

# Does Contact-Based Learning Influence Medical Students' Attitude to Mental Illness in a Developing Country? A Pre-and Post-Design

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## ABSTRACT

**Background:** Despite the enormous burden of stigma towards people with mental illness in Africa and the presence of evidence-based interventions to reduce it; there is dearth of data in Africa on how to improve attitudes of students in training about mental illness. **Objectives:** This study aimed to determine the impact of a 4-week contact-based education on knowledge and attitudes of medical students in a Nigerian tertiary institution. **Methods:** A total population sample of 5<sup>th</sup> year medical students on 4-week psychiatry rotation was utilized using a prospective pre-/post-test design. Researcher designed questionnaire based on the literature on stigma in Africa and this was administered at the beginning and within one week after the posting ended. The rotation involved didactic lectures, case-based learning, individual case presentation, clinics and ward rounds. The pre- and post-test responses was compared using McNemar Chi-square. **Results:** After 4 weeks of contact-based learning, the following thoughts and attitudes of the students' about persons with mental illness significantly improved: being dangerous (p=0.001), giving them job (p=0.001), comfortable examining them (p=0.02) and the genetic basis of the disease (p=0.001). However, the intervention did not significantly change such attitudes related to more personal relationship like maintaining a friendship (p=0.73) and marrying them (p=0.25). **Conclusion:** The findings of this study suggest that contact-based education is useful in improving knowledge about causation of mental illness and some general stereotypes about them (e.g., being dangerous), but was not useful in improving personal and more intimate relationship with them.

**Keywords:** Contact-based learning, Personal stigma, Medical, Undergraduates, Developing country

## INTRODUCTION

Stigma and discrimination associated with certain diseases have remained a major focus of the global public health<sup>1</sup>. Persons with mental illness suffer double challenges as a result of their disorder<sup>2</sup>. On the one hand, they grapple with the symptoms and disabilities that stem from the disease. On the other, they are challenged by the stereotypes and prejudice that result from misconceptions about their illness<sup>3</sup>. Stigma-related to mental illness worsens the burden of the

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disease and is responsible for substantial distress<sup>3</sup>, treatment delay<sup>3</sup> and reduced indices of social advantage (e.g., employment, marriage, accommodation etc.).<sup>2</sup> Stigma in mental illness can be classified as: public and self-stigma and can be understood using a tripartite model, which proposes that stigma is an overarching term with three core elements namely: stereotypes, prejudice and discrimination<sup>5,6</sup>.

Research evidence is robust on the impact and the universality of stigma among persons with mental illness<sup>2, 3, 7</sup>. Stigma can be particularly worrisome when it comes from medical professionals to whom the patient turns to, for succor, and has negative consequences on both the patient's care and the physician's health<sup>8</sup>. These detrimental effects are not only limited to preventing persons with mental illness from seeking help<sup>3</sup>, but may perpetuate future generations of doctors assimilating stereotypes from the medical culture<sup>9</sup>. Medical students are particularly an important group to target with regards to attitudes towards people with mental illness. This is because they represent the future of medical profession in any country. In addition, there are evidence to show that attitudes early on training are more amenable to change and may harden as students progress through medical school and residency training<sup>10, 11</sup>. As future doctors, they are critical stakeholders in shaping the future of the medical culture and their actions or inactions, to incidents of stigmatizing behavior or attitudes will model for others what physicians consider to be appropriate behavior towards the mentally-ill. More so, there have been some reports that stigma against mental illness and psychiatrists contributes to the shortage of medical students choosing a career in psychiatry<sup>12</sup>. Thus, there is need to explore effective interventions to improve students' attitudes towards people with mental illness.

There is large evidence base for interventions to reduce public stigma with respect to mental illness, although evidence is sparse for measures to reduce self-stigma<sup>13,14</sup>. Interventions to improve public stigma have been grouped into three approaches: protest, education, and contact<sup>5</sup>. Protest is a reactive measure; it seeks to diminish negatives attitudes, but

does little to promote positive attitudes supported by facts<sup>5</sup>. Education provides factual information to allow the public make informed decisions about mental illness, whereas meeting people with mental illness who are responsible members of the population, able to hold jobs, or are good neighbors further diminishes stigma<sup>15</sup>. Robust evidence exists for education and contact in reducing public stigma towards persons with mental illness<sup>13-15</sup>.

The main aim of this study was: to determine the effect of a 4-week contact-based education on the knowledge and attitudes of medical undergraduates in a Nigerian medical school.

## METHODS

### Study design and setting

This was a prospective intervention study with pre- and post-test design to determine the impact of a 4-week mandatory posting in psychiatry among 5<sup>th</sup> year medical students of a Nigerian University. The mental health posting is a compulsory component of the medical curriculum as designed by the Medical and Dental Council of Nigeria (MDCN)<sup>16</sup>. The course content was organized according to the following: history of psychiatry, organic mental disorders, addiction psychiatry, schizophrenia and related disorders, bipolar affective disorders, major depressive disorders, eating disorders, sleep disorders, sexual disorders and paraphilia, neuro-developmental disorders, forensic psychiatry, suicide and parasuicide etc. Students were taught about mental illness using Engel's bio-psychosocial model<sup>17</sup>. Mental disorders were classified according to the criteria established by the International Classification of Diseases (ICD-10)<sup>18</sup>. The course was designed to incorporate various teaching methods: didactic lectures (4 hours daily), case-based teaching (2 hours daily), and case presentations by the students at the clinic (2 hours daily). Students on psychiatric rotation also participated in the outpatient clinic, ward rounds and emergency consultations

### Population under study

The study used a total population sample to recruit consenting medical students who were on their

mandatory 4 weeks Mental Health rotation. To be eligible to be enrolled into the study, the participant must be a 5<sup>th</sup> year medical student on mandatory posting in Mental Health and involved in both the lectures and clinical activities. Those who took permission of absence for various reasons such illness and economic difficulties were excluded. The students came in two batches of 32 students per group. The study was approved by the institution's Ethics and Research Committee. International ethical norms and standards were strictly adhered to at all times. Verbal and written consent was obtained from all the participants. Participation was voluntary.

### Data collection

Consenting students were, during their introductory lecture, given a questionnaire designed by the authors based on the literature with regards to stigma in Africa (see appendix 1). The questions were divided into three categories as summarized in the appendix: questions assessing contact with persons with mental illness, feelings towards persons with mental illness and knowledge about the cause and treatment of mental disorders. The preliminary page assessed the socio-demographic characteristics of age and gender of the students. The pre-test was done on the first day of the posting whereas the post-test was done within one 1 week after completion of the 4-week posting using the same questionnaire.

### Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (IBM-SPSS), version 20. The comparison of the pre- and post-test knowledge and attitudes towards persons with mental illness among the medical students were analyzed using McNemar Chi-square. All tests of significance were two-tailed at the 5% level of significance and confidence interval estimation of 95%.

## RESULTS

Of the 64 students that came for the posting, only 52 of them completed the post-test. Seven of the students were involved in the resist exams, and were not consistent with the posting. Another five were absent

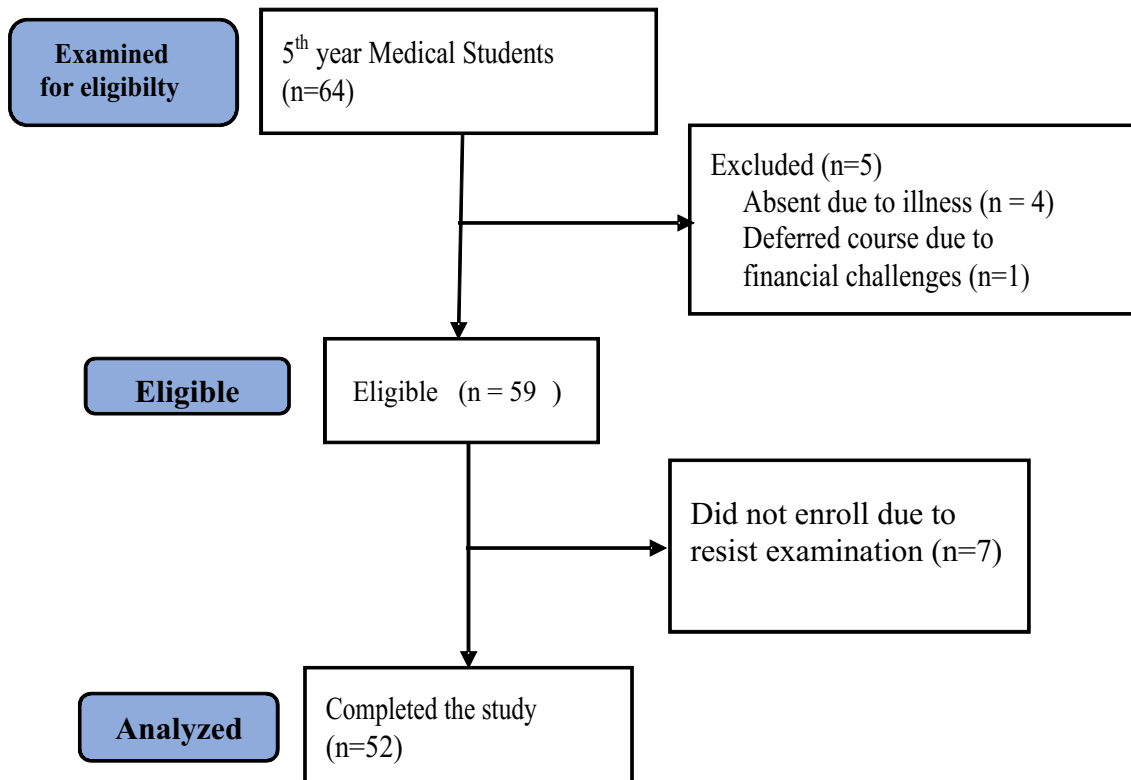
for various personal reasons and could not complete the post-test. Details is shown in the flow chart diagram below (Figure 1) A total of 52 students completed the study with a mean age of 25 years. There were no significant differences in the pre- and post-intervention responses with regards to question relating to knowing, meeting or talking with persons with mental disorders ( $p>0.05$ ) (Table 1). However, 24 students who were not previously curious about persons with mental illness had their curiosity increased post-intervention ( $p=0.01$ )

(Table 2). Similarly, the following thoughts and attitudes towards persons with mental illness significantly improved after 4 weeks of contact-based education: being dangerous/aggressive ( $p=0.001$ ), being like everyone else ( $p=0.003$ ), giving them job ( $p=0.001$ ), and comfortable examining them ( $p=0.02$ ) (Table 2). However, some attitudes did not significantly change after the intervention (Table 2). These attitudes include: maintaining a relationship ( $p=0.73$ ) and marrying persons with mental illness ( $p=0.25$ ) (Table 2). In addition, knowledge of the genetic basis of mental disorders improved post-intervention ( $p=0.001$ ) (Table 3).

**Table 1: Comparison of the pre-and post-test intervention responses to questions relating to contact with persons with mental disorders. N=52**

| Variables  | Responses before contact-based intervention | Responses after contact based intervention |    |           |
|--|---|--|----|-----------|
|  |   | Yes  | No | p-value * |
| Do you know any person with Mental disorder?               | Yes   | 34   | 2  | 0.07      |
|  | No  | 14   | 2  |           |
| Have you met and talked with persons with mental disorder? | Yes   | 32   | 0  | 1.00      |
|  | No  | 20   | 0  |           |
| Ever worked with person with mental disorder?              | Yes   | 2  | 4  | 0.29      |
|  | No  | 12   | 34 |           |

\*=McNemar test



**Figure 1: Flowchart diagram for sample selection**

**Table 2: Comparison of the pre-and post-test intervention responses to questions relating to feelings and attitudes towards persons with mental disorders. (N=52)**

| Variables  | Responses Before contact based Intervention |    | Responses after contact-based intervention |    | p-value* |
|--|---|----|--|----|----------|
|  | Yes   | No | Yes  | No |          |
| <b>What do you feel when see persons with mental illness?</b>  |   |    |  |    |          |
| Indifference   | Yes   | 2  | 6  |    | 1.00     |
|  | No  | 6  | 38   |    |          |
| Fear   | Yes   | 8  | 14   |    | 0.07     |
|  | No  | 2  | 28   |    |          |
| Curiosity  | Yes   | 10 | 4  |    | 0.01     |
|  | No  | 24 | 14   |    |          |
| Compassion   | Yes   | 16 | 10   |    | 0.77     |
|  | No  | 14 | 12   |    |          |
| <b>What do you think about Persons with mental illness?</b>  |   |    |  |    |          |
| Dangerous and aggressive   | Yes   | 12 | 28   |    | 0.01     |
|  | No  | 6  | 6  |    |          |
| Like everyone else   | Yes   | 4  | 2  |    | 0.003    |
|  | No  | 22 | 22   |    |          |
| Strange  | Yes   | 6  | 4  |    | 0.45     |
|  | No  | 10 | 32   |    |          |
| Unforeseeable  | Yes   | 2  | 8  |    | 0.55     |
|  | No  | 14 | 28   |    |          |
| <b>Would you continue Relationship with a friend after you discover that he/she has mental disorder?</b> |   |    |  |    |          |
| Would you marry a person with mental disorder?   | Yes   | 24 | 6  |    | 0.73     |
|  | No  | 10 | 4  |    |          |
| Would give a job to person with mental disorder?   | Yes   | 4  | 0  |    | 0.001    |
|  | No  | 22 | 22   |    |          |
| Do you hesitate to examine patients with mental disorder?  | Yes   | 14 | 22   |    | 0.02     |
|  | No  | 4  | 8  |    |          |

**Table 3: Comparison of the pre-and post-test intervention responses to questions relating to knowledge of mental illness**

| Variables   | Responses before contact-based intervention | Responses after contact-based intervention |    | p- value |
|---|---|--|----|----------|
|   |   | Yes  | No |          |
| How do you recognize that a person has mental illness?                    |   |  |    |          |
| Observation   | Yes   | 32   | 6  | 1.00     |
|   | No  | 8  | 4  |          |
| Talking   | Yes   | 28   | 4  | 0.18     |
|   | No  | 14   | 4  |          |
| What are the Causes of mental illness?                                    |   |  |    |          |
| Genetics  | Yes   | 28   | 0  | 0.001    |
|   | No  | 22   | 2  |          |
| Life experiences  | Yes   | 34   | 2  | 0.07     |
|   | No  | 14   | 2  |          |
| Organic causes  | Yes   | 26   | 6  | 0.15     |
|   | No  | 18   | 2  |          |
| Supernatural causes   | Yes   | 0  | 2  | 0.38     |
|   | No  | 8  | 42 |          |
| Can mental illness be cured?  | Yes   | 36   | 8  | 0.69     |
|   | No  | 4  | 2  |          |
| Where do you think is the best place to treat people with mental illness? |   |  |    |          |
| Religious homes   | Yes   | 2  | 4  | 0.50     |
|   | No  | 0  | 46 |          |
| Native healing home   | Yes   | 0  | 0  | 1.00     |
|   | No  | 4  | 48 |          |
| Prison  | Yes   | 0  | 0  | 1.00     |
|   | No  | 0  | 52 |          |
| Hospital  | Yes   | 50   | 2  | 1.00     |
|   | No  | 0  | 0  |          |

\*McNemar test; Supernatural causes include evil spirits, witches/wizards, and curses/sin

## DISCUSSION

The study was aimed at determining the impact of a 4-week contact-based learning on the knowledge and attitudes of medical students towards persons with mental illness. This study found out that after 4 weeks of contact-based learning, the following thoughts and

attitudes of the students' about persons with mental illness significantly improved: being dangerous (p=0.001), giving them job (p=0.001), comfortable examining them (p=0.02) and the genetic basis of the disease (p=0.001). However, the intervention did not significantly change such attitudes related to more

personal relationship like maintaining a friendship ( $p=0.73$ ) and marriage ( $p=0.25$ ).

The finding of a degree of improvement in knowledge and attitudes of the medical students towards people with mental illness is consistent with the growing reports in the literature of the usefulness of contact-based education in reducing stigma among health care trainees<sup>8, 19, 20</sup>. Papish *et al.*,<sup>8</sup> found that psychiatric education improved stigma and increased confidence among medical students with regards to persons with mental illness. Similarly, Pattern *et al.*,<sup>19</sup> also reported the effectiveness of contact-based education in reducing stigma-related to mental illness among Pharmacy students. There is a converging evidence in the literature that education and contact improves public stigma among persons with mental illness<sup>13,14,20</sup>. A recent meta-analysis found that educational interventions were effective in reducing personal (public) stigma as well as incorporating consumer contact; however, the evidence is weak for interventions involving contact alone<sup>14</sup>. The effect of education may be due to its provision of factual information about mental illness for the public to make informed decisions. In addition, it corrects misinformation or contradicting negative attitudes and beliefs, thereby countering inaccurate stereotypes or myths by replacing them with facts. Research has shown that those who have better understanding of mental illness are less likely to endorse stigma<sup>21</sup>. In addition, coming in contact with persons with mental illness who are responsible members of the society further diminishes stigma towards them. Researchers have shown an inverse relationship between contact with persons with mental illness and endorsing psychiatric stigma<sup>15, 22</sup>. In this study, the participants had lectures on various aspects of mental illness, came in contact and interacted with different patients ranging from acutely ill patients to stable successful patients who may be traders, academia and civil servants who routinely came for their follow-up visit unaccompanied. These may have influenced their previously held stereotypes about persons with mental illness. In addition, the setting of the study is a general hospital as against a standalone psychiatric facility, as such, majority of the cases seen are usually

mild to moderate mental disorders which could easily influence the perception of the students. More so, the students are mostly young adults (mean age of 25 years). Studies have it that adolescents and young adults showed significant change in their beliefs and attitudes in response to education<sup>13,14</sup>. Whether educational intervention alone is the same or superior to education plus contact-based interventions was not the focus of this study. However, Chan *et al.*,<sup>20</sup> reported that education plus contact-based interventions was superior to education alone in reducing stigma associated with mental illness. However, as shown in this study, it appears that contact-based education did not significantly change such attitudes of the students with respect of maintaining personal relationship with persons with mental illness. This suggests that this intervention may be useful in modifying some beliefs about persons with mental illness but may not change other behaviors towards them (e.g., marrying them). Some socio-cultural factors may be responsible for the persistence of this behavior despite change in others.

#### Limitations

One of the limitations of this study was the lack of follow-up to determine the consistency of responses/attitudes over time. Finally, the study did not examine the effect of the intervention on specific mental disorders. The authors believe that there may be differences with respect to mild/moderate versus severe mental disorders.

#### CONCLUSION

As a preliminary report, our findings act as a benchmark for optimism that contact-based education among undergraduate medical students in Africa may help in reducing stigma associated with mental illness. However, the impact of this intervention on the choice of psychiatry as a career option among the students is an area for future research in Africa.

#### Conflict of Interest

The authors declare no conflict of interest

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### Authors Contributions

Conceptualization, JUO, SOO, OTI and RU; Methodology, JUO, SOO, OTI and RU; Investigation, JUO, SOO, and OTI; Resources, JUO, SOO, OTI and RU; Data Collection, JUO; Writing-Original Draft Preparation, JUO; Review and Editing, SOO, OTI and RU; Supervision, RU; Project Administration, JUO; Funding, JUO, SOO, OTI and RU. All the authors approved the final draft for submission.

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