

Effects of Need for Cognitive Closure and Age on Medical-Related Beliefs of African Americans

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Abstract

Given the accessibility to medical resources in urban areas, one possible barrier to African Americans' participation in clinical research and medical services is their medical-related beliefs. Such beliefs may partially explain various health disparities in the African American community – including HIV. However, the dynamic of psychosocial and demographic factors underlying these beliefs are less understood. Forty-nine urban-residing African Americans completed the Need for Cognitive Closure Scale (NFCS), the Medical Mistrust Index (MMI), and a HIV conspiracy belief questionnaire to determine the differences among these factors. While there was no significant interaction between NFCC and age on medical mistrust towards healthcare organizations, there was a significant interaction between NFCC and age on HIV conspiracy beliefs. Results suggest there may be an association between NFCC and the level of endorsement in HIV conspiracy beliefs among young urban African Americans. Future studies should examine this relationship within a larger population to determine possible strategies for decreasing such beliefs among this vulnerable population.

Keywords: African Americans, need for cognitive closure, medical beliefs, medical mistrust, HIV

Introduction

Despite advances in medicine and access to care, health disparities in the African American community still exist (Cunningham, Croft, Liu, Lu, Eke, & Giles, 2017). In particular, African Americans account for 43% of HIV diagnosis while only accounting for 13% of the population (Centers for Disease Control and Prevention [CDC], 2018a). Additionally, African American men who have sex with men and African American women have the highest rate of new HIV infection (CDC, 2018a). Traditional factors such as socioeconomic status and age have been associated with various health disparities. For instance, age can influence an individual's perception of health care interactions, which in turn can impact compliance to treatment and overall lifestyle choices (DeVoe, Wallace, & Fryer, 2009). However, it is important to consider that beliefs in institutional discrimination and increased levels of distrust regarding healthcare organizations (i.e. medical mistrust) may also account for the lack of minority representation in clinical research studies and lack of prevention/treatment seeking behavior. By and large, medical mistrust is often greater among African Americans as compared to Whites (Corbie-Smith, Thomas, & George, 2002). For example, African Americans are more likely to believe that their physicians would expose them to unnecessary risks, more likely to believe their physicians administered treatment as part of a study without their consent, and less likely to believe they could freely ask questions to their physicians (Corbie-Smith, Thomas & George, 2002). Greater medical mistrust among African Americans has also been associated with lower odds of seeking HIV testing (Ford, Wallace, Newman, Lee, & Cunningham, 2013) and reduced HIV treatment adherence when compared to other racial/ethnic groups (Bogart, Wagner, Green, Mutchler, Klein, McDavitt, Lawrence, & Hillard, 2016).

In addition, research has shown an association between medical mistrust and conspiracy beliefs due to years of societal and institutional discrimination (Bird & Bogart, 2005; Kramer, 1999). Therefore, it is likely African Americans who have experienced such discrimination in healthcare are more likely to support medical-related conspiracy beliefs. Studies have shown that African Americans perceive the US healthcare system as racist or discriminatory (Fowler-Brown, Ashkin, Corbie-Smith, Thaker, & Pathman, 2005; Hausmann, Jeong, Bost, & Ibrahim, 2008; Lillie-Blanton, Brodie, Rowland, Altman, & McIntosh, 2000). With regard to HIV specifically, studies have revealed that a significant number of African Americans endorse conspiracy beliefs such as, "HIV/AIDS is being used to intentionally kill and control the African American population" (Bird & Bogart, 2005). Given the significant percentage of African Americans who hold such negative medical-related beliefs, it is a considerable challenge for healthcare to gain trust from the African American community.

The Need for Cognitive Closure

It is evident that African Americans' perceptions and attitudes can be attributed to historical interpersonal and institutional discrimination in the United States. Such beliefs (e.g. "Healthcare providers can't be trusted") and subsequent behaviors (e.g., Avoids going to see a physician because of mistrust.) may be exacerbated by the need for cognitive closure, or NFCC. The need for cognitive closure identifies a desire for a certain view involving preference for order and structure, closed mindedness, as well as discomfort with ambiguity (Webster & Kruglanski, 1994). The NFCC has been shown to be a consistent and measurable trait among individuals such that some individuals have a generally higher or lower NFCC (Webster & Kruglanski, 1994). A high level of NFCC produces a reliance on confirmation heuristics that results in a strengthening of existing beliefs (De Dreu, Koole, & Oldersma,

1999). For example, when an individual believes their personal control is threatened, one method to preserve that control and sense of order is through conspiracy beliefs (Kay, Whitson, Gaucher, & Galinsky, 2009). As such, conspiracy beliefs may provide the cognitive closure African Americans need to explain HIV and other health disparities as well as strengthen the medical mistrust already present by reinforcing their attitudes about institutional racism and discrimination in the United States.

Age

Findings on the connection between age, medical mistrust and conspiracy beliefs are somewhat mixed. For example, while some research has shown a negative relationship between age and medical mistrust (Boulware, Cooper, Ratner, LaVeist, & Powe, 2003; Galliford & Furnham, 2017), other studies have found a positive relationship (Hammond, 2010) – with most studies adjusting for age. In addition to medical mistrust, age may also have a significant effect on conspiracy beliefs (Douglas, Sutton, Callan, Dawtry & Harvey, 2016). For instance, research has shown a relationship between age and HIV conspiracy beliefs (Bogart, Wagner, Galvan, & Banks, 2010; Bohnert & Latkin, 2009; Ross, Essien, & Torres, 2006), while other studies regarding conspiracy beliefs have either controlled for age or showed no significant effect when analyzed as an independent covariate (Douglas et al., 2016; Klonoff & Landrine, 1999). Due to this lack of consistent findings, it is important to examine age and its potential influence in connection with the NFCC on medical-related beliefs.

Purpose of the Study

Despite progress, African Americans are still disproportionately affected by HIV which may be a result of their medical-related beliefs. Thus, the purpose of the study is to examine how medical mistrust and beliefs in HIV/AIDS conspiracies may differ based on the NFCC and how those differences may be influenced by age among urban African Americans. It is believed there is an effect of NFCC and age on medical mistrust as well as HIV conspiracy beliefs given the known implications of psychosocial and demographic factors in prevention and treatment-seeking behaviors among African Americans. Therefore, by examining these factors, we may begin to better address African Americans' concerns about the medical community and, in turn, take a more comprehensive approach in our clinical and research initiatives.

Method

Participants

Sixty-one African Americans were recruited from the psychology department of a university, community health fairs and local churches within the Washington D.C. Metropolitan Area. Participants has to be currently living in the Washington, D.C. Metropolitan Area and be of Black/African descent. The participants completed pen-and-paper surveys, with data from 11 participants excluded from analysis because their lie scores on the Need for Cognitive Closure Scale (NFCS; Webster, & Kuglanski, 1994) were greater than six. Six additional participants were excluded from partial or full analysis due to incomplete data. The mean age of the sample was 30.4 years, with the majority of the sample women (80%). A total of 64% of participants reported having had a prior HIV testing (22% preferred not to disclose). Participants recruited from undergraduate psychology courses received extra credit after completing the surveys with all other participants receiving no compensation for the study.

Materials and Measures

Medical Mistrust

Medical mistrust was assessed using the Medical Mistrust Index (MMI) (LaVeist, Arthur, Morgan, Rubinstein, Kinder, Kinney, & Plantholt, 2003) which measures the degree to which an individual has mistrust in healthcare organizations. The MMI is a 17-item scale on a four-point scale ranging from “strongly disagree” to “strongly agree” (e.g. “You’d better be cautious when dealing with healthcare organizations.”) The MMI has good reliability (Cronbach $\alpha = .76$), scale construct validity [The Trust in Physicians Scale (corr=-0.232, $p < .0001$)] and has been shown to be a strong predictor of underutilization of health services (LaVeist, Issac, & Williams, 2009). Six items were reverse-coded and a mean score was computed. Higher scores on the MMI indicated greater levels of medical mistrust.

HIV-Related Conspiracy Beliefs

Participants’ HIV-related conspiracy beliefs were examined using a survey from a study on treatment adherence and HIV conspiracy beliefs (Clark, Mayben, Hartman, Kallen & Giordano, 2008). Responses to the five statements were noted using a six-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (6) with higher mean scores indicating higher levels of conspiracy belief (e.g., “The government has a cure for HIV but will not release it.”). The survey has a standardized Cronbach α of .90 (Clark et al., 2008) with the total score for each participant used for analysis.

Need for Cognitive Closure Scale

The NFCC was assessed by the shortened-version NFCS, consisting of 14 items rated on a six-point scale (with an additional two lie scale items) from “strongly disagree” to “strongly agree” (e.g. “In case of uncertainty, I prefer to make an immediate decision, whatever it may be”). This scale was scored according to the authors’ instructions to yield a single overall measure (Cronbach’s $\alpha = 0.73$), with higher scores indicating higher need for closure.

Procedure & Data Analysis

The study was approved by the University’s Institutional Review Board (IRB). At the time of consent, participants were informed of the purpose of the study and the anonymity and confidentiality of their responses (each survey was given a unique code). Participants were then asked to complete a sociodemographic questionnaire, the MMI, the HIV conspiracy survey and the NFCS within a larger set of surveys regarding cultural mistrust and attitudes towards HIV testing in random order. Completion of the surveys took approximately 30 minutes. Data was analyzed using SPSS 22. A two-way analysis of variance was conducted to determine the effects of NFCC and age on both medical mistrust and HIV-related conspiracy beliefs.

Results

Two-way ANOVAs were conducted to determine whether or not there were differences across NFCC levels (low, neutral, high) and age (young adult, adult, older adult) regarding participants’ medical mistrust and HIV conspiracy beliefs, independently. The NFCC levels were based on the top and bottom quartiles of the participants’ scores, 50 (high) and 35 (low). For the age groups, participants ages 18–22 were assigned to the young adult group. The adult group comprised of adults ranging from 23–39, while the older adult group was comprised of adults 40 years of age and above (oldest participant was 62). Age group cutoffs

were chosen in a manner to best capture possible age effects based on generational differences as well as historical prejudices that may play a role in medical-related beliefs.

Means and standard deviations are outlined in Tables 1 and 2. Results of the two-way ANOVAs are depicted in Figures 1 and 2. The two-way analysis of variance for medical mistrust yielded no significant interaction effect, $F(4, 40) = .273, p = .894$, between the two variables. Therefore, an analysis of the main effect for NFCC and age was performed. However, neither NFCC, $F(2, 40) = .196, p = .823$, nor age, $F(2, 40) = 1.532, p = .229$, were found to be significant.

For HIV conspiracy beliefs, there was a significant interaction effect, $F(4, 35) = 2.652, p = .049$, indicating the effect of NFCC on participants' HIV conspiracy beliefs were contingent upon age. Therefore, an analysis of simple main effects for age was conducted. There was a statistically significant difference in mean HIV conspiracy beliefs for low NFCC to either young adults, adults, or older adults, $F(2, 35) = 3.845, p = .031$, but not for mid NFCC, $F(2, 35) = 2.484, p = .098$, or high NFCC, $F(2, 35) = .402, p = .672$. Additionally, there was no statistically significant simple main effect for NFCC in mean HIV conspiracy beliefs for young adults, $F(2, 35) = 1.872, p = .169$, adults $F(2, 35) = 3.221, p = .052$, or older adults, $F(2, 35) = .403, p = .671$.

Age Group	NFCC Level	<i>n</i>	Medical Mistrust Scores	
			<i>M</i>	<i>SD</i>
Young Adults (18–22)	Low NFCC	5	42	6.86
	Neutral NFCC	6	45.17	7.08
	High NFCC	7	42.86	2.27
	Total	18	43.39	5.42
Adults (23–39)	Low NFCC	3	45.67	2.89
	Neutral NFCC	11	48.09	6.07
	High NFCC	7	47.29	4.92
	Total	21	47.48	5.22
Older Adults (40–62)	Low NFCC	5	46	10.17
	Neutral NFCC	4	44	5.66
	High NFCC	1	43	--*
	Total	10	44.38	7.62

Note. *Only one participant in the older adult group endorsed high NFCC

Table 1: Means and Standard Deviations of Medical Mistrust as a Function of Age and NFCC Level

Age Group	NFCC Level	<i>n</i>	Medical Mistrust Scores	
			<i>M</i>	<i>SD</i>
Young Adults (18–22)	Low NFCC	4	24	6.16
	Neutral NFCC	6	15.5	7.31
	High NFCC	4	16.25	5.67
	Total	14	18.14	7.19
Adults (23–39)	Low NFCC	3	10.33	2.89
	Neutral NFCC	11	22.18	6.46
	High NFCC	6	20.33	9.46
	Total	20	19.85	7.99
Older Adults (40–62)	Low NFCC	5	13	8.97
	Neutral NFCC	4	14.75	7.19
	High NFCC	1	20	--*
	Total	10	14.4	7.74

Note. *Only one participant in the older adult group endorsed high NFCC

Table 2: Means and Standard Deviations of HIV Conspiracy Beliefs as a Function of Age and NFCC Level

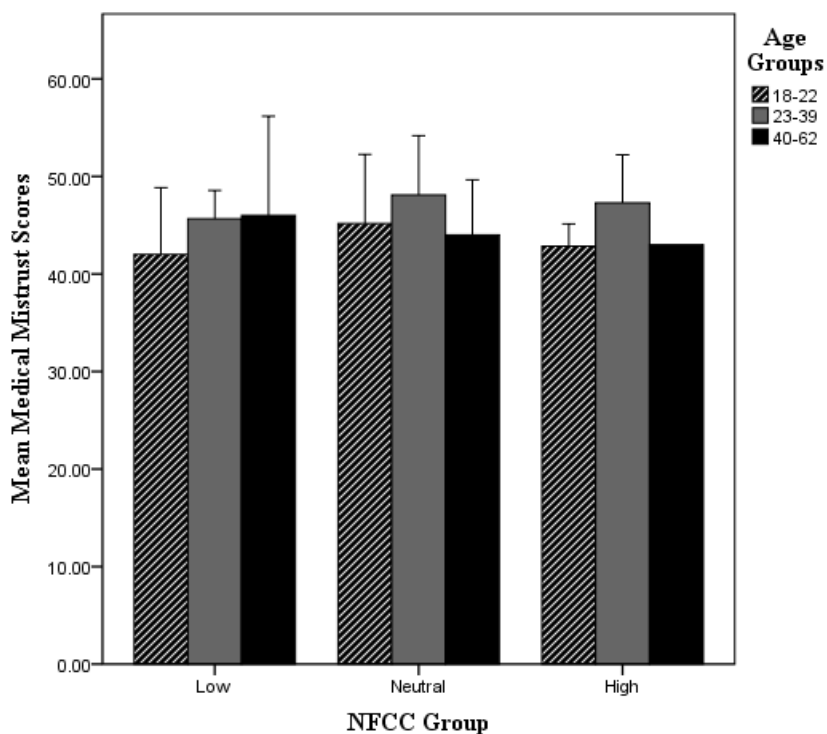


Figure 1: The Effect of NFCC and Age on Medical Mistrust

Note: Error bars are standard error measurement (SEM). Only one participant from the 40–62 age group endorsed high NFCC, therefore no error bar calculation was conducted.

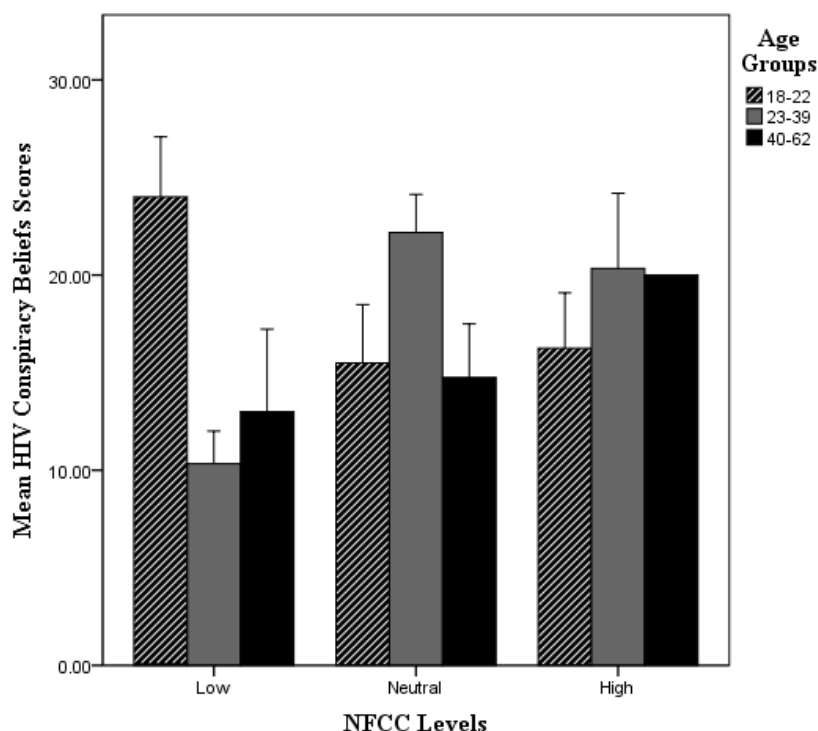


Figure 2: The Effect of NFCC and Age on HIV Conspiracy Beliefs

Note: Error bars are standard error measurement (SEM). Only one participant from the 40–62 age group endorsed high NFCC, therefore no error bar calculation was conducted.

Discussion

Results from the study revealed mixed findings. Surprisingly, there was no significant effect of NFCC and age on medical mistrust. This may be a result of factors playing a more significant role in Africans Americans' level of medical mistrust. For example, research has shown that factors such as worse self-reported health and perceived racism are strongly associated with medical mistrust more so than age (Armstrong, Rose, Peters, Long, McMurphy, & Shea, 2006; Hammond, 2010). Thus, the interaction of NFCC or age with other factors may have yielded different results. Additionally, unbalanced groups sizes may have also impacted the results, warranting future studies to include a more robust sample size.

Secondly, as expected, there was a significant interaction between NFCC level and age groups regarding HIV conspiracy beliefs. This showed that NFCC levels are dependent on age when determining whether or not participants believed in HIV conspiracy beliefs. More specifically, differences were observed among participants with low NFCC with the young adults group endorsing stronger beliefs in HIV conspiracies than the adults or older adult groups. This supports previous studies that have found young adults are more likely to believe in conspiracy theories (Goertzel, 1994) as well as are less likely to seek or adhere to

medical treatment related to HIV/AIDS (Bazzi, Drainoni, Biancarelli, Hartman, Mimiaga, Mayer, & Biello, 2019).

From a psychosocial perspective, beliefs in conspiracy theories are often a result of lack of certainty, control or power due to an inability to affect change or feelings of insignificance in society (Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013; Kossowska & Bukowski, 2015) – which may explain why participants in the young adults group endorsed greater HIV conspiracy beliefs than the other age groups. In addition, while millennials lack life experience in the overall social system they have far more experience and exposure to the socio-technical system where pervasive conspiracy theories are readily available, shared, and agreed upon without the need for evidence (Bessi, Coletto, Davidescu, Scala, Caldarelli, & Quattrociochi, 2015). This also may explain why significant differences were found among low NFCC as opposed to a high NFCC. As Leman and Cinnirella (2013) point out, individuals who are more opened to alternative explanations to events are less like to have a NFCC. In the case of the young adult group, social influence rather than scientific evidence may play a significant role in not only beliefs in conspiracies but how said beliefs can impact their behavior (Bessi et al, 2015). More disturbing, as 80% of new HIV diagnoses among the youth (13–24) occur in young people aged 20–24 and over half are African American (CDC, 2018b), this population is particularly vulnerable to the consequences of not seeking medical services and resources due to misinformation and beliefs.

Conclusion

Although the study had a small sample size, this preliminary examination contributes to our current knowledge by introducing the need for cognitive closure as a potential factor of young urban African Americans' HIV conspiracy beliefs. Future studies should expand on this concept, given its possible impact on their participation in medical studies and services, with a larger more diverse sample. Other factors such as socioeconomic status and race-based medical mistrust should also be considered to expand upon these initial findings. With an emphasis on young adults, additional research is needed to develop more appropriate strategies (e.g., online debunking campaigns) tailored to the experiences and beliefs of African Americans.

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