

Impact of Mental Health Training on the Knowledge of and Attitude to Mental Illness among Medical Students of University of the Gambia

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Abstract

Background: High levels of mental health problems reported among medical students could be due to poor knowledge, attitude, and perception towards mental health. Despite the vast body of literature globally, no study has been conducted in The Gambia to assess the impact of mental health training on the knowledge and attitude of medical students to mental illness in the Gambia.

Method: A before and after study was designed for final year medical students of the University of The Gambia who had one month of Psychiatry lectures. The ninety-five students who consented to participate had a self-administered questionnaire containing socio-demographic characteristics, adapted questionnaire on knowledge and attitude towards mental illness before the commencement of the lectures and the same set of questionnaire were administered at the end of the one-month lecture. Data was entered into SPSS statistical software version 28. Descriptive statistics was used to summarize categorical variables and the paired t-tests were used to compare the mean knowledge and attitudes score at baseline with the mean scores post training. Significant values were set at $P < 0.05$

Results: Among the 101 medical students, 95 participated in the study. The mean (SD) age of the participants was 24.9(1.68) with 60% of them being females. The majority (75.8%) were Gambians while 68.4% of the participants were Muslims. The mental training intervention significantly improved the knowledge ($t=4.65$, $P=0.001$) and attitude ($t=2.32$, $P=0.023$) of the medical students regarding mental illness with greater impacts on their knowledge.

Conclusion: Our study results suggest that mental health training could be an effective intervention in improving the knowledge and attitude among medical students regarding mental illness. Mental health training should be utilized as a major tool to enhance mental health services in developing countries with shortage of mental health professionals.

Introduction

According to the World Health Organization (WHO), mental health is a state of well-being where every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to her or his community [1]. Mental illness and substance abuse disorders are leading causes of disability in sub-Saharan Africa, with the region having poor mental health services resources [2-5]. A WHO survey of university students across 21 countries found that one-fifth met the criteria for mental disorders in the past year [6]. A finding attributed to university studies being emotionally and intellectually demanding, making students prone to mental health challenges [7-9].

Medical students are more susceptible to developing psychological distress and mental health disorders relative to other students in undergraduate training [10-12]. For example, the prevalence of depression (i.e., 27.2%), anxiety (33.8%), burnout (12.1%), and suicide (11.1%) among medical students is high [13,14]. In Uganda, recent studies reported that one in five medical students are depressed, 54.5% of the students experience burnout, and 57.4% of the students in medical school are stressed [15-17]. Following the COVID-19 pandemic, the prevalence of mental illness among students increased with over four-fifths of the students having severe symptoms [17]. Students also reported high suicidal behaviours (i.e., suicidal ideations, attempts, and plans) [18,19]. We hypothesized

that the high levels of mental health problems are due to low levels of knowledge, poor attitude, and perception towards mental health care and mental health in general, which make students seek care late or avoid mental health services. For the present study, knowledge is one's understanding and awareness of any mental health challenges, while attitude is how one acts and behaves towards someone with a mental health challenge [20].

Studies in some parts of sub-Saharan Africa have found that medical students and health workers have lower levels of knowledge, poor perception, and attitude towards mental illness [21,22]. This not only predisposes them to mental illness but also hinders the utilization of mental health services available and the recognition of mental illness in the people they serve [8, 23-28]. The poor perceptions and attitudes on the other hand may bring about the stigmatization of patients who may shun away from treatment as a result. It is important for medical students to be knowledgeable and have the right attitude, knowledge and perceptions about the subject.

The prevalence of mental illness among medical students is high [10-12]. A gap remains on what knowledge should be given to improve the attitudes and perceptions towards mental health. Despite the vast body of literature globally, no study has been conducted in the Gambia to assess the impact of mental health training on the knowledge of and attitude of medical students to mental illness in the Gambia. While there are many mental health problems in the Gambia to be accorded priority, our study is in order as the first author is currently the only visiting consultant psychiatrist and collaborative mental health researcher in the Gambia and as such he seeks to produce medical doctors with some knowledge in psychiatry suitable enough to undertake research in mental health.

Our study sought to determine the impact of mental health training on medical students' knowledge and attitudes towards mental illness in The Gambia.

Method

The study was conducted among final year medical students of the School of Medicine and Allied Health Sciences of The University of The Gambia. The School of Medicine and Allied Health Sciences is located within the premises of the Edward Francis Small Teaching Hospital in Banjul. The school comprises three departments; they are the departments of Medicine, Nursing and Public Health and Environment [29]. All the 42 final year medical students who were the 17th cohorts of medical students and the 59 final year medical students who were the 18th cohorts of medical students who had a month posting in Psychiatry in 2023 and 2024 respectively formed the study population of 101 medical students. The study was limited to this sample of 101 medical students who have had formal mental health teaching as part of the required posting for the medical training curriculum.

The study was explained to the students before the commencement of lectures which lasted for one month in mental health covering the definition of mental health, misconceptions about mental illness, aetiology of mental illness, neurosciences, various mental illnesses and their treatments.

A before and after study design was used. A questionnaire was designed for socio-demographic characteristics of the students such as age, sex, religion, tribe and marital status. An adapted questionnaire on Knowledge and Attitude towards mental illness and depression in a study among medical doctors in Nigeria by Bawo and his colleagues

[30] was used in this study. The questionnaire had been used in studies on knowledge and attitude of healthcare workers towards mental illness in India, Tanzania and Ethiopia. [31,32]. It is a self-administered questionnaire with Knowledge domain comprising 20 questions with yes or no responses and Attitude domain comprising 7 questions with yes or no answers. The knowledge questionnaire addresses different causes of mental illness ranging from spiritual to scientific causes, treatment of mental illness ranging from unorthodox to orthodox treatments while attitude questionnaire addresses different issues bordering on social distance towards people with mental illness in terms of friendship, marriage, employment, living arrangement and perceived dangerousness.

The study was explained to the medical students before the commencement of lectures. Those who consented to participate completed the questionnaire. At the end of 1 month of lectures, the same set of questionnaire was administered to only the students who completed the questionnaire before commencement of the lectures.

Ethical principles in medical research as declared by Helsinki in 2013 were followed. Confidentiality was ensured as no name, matriculation number or any means identification was used. Participation was voluntary and the students were free to withdraw from the study at any stage without any consequences. One major ethical challenge was that some students who had given consent to participate in both the before and after training study withdrew their consent. There was no consequence whatsoever on any student.

The collected data were entered into SPSS version 28, and data cleaning was performed, Data Analysis was done using STATA MP 17. Categorical variables were analyzed and presented as frequencies and percentage distributions, while quantitative variables, such as age, were presented as mean and standard deviation.

For the knowledge assessment, the 20-item scale with Yes/No responses was coded as 1 for correct responses and 0 for incorrect responses. The scores for all 20 questions were summed to derive the knowledge score, with possible scores ranging from 0 to 20. Similarly, the attitude scale contained 7 questions having Yes/no choices, with correct answers coded as 1 and incorrect answers coded as 0. These 7 questions were summed to derive the attitude score, with possible scores ranging from 0 to 7. Negative questions were reverse coded in the analysis.

To determine the effect of the mental health training on the knowledge and attitude of the medical students towards mental illness, a test of normality on the scores revealed that both knowledge and attitude scores (Figures 1,2) are normally distributed. Therefore, paired t-tests were used to compare the mean knowledge and attitudes score at baseline with the mean scores post-training. To examine the potential factors associated with knowledge of mental illness, an unadjusted robust linear regression was fitted. Similarly, to examine factors associated with attitude towards the people suffering from mental illness, an unadjusted robust linear regression was fitted, variables that turn out significant at 5% level of significance were included in the multivariate analysis. Significant values were set at $P < 0.05$.

Results

Knowledge and Attitude scores at baseline were normally distributed. (Figures 1,2)

The demographic characteristics of the study participants was presented in (Table 1). A total of 95 Medical students participated in

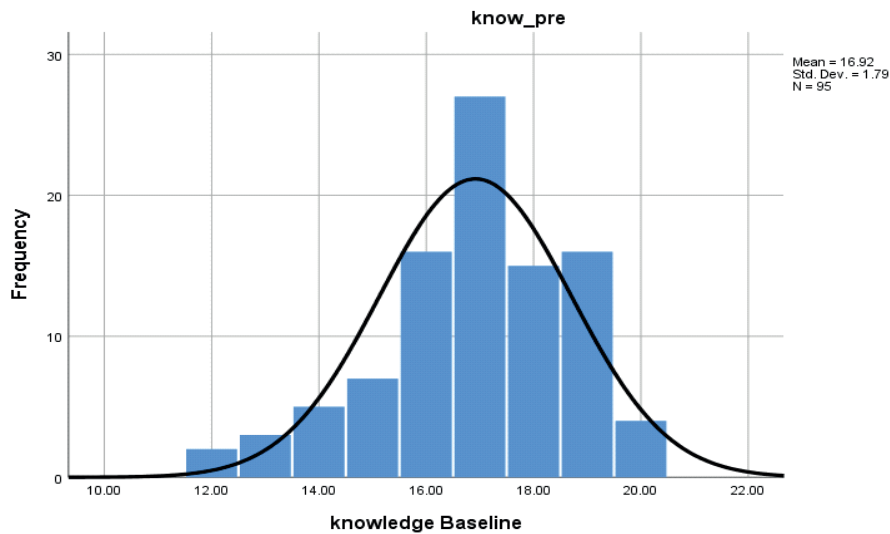


Figure 1: Knowledge Scores.

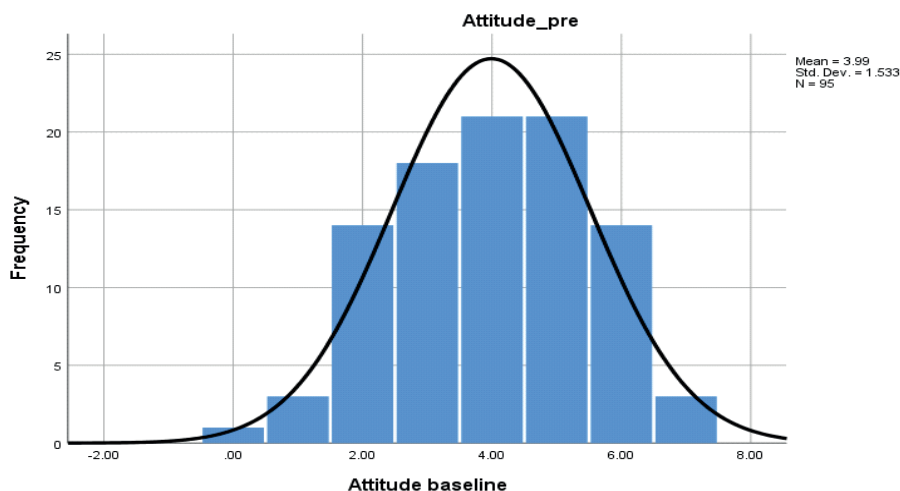


Figure 2: Attitude Scores.

the study. The mean age of the participants was 24.9 years (SD = 1.68). Majority of participants (72.6%) were between 21 and 25 years old. The gender distribution showed that 60% were female students. Regarding religion, 31.6% of the students were Christian, and 68.4% were Muslim. All participants had tertiary education. The tribal distribution was diverse, with the largest groups being Mandinka (30.5%) followed by Fula (18.9%) and Wollof (10.5%). In terms of nationality, 75.8% were Gambian, followed by 18.9% Nigerians. Majority (60%) were from monogamous family setting while about 27.4% reported having a family history of mental illness. Regarding previous mental health training, 28.4% had attended training on mental health.

The baseline knowledge assessment of medical students on mental illness revealed several insights (Table 2). Majority (97.9%) believe that people with mental illness can be seen in the community and 36.8% of

students thought mental illness could sometimes be caused by God's will, while 41.1% believed evil spirits could cause it. A significant number, 82.1%, said divorce could lead to mental illness, and 94.7% recognized physical or sexual abuse as a cause. Most students (92.6%) understood that chemical imbalances in the brain could cause mental illness. About 79% of unemployment was seen as a cause but only 16.8% thought most mental illness cases were due to bad luck. Work stress was considered a cause by 70.5%, and 57.9% recognized genetics as a factor. A high percentage (93.7%) understood that drug use could cause mental illness.

Only 8.4% thought mental illness was a way people with weak stamina deal with problems, and 28.4% believed most mental disorders improve without medication. The role of primary care workers was supported by 92.6% of students, and only 15.8% thought mental illness

Table 1: Demographic profiles and Mental Health History of the medical students.

| Demographic Characteristics | Frequency (n=95) | Percentage (%) |
|---|-------------------|----------------|
| Age-mean(SD) | 24.9(1.68) | |
| Age Group | | |
| 21-25years | 69 | 72.6% |
| 26-30years | 26 | 27.4% |
| Sex | | |
| Male | 38 | 40.0% |
| Female | 57 | 60.0% |
| Religion | | |
| Christian | 30 | 31.6% |
| Muslim | 65 | 68.4% |
| Current level of Highest Education | | |
| Tertiary | 95 | 100.0% |
| Tribe | | |
| Akan | 1 | 1.1% |
| Aku | 3 | 3.2% |
| Bainunka | 1 | 1.1% |
| Calabar | 1 | 1.1% |
| Fula | 18 | 18.9% |
| Hausa | 1 | 1.1% |
| Igbo | 7 | 7.4% |
| Jahanka | 1 | 1.1% |
| Jola | 2 | 2.1% |
| Mandinka | 29 | 30.5% |
| Manjago | 4 | 4.2% |
| Mansuwanka | 1 | 1.1% |
| Mende | 2 | 2.1% |
| None | 1 | 1.1% |
| Other | 2 | 2.1% |
| Serere | 3 | 3.1% |
| Urhobo | 1 | 1.1% |
| Wollof | 10 | 10.5% |
| Yoruba | 7 | 7.4% |
| Nationality | | |
| Gambian | 72 | 75.8% |
| Ghanaian | 1 | 1.1% |
| Indian | 1 | 1.1% |
| Nigerian | 18 | 18.9% |
| Pakistani | 1 | 1.1% |
| Sierra Leonean | 2 | 2.1% |
| Occupation | | |
| Self-employed | 1 | 1.1% |
| Employed by private organization | 1 | 1.1% |
| Student | 93 | 97.9% |
| Family Background | | |
| Polygamous | 38 | 40.0% |
| Monogamous | 57 | 60.0% |
| History of Anyone with Mental illness in your family | | |
| Yes | 26 | 27.4% |
| No | 69 | 72.6% |
| Have you attended any Training on mental health | | |
| Yes | 27 | 28.4% |
| No | 68 | 71.6% |

Table 2: Baseline Knowledge on Mental illness among the participants.

| Knowledge on Mental illness | Frequency (n=95) | Percentage (%) |
|--|------------------|----------------|
| People with mental illness can be seen in your community | | |
| Yes | 93 | 97.9% |
| No | 2 | 2.1% |
| Sometimes caused as the will of God | | |
| Yes | 35 | 36.8% |
| No | 60 | 63.2% |
| Evil spirit can cause Mental illness | | |
| Yes | 39 | 41.1% |
| No | 56 | 58.9% |
| Divorce causes Mental illness | | |
| Yes | 78 | 82.1% |
| No | 17 | 17.9% |
| Physical or sexual abuse causes mental illness | | |
| Yes | 90 | 94.7% |
| No | 5 | 5.3% |
| Neurochemical imbalance cause mental illness | | |
| Yes | 88 | 92.6% |
| No | 7 | 7.4% |
| Unemployment can cause Mental illness | | |
| Yes | 75 | 78.9% |
| No | 20 | 21.1% |
| Majority of cases of Mental illness are due to misfortune | | |
| Yes | 16 | 16.8% |
| No | 79 | 83.2% |
| Work overload causes Mental illness | | |
| Yes | 67 | 70.5% |
| No | 28 | 29.5% |
| Genetic exposure causes Mental illness | | |
| Yes | 55 | 57.9% |
| No | 40 | 42.1% |
| Use of psychoactive drugs causes Mental illness | | |
| Yes | 89 | 93.7% |
| No | 6 | 6.3% |
| Mental illness is a way people with poor stamina deal with difficulties | | |
| Yes | 8 | 8.4% |
| No | 87 | 91.6% |
| Most Mental disorder improve without medication | | |
| Yes | 27 | 28.4% |
| No | 68 | 71.6% |
| Primary care workers could provide support | | |
| Yes | 88 | 92.6% |
| No | 7 | 7.4% |
| Becoming Mental ill is natural part of being ageing | | |

| | | |
|---|----|--------|
| Yes | 15 | 15.8% |
| No | 80 | 84.2% |
| Anyone can suffer from mental illness | | |
| Yes | 88 | 92.6% |
| No | 7 | 7.4% |
| The condition is better treated by traditional healers | | |
| No | 95 | 100.0% |
| You can contract mental illness by getting very close to the patient | | |
| Yes | 3 | 3.2% |
| No | 92 | 96.8% |
| There are special drugs that work for Mental illness | | |
| Yes | 87 | 91.6% |
| No | 8 | 8.4% |
| Talk therapy like psychotherapy do not work for people with Mental illness | | |
| Yes | 3 | 3.2% |
| No | 92 | 96.8% |

was a natural part of aging. Almost all (92.6%) the medical students believed anyone could experience mental illness, and none thought traditional healers were the best option for treatment. Only a few (3.2%) believed one could catch mental illness by being close to someone who has it. Majority (91.6%) of the participants knew there are effective medications available for treating mental illness. Furthermore, almost all students (96.8%) understood that talk therapies, like psychotherapy, are helpful for people with mental illness.

After the mental health lecture, 12 of the participants were lost to follow up resulting into a total of 83 medical students who participated in this study, see results in table 3. Most (98.8%) of medical students understood that people with mental illness can be found in their community. However, 30.1% believed that mental illness can be caused by the will of God or evil spirits. Most students identified the following as a potential cause of mental illness: Divorce (94.0%), physical or sexual abuse (97.6%), neurochemical imbalance (98.8%), unemployment (92.8%), work overload (92.8%) genetic exposure (98.8%), and use of psychoactive drugs (94.0%). Also, 13.3% responded that mental illness is due to misfortune. Most (92.8%) of the students recognized that primary care workers can provide support for mental health, and 98.8% understood that anyone can suffer from mental illness. Only 4.8% believed that mental illness can be contracted by being close to a patient, and 96.4% knew that special drugs can treat mental illness. Additionally, 98.8% recognized the effectiveness of talk therapy like psychotherapy. Also, a lower proportion of the participants reported that Mental illness is a way people with poor stamina deal with difficulties (10.8%), Most Mental disorder improve without medication (32.5%), Becoming Mental ill is natural part of being ageing (14.5%), while all (100%) the participant said the condition cannot be better treated by traditional healers.

The baseline assessment of medical students' attitudes towards people with mental illness was presented in table 4. Out of the total of 95 participants, 17.9% believed that patients with mental illness should be treated in the same health clinics as other patients. In terms of employment, 21.1% thought that individuals with mental illness could be employed and in terms of living arrangements, 48.4% were comfortable living in the same house with person with mental illness. A

Table 3: Post lecture knowledge on Mental illness among the participants.

| Knowledge on Mental illness (Post) | Frequency (n=83) | Percentage (%) |
|--|------------------|----------------|
| People with mental illness can be seen in your community | | |
| Yes | 82 | 98.8% |
| No | 1 | 1.2% |
| Sometimes caused as the will of God | | |
| Yes | 25 | 30.1% |
| No | 58 | 69.9% |
| Evil spirit can cause Mental illness | | |
| Yes | 25 | 30.1% |
| No | 58 | 69.9% |
| Divorce causes Mental illness | | |
| Yes | 78 | 94.0% |
| No | 5 | 6.0% |
| Physical or sexual abuse causes mental illness | | |
| Yes | 81 | 97.6% |
| No | 2 | 2.4% |
| Neurochemical imbalance cause mental illness | | |
| Yes | 82 | 98.8% |
| No | 1 | 1.2% |
| Unemployment can cause Mental illness | | |
| Yes | 77 | 92.8% |
| No | 6 | 7.2% |
| Majority of cases of Mental illness are due to misfortune | | |
| Yes | 11 | 13.3% |
| No | 72 | 86.7% |
| Work overload causes Mental illness | | |
| Yes | 77 | 92.8% |
| No | 6 | 7.2% |
| Genetic exposure causes Mental illness | | |
| Yes | 82 | 98.8% |
| No | 1 | 1.2% |
| Use of psychoactive drugs causes Mental illness | | |
| Yes | 78 | 94.0% |
| No | 5 | 6.0% |
| Mental illness is a way people with poor stamina deal with difficulties | | |
| Yes | 9 | 10.8% |
| No | 74 | 89.2% |
| Most Mental disorder improve without medication | | |
| Yes | 27 | 32.5% |
| No | 56 | 67.5% |
| Primary care workers could provide support | | |

| | | |
|---|----|--------|
| Yes | 77 | 92.8% |
| No | 6 | 7.2% |
| Becoming Mental ill is natural part of being ageing | | |
| Yes | 12 | 14.5% |
| No | 71 | 85.5% |
| Anyone can suffer from mental illness | | |
| Yes | 82 | 98.8% |
| No | 1 | 1.2% |
| The condition is better treated by traditional healers | | |
| No | 83 | 100.0% |
| You can contract mental illness by getting very close to the patient | | |
| Yes | 4 | 4.8% |
| No | 79 | 95.2% |
| There are special drugs that work for Mental illness | | |
| Yes | 80 | 96.4% |
| No | 3 | 3.6% |
| Talk therapy like psychotherapy do not work for people with Mental illness | | |
| Yes | 1 | 1.2% |
| No | 82 | 98.8% |

majority, 76.8% were open to forming friendship with individuals with mental illness. When evaluating the perceived danger of people with mental illness, 24.2% believed they are a threat to society. Regarding marriage, 63.2% were willing to marry a person with mental illness if fully treated. Only 4.2% thought that patients with mental illness should be taken to isolated places for spiritual treatment.

Following a mental health lecture, a post-intervention assessment was conducted among medical students as shown in table 5. Among the participants, 37.3% said patients with mental illness should be treated in the same clinics as other patients and 48.2% support the idea that individuals with mental illness can be employed. A majority, (71.1%) feel comfortable living in the same house with a person with mental illness and 85.5% were open to befriending a person with mental illness. Also, 15.7% perceived patients with mental illness are dangerous to society. In terms of marriage 62.7% were willing to marry a person with mental illness if they are fully treated. Only 3.6% believe that patients should be taken to isolated places for spiritual treatment.

Effect of Mental Health Lecture on Mental Health Knowledge of Medical Students

Table 6 presents the results of the paired t-test conducted on the baseline and post intervention data. The post intervention mean (SD) score 18.2 (1.38) was slightly higher than the baseline mean (SD) score 17.0(1.73) for the knowledge assessment ($t= 4.65, P=0.001$), indicating that the health lecture was effective in improving the knowledge of medical students about mental health.

Effect of Mental Health Lecture on Medical Students' Attitude to Mental Illness

Table 7 showed the results of the paired t-test conducted on the

Table 4: Baseline assessment of attitude towards the people suffering from mental illness.

| Attitude Towards people suffering from Mental illness | Frequency (n=95) | Percentage (%) |
|---|------------------|----------------|
| The patient should be treated in the same health clinic like other patient | | |
| Yes | 17 | 17.9% |
| No | 78 | 82.1% |
| The person can be employed to work | | |
| Yes | 20 | 21.1% |
| No | 75 | 78.9% |
| I can live in the same house with the person | | |
| Yes | 46 | 48.4% |
| Nor | 49 | 51.6% |
| I can make friendship with the person | | |
| Yes | 73 | 76.8% |
| No | 22 | 23.2% |
| The patient is dangerous to the society | | |
| Yes | 23 | 24.2% |
| No | 72 | 75.8% |
| I can marry the person when fully treated | | |
| Yes | 60 | 63.2% |
| No | 35 | 36.8% |
| They should be taken to isolated place for spiritual treatment | | |
| Yes | 4 | 4.2% |
| No | 91 | 95.8% |

Table 5: Post Intervention assessment of attitude towards the people suffering from mental illness.

| Attitude Towards people suffering from Mental illness (Post) | Frequency (n=83) | Percentage (%) |
|---|------------------|----------------|
| The patient should be treated in the same health clinic like other patient | | |
| Yes | 31 | 37.3% |
| No | 52 | 62.7% |
| The person can be employed to work | | |
| Yes | 40 | 48.2% |
| No | 43 | 51.8% |
| I can live in the same house the person | | |
| Yes | 59 | 71.1% |
| No | 24 | 28.9% |
| I can make friendship with the person | | |
| Yes | 71 | 85.5% |
| No | 12 | 14.5% |
| The patient is dangerous to the society | | |
| Yes | 13 | 15.7% |
| No | 70 | 84.3% |
| I can marry the person when fully treated | | |
| Yes | 52 | 62.7% |
| No | 31 | 37.3% |
| They should be taken to isolated place for spiritual treatment | | |
| Yes | 3 | 3.6% |
| No | 80 | 96.4% |

Table 6: Effect of mental health lecture on mental health knowledge of medical students.

| | Mean | Std. Deviation | Test statistic (paired t-test) | P value |
|-------------------------------------|------|----------------|--------------------------------|---------|
| Knowledge Score (Baseline) | 17.0 | 1.73 | 4.65 | 0.001 |
| Knowledge Score (Post intervention) | 18.2 | 1.38 | | |

Table 7: Effect of mental health lecture on medical students' attitude to mental illness.

| | Mean | Std. Deviation | Test Statistic (paired t-test) | P value |
|------------------------------------|------|----------------|--------------------------------|---------|
| Attitude score (Baseline) | 4.1 | 1.44 | 2.32 | 0.023 |
| Attitude score (Post Intervention) | 4.6 | 1.42 | | |

Table 8: Factors independently associated with improved knowledge of mental health (unadjusted).

| Variable | Unadjusted (B) | t | 95% CI | |
|---|----------------|-------|--------|-------|
| | | | Lower | Upper |
| Age | 0.10 | 0.53 | -0.22 | 0.42 |
| Sex | | | | |
| Male | ref | | | |
| Female | -0.83 | 1.58 | -1.88 | 0.21 |
| Religion | | | | |
| Christian | ref | | | |
| Muslim | -0.61 | 1.20 | -1.62 | 0.40 |
| Family background | | | | |
| Polygamous | ref | | | |
| Monogamy | 0.44 | 0.84 | -0.60 | 1.49 |
| Family history of mental illness | | | | |
| Yes | ref | | | |
| No | -0.08 | -0.14 | -1.18 | 1.02 |
| Mental health Training | | | | |
| Yes | ref | | | |
| No | 0.21 | 0.41 | -0.79 | 1.21 |

baseline and post training on attitude. The attitude mean (SD) score 4.1(1.44) at baseline was lower compared to the attitude mean (SD) score 4.6 (1.42) after intervention ($t= 2.32, P=0.023$), indicating that the health lecture was effective in improving medical students' attitude to mental illness.

Factors Independently Associated with Improved Knowledge of Mental Health

The unadjusted robust linear regression revealed that there is no significant relationship between knowledge improvement and independent age, gender, religion, family background, family history of mental illness, mental health training. (Table 8)

Table 9: Factors independently associated with improved attitude towards the people suffering from mental illness (unadjusted).

| Variable | Unadjusted (B) | t | 95% CI | |
|---|----------------|------|--------|-------|
| | | | Lower | Upper |
| Age | 0.30 | 0.03 | 0.02 | 0.57* |
| Sex | | | | |
| Male | ref | | | |
| Female | 0.57 | 1.26 | -0.33 | 1.47 |
| Religion | | | | |
| Christian | ref | | | |
| Muslim | 1.19 | 2.39 | 0.20 | 2.18* |
| Family background | | | | |
| Polygamous | ref | | | |
| Monogamy | -0.39 | 0.90 | -1.25 | 0.47 |
| Family history of mental illness | | | | |
| Yes | ref | | | |
| No | 0.09 | 0.19 | -0.90 | 1.09 |
| Mental health Training | | | | |
| Yes | ref | | | |
| No | 0.38 | 0.43 | -0.57 | 1.33 |

Table 10: Factors associated with improved attitude towards the people suffering from mental illness.

| Variable | B | t | 95% CI | |
|-----------------|------|------|--------|-------|
| | | | Lower | Upper |
| Age | 0.20 | 1.51 | -0.07 | 0.48 |
| Religion | | | | |
| Christian | ref | | | |
| Muslim | 0.94 | 1.86 | -0.07 | 1.95 |

Factors Independently Associated with Improved Attitude towards the People Suffering from Mental Illness

The result of the unadjusted robust linear regression was presented in table 9. The result showed that age increase with the score of the attitude towards people suffering from mental illness ($\beta= 0.30, 95\%CI= 0.02 - 0.57$). Also, on average, those who identify as Muslim have an attitude score that is 1.19 points higher than those who identify as Christian ($\beta= 1.19, 95\%CI= 0.20 - 2.18$).

Factors Associated with Improved Attitude towards the People Suffering from Mental Illness

The result of the multivariate robust linear regression was presented in table 10. The result showed that age ($\beta= 0.20, 95\%CI= -0.07 - 0.48$) and religion ($\beta= 0.94, 95\%CI= -0.07 - 1.95$) were not associated with the attitude towards people suffering from mental illness after adjusting for confounder.

Discussion

Out of the 95 students who started the study at baseline, 83 students completed the study yielding attrition rate of 12.6%. The voluntary nature of the study allowing students to withdraw at any stage

could be the reason for the observed attrition. The mean age of 24.9 years reported in this study is similar to the mean age of 25.3 years reported in a study among final year medical students in 10 randomly selected medical schools in Nigeria [33]. The female medical students preponderance (60%) reported in this study is in contrast to the 39.6% reported among medical students in 10 randomly selected Universities in Nigeria [33]. However, the study of higher female preponderance in the medical school is similar to the steadily increased rate of medical students in medical schools in the UK, US, Canada and Australia with the percentage of females exceeding 65% in some some institutions [34]. The high rate of more females in the medical school could be due to increased awareness of education of the girl child and the concept of equal opportunities for male and female in the society. The finding that most of the medical students are Muslims is congruent with the fact that the predominant religion in The Gambia is Islam [35].

On the impact of the training on knowledge of the medical students, there is improvement in knowledge across all the 20 items that were accessed in the knowledge domain. Greater improvement was obtained for genetics and social factors such as unemployment and work overload as causes of mental illness. There was marginal improvement in the belief that mental illness could be caused by evil spirits and also as the will of God. The belief of supernatural causes of mental illness is deeply rooted in Gambia as we see in other African countries. Barrow and Faerden had earlier in their publication that one of the main barriers to accessing mental health services in the Gambia is the belief in the supernatural causes of mental illness and the stigma of mental illness [36]. Overall, the training significantly improved the knowledge of the medical students. Mental health training is an effective intervention to improve knowledge of healthcare providers for effective service delivery. Mental health training of health workers in the developing countries with shortage of mental health professionals should be given priority in scaling up mental health services [37].

The Impact of mental health training on the attitude of medical students to mental illness showed that post-training, there is a reduction of social distance across all the 7 items used to assess attitude except the item on readiness to marry a patient with mental illness who has been fully treated. The mental health training does not appear to have effect on readiness to marry a patient with mental illness who had been previously treated. The level of desired social distance towards the mentally ill was reported to increase with the level of intimacy required in relationship [38]. Marriage is regarded as one of the relationships with the closest intimacy and it is not surprising the mental health lecture had very little impact on the medical students' attitude towards marriage. Overall, the mental health training significantly improved the attitude of the medical students to mental illness. This improvement in attitude is the needed catalyst to minimizing the stigma towards the mentally infirm with potential to facilitate access to mental health services.

Limitation

Before and after design was used in this study without the use of a control group. However, the improvement in knowledge and attitude scores could have been due to other intervening factors. Experimental study design with control group would have been appropriate but this does not invalidate our findings.

Also, there should be repeat administration of the questionnaire after 6 months post-training to determine the extent of retention of knowledge and attitude but logistics constraints did not help matters. Future research should incorporate post-training assessments 6 months and 12 months after completion of the training intervention.

Conclusion

Our study results suggest that mental health training could be an effective intervention in improving the knowledge and attitude among medical students regarding mental illness. Training is a pre-requisite and vital to enhancing the knowledge and attitude of healthcare practitioners for effective mental health services especially in the developing countries with shortage of mental health professionals. Mental health training should be part of training curricula of health workers, secondary schools, universities and other tertiary institutions' curricula.

Conflicts of Interest

None

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