Original Article

ASSESSING CHANGE IN KNOWLEDGE AND ATTITUDES OF STUDENT NURSES IN CALABAR TOWARDS MENTAL DISORDERS FOLLOWING AN EDUCATIONAL PROGRAM

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ABSTRACT

Background: Knowledge of mental disorders is poor in developing countries and often has a negative impact on the ways the public relate to persons with mental disorders. The present study seeks to explore changes in knowledge and attitude of student nurses to mental disorders following an educational program.
Materials / Method: The study involved first and second-year students from two schools of basic nursing: the State School of Nursing, Calabar (intervention group) and the University of Calabar Teaching Hospital's School of Nursing (control). A total of 191 students from both schools were assessed at different times (pre and post-intervention periods) using the modified World Psychiatric Association (WPA) questionnaire. The educational intervention was performed only on the students in the intervention group using the WPA semi-structured educational material.
Results: The baseline results show that while a small proportion of the respondents (28.1% in the intervention group and 37.9% of control) attributed the cause of mental illness to witchcraft, majority had poor attitudes to mental disorders. One week post-intervention assessment shows some improvement in knowledge of the respondents in the intervention group. This improvement was significant for those that endorsed witchcraft (P=0.01) and God's punishment (P=0.01) as causes of mental disorders. This significant improvement was sustained at the one-month post-intervention assessment.
Conclusion: The study shows that an educational program is capable of improving knowledge of aetiology of mental disorders and attitudes towards persons with such disorders.

Keywords: Knowledge, Attitudes, Mental disorders, Student nurses, Calabar

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INTRODUCTION

All over the world, individuals with mental illness are perceived with negative attitudes and are more likely to be rejected regardless of their behaviour. It has previously been observed that erroneous beliefs about causation and inadequate knowledge of psychiatric disorders tend to sustain stigmatization and negative attitudes towards persons with mental disorders.[1] An earlier report suggests that stigma seem to be less evident in African countries.[2] It is, however, not clear whether or not this represents a cultural sphere that does not promote stigma or a dearth of research in African countries. Stigmatization of mental illness can result in a myriad of negative effects, includinga reduction in self-esteem, discrimination and reduced health-care service utilization.[3] On the other hand, improved knowledge about causation may promote more tolerant attitudes towards people with mental illness and an understanding that mental disorders are treatable can encourage early treatment-seeking and promote better outcome.[4]

Although some nations have succeeded in reducing stigma through enlightenment campaigns, lack of awareness is still very much evident in most developing countries.[5] With modern mental health reforms emphasizing community intervention programs, it is important to improve on the knowledge and attitude of the public towards mental disorders and their treatments, as this will help reduce stigma and facilitate successful community-based programs.

It is now well established that one of the strategies used to reduce stigmatizing attitude against persons with psychiatric disorders is education.[6,7] Education provides the public with the requisite information to make informed decisions about mental illness. It has been found that individuals who are better informed are less likely to endorse stigmatization and discrimination of persons with mental illness .[8]

The positive impact of educational programs on peoples' knowledge and attitude to mental disorders has been widely documented.[9–11] However, much less is known about the impact of such programs on the knowledge and attitude of student nurses in Nigeria. Since nurses are among the major gatekeepers in the pathway to care of persons with mental disorders, there is an urgent need to generate data on the impact of educational programs on the knowledge and attitudes of the "would-be" nurses to

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mental disorder. The present study aims to assess change in knowledge and attitude of student nurses in Calabar following an educational program. It is hoped that this study will provide information that will be useful in the training of student nurses in Nigeria.

MATERIALS AND METHOD

Sample

Participants were recruited from two schools of nursing – the State School of Basic Nursing, and the School of Basic Nursing of the University of Calabar Teaching Hospital (UCTH) – both located in Calabar and running similar curriculum.

The State School of Basic Nursing, Calabar

Established in 1968, this institution is located within the premises of the College of Health Technology in Calabar municipality. The school has three sets of students: first, second, and third-year students. According to the curriculum, lectures in psychiatry begin in the third year alongside clinical rotation for a period of four weeks at the Federal Psychiatric Hospital Calabar. The students in the third-year class were excluded from this study leaving only the first and second-year students who constituted the experimental group in this study.

School of Basic Nursing, University of Calabar Teaching Hospital

Students from this school served as the control group. This school is located at the old site of the University of Calabar Teaching Hospital (UCTH). The school runs a basic nursing program that spans over three years and therefore also has three sets of students. The curriculum lectures in psychiatry are similar to that of the state school of basic nursing, which begins in the third year with a clinical rotation at Federal Psychiatric Hospital Calabar lasting a period of four weeks. First and second-year students of this school made up the control group of the present study.

Ethical considerations

Informed consent was sought and obtained from all participants. Ethical clearance was also obtained from the Research Ethics Committee of the state Ministry of Health overseeing the State School of Basic Nursing, Calabar. Permission was obtained from the management of the School of Basic Nursing, UCTH.

Study population

This comprisedall first and second-year basic nursing students (a total of 200) in both institutions.

Inclusion criterion

Students in the first and second-year class in both institutions.

Exclusion criteria

a) Students who refused to give consent.

b) Students in third-year class.

Instruments:

The socio-demographic questionnaire

This was designed by the authors and was used to elicit information on the socio-demographic characteristics of the participants.

A modified version of the questionnaire developed for the World Psychiatric Association (WPA) program to combat stigma and discrimination against mental disorders

This instrument was originally designed by the World Psychiatric Association (WPA) as a structured tool for combating stigma and discrimination as a result of schizophrenia. It focuses mainly on the knowledge of and attitude to schizophrenia. The "attitude" component was generated from the Community Attitude to Mental Illness (CAMI), which is a self-report inventory for measuring public attitude towards persons with mental disorders.[12] The CAMI has a set of responses to 40 items. The scale has four sub-scales; Authoritarianism (AUTH), Benevolence (BNVL), Social Restrictiveness (SRST) and Community Mental Health Ideology (CMHI) or treatability of mental disorders. The WPA questionnaire was modified by Gureje and colleagues in 2005. These authors substituted the term "schizophrenia" with "mental illness" and deleted specific items relating to the symptoms that were specific to schizophrenia. The resultant modified version of the WPA questionnaire is, therefore, for mental illnesses and has been used in Nigeria.[13]

The World Psychiatric Association (WPA) semi-structured educational material

This material was produced through the guidelines provided by the "Open the Door Program" as well as "Changing Mind Campaign". It emphasizes providing didactic information about the aetiology, course and outcome of mental disorders. This material has been used in previous research works.[9] The content / teaching is organized in modules and composed of three modules: "Module 1" which lays emphasis on improving knowledge and dispelling false beliefs about mental disorders; "Module 2" which dwells on challenging peoples' attitude towards mental disorders; and "Module 3" which focuses on the outcome of mental disorders. This final module requires a stable person who had suffered from mental illness to narrate his or her experiences relating to the illness (e.g. the symptoms experienced), the outcome of treatment (e.g. symptoms resolved with treatment), and his or her current level of functioning (e.g. relating better with people, improved academics or work performance etc.).

Procedure

The study was carried out in phases:

Phase 1 (Pre-intervention phase)

Using the class register, all the eligible students that were present were assembled in the school hall. The aim of the study was explained to them, and their consent to participate in the study was sought. Those that consented completed the socio-demographic questionnaire and the modified version of the WPA questionnaire on knowledge and attitude.

Phase 2 (Intervention phase)

This involved only the intervention group. Immediately after retrieving the questionnaires (used in phase 1), the contents of the WPA semi-structured educational material were administered in modules. Each module was administered on a separate day. On the first day, a member of the research team (a mental health practitioner) taught the students the contents of Module 1 which include the aetiology, epidemiology and progression of three common major psychiatric disorders (Schizophrenia, Bipolar affective disorder and Psychoactive substance use disorder). The teaching lasted for 30 minutes and was followed by 15 minutes of questions and answers. The next

day, the contents of Module 2 were taught to the students. This also lasted for 30 minutes and was followed by 15 minutes of questions and answers. On the third day, a person (a lawyer) with bipolar affective disorder (currently in remission) was made available to administer the third module of the instrument. He used 30 minutes to narrate to the students his experiences of the illness, the outcome of treatment and his current state of functioning. Additional 15 minutes was allowed for further interactions including questions and answers

Phase 3 (Post-intervention phase)

A week after intervention, the modified version of the WPA questionnaire on knowledge and attitude was again administered on all the research participants. The results obtained were computed and compared with the baseline results. At one-month post-intervention, this assessment was repeated and the results obtained were also compared with the baseline results. The aim of the one-week post-intervention was to see if the education given had any lasting effects on the respondents while the one-month post-intervention assessment was to see whether or not the effect of the education was sustained.

Statistical analysis

Data management and analysis were performed using the Statistical Package for Social Sciences version 16 (SPSS-16.0). Level of statistical significance was set at 5%, using the chi-square test for categorical variables.

RESULTS

Of the 200 students registered in the first and second-year levels in both schools (one hundred from each school), a total of six (4 from the state school of basic nursing and 2 from the UCTH school of nursing) were absent on the day this study commenced. Accordingly, they were excluded from the study. Three other students from the School of Nursing, UCTH declined to give consent and thus were also excluded from the study. In all, 191 eligible students (96 from the state school of basic nursing and 95 from the school of nursing of the UCTH) were recruited into this study. Table 1 shows the socio-demographic characteristics of the respondents. As shown in the table, there was no significant difference in socio-demographic characteristics of respondents in the interventiongroup compared to the control group.

Table 1: Sociodemographic characteristics of respondents

Variable	Intervention group (n= 96)	Control group (n=95)	P - value
Mean age (years)	20.2 (SD=1.5)	19.74 (SD=1.3)	
Sex			
Male	9(9.4%)	5(5.3%)	0 .42
Female	87(90.6%)	90(94.7%)	
Marital status			
Single	91(94.8%)	90(94.7%)	0.76
Married	5(5.2%)	5(5.3%)	
Religion			
Christianity	91(94.8%)	88(92.6%)	0.54
Others	5(5.2%)	7(7.4%)	
Year of study			
First year	49(51%)	50(52.6%)	0.82
Second year	47(49%)	45(47.4%)	
Family member with a mental disorder			
Present	13(13.5%)	7(7.4%)	0.16
Absent	83(86.5%)	88(92.6%)	
Worked in a mental health institution			
Yes	5(5.2%)	6(6.3%)	0.74
No	91(94.8%)	89 (93.7%)	

Table 2 compares the respondents' baseline understanding of the aetiology of mental disorders. With over two-thirds of the respondents from each group ascribing them as the cause of mental illness, brain disease and psychoactive substance use were the leading ascribed cause of mental disorder among respondents. About a third of the respondentsin each of the groups believed that witchcraft could cause mental disorders. Stress, physical abuse, and poverty were among the least ascribed etiological factor for mental disorder (less than 10% attribution rate) among the respondents from both groups. Overall, there was no statistically significant difference in the baseline views of respondents in both groups as regards the aetiology of mental disorders (Table 2).

Table 2: Respondents' baseline knowledge of aetiology of mental disorders

Aetiology	Intervention group (n= 96)	Control group (n=95)	χ^2	P-value
Brain disease	70(72.9%)	64(67.4%)	0.22	0.64
Psychoactive drugs	78(81.3%)	70(73.7%)	0.37	0.54
Traumatic event	24(25%)	25(26.1%)	0.02	0.88
Alcohol	22(22.9%)	15(15.8%)	1.30	0.20
Stress	9(9.4%)	7(7.4%)	0.25	0.48
Genetic inheritance	35(36.5%)	39(42.1%)	0.27	0.60
Physical abuse	6(6.3%)	8(8.4%)	0.30	0.58
Witchcraft	27(28.1%)	36(37.9%)	1.46	0.23
Poverty	9(9.4%)	10(10.5%)	0.06	0.81
God's punishment	8(8.3%)	11(11.6%)	0.59	0.46

Table 3 shows the baseline attitude of respondents to mental disorders. Attitudes were generally pooramong respondents from both groups. For instance, majority of respondents in both interventionand control groups (86.5% versus 86.3% respectively) admitted that they would not marry someone with mental disorder; will be disturbed sleeping in the same room with someone withmental disorder (75.0% versus 82.1%); dangerous to the public (85.4% versus 88.4%); and will be disturbed working in the same office with someone with a mental disorder (63.5% vs 67.4%).However, there was overall, no statistically significant difference in the pre-intervention attitude of the intervention group compared with controls.

Table 3: Baseline attitude of respondents to mental disorders

Attitude	Intervention group (n= 96)	Control group (n=95)	χ^2	P-value
Afraid of conversing with a person with mental disorder	58(60.4%)	55(57.9%)	0.05	0.82
Disturbed working with a person with mental disorder	61(63.5%)	64(67.4%)	0.12	0.73
Ashamed if a family member has a mental disorder	40(41.7%)	38(40%)	0.04	0.85
Would not marry a person with mental disorder	83(86.5%)	82(86.3%)	0.00	0.99
Disturbed sleeping with a person with mental disorder	72(75%)	78(82.1%)	0.32	0.57
Mental disordercan be treated in a community	12(12.5%)	13(13.7%)	0.56	0.82
Are mentally retarded	46(47.9%)	57(60%)	1.35	0.24
Treated using psychotherapy	53(55.2%)	45(47.4%)	0.59	0.44
Are dangerous to the public	82(85.4%)	84(88.4%)	0.00	0.99
Suffer from multiple personality	60(62.5%)	62(65.3%)	0.06	0.80
Need drugs	60(62.5%)	53(55.8%)	0.38	0.54

Table 4 displays the respondents' knowledge of aetiology of mental disorders at one week and one month post educational intervention. An improvement in the knowledge of aetiology of mental disorder was observed in the intervention group compared to the control group one week post-intervention. The shifts were statistically significant for those that endorsed witchcraft (P = 0.01) and God's punishment (P = 0.01) as causes of mental disorders. One month post-intervention, an overall drop was seen in the performanceof respondents in the intervention group. However, the improvement was still significant for those that endorsed witchcraft (P = 0.01) and God's punishment (P = 0.01) as causes of mental disorders.The perception of stress, physical abuse, and poverty as contributory factors to the aetiology of mental disorders did not change significantly after intervention.

Table 4: Respondents' knowledge of aetiology of mental disorders at one week and one month post-intervention respectively

Perceived aetiology	1 week				1 month			
	Intervention group (n=96)	Control group (n=95)	χ^2	P	Intervention group (n=96)	Control group (n=95)	χ^2	P
Brain disease	75(78.1%)	62(65.3%)	1.23	0.27	72(75%)	62(65.3%)	0.75	0.39
Psychoactive drugs	81(84.4%)	69(72.6%)	0.96	0.33	81(84.4%)	69(72.6%	0.96	0.33
Traumatic events	32(33.3%)	25(26.3%)	0.86	0.35	30(31.3%)	26(27.4%)	0.29	0.59
Misuse of alcohol	23(24%)	17(17.9%)	0.90	0.34	22(22.9%)	14(14.7%)	1.78	0.18
Stress	8(8.3%)	5(5.3%)	0.69	0.41	7(7.3%)	4(7.4%)	0.00	1.00
Genetic inheritance	51(53.1%)	40(42.1%)	1.33	0.25	50(52.1%)	39(41.4%)	1.36	0.24
Physical abuse	4(4.2%)	8(8.4%)	1.33	0.25	6(6.3%)	6(6.3%)	0.00	1.00
Witchcraft	7(7.3%)	38(40%)	21.36	0.01*	11(11.5%)	39(41.1%)	15.58	0.01*
Poverty	7(7.3%)	10(10.5%)	0.53	0.47	7(7.3%)	12(12.6%)	1.32	0.25
God's punishment	0(0%)	11(11.6%)	11.79	0.01*	2(2.1%)	11(11.6%)	6.23	0.01*

* = statistically significant

Table 5 shows an overall improvement in the attitudes to mental disorders of the respondents in the intervention group when compared to the control group at one-week post-intervention. The shifts were statistically significant for most items endorsed by the respondentsexcept for perception of shame to be associated with an unwillingness to marry or maintain a friendship with someone with a mental disorder. The result of assessment at one-month post-intervention shows an overall drop in performance in the intervention group, though significant improvements were still recorded for those that (a) admitted feeling afraid conversing with persons with mental disorders (P = 0.01); (b) admitted feeling ashamed if a family member is having a mental disorder (P = 0.04); (c) believed that persons with mental disorders are mentally retarded (P = 0.03); (d) believed that persons with mental disorders are dangerous to the public because of their violent behaviours (P = 0.04).

Table 5: The attitude to mental disorders at one week and one month post-intervention respectively in the intervention and control groups

Attitude	1 week				1 month			
	Intervention group (n=96)	Control group (n=95)	χ^2	P	Intervention group (n=96)	Control group (n=95)	χ^2	P
Afraid of conversing with mentally ill	26(27.1%)	57(60%)	11.58	0.01*	30(31.3%)	56(58.9%)	7.86	0.01*
Disturbed working with mentally ill	36(37.5%)	64(67.4%)	7.84	0.01*	47(49%)	65(68.4%)	2.89	0.09
Ashamed if a family member is mentally ill	24(25%)	41(43.2%)	0.20	0.89	25(26%)	42(44.2%)	4.31	0.04*
Unable to maintain friendship with mentally ill	37(38.5%)	55(57.9%)	3.52	0.06	38(39.6%)	53(57.6%)	2.47	0.11
Would not marry a mentally ill	60(62.5%)	81(85.3%)	3.13	0.77	66(68.8%)	80(84.2%)	1.34	0.25
Disturbed sleeping with mentally ill	53(55.2%)	80(84.2%)	5.48	0.02*	53(55.2%)	75(78.9%)	3.78	0.52
Can be treated in a community	21(21.9%)	14(14.7%)	1.40	0.24	20(20.5%)	14(14.7%)	1.06	0.30
Are mentally retarded	30(31.3%)	60(63.2%)	10.00	0.01*	37(38.5%)	59(62.1%)	5.04	0.03*
Treated using psychotherapy	60(62.5%)	44(46.3%)	2.46	0.12	57(59.4%)	43(45.3%)	1.96	0.16
Are dangerous to the public	52(54.2%)	83(87.4%)	7.12	0.01*	59(61.5%)	83(87.4%)	4.06	0.04*
Suffer from multiple personality	55(57.3%)	64(67.4%)	0.68	0.41	57(59.4%)	64(67.4%)	0.41	0.52
Need drugs	71(74%)	49(51.6%)	4.03	0.04*	63(65.6%)	51(53.7%)	1.26	0.26

* = statistically significant

DISCUSSION

Knowledge of aetiology of mental disorder

This study revealed that majority of the respondents believed that substance abuse and brain disease could cause mental disorders, while 28.1% and 37.9% of respondents in the intervention and control groups respectively attributed mental illness to witchcraft. These findings show that the respondents had a good knowledge of biological causation of mental disorders with the majority of them attributing mental disorder to substance abuse. This is in keeping with findings from some previous studies in which majority of the respondents believed that substance abuse was a cause of the mental disorder.[14,15] The finding, however, contrasts the observations by Erinosho,[16] Odejide *et al*.,[17] and Adebowale and Ogunlesi[18] where the majority of the respondents in their studies identified witchcraft as a cause of mental disorders. The discrepancy in the findings could be attributed to the differences in the educational and cultural background of the sampled population. While the present study was conducted on nursing students at a post-secondary level of education, the study by Adebowale and colleague[18] involved patients and relatives of patients. One of the striking findings from their study was that admission of possible supernatural causation of mental disorder was associated with lower than the secondary level of education. Erinosho and Odejide *et al*. in their works studied traditional chiefs and traditional healers who are seen as the custodians of the culture in Nigeria; hence their opinions about mental disorders could not have been different from the prevailing cultural beliefs about supernatural causations of mental disorders.

Attitude of the respondents to mental disorders

The present study revealed that 85.4% and 88.4% in the intervention and control groups respectively believed that persons with mental disorders are dangerous to the public, 86.5% and 86.3% of the respondents respectively believed they would not marry persons with mental disorders while 60.4% and 57.9% of the respondents respectively would feel afraid conversing with persons with mental disorders.

These findings suggest that the respondents had poor attitudes to mental disorders, with the majority of them having the belief that persons with mental disorders are dangerous to the public because of their violent behaviour. This is in keeping with observations made in 2005 by Gureje *et al.* .[13], whereas high as 87.6% of respondents in their study had the belief that persons with mental disorders are dangerous to the public while a similar proportion (86.4%) would feel afraid conversing with persons with mental disorders. The results of the present study are however contrary to that of Vanessa *et al.* .[9], who found an overall better response among respondents in their study to persons with mental disorders, as only 37% of the respondents believed that persons with mental disorders are likely to be violent and a similar proportion (39%) admitted feeling afraid conversing with persons with mental disorders. A possible explanation for this may be that respondents in that study had relatively well-informed baseline knowledge of mental disorders, having been drawn from schools in the United Kingdom where there are established programs in place to reduce psychiatric stigma.

Respondents' knowledge of aetiology and attitude to mental disorders following an educational intervention

The present study found an improvement in the knowledge of aetiology of mental disorders and attitude to mental disorders among the respondents in the intervention group following an educational intervention. These findings further support the results of some previous studies[9,19], which also found an improvement in their respondents' attitudes to mental disorders following an educational intervention. However, unlike in the present study, these researchers did not assess knowledge of aetiology of mental disorders among their respondents and hence were not able to relate knowledge to attitudes with regards to mental illness. Gureje *et al.* .[13] had observed that persons with an understanding of bio-psycho-social causation of mental illness were more likely to have positive attitudes towards mental illness than those who did not. The understanding of the bio-psycho-social interactions with mental disorders may be strategically used to improve people's attitudes to mental disorders and invariably help in the fight against stigma.

The present study also observed improvements in the knowledge and attitude of the respondents in the intervention group following an educational intervention. This is in keeping with what Mohammed found in a study he conducted among student nurses in northeastern Nigeria.[11] In both studies, the endorsement of witchcraft as a cause of mental disorders by the respondents was quite remarkable when the results obtained at the end of one month post educational intervention are compared with the baseline results. Another interesting finding in the present study is that changes observed in certain attitudes one-week post-intervention were statistically significant. These attitudes include the belief that persons with mental disorders are dangerous to the public because of their violent behaviour; feeling afraid conversing with persons with mental disorders; feeling ashamed if a family member has a mental disorder; feeling disturbed working with a person with a mental disorder; not willing to marry a person with mental disorder, and feeling disturbed sleeping with a person with a mental disorder. One month post-intervention, only two of the attitudes were still significant: feeling afraid conversing with persons with mental disorder and believing that such persons are dangerous to the public because of their violence. Data from the study conducted by Mohammed[11] shows that the reduction in the number of respondents who would feel afraid conversing with persons with mental disorders at the end of one month post-intervention is not as marked as suggested by the present study. This may be explained by the fact that the experimental group in the present study had direct contact and interaction with a stable person who had suffered an episode of mental disorder. With regards to the control group, our analysis yielded nothing significant in all of the items when the baseline results were compared with the one week and one month post educational intervention observations. This goes to show that the improvement in the knowledge and attitudes that were noticed in the intervention group is due to the educational intervention given.

CONCLUSION

Respondents in the present study had good knowledge of biological causes of mental disorders, although a reasonable number of them believed that mental disorders could be caused by witchcraft. The respondents also had a generally poor attitude to mental disorders at baseline.

Following the educational intervention, while improvements were seen in the intervention group's knowledge of mental disorders as well as their attitude towards persons with mental disorders, the control group showed no significant change indicating that this improvement is due to the educational intervention given only to that group.

LIMITATIONS

Although the strength of the present study lies in the use of standardized training manual and the use of a stable live patient as a vignette, the study has the following limitations:

1. The sample size was not large enough to warrant generalization of findings.
2. The educational intervention program was carried out over a short period of time.
3. The study is largely quantitative in terms of its assessment of baseline knowledge and attitude as well as the assessment of the impact of intervention. Had the assessments been done using a qualitative method, the results would

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