,000	1.63 (0.90,2.96)	0.96 (0.54,1.71)
$15,000- $27,999	1.35 (0.81,2.24)	0.93 (0.53,1.66)
$28,000- $46,999	1.39 (0.86,2.23)	1.01 (0.61,1.68)
$47,000 and more	1.00	1.00
χ^2	(3.12, p=0.37)	(0.13, p=0.99)
Material Hardship	1.12 (1.02,1.22) *	1.18 (1.08,1.30) **
Self-Rated Physical Health	0.95 (0.83,1.10)	0.91 (0.73,1.12)
Self-Rated Oral Health	0.95 (0.80,1.14)	0.86 (0.72,1.02)
Self-Rated Mental Health	0.76 (0.69,0.85) ***	0.67 (0.54,0.83) **

	Unpleasant Thoughts –Dirty Hands, Germs on Hand	Unpleasant Thoughts – Harm Someone
	OR (95% C.I.)	OR (95% C.I.)
F	4.16**	8.99***
N	3384	3385

Note: OR= Odds Ratio, C.I.=Confidence Intervals

[1] Current Married or Cohabiting is the comparison group.

[2] Several independent variables are represented by dummy variables. Age, 1=18-34, 2=35-54, 3=55 and older; Gender, 0 = male, 1 = female; Work Status, 1=Employed, 2= Unemployed, 3= Not in Labor Force; Education, 1=11 years and less, 2=12 years, 3=13-15 years, 4=16 and more years; Marital and Romantic Status, 1=Married and Cohabitating, 2= Not Married; Household Income, 1= Less than $15,000, 2=$15,000- $27,999, 3= $28,000- $46,999, 4=$47,000 and more.

* p<.05

** p< .01

*** p<.001

Table 4.

Weighted Logistic Regression Analysis of Demographic and Self-Rated Health Variables and Compulsions among African Americans[1]

	Washing Hands/Checking Doors	Putting Things in a Certain Order	Counting	Repeat Certain Words
	OR (95% C.I.)	OR (95% C.I.)	OR (95% C.I.)	OR (95% C.I.)
Age				
18-34	2.29 (1.58,3.33)***	1.69 (0.90,3.14)	2.51 (0.90,7.00)	2.91 (1.64,5.18)**
35-54	1.21 (0.85,1.72)	1.21 (0.67,2.18)	1.28 (0.48,3.36)	1.60 (0.85,3.02)
55 and older	1.00	1.00	1.00	1.00
Gender				
Female	1.00	1.00	1.00	1.00
Male	0.93 (0.70,1.24)	1.03 (0.70,1.53)	1.12 (0.74,1.69)	0.99 (0.66,1.49)
Work Status				
Employed	1.00	1.00	1.00	1.00
Unemployed	0.87 (0.60,1.25)	1.10 (0.64,1.90)	1.22 (0.58,2.56)	1.31 (0.80,2.15)
Not in Labor Force	1.01 (0.65,1.58)	1.10 (0.65,1.88)	0.57 (0.29,1.14)	0.83 (0.55,1.26)
Education				
11 years and less	1.95 (1.26,3.00)**	3.62 (1.45,9.03)**	1.31 (0.42,4.11)	2.35 (1.12,4.90)*
12 years	1.31 (0.77,2.21)	2.76 (1.12,6.81)*	0.96 (0.36,2.55)	1.39 (0.65,2.96)
13-15 years	0.98 (0.56,1.70)	1.95 (0.86,4.42)	1.04 (0.46,2.38)	1.31 (0.51,3.39)
16 and more years	1.00	1.00	1.00	1.00
Marital and Romantic Status				
Married and Cohabitating	1.00	1.00	1.00	1.00
Not Married	0.86 (0.63,1.19)	1.07 (0.74,1.53)	1.00 (0.54,1.86)	0.97 (0.63,1.50)
Household Income				
Less than $15,000	1.20 (0.73,1.97)	1.49 (0.77,2.90)	2.15 (0.74,6.25)	1.37 (0.82,2.29)
$15,000- $27,999	1.20 (0.72,1.98)	1.10 (0.55,2.18)	2.07 (0.79,5.40)	1.09 (0.68,1.73)
$28,000- $46,999	0.88 (0.56,1.37)	1.52 (0.85,2.72)	1.02 (0.42,2.44)	1.13 (0.65,1.96)
$47,000 and more	1.00	1.00	1.00	1.00
Material Hardship	1.12 (1.04,1.20)**	1.25 (1.10,1.42)**	1.12 (0.98,1.29)	1.13 (1.02,1.26)*
Self-Rated Physical Health	0.92 (0.82,1.02)	0.97 (0.80,1.16)	0.79 (0.65,0.96)*	0.79 (0.66,0.96)*
Self-Rated Oral Health	0.99 (0.87,1.14)	0.95 (0.79,1.15)	0.98 (0.76,1.27)	1.00 (0.84,1.19)
Self-Rated Mental Health	0.74 (0.64,0.86)***	0.77 (0.60,0.98)*	0.75 (0.61,0.93)*	0.81 (0.70,0.95)**
F	6.19***	5.35**	7.11***	15.94***
N	3385	3386	3387	3386

Note: OR= Odds Ratio, C.I.=Confidence Intervals

[1] Current Married or Cohabiting is the comparison group.

[2] Several independent variables are represented by dummy variables. Age, 1=18-34, 2=35-54, 3=55 and older; Gender, 0 = male, 1 = female; Work Status, 1=Employed, 2= Unemployed, 3= Not in Labor Force; Education, 1=11 years and less, 2=12 years, 3=13-15 years, 4=16 and more years;

Marital and Romantic Status, 1=Married and Cohabitating, 2= Not Married; Household Income, 1= Less than $15,000, 2=$15,000- $27,999, 3= $28,000- $46,999, 4=$47,000 and more.

*
p<.05

**
p< .01

***
p<.001