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IN BRIEF REPORT

Attitudes Toward Mental Illness and Changes Associated with a Brief Educational Intervention for Medical and Nursing Students in Nigeria

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Abstract
Objective This study assessed beliefs about mental disorders and changes in those beliefs following an educational intervention for a convenience sample of Nigerian medical and nursing students.
Methods A 43-item questionnaire was used to assess perceptions regarding mental disorders and attitudes toward people with mental illness before and after a 4-day educational intervention.
Results Factor analysis identified four domains: (1) socializing with people with mental illness, (2) belief in witchcraft or curses as causes of mental illness, (3) favorable attitudes toward normalization of the lives of people with mental illness, and (4) biopsychosocial approaches to mental illness. The greatest changes were in attitudes favoring normalization of the lives of people with mental illness (p=0.0002), socializing with the mentally ill (p=0.01), and biopsychosocial perspectives on mental illness (p=0.01).
Conclusion Brief educational interventions may alter some stigmatizing negative attitudes toward mental illness in healthcare trainees in low- and middle-income countries.

Keywords Stigma · Medical students · Nursing students

Stigma and negative attitudes toward people with mental illness are common in low- and middle-income countries, both in the general population and among medical professionals and trainees [1, 2], particularly in Nigeria and other countries of Sub-Saharan Africa [3–5]. Students are at an especially critical phase of attitude formation, and studies suggest that merely completing a psychiatry clerkship or formal didactic training may not necessarily bring about changes in these attitudes [6, 7].

This study aimed to examine nursing and medical students' attitudes and beliefs about mental illness and people with mental illness and to measure the impact of a brief, focused educational intervention on these attitudes and beliefs at a Nigerian medical school that offered virtually no psychiatric training.

Method

A team of medical professionals from the Department of Psychiatry of Yale School of Medicine were invited to visit Imo State University Teaching Hospital in southeastern Nigeria during November 2011 to provide a brief educational introduction to basic principles and diagnoses in psychiatry and to conduct an evaluation of this intervention.

The educational intervention was a 4-day review of basic information on mental illness and psychiatric treatment based on the World Health Organization Mental Health Gap Action Program Intervention Guide (mhGAPIG) [8]. Each course day included five interactive sessions lasting 1 hour each. The sessions covered the participants' general understanding of mental illness and the interaction with people they perceived to have mental illness. To engage participants, there were two role play sessions focused on interviewing a "psychotic patient" and a "depressed patient" which involved student volunteers and modeling faculty.

Data Collection

The first administration of the self-report assessment instrument took place after the introduction of the teachers, but prior to any training. The retest data collection was completed

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4 days later at the same location. No individual-identifying data were included to preserve confidentiality and promote candid responses. Only medical and nursing students who participated in the training were included in the retest data analysis.

Sample

This was a convenient sample of medical students in their final years of training (N=39), preregistration nursing students (N=43), and one medical resident who participated in the 4-day interactive course on mental illness. This sample was in a location with virtually no access to psychiatric education and thus represents conditions in areas with extremely limited educational resources.

Of the total sample (N=83) who were assessed before the training, 69 % (N=57) completed the surveys at the end of training. Twenty six students assessed before the training did not complete all the sessions of the training or were not available for postassessment and so were not included in the follow-up data. Each follow-up questionnaire included an indicator confirming full participation in the training. Because the questionnaire was anonymous, it was not possible to match pre-surveys and post-surveys.

Measures

The questionnaire was constructed from modified items taken from the Fear and Behavioral Intentions toward the mentally ill questionnaire (FABI) [1], selected items from the Community Attitudes to Mental Illness (CAMI) scale [9], and from a modified version of a questionnaire developed for the World Psychiatric Association Program to Reduce Stigma and Discrimination [10]. The final version consisted of 43 dichotomous questions. The questionnaire also documented self-reported sociodemographic characteristics and professional experience.

Attitude Measures

The measures addressed (1) conceptions of the cause of mental illness based on questions developed for the World Psychiatric Association Program to Reduce Stigma and Discrimination because of Schizophrenia [10], (2) possible treatment options based on Community Attitudes to Mental Illness (CAMI) developed by Taylor and Dear [9], (3) social distance, with questions derived from the Fear and Behavioral Intentions toward the mentally ill questionnaire (FABI), and finally, (4) social acceptance and social stigma as assessed by a series of questions based on the Community Attitudes to Mental Illness (CAMI) questionnaire developed by Taylor and Dear [9].

Analysis

Chi-square tests and analysis of variance were used to identify any differences in characteristics of the groups assessed before and after the training. Factor analysis was then conducted to identify attitudinal items that reflected common domains. Items that are negatively worded were recorded for consistency in a positive direction.

Exploratory varimax factor analysis with orthogonal matrix rotation was carried out to optimize independence and interpretability of factors in this relatively small sample and to identify latent relationship between the variables. Using a maximum likelihood extraction method, 30 items having factor weights greater than 0.4 were retained, and four factors were identified. Items within each factor were averaged to allow examination of their relative levels of endorsement. Since all items were dichotomous measures, the mean scores represent the proportion of items that were endorsed within each factor.

Since there were no differences on any sociodemographic or professional characteristic in the samples assessed before and after the training, analysis of variance (ANOVA) was used to measure the significance of changes in each factor scale. Effect sizes were determined by dividing the coefficient associated with change from before to after training by the standard deviation of the mean value for each factor at baseline.

All analyses were performed using SAS 9.1 statistical software (SAS institute Inc, Cary, NC, USA). Statistical significance was evaluated at the 0.05 level in this exploratory analysis without adjustment for multiple comparisons.

Results

Of the 83 trainees, 35 (42.2 %) were male and 48 (57.8 %) female. They were predominantly unmarried (84.1 %, N=69), with a mean age of 24.6 years (SD=4.3, range 2,045). Although the vast majority (N=80, 96.4 %) were born in urban areas only 66.6 % reported residing in an urban area at the time of the study, with 24.7 % (N=54) residing in semiurban and 8.6 % (N=7) in rural areas. Almost all participants were nursing or medical students 98.8 % (N=82). There were no significant differences on these characteristics between those surveyed before and after the training (data available on request).

Inspection of the screen plot suggested a four factor solution. The four factors are presented with individual item weights in Table 1. The four factors were interpreted as representing (1) personal desire or acceptance of socializing with people with mental illness, (2) favorable attitudes toward normalized activities and relationships for people with mental illness, (3) belief in witchcraft or curses as causes of mental illness, and (4) biopsychosocial perspectives toward mental

Table 1 Item loading: results from the factor analysis

Items (paraphrased)	Factor 1 Socializing	Factor 2 Normalizing relationships	Factor 3 Witchcraft	Factor 4 Biopsychosocial
I would have a former psychiatric patient as a friend.	0.698	0.051	0.025	0.055
I would live with a next door neighbor who is a former psychiatric patient.	0.597	−0.086	−0.028	0.113
I am not afraid of people with mental illnesses.	0.591	0.262	0.098	−0.036
I am not afraid of making conversation with people with mental illness.	0.575	0.139	0.179	−0.129
I would have conversation with neighbors who previously had mental illness.	0.555	−0.032	−0.84	0.077
I would invite a previously mentally ill person in my house.	0.546	0.106	0.237	0.031
I would marry a person who was previously mentally ill.	0.504	−0.185	0.106	0.292
I am not ashamed if someone in my family was diagnosed with mental illness.	0.461	0.325	0.395	−0.149
I am not upset working on the same job with a mentally ill person.	0.439	0.338	0.304	0.031
I would not avoid conversation with a neighbor who is mentally ill.	0.409	0.005	−0.057	−0.046
Mental illness is an illness like any other illness.	−0.106	0.558	−0.086	0.057
The best therapy for mentally ill people is to be a part of society.	−0.003	0.551	−0.039	−0.007
People with mental illness do not tend to be retarded.	0.046	0.482	0.086	−0.244
I would be willing to work with somebody with a mental illness.	0.165	0.473	0.074	0.095
People with mental illness are far less of a danger than people think.	0.112	0.445	0.01	0.241
I would maintain a friendship with a person with mental illness.	0.354	0.438	0.095	−0.113
Residents should not be afraid of people coming to their neighborhood to receive mental health	0.224	0.434	0.174	0.146
Mentally ill people can work in regular jobs.	0.211	0.432	−0.044	0.015
Persons who show signs of mental illness should not be immediately hospitalized.	0.121	0.431	0.055	0.051
Mental illnesses are caused by poverty.	−0.33	0.416	−0.343	−0.002
Mental illness is not caused by someone putting a curse on you.	−0.036	−0.059	0.811	0.127
Mental illness is not caused by witchcraft.	−0.302	−0.021	0.805	0.006
Mental illness is not caused by possession by an evil spirit.	−0.165	0.129	0.782	−0.043
Mental illness is not caused by God's punishment.	−0.028	−0.056	0.519	0.021
Mentally ill people can be treated outside of a hospital.	−0.178	0.0201	−0.463	0.015
Virtually anyone can become mentally ill.	0.038	0.207	−0.049	0.712
Mental illness is caused by a brain disease.	−0.094	−0.051	0.102	0.689
Mental illness is caused by physical abuse.	−0.023	0.426	−0.368	0.449
Mental illness is caused by biological factors.	0.065	0.299	−0.182	0.437
Mentally ill people are not dangerous because of violent behavior.	0.105	0.048	−0.041	−0.484

illness. Chronbach's alpha, used to evaluate the internal consistency reliability of the factors, showed high levels for factors 1, 2, and 3 (alpha 0.8, 0.7, and 0.8, respectively) and a more modest value for factor 4 (alpha=0.6).

The pretest sample endorsed the highest proportion of items within the factor representing biopsychosocial perspectives toward mental illness (68 %), followed closely by the factor representing acceptance of socializing with people with mental illness (62 %), and the lowest proportion of items within the factor representing favorable attitudes toward normalized activities and relationships with people with mental illness (37 %).

Posttest sample scores were significantly higher than pretest score for three factors (Table 2). The biggest effect size (0.58) emerged for the increase in scores on factor 2 (favorable attitudes toward normalized activities and relationships) (p= 0.0002). A significant difference was also observed in factor 4 representing biopsychosocial attitudes toward the causes of mental illnesses (p=0.01) with a more moderate effect size (0.50). A smaller, but still significant difference of similar magnitude (0.43), was detected in factor 1 (p=0.01) representing acceptance of socializing with people with mental illness. A difference in the means for the factor concerning

Table 2 Change in each attitudinal factors pretraining and posttraining intervention

	Pretest N=83		Posttest N=57		T	P	Size effect[a]
	83		57				
	Mean	SD	Mean	SD			
Acceptance of socializing with people with mental illness.	0.62	0.26	0.73	0.25	−2.58	0.01	0.43
Favorable attitudes toward normalized activities and relationships for people with mental illness.	0.37	0.19	0.52	0.26	−3.86	0.0002	0.58
Belief in witchcraft or curses as causes of mental illness.	0.45	0.29	0.49	0.30	−0.81	0.41	0.13
Biopsychosocial perspective on mental illness.	0.68	0.18	0.75	0.14	−2.44	0.01	0.5

[a] Effect size was calculated as the difference in means divided by pooled standard deviation

nonbelief in witchcraft as a cause of mental illness was not significant (p=0.41).

Discussion

This small pilot study found that prior to the training the highest proportion of items were endorsed for the biopsychosocial perspectives toward mental illness while the lowest proportion were endorsed for items within the factor showing favorable attitudes toward normalized activities and relationships.

The examination of changes in attitudes showed that some stigmatizing attitudes and negative perceptions about mental illness and people with mental illness were amenable, at least in the short term, to a brief educational intervention that was didactic but that was also delivered with an effort to engage the students in discussion and role plays. The areas that showed improvement in attitudes of moderate magnitude (effect sizes ranging from 0.43 to 0.58) were on issues of normalizing relationships in society with people with mental illness, support for the biopsychosocial approach to understanding these disorders, and favoring socializing with persons with mental illness. A unique aspect of this study is that it took place in a young medical school and teaching hospital (formally commissioned in 2004) that had lacked a fully functional psychiatry department and is located in southern Nigeria where magico-religious beliefs about mental illness are common and have been shown to influence help-seeking behavior for mental health problems [3]. Through networking, one of the authors (originally from Nigeria) was able to identify the need for such a course in this medical school. Our positive findings suggest that students in this situation were ripe for a brief educational intervention and that the effectiveness of an educational intervention to address stigma and enhance understanding of mental illness may depend on the level of baseline availability of psychiatric teaching. Also, educational interventions should address local beliefs about mental illness while simulating interactions with the mentally ill.

Several limitations deserve comment. One of the major limitations of this study was related to the unsystematic sampling procedure used and the lack of follow-up data on some participants. A second limitation related to the modified, nonstandardized scales. Yet four factors with high internal consistency were identified and were sensitive to change. Another limitation was the small sample size. The factor loading would have more accuracy with a larger sample size (350,450) and factors 2 and 4 failed to produce factor loadings >0.6 for at least four variables/factors. However, the sample size is adequate to the descriptive objectives of this study as contrasted with a hypothesis testing study and was sufficient to demonstrate statistically significant changes on measures with moderate effect sizes. Another weakness was the short time interval between the conclusion of the training and the postintervention assessments which could yield unreliable results since knowledge and attitude scores may decrease over time. Finally the questionnaires referred to "mental illness" as a general category and do not specify specific types of mental health problems. While this maximizes representativeness, it may reduce the precision with which the survey questions can be interpreted, although this approach had been established in previous use of these questionnaires.

Disclosure The authors have no conflict of interest to report.

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