



# Assessing the change in knowledge and attitude of student nurses towards mental disorders after an educational programme

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## Abstract

**Objective:** To assess the change in knowledge and attitude of student nurses to persons with mental disorders after an educational programme.

**Methods:** Socio-demographic questionnaire, Modified version of the questionnaire developed for the World Psychiatric Association (WPA) programme to reduce stigma and discrimination because of schizophrenia and WPA semi-structured educational material were administered to first and second year nursing students in 2 institutions (study and control groups). Assessment was done at pre-intervention, one week and one month post-intervention. At intervention phase, only the students in the experimental school had the educational programme.

**Results:** Two hundred students in the experimental and control schools participated at the beginning of the study (100 students per school). After one week post educational intervention, there was an improvement in the knowledge of and attitude to mental disorders among the students in the experimental group. At one month post intervention, the improvement was sustained. When the results of the control group were compared internally, the results showed no significant difference in any of the items at one week and one month post intervention with respect to the baseline results. Also when the control group was compared with the experimental group at baseline no significant difference was found in any of the items.

**Conclusion:** The improvement in knowledge and attitudes towards persons with mental disorders recorded in the experimental group at one week post intervention with some of the items sustained after one month were due to the educational programme.

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**Keywords:** Knowledge; Attitudes; Mental Disorders; Student nurses



## Introduction

The views individuals and groups hold about mental disorders may stem from their cultural background [1]. Adewuya and Makanjuola [2] suggested that attitudes, values, and belief systems transmitted by family, kinship and friend networks influence the manner in which an individual defines and acts upon symptoms and life crises. Patients with mental illnesses, their caregivers and significant others may share some of the beliefs commonly held by the society where they live. People with mental illnesses are often labeled as different from other people and are viewed negatively by others [3].

Erroneous beliefs about causation and a lack of adequate knowledge about mental disorders have been found to sustain deep-seated negative attitudes towards persons with mental disorders [4]. Conversely, Stuart and Arboleda-Florez [5] had reported that good knowledge is often associated with improved attitudes towards people with mental illness and a belief that mental disorders are treatable can encourage early treatment seeking behaviour and promote better outcomes. The authors also noted that even among those who have been treated for schizophrenia, knowledge of the illness and not mere exposure to it, was a central modifiable correlate of negative attitudes. In a survey intended to examine changes in public beliefs about social and environmental variables as risk factors for mental disorders in Australia and Japan over an 8 year period, Nakane et al [6] found that there was an increase in the proportion of the public who believed in the genetic causes of mental illness.

A total of 129 Japanese and 150 Taiwanese elementary school teachers were surveyed about knowledge, beliefs and attitudes concerning schizophrenia. Findings showed that only small percentages of the Japanese and Taiwanese respondents were able to make a correct identification. The participants emphasized on psychosocial factors as a cause of schizophrenia, rejected psychotropic medication and stronger stigma perception was shown by the Japanese compared to the Taiwanese [7]. In Turkey, about 60% of a rural population held the view that personal weakness might be a cause of schizophrenia [8].

Education provides information that enables the public make more informed decisions about mental illness [9]. Roman and Floyd [9] had stated that persons who have a better understanding of mental illness are less likely to endorse stigma and discrimination. Hence, a strategic provision of information about mental illness seems to lessen negative stereotypes. In a study carried out by Pinfold et al [10], among secondary school students in United Kingdom which assessed the effect of an educational programme on reducing psychiatric stigma and discrimination against persons with mental disorders, the authors reported a significant improvement in the attitude of the respondents to persons with mental disorders following an educational programme.

A study conducted among the nursing students in Northeast Nigeria [6] that assessed the effectiveness of an educational programme on combating stigma against those with mental disorders, showed remarkable changes in the views about causation of mental disorders in the experimental group and little in the control group. For instance on the views regarding magical/spiritual attributions of mental disorders, while at pre-test 36% of the students in the experimental group chose at least one form of magical/spiritual factors, the figure dropped to only 6% still holding on to that belief one month after the intervention. Little or no improvements were seen in the control group.

Similarly, in the biopsychosocial model of aetiology, an improvement in the post-test was recorded in the experimental group compared to little or no improvements in the control group over the same period. The study also showed that among the experimental group, respondents who had negative attitudes toward persons with mental disorders decreased in number over one week and one month post intervention period. A remarkable improvement was observed in the view that patients who have mental disorders are dangerous. One week following intervention, the subjects who believed that persons with mental disorders are dangerous dropped by 27%. At the end of one month post intervention, only 20% drop was sustained.

A study done by Ekwueme et al [12] which assessed the effect of an educational programme on the knowledge and attitude to mental disorders, was carried out using a parallel experimental study design with an educational intervention involving a study and control group (50 participants each) among primary health care workers in a rural community in southeastern Nigeria. Pre- and post-intervention data were collected using a pre-tested, semi structured and self-administered questionnaire. A 5-point Likert scale ranging from "totally disagree" to "totally agree" [1-5] was used to score attitudinal subscales. At baseline only 11(22.0%) workers each in the study and control groups respectively agreed that mental illness arose wholly from medical causes while 36(72.0%) and 35(70.0%) workers believed in the dual aetiology of spiritual/magical and medical factors. The belief in medical aetiological factors rose significantly to 21(42.0%) in the study group post-intervention. There were no significant difference in the mean attitude subscales of the study and control groups respectively at base line, stereotyping (3.8 and 3.9), restrictiveness (2.1 and 2.4) and benevolence (1.3 and 1.4). Post-intervention, a statistically significant change in attitude was observed with P-values of 0.00 in all attitudinal subscales between study and control groups. The result of this study suggests that information and education intervention improved health workers knowledge and attitude to persons with mental disorders in the study community.

Evidence suggests that knowledge and public attitude to mental disorders and its treatment are vital pre-requisites to the realization of successful community-based programmes. Also better knowledge results in improved attitudes towards people with mental disorders [13]. The belief that mental illnesses are treatable is known to encourage early treatment seeking behaviours [5]. Education is generally regarded as one of the strategies for reducing stigmatizing attitudes towards mental illness [14,15].

Nurses are major gatekeepers in the pathways to care of patients with mental disorders in Nigeria, the decision they take or advice they give to patients go a long way in determining where patients seek for mental healthcare and the quality of care they receive. It is therefore vital to continuously assess nurses' knowledge of mental disorders and attitude to persons with mental disorders for possible educational intervention and evaluation when necessary. Therefore, this study was designed to assess the change in knowledge of mental disorders and attitude towards persons with mental disorders among student nurses in Calabar, Nigeria following an educational programme.

## Methods

### Setting

Two centres were used for this study: the State School of Ba-

sic Nursing Calabar, Cross River State and the School of Basic Nursing, University of Calabar Teaching Hospital (UCTH). They were selected for this study because they are located within same city and run similar curricula. Students at the State School of Basic Nursing Calabar served as the experimental group while students of the School of Basic Nursing, UCTH served as control group.

### Participants

The study population included all the first and second year basic nursing students in both institutions totaling 200 in number.

### Instruments

#### i) Socio-demographic questionnaire

This questionnaire was designed to elicit information on socio-demographic characteristics such as age, sex, marital status, year of study, ethnic background, religion, having a family member with mental disorder and having worked in a mental health institution.

#### ii) Modified version of the questionnaire developed for the World Psychiatric Association (WPA) programme to reduce stigma and discrimination because of schizophrenia

This instrument is structured to reducing stigma and discrimination associated with schizophrenia [5,16,17]. The attitude component of the WPA questionnaire was generated from Community Attitudes to Mental Illness (CAMI). CAMI is a self-report inventory for measuring public attitudes towards persons with mental disorders [18]. The term schizophrenia was substituted with mental illness and specific items relating to the symptoms that were specific to schizophrenia were deleted.

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

This material was produced through the guidelines provided by the open the doors programme as well as the changing minds campaign. It emphasizes providing didactic information about the aetiology, course and outcomes of mental disorders. The content/teaching is organized in 3 modules [17].

### Ethical issues

Ethical clearance was obtained from the Ethical Committee of the State Ministry of Health. Written informed consent was also obtained from the participants.

### Procedure

At the pre-intervention phase, students in the 2 schools chosen for the study were called in and seated in the hall using the class registers. The nature and aim of the study was explained to them by the authors. Subsequently the socio-demographic and modified WPA questionnaires were given to the participants to complete. The students were informed that they could ask questions, if they encountered problems in the course of filling the questionnaires.

At the intervention phase which involved only the experimental group, the contents of the WPA semi-structured educational material were administered to the students in 3 modules. Each module was administered per day.

At the post-intervention phase, the modified WPA questionnaire was administered to the experimental and control groups,

a week and later a month post-intervention. One week post-intervention assessment was carried out to see if the educational programme given to the experimental group had any lasting effect on the group, while a one month post intervention assessment was done to see if the effect of the educational programme was sustained in the group.

### Results

A total of 200 students were recruited (100 students from each school). At the end of the one month post-intervention assessment, 96 students participated in the experimental school. Out of the remaining 4 that did not participate, 3 were absent during the intervention phase that lasted for 3 days, while the remaining 1 student was absent at the 1 week post-intervention assessment, hence they were disqualified from participating at the end of the one month post intervention assessment. In the control group, only 97 subjects participated at the end of one week and 95 subjects at the end of one month post-intervention assessment. Table 1 shows the socio-demographic distribution of the students in the experimental and the control groups.

Majority of the respondents in the experimental and control groups believed in the use of psychoactive substances and brain disease as causes of mental disorders. There was no significant difference on the variables between the two groups. Table 2 shows the participants' understanding of the aetiology of mental disorders at baseline.

Majority of the respondents in the experimental and control groups believed that persons with mental disorders are dangerous to the public because of their violent behaviour and admitted that they would not marry someone with mental disorder. Table 3 shows the attitudes of the respondents to mental disorders at baseline.

When the results of the experimental group were compared with those of the control group at the end of one week post intervention the result showed an overall improvement in the knowledge of aetiology of mental disorders in the experimental group. The significant differences occur in those that endorsed witchcraft (7.3% / 40%,  $P < 0.01$ ) and God's punishment (0% / 11.6%,  $P < 0.01$ ) as causes of mental disorders. When the results obtained at the end of one month post intervention assessment were also compared, the result showed a slight drop in performance of the respondents in the experimental group on most of the variables compared to the findings of the one-week post intervention. Significant differences were observed in those that endorsed witchcraft (11.5% / 41.1%  $P < 0.01$ ) and God's punishment (2.1%/11.6%,  $P = 0.01$ ) as causes of mental disorders. Table 4 shows the respondents' knowledge of aetiology of mental disorders at one week and one month post intervention respectively.

When the results of the experimental group were compared with those of the control group at the end of one week post intervention the result showed an overall improvement in attitude to mental disorders in the experimental group. The significant differences occur in 7 out of 12 items. When the results obtained at the end of one month post intervention assessment were also compared, the results showed that the significant differences were sustained in 4 out of 12 items. These included those that admitted feeling afraid conversing with persons with mental disorders (31.3%/58.9%,  $P = 0.01$ ), admitted feeling ashamed if a family member is having a mental disorder (26%/44.2%,  $P = 0.04$ ), believed that people with mental disorders are men-

tally retarded (38.5%/62.1%,  $P=0.03$ ), believed that people with mental disorders are dangerous to the public because of their violent behaviours (61.5%/87.4%,  $P=0.04$ ). Table 5 shows the attitudes of the respondents to mental disorders at one week and one month post intervention respectively.

**Table 1:** Socio-demographic features of the students

	Experimental (n= 100)	Control (n= 100)	P value
<b>Age (mean) years</b>	20.2 ± 1.5	19.74 ± 1.3	
<b>Sex</b>			
Male	9 (9%)	5 (5%)	
Female	91 (91%)	95 (95%)	0.27
<b>Marital status</b>			
Single	99 (99%)	100 (100%)	
Married	1 (1%)	0 (0%)	1.00
<b>Religion</b>			
Christianity	99 (99%)	100 (100%)	1.00
Others	1 (1%)	0 (0%)	
<b>Ethnic group</b>			
Efik	52 (52%)	33 (33%)	<0.01
Igbo	4 (4%)	32 (32%)	
Yoruba	0 (0%)	3 (3%)	
Others	44 (44%)	32(32%)	
<b>Year of study</b>			
First year	50 (50%)	50 (50%)	1.00
Second year	50 (50%)	50 (50%)	
<b>Family member with a mental disorder</b>			
Present	15 (15%)	12 (12%)	0.53
Absent	85 (85%)	88 (88%)	
<b>Worked in a mental health institution</b>			
Yes	4 (4%)	3 (3%)	1.00
No	96 (96%)	97 (97%)	

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

Variables	Experimental (n=96)	Control Group (n=95)	X <sup>2</sup>	P
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 events	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 (41.1%)	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:** Attitude of the respondents to mental disorders at baseline

Variables	Experimental (n=96)	Control Group (n=95)	X <sup>2</sup>	P
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 is having 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 disorder can 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:** Respondents' knowledge of aetiology of mental disorders at one week and one month post intervention respectively.

Variables	Experimental (1 week) (n=96)	Control (1 week) (n=95)	x <sup>2</sup>	P	Experimental (1 month) (n=96)	Control (1 month) (n=95)	x <sup>2</sup>	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

**Table 5:** The attitude to mental disorders at one week and one month post intervention respectively in the experimental and control group.

Variables	Experimental(n=96) (1 week)	Control(n=95) (1 week)	x <sup>2</sup>	P	Experimental (1 month)	Control (1 month)	x <sup>2</sup>	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

## Discussion

### Knowledge of aetiology of mental disorders

Results of this study indicated that 81.3% and 73.7% of the respondents in the experimental and control groups respectively, believed that substance abuse could be a cause of mental disorders. Seventy three percent and 67.4% of the respondents in the experimental and control groups respectively, attributed brain disease to cause of mental disorders, 36.5% and 41.1% of the respondents respectively believed that mental disorders are genetically inherited. The proportions of the respondents in the experimental and control groups who believed that witchcraft could cause of mental disorders were 28.1% and 37.9% respectively. The results showed that the respondents had a good knowledge of biological causation of mental disorders with majority attributing substance abuse to cause of mental disorder. The results are consistent with the results in the studies done by Mohammed [11], Kabir et al [19] and Bella et al [20], which showed that substance abuse was believed by the majority as a cause of mental disorders. The results of the study done by Mohammed [11], showed that as high as 85% and 80% of the respondents in the experimental and control groups respectively believed that substance abuse could cause mental disorders, 76% and 67% of the respondents respectively attributed brain disease to cause mental disorders, while 39% and 30% of the respondents in the experimental and control groups respectively believed in witchcraft as cause of mental disorders. The results of the study done by Kabir et al [9], showed that substance abuse was believed by the majority (34.3%) as a cause of mental disorders. The results of the study done by Bella et al [20], showed that majority of the respondents (52.1%) believed that substance abuse is a cause of mental disorder, 13.6% of the respondents held spiritual belief of aetiology of mental disorders. The results of the present study differ from the results of the studies done by Binitie [21], Erinsho [22], Adebowale and Ogunlesi [23], in which majority of the respondents identified witchcraft as a cause of mental disorders. The studies by Binitie [21] and Erinsho [22], were carried out on traditional doctors and chiefs. Adebowale and Ogunlesi [23], carried out their studies on the patients and their relatives. The difference in the results could possibly be attributed to the differences in the educational as well as cultural background of the sampled population. The traditional chiefs and doctors in Nigeria are seen as the custodians of the culture. Hence their opinions about mental disorders could not have been different from the prevailing cultural belief about the supernatural causation of mental disorders. Also, in the study carried out by Adebowale and Ogunlesi [23], it was found that admission of possible "su-

pernatural" causation was associated with education below the secondary level among the patients.

### Attitudes of the respondents to mental disorders

This study showed that 85.4% and 88.4% in the experimental 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. The results of the study showed that the attitudes of the respondents to mental disorders were poor with majority having the belief that persons with mental disorders are dangerous to the public because of their violent behaviour. This is consistent with the results of the studies done by Mohammed<sup>11</sup> and Gureje et al [16]. The study done by Mohammed<sup>11</sup>, among the student nurses in the Northeastern Nigeria showed that as high as 81.7% and 91.7% in the experimental and control groups respectively believed that people with mental disorders are dangerous to the public, 78% and 88.5% in the experimental and control groups respectively would not marry persons with mental disorders. Gureje et al [16], reported that as high as 87.6% of the respondents (who had exclusive belief in religious-magical views of causation of mental disorders) had the belief that persons with mental disorders are dangerous to the public, 86.4% of the respondents would feel afraid conversing with persons with mental disorders. The results of the present study however differ from the results of the studies done by Pinfold et al [10] which assessed the effect of an educational programme in combating stigma against mental disorders among the secondary school students in United Kingdom. The study showed an overall better response of the participants towards persons with mental disorders, as less number of them (37%) believed that persons with mental disorders are likely to be violent, 39% of the respondents admitted feeling afraid conversing with persons with mental disorders. It was possible that the respondents had relatively well informed baseline knowledge of mental disorders.

### Knowledge of aetiology of and attitudes of the respondents to mental disorders following an educational programme

There was an improvement in the knowledge of aetiology of mental disorders and attitudes to mental disorders among the respondents in the experimental group following an educational programme. The results of the present study are similar

to results in the studies done by Mohammed [11], Pinfold [10], Morrison [24], Happell and Gaskin [25], which showed an improvement in the attitudes of the respondents to mental disorders following an educational programme. With the exception of the study done by Mohammed<sup>11</sup>, the authors in the other studies did not assess the respondents' knowledge of aetiology of mental disorders, hence were not able to relate knowledge to attitudes as regards to mental illness. A previous study done by Gureje et al [16], among Nigerian adults showed that persons with bio-psycho-social understanding of the causation of mental illness were more likely to have positive attitudes toward mental illness than those who did not. This understanding of the bio-psycho-social interaction and mental illness may be strategically used in the fight against stigma. In the study by Pinfold [10], the author assessed the attitudes of the secondary school students both at 1 week and 6 months post intervention. He reported a significant drop in the improvement in attitudes of the respondents at six months when compared with the results at one week follow up. In the present study, the assessment of the respondents' attitudes to mental disorders was done at one week and one month post intervention and the drop in improvement at the end of one month was not as marked as the drop in improvement at the end of six month in the study by Pinfold [10].

#### **Comparing the knowledge of aetiology of and attitude of the respondents to mental disorders at baseline and post intervention periods in the experimental and control groups**

The results of the present study showed an improvement in the knowledge and attitudes of the respondents in the experimental group to mental disorders following an educational programme. The results in the present study are similar to the results of the studies done by Mohammed [11], Pinfold [10], Ekwume [12], which showed an improvement in the attitudes of the respondents to mental disorders following an educational intervention. The results of the present study are quite close to the results of the study done by Mohammed [11]. Both showed that 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 were compared with the baseline results. The results of the present study showed that six items were significant at the end of one week post intervention. These included: the respondents who believed that persons with mental disorders are dangerous to the public because of their violent behaviour, those who would feel afraid conversing with persons with mental disorders, those who would feel ashamed if a family member is having a mental disorder, those who would feel disturbed working with a person with mental disorder, those who would not marry a person with mental disorder and those that would feel disturbed sleeping with a person with mental disorder. At the end of the one month post intervention four of the items lost their significance. These included those who would feel ashamed if a family member is having a mental disorder, those who would feel disturbed working with a person with mental disorder, those who would not marry a person with mental disorder and those that would feel disturbed sleeping with a person with mental disorder. Results of the study by Mohammed [11], showed that the reduction in the number of respondents who would feel afraid conversing with persons with mental disorders at the end of one month was not as marked as in the present study. The disparity in the results could be attributed to the fact that the experimental group in the present study had a direct contact and interacted with a stable person who had a

mental disorder. The result of the control group showed that none of the items was significant at the end of week and one month post educational intervention. This showed that the improvement in the knowledge and attitude that was noticed in the experimental group was most probably due to the educational intervention given only to that group. The fact that none of the items was significant at the end of one week and one month post educational intervention in the control group would probably suggest that there was no major possible contamination through media or exchange of information between the two schools after the initial assessment.

#### **Limitations**

The educational programme was given over a short period and the study did not focus on any specific mental disorder. Also the study population was small and findings may not be generalized.

#### **Authors' contributions**

AUN, EB, MNI, OOE and FE made substantial contributions to conception, design, collection of data, analysis and interpretation of data. AUN and MNI drafted the article and all authors gave final approval of the version to be published.

#### **Conclusion**

The results of the study showed that the respondents in both the experimental and control groups at baseline had diverse knowledge of mental disorders, with majority having a good knowledge of biological causes of mental disorders as well as negative attitude to mental disorders. The improvement in knowledge and attitudes towards persons with mental disorders recorded in the experimental group at one week post intervention with some of the items sustained after one month were likely due to the educational programme impacted to this group.

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