Natural contact and stigma towards schizophrenia in African Americans: Is perceived dangerousness a threat or challenge response?

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A R T I C L E   I N F O

Article history:
Received 10 January 2011
Received in revised form 15 April 2011
Accepted 18 April 2011
Available online 28 May 2011

Keywords:
Stigma
Contact theory
Impedance cardiography
Cardiovascular reactivity

A B S T R A C T

This research extends our understanding of the relationship of social contact theory to stigma in a sample of mainly African American college students. In Phase 1, 75 participants with high levels of contact reported significantly lower negative affect and less social distance toward the mentally ill as compared to 89 participants with low contact. Despite this, the high contact group attributed significantly higher levels of dangerousness to the mentally ill. Thus while social contact was associated with reductions in some dimensions of stigma, it was associated with higher levels of self-reported perceived dangerousness. These results were obtained while controlling for social desirability bias in the self-report measures of stigma. The results from Phase 1 of this study may indicate fundamental differences between incidental social contact and that which occurs in an assistive context. In Phase 2, a subset of convenience from the high contact group (n = 27) and the low contact group (n = 38) were compared on cardiovascular reactivity measures while imagining social interactions with people labeled with schizophrenia. Post hoc testing revealed that when participants from the high contact group imagined interacting with people labeled as schizophrenic they exhibited significant decreases in total peripheral resistance (TPR), the challenge pattern, compared to their reactions when they imagined interacting with unstigmatized people. This finding suggests the higher dangerousness ratings of the mentally ill sometimes found in African American samples may be related to factors other than direct threat.

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1. Introduction

Few studies have focused upon stigma towards mental illness in ethnic and racial minorities. Findings from existing studies are mixed. Some researchers have indicated that African American patients seeking mental health care are more concerned with stigma than their European American counterparts. While some researchers have suggested that minorities are less likely to endorse prejudicial attitudes toward the mentally ill (Corrigan et al., 2001b), most have suggested that minorities express and experience higher levels of stigma.

Sussman et al. (1987) investigated health services utilization data in a face-to-face community survey of 3004 St. Louis residents. African Americans reported significantly higher levels of fear of psychiatric treatment than European Americans. Later Cooper-Patrick et al. (1997) conducted interviews with African American patients and found that they were more likely than European Americans to attribute stigma as discouraging mental health treatment.

Insight into African Americans’ high level of fear regarding treatment may be seen in Gary (2005)’s recent work on stigma as a barrier to mental health care among ethnic minorities. She refers to the concept of “double stigma” to indicate minorities’ experiences of prejudice and discrimination resulting from membership in two outgroups: (1) ethnic minority and (2) mental illness. She also asserts that family members and friends who associate with those who are mentally ill are also likely to face what she calls “courtesy stigma” that jeopardizes their own social relationships.

Wahley (1997) conducted a telephone survey of attitudes towards mental illness with a nationally representative sample (N = 1468). Findings from this survey revealed that, compared to their European American counterparts, African Americans perceive people with mental illness as more dangerous and associate the illness with extreme risk for violence regardless of their level of contact.

Anglin et al. (2006) also conducted a nationally representative phone survey of 1241 respondents. Analysis of a subset of participants who responded to a vignette revealed that the African American
participants were more stigmatizing towards those with mental illness than European American counterparts. African Americans were also more likely to believe those with schizophrenia or depression would commit violent acts against others.

Stigma researchers have suggested that interactions with individuals who are mentally ill decreases prejudicial attitudes and behaviors towards them. This idea has been termed contact theory. A tenant of this theory is that the more familiar one is with people who have severe mental illness, the less likely one is to engage in stigmatizing attitudes and behaviors. There is support for this theory. For example, Whaley (1997) found that European American participants' experience of increased contact with mentally ill individuals was associated with lower levels of perceived dangerousness. In fact, promotion of contact is routinely offered as an approach to reduce stigma and is an implicit part of most anti-stigma campaigns in the United States (Corrigan and Penn, 1999).

Evidence in support of contact theory comes from several studies. In one prospective study, investigators compared 36 volunteers from an agency that pairs volunteer participants with individuals who have a severe mental illness to two control groups: 24 volunteer participants from a control agency and 38 non-volunteer community participants (Couture and Penn, 2006). Changes in participants' attitudes over a 6-month period were compared among the three groups through stigma measures of perceived dangerousness, affect, and social distance. Findings provided evidence that contact indeed decreases negative affective responses towards those with severe mental illness.

If contact theory is valid for African Americans, then individuals who report greater levels of naturally occurring contact with individuals with severe mental illness should report lower levels of stigmatizing attitudes, physiological threat reactions, and behaviors. The aim of Phase 1 of this study is to determine through self-report methods if variations in naturally occurring contact with individuals with severe mental illness is associated with less stigmatizing attitudes and behaviors. This would replicate and extend previous research on contact theory to a sample of mainly African Americans. The aim of Phase 2 of the study is to examine how participants with high and low levels of contact react on cardiovascular reactivity measures when imagining social interactions with people with schizophrenia. Heretofore, the relationship between stigma and contact has only been studied through self-report measures. (Our previous psychophysiological study, Graves et al. (2005) did not include any moderating variables such as contact.) Cardiovascular reactivity was measured in Phase 2 with impedance cardiography which is used by social psychophysiological researchers to study in-group and out-group threat reactions.

2. Phase 1

2.1. Participants

Participants were 164 undergraduates from an Introduction to Composition class between the ages of 17–27 who attended a predominantly African American university in the northeastern United States (M = 18.7; SD = 1.4). Fifty-eight (35.2%) were male and 106 (64.8%) were female. The sample consisted of 127 African Americans (77.6%), 31 native Africans and Caribbeans (18.8%), and 6 Other (Asian, Hispanic, Puerto Rican and European American; 3.6%). Participants were recruited in class and informed that they would be given extra credit for participation. All subjects were debriefed about the results of the study at the end of the semester. Students who preferred not to participate were given optional extra credit opportunities. A unique identifying number was issued to collapse forms and data and to insure student confidentiality.

2.2. Measures

2.2.1. Demographic and level of contact questionnaire

The demographic form included a yes/no question whether the respondent had a family member with severe mental illness. Added to this form was the Level of Contact Questionnaire (LOC; Corrigan et al., 2001a). The LOC contains 11 examples of situations indicating varying levels of familiarity and intimacy with individuals with mental illness. Respondents were instructed to check off all of the situations that applied to them. Examples of situations on the LOC are “I have never observed a person that I was aware had a serious mental illness,” and “My job involves providing services and treatment for persons with a severe mental illness.” Interrater reliability for the scale is 0.83 (Holmes et al., 1999). The LOC was originally scored by assigning the respondent an ordinal value based on the highest ranked intimate situation they experienced with the mentally ill that they endorsed ranging from no contact “0” to the most intimate contact “11.” The modal response on the LOC for our participants was to item 9: “I live with a person who has a severe mental illness.” The LOC was also scored in this research by summing the number situations of contact that the respondent endorsed to produce an interval value with a normal distribution. This was done for the purpose of splitting the participants into low and high contact groups. This score also ranged from 0 to 11. The correlation between the original LOC Item Score and the LOC Contact Sum computed here was .73.

2.2.2. The balanced inventory of desirable responding--version 6 (BIDR-6)

The BIDR-6 was administered to all participants to ascertain the influence of social desirability over self-report responding patterns. The BIDR-6 is a 40-item Likert scale with seven anchors. The test consists of two subscales: Self-Deceptive Enhancement (SDE) scale and the Impression Management (IM) scale. Both scales have a total of 20 items each. The SDE scale reveals extremely positive self-evaluations the respondent truly believes about himself or herself, and the IM scale assesses self-enhancement targeted at an audience. The dichotomous scoring approach was used (Stöber et al., 2002). The internal consistency (Cronbach's alpha) of the SDE has been reported to range between .67 and .77, and it was calculated here as .70. The internal consistency of the IM has been reported to range between .77 and .85, and it was calculated here as .74.

2.2.3. The affect scale (AS)

This scale yields a measurement of participants' emotional reactions to someone who has a mental illness. The scale is comprised of 10 adjectives that reflect emotional content (e.g., “calm-nervous”). The participant rates each pair based on how he or she would respond to interaction with an individual who has a mental illness. Higher scores indicate greater negative affect associated with individuals suffering from mental illness. The internal consistency of the AS has been reported as .86 (Penn, et al., 1994) and it was calculated here as .88.

2.2.4. The social distance scale (SDS)

The SDS consists of 7 items related to interactions with an individual who is mentally ill. Researchers of stigma deem the test a proxy assessment of behavioral social avoidance. Higher scores indicate a tendency to maintain greater social distance from people suffering from mental illness. The internal consistency of this measure has been found to be between .75 and .92 (Penn, et al., 1994), and it was calculated here as .78.
2.2.5. The dangerousness scale (DS)

The DS scale consists of eight items that assess personal beliefs concerning whether individuals who have or have had a mental illness are expected to be dangerous toward others. The items are related to individuals with a mental illness in general. Higher scores indicate a tendency to perceive those with mental illness as more dangerous. Internal consistency for the scale has been reported from .78 to .82 (Link et al., 1987; Penn et al., 1999), and it was calculated here as .61.

2.3. Procedure

The inventories were provided to participants in class groups inside a packet with the instructions that this was part of a survey project on attitudes towards mental illness. The order of inventories was counterbalanced in each packet.

A median split of the LOC Contact Sum was used to form two groups of participants. The LOC Contact Sum ranged from 1 to 7 with a median of 3. Those participants who checked 3 items or less were assigned to the Low Contact group and those participants who checked more than 3 items were assigned to the High Contact group. This resulted in 89 participants being assigned to the Low Contact group and 75 participants being assigned to the High Contact group. (There were an insufficient number of participants to only use the upper and lower thirds of respondents on the LOC, when considering the number required for both phases of the study.)

3. Phase 1 results

No significant differences were found between Low and High Contact groups on the demographics of age using ANOVA. There was no difference in the distribution of sexes, race or ethnicity across groups when using Chi Square. Significant differences were found between groups on the yes/no question from the Demographic Questionnaire “Do you or a family member have a history of severe mental illness?” Sixteen per cent of the Low Contact group said they or a family member had a history of mental illness compared to 40% of the High Contact group. This resulted in 89 participants being assigned to the Low Contact group and 75 participants being assigned to the High Contact group. (There were an insufficient number of participants to only use the upper and lower thirds of respondents on the LOC, when considering the number required for both phases of the study.)

4. Phase 1 conclusions

The High Contact group reported significantly lower levels of negative affect and less social distance toward the mentally ill. Unexpectedly, the High Contact group attributed significantly higher levels of dangerousness to the severely mentally ill. Thus, contact was associated with reductions in some dimensions of stigma, but it appeared to enhance the perceived dangerousness dimension in our sample of mainly African Americans. These results were obtained while statistically controlling for social desirability biases in the self-report measures of stigma.

5. Phase 2

Cardiovascular markers have been used to assess individuals’ reactions to interactions in a wide variety of social contexts (Weisbuch et al., 2009). Of particular interest here is that cardiovascular patterns have been used as markers of internal states of challenge and threat (Blascovich, 2008). Cardiovascular responses associated with challenge states are associated with increases in cardiac output and decreases in peripheral resistance. Threat states in contrast are associated with increases in ventricular contractility.

5.1. Participants

Subjects from Phase 1 were asked to participate in the second phase if they could attend one of the available individual 90-minute appointments. Subjects were scheduled prior to any of their questionnaires being scored and without regard to their responses to any measure in Phase 1. They were informed that their physiological reactions to imagined situations would be assessed. They were given additional extra credit. All participants in Phase 2 were African American, and there were 38 from the Low Contact group and 27 from the High Contact group. There were no other changes in the demographic make-up of either group from Phase 1.

5.2. Additional phase 2 measures

5.2.1. Subjective units of discomfort scale (SUDS)

The SUDS is used to elicit subjective ratings of discomfort associated with imaging (McGlynn and Rose, 1998). Participants were given instruction in the use of the scale’s anchors of 0 to 100 during the baseline rating. A slide of the SUDS scale was presented for reference whenever participants were asked to make ratings. In addition to baseline, SUDS ratings were collected after each imagery condition.

5.2.2. Psychophysiological measures

Impedance cardiography was monitored with an HIC-3000 and the COP-WIN/HRV data acquisition software produced by Bio-Impedance Technology, Chapel Hill, NC. A spot electrode configuration was utilized following Qu et al. (1986). This approach has been found to be

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<td>SDS</td>
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<td>DS</td>
<td>31.0</td>
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Note: AS = Affective Scale, SDS = Social Distance Scale, DS = Dangerousness Scale.

Table 2

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Note: AS = Affective Scale (possible range: 7–100; obtained range: 10–63), SDS = Social Distance Scale (possible range: 0–3; obtained range: 43–3.0), DS = Dangerousness Scale (possible range: 0–8; obtained range: 18–47).
valid and reliable (Sherwood et al., 1992). All other guidelines for impedance cardiography were followed per the committee report of the Society for Psychophysiological Research (Sherwood et al., 1990). Blood pressure was measured by an Oscar 2 Ambulatory Blood Pressure Monitor produced by SunTech Medical, Inc., Morrisville, NC.

The following variables were analyzed: Heart Rate (HR), Ventricular Contractility (VC), Cardiac Output (CO), and Total Peripheral Resistance (TPR) following Blascovich et al. (2001) and Mendes et al. (2008) recommendations for studying challenge and threat reactions in social situations. TPR was derived from blood pressure and CO with the formula (MAP/CO) × 80, where MAP is mean arterial pressure. Measures were collected continuously throughout the baseline and experimental conditions. Change from baseline scores were computed for each index by subtracting the experimental condition value from the respective baseline value. Mendes et al. (2008) present a clear guide to the interpretation of these variables in tabular form (p. 280).

5.3. Slides for imagined social situations

Slides were of African American males and females who were unknown to participants. They were the same slides used in the Graves et al. (2005) study which were selected from pool of uncopyrighted pictures downloaded from the Internet. The pictures were of individuals at the age typical for the onset of schizophrenia for men (early to mid-20s) and women (late 20s). Pictures were matched for physical attractiveness based on pilot work done at Howard University. Volunteer students rated the original pool of photographs based on attractiveness using a scale of 0 to 10, with 0 being very unattractive and 10 being extremely attractive. The final four pictures selected had an average attractiveness rating of 6.4.

5.4. Procedure

The procedure used here followed those used in Graves et al. (2005) with the inclusion of the cardiovascular reactivity measures as contrasted to the facial EMG measures that were the focus of the earlier study. Participants were seated in a comfortable reclining chair in the upright position. Sensors were attached following audio-recorded instructions explaining the procedures. The participant was then instructed to rest for five minutes with eyes closed. After this rest period, there were four experimental trials, separated by approximately two-minute inter-trial intervals. Each trial began with a slide of a target individual presented on the wall directly in front of the participant. While the slide was presented, an audio-recorded biographical script was played describing the person. The biographical script was approximately one minute in duration. During two imagery trials, the biography included information that the target was diagnosed as having schizophrenia. Symptoms of hallucinations and erratic behaviors were described as well as prior hospitalizations. The script also included the statement that the person was currently in remission and “doing much better now.” In two imagery trials the biography did not include such labeling information. Thus, the people in each slide were either labeled or unlabeled with mental illness.

Following the biographical script for each portrait and while the slide was still being projected on the wall, a script was played with instructions for the participant to imagine engaging in a cooperative social interaction with the person just described. The slide was then turned off for 30 s while the participant imagined this interaction. The different imagery situations included helping the person to (1) complete a job resume, (2) decide on which apartment to rent from a list of newspaper advertisements, (3) practice for a driving test, or (4) shop for clothes at the mall. The order of presentation of male and female slides, labeled and unlabeled imagery, and possible cooperative tasks was counterbalanced to minimize any ordering effects. Examples of the slides and scripts may be reviewed in Graves et al. (2005).

6. Phase 2 results

A (2 × 2) repeated measures ANOVA was conducted comparing the High and Low Contact group SUDS ratings during the labeled and unlabeled imagery conditions. A significant main effect for imagery condition was obtained (F = 58.5, (1, 63), p < 0.001). No significant main effect for group or interaction effect for group by imagery condition was obtained. The average SUDS ratings during the unlabeled and labeled imagery conditions were 18.5 (SD = 15.8) and 34.2 (SD = 20.2) respectively.

A (2 × 2 × 4) repeated measures MANOVA was conducted comparing the High and Low Contact groups and the labeled and unlabeled imagery conditions on the four physiological variables of HR, VC, CO, and TPR. No significant multivariate main effect for group was obtained. However, a significant multivariate interaction for group and imagery condition was obtained with Pillai’s trace (F = 3.505, (4, 60), p = 0.012). A series of follow-up univariate analyses was then conducted to understand the group by imagery condition interaction. First, univariate analyses indicated that the VC and TPR variables contributed significantly to the interaction effect. The univariate group by imagery condition interaction for VC was F (1, 63) = 5.85, p = 0.018 and the univariate group by imagery condition interaction for TPR was F (1, 63) = 5.49, p = 0.022. Next, univariate analyses indicated that the High Contact group responded differently across labeled and unlabeled imagery conditions with lowered levels of both VC (F (1, 63) = 5.26, p = 0.03) and TPR (F (1, 63) = 5.28, p = 0.03). No significant differences for the Low Contact group were obtained across labeled and unlabeled imagery conditions. Next, the groups were compared at each imagery condition. The groups approached significant differences on the VC measure during the unlabeled imagery condition (F (1, 63) = 3.63, p = 0.06) with the High Contact group demonstrating higher levels. The groups by condition means for the cardiovascular reactivity measures are presented in Table 3. The interaction between contact group and labeled and unlabeled imagery conditions are illustrated in Figs. 1 and 2.

7. Phase 2 conclusions

To summarize Phase 2, post hoc testing revealed that when High Contact participants imagined interacting with stigmatized people they exhibited decreases in TPR, the challenge pattern, compared to their reactions when they imagined interacting with unstigmatized people. No difference between imagery conditions was found for the Low Contact participants, so their reactions cannot be characterized as falling within the threat or challenge pattern. There was an observed
trend for the High Contact participants to exhibit increases in VC and TPR (the threat pattern) during imagined interactions with unlabeled people when their responses were compared to the Low Contact participants.

8. Discussion

In Phase 1 of this study we tested the hypothesis that higher levels of naturally occurring contact is associated with lower levels of stigma. This hypothesis was partially supported and we found that naturally occurring contact reduces some aspects of stigma. Our High Contact group reported lower levels of negative affect and less social distance toward the mentally ill. On the other hand, this High Contact group attributed higher levels of dangerousness to the severely mentally ill. Thus, incidental contact was associated with reductions in some dimensions of stigma, but it appeared to enhance the perceived dangerousness dimension.

Several studies have suggested that African Americans endorse high levels of stigmatizing attitudes towards those with mental illness. In the Phase 1 sample of mainly African American participants, naturally occurring contact was associated with greater “acceptance” of the mentally ill. That is, participants with higher levels of contact reported less negative affect and lower social distance from the mentally ill.

There is an important difference between the methods used in our Phase 1 which examined naturally occurring contact and the Couture and Penn (2006) study which manipulated assistive contact. It is possible that incidental contact may be associated with uncertainty and unpredictability which in turn creates a sense of helplessness.

Uncertainty can be perceived as more dangerous. Alternatively, perceived dangerousness may not be a central dimension of stigma for our participants. Perceived dangerousness may be reflecting a socioeconomic situation rather than stigmatizing attitudes. For example, perceptions of dangerousness are likely to be reinforced when police in the United States are required to transport individuals with mental illness for involuntary commitment to public hospitals and mental health treatment facilities. Disparities in mental health care are likely to lead to more involvement of the police with service provision and may distort perceptions of these mental health disorders in African Americans.

Phase 2 builds on the conclusion that African American ratings of people with severe mental illness as more dangerous is a much more complex phenomenon than originally thought. All participants gave significantly higher SUDS ratings during imagined interactions with the mentally ill. One would assume then the physiological reactivity pattern associated with self-reported dangerousness would be the “threat” reaction. Threat reactions include increases in VC and TPR. We found that while the High Contact participants rated people with severe mental illness as more dangerous, those subjects actually exhibited significantly less VC and TPR when they imagined interacting with a person with severe mental illness. This pattern of cardiovascular responding is associated with a “challenge” reaction in the social psychology literature. Thus we did not find the “threat” reaction that one would expect if perceived dangerousness were the underlying cause of stigma. Our findings suggest that people with high levels of contact may not perceive interactions with the severely mentally ill as more dangerous but rather as more difficult and complex.

Lastly, Phase 2 of this study raises a potentially interesting issue that has not been widely discussed in the literature. That is, how do high levels of contact with those who are severely mentally ill change people’s social interaction patterns with individuals who are not mentally ill? We found a trend for the High Contact group to respond physiologically to imagined interactions with unstigmatized people as relatively more threatening than those in the Low Contact group. This is reminiscent of the concept of “courtesy stigma” described in Gary (2005). That is, having a high level of contact with mental illness may change a person’s own social status. While speculative at this point, it is interesting to ask whether having a history of high levels of contact put one in an “out-group.” Future research is needed to examine the potential social and psychological consequences of contact on people without mental illness. Furthermore, the conditions associated with positive and negative outcomes of promoting contact need to be identified.

Also in terms of future directions, we have ongoing research using Virtual Reality (VR) patient scenarios developed for Psychiatric, Primary Care, and other health service settings to examine if we can use physiological indices to detect challenge and threat reactions in trainees working with various “out-group” members. Obviously these methods need to be validated against imagery and in vivo approaches for training.

8.1. Limitations

Direct comparisons of the dimensions of stigma and race were not conducted in either of these studies, thus caution is urged in drawing conclusions about racial and ethnic differences in attitudes toward schizophrenia and severe mental illness. Nonetheless, the two studies reported here provide an in depth analysis of the attitudes and cardiovascular reactivity of a large number of healthy African American participants who are usually not well represented in research on contact and stigma.

No significant differences in the cardiac output measures (HR and CO) were found during the experimental manipulations. One orthodox view is that cardiovascular reactivity measures should be
interpreted in the context of increased cardiac demand. We found nonsignificant increases in heart rate and essentially no change in cardiovascular reactivity measures to the study of stigma and attitudes is a relatively new frontier. Expectations of significant increases in cardiac output across conditions. Our position is that applying psychophysiological reactivity. Therefore, contact theory is inherently confounded by other variables which may never fully be disentangled. Others have found relatively high rates of psychotic disorders, affective disorders, substance-use disorders, and schizophrenia-related personality disorders in family members with psychosis. Any of those disorders could in turn influence measures of stigma, contact, or psychophysiological reactivity. Therefore, contact theory is inherently confounded by other variables which may never fully be disentangled. Collectively, the results of these two studies confirm that stigma towards people with severe mental illness is a much more complex multidimensional construct than originally thought.

Role of funding source
This study was funded by a Howard University New Faculty Research Grant awarded to Ruth Elaine Graves. Howard University had no further role in study design, in the collection and analysis of data, or in the decision to submit the paper for publication.

Contributors
Ruth Elaine Graves and Jeffrey E. Cassisi co-designed the study and co-wrote the manuscript. Shona T. Chandon managed data entry, collected data with Ruth Elaine Graves, and read and made comments on the manuscript. All authors contributed to and have approved the final manuscript.

Conflict of interest
None.

Acknowledgements
The authors wish to thank Howard University General Clinical Research Center for provision of laboratory space and accommodations.

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