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Effect of Digital Application Intervention On Mental Health Referral Practices Among Religious Leaders in Ogun State, Nigeria

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Abstract:

The study evaluated the effect of peer-led education intervention on predisposing factors of occupational risk prevention practices among medical waste handlers in South west, Nigeria. The specific objectives were to determine the baseline assessment of the predisposing factors of occupational risk prevention among the participants; and assess the effect of peer- led educational intervention on the predisposing factors in occupational risk prevention at 12th week post intervention follow up among the participants. The study was an interventional study and adopted a two group quasi-experimental design (one experimental group and one control group). Participants of the study were the hospital attendants that served as medical waste handlers working at Olabisi Onabanjo University Teaching Hospital, Sagamu and Federal Medical Centre, Ebute Meta, Lagos. A structured questionnaire was used for data collection to determine the baseline assessment and outcome evaluation of the intervention. Data collected were analysed using descriptive and inferential statistics. The finding revealed that at 12th week post intervention for control and experimental groups, the mean score knowledge of risk prevention for control group is 11.88±4.72 while the experimental group is 17.02±5.02 with mean difference of 5.14; perception mean score of risk prevention for control group is 10.54±3.47 while experimental group is 18.02±5.27 with mean difference of 7.48; and mean score of attitudinal dispositions of risk prevention for control group is

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13.26±3.05 while the experimental group is 19.74±4.09. The study concludes that peer led educational intervention programs was effective in improving the knowledge of risk prevention, perception of risk prevention, attitudinal dispositions of risk prevention, reinforcing factors on risk prevention, and enabling factors on risk prevention practices among the medical waste handlers. It was recommended among others that there should be orientation, induction program for new employees, with regular and continuous training for the medical waste handlers.

Keywords: Peer-Led Education, Predisposing Factors, Occupational Risk, Prevention Practices, Medical Waste Handlers,

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Introduction

The trends and burden of diseases across the globe in the past three decades have revealed the need to prioritize non-communicable diseases (NCDs) within the health agenda of the nations of the world (Global Burden of Disease, 2022). According to World Health Organization (WHO) (2021), NCDs accounts for about 70% of deaths globally; and of which low and middle-income countries (LMIC) countries account for more than two third of the deaths. Mental disorders are prominent as major contributors to non-communicable diseases across the globe; not only by incidence and prevalence; but also, in terms of poor quality of life outcomes (Rehm & Shield, 2019; Stein et al., 2019).

The importance of mental wellness in achieving the Sustainable Development Goal (SDG) is embedded in its indicator 3.4 which states that one third of premature mortality from non-communicable diseases should be reduced by year 2030 through prevention and treatment of mental health problems; and promotion of mental health. Indicator 3.5 further states that to achieve healthy lives, prevention and treatment of substance abuse, one of the major causes of mental disorders, should be strengthened (WHO, 2017).

In Nigeria, mental disorders are largely associated with spiritual causes and hence, professional based mental health seeking behaviour is generally poor (Birkie & Anbesaw, 2021, Mojiminiyi et al., 2020; Nwaopara, 2016; Kim & Lee, 2021; She et al., 2021; Manescu et al., 2020; Suka et al., 2016). It is estimated that about 32% of psychotic cases and 78% of substance and alcohol disorder cases do not access appropriate medical health care (WHO, 2021). Studies have also revealed that religious leaders, who are the first point of call for mental health related issues do not have the basic knowledge and skills required to identify mental disorders and link their followers to appropriate medical care (FMOH, 2013; Slewa-Younan et al., 2020; Jang, et al., 2017; Suleiman, 2016).

Within religious settings, the religious leaders are identified as major stakeholders as they are the facilitators of religious faiths, beliefs and dispositions (FMOH, 2013). Studies have further revealed that the religious leaders are the first point of call-in cases of mental disorders (Jang et al., 2017; Slewa-Younan et al., 2020). Researches have further revealed that mental health outcomes of congregants improve when religious leaders are involved in mental health interventions (Kent, 2020; Stroope et al., 2020; Stroope et al., 2019). Hence, collaboration with religious leaders has been documented to be critical in addressing the gaps in the mental health needs of congregants, who are by extension, community members (Van Nieuw, et al., 2021).

Referral in health system is the action taken by an informed person to link up an individual(s) perceived or ascertained to have a health need to a professional help or higher professional assistance for continuity of care. Referral is a 2-way process. A referral process has 3 steps which are the initiation of the referral by the referral source, the uptake of the health service by the referred, this is conducted by the referred client's visit to the health professional that s(he) has been referred to, and feedback to the source of referral (Give et al., 2019). Referral is usually processed from one level of care, usually a lower level, to a higher level of care, with feedback provided to the source of referral with the aim of continuity of care. However, this is not statutory, as referral could be vice versa, depending on the care required by the client or patient (Oluseye et al., 2019). Referral could be verbal, written, or electronic, however, it is a

formal communication process aimed at effective management of patients or clients for optimal health outcomes (Azamar-Alonso et al., 2019; Give, et al., 2019; Oduro-Mensah et al., 2021).

Referral are made for various health conditions including malaria, maternal and child health, mental health and mental disorders (Oduro-Mensah et al., 2021). Referrals could be initiated at the community or facility levels (Abrahim et al., 2015; Give, et al., 2019). Referral system is a key element in the design of the primary health care system. The community health workers (CHWs) are trained to provide health education, social support and serve as referral linkage from the community to the primary health care (PHC) centres on identified health issues (Carson, et al., 2022; Hartzler et al., 2018). At the facility level, the patient might be referred from the primary to the secondary, and to the tertiary levels depending on the required specialty and care. The receiving health care professional provides feedback to the referral source on continuity of care and management support (Abrahim et al., 2015; Give, et al., 2019). At the community level, the CHWs follow up on the patient's post facility care; while the initiating referral health care professional provides follow up care for facility -to-facility referral. Post-facility follows up care may also be required by family care givers or significant others.

As part of the efforts in the continuity of care, and in consideration of values and the influence of spirituality and religiosity on the health outcomes of the patients, studies have shown that health care providers also refer their patients to clergymen for counseling and social support in cases of terminal disease, bereavement, family and marital related issues, though the prevalence for mental health issues was lesser, they also did for mental health related issues such as depression and anxiety (Daaleman & Frey, 1998; D'Souza & Astrow, 2020; Nissen et al., 2021; Palmer et al., 2021). The religiosity of medical personnel has also been found to be associated with their clinical practice, and studies have been conducted to determine the religiosity of different medical specialists. In a systematic review conducted by Kørup et al. (2021), religiosity is found to be highest among psychiatrists. However, among the religious psychiatrists, there are varying degrees of religiosity, and the more religious professionals consider the religiosity of their patients as factors that should be investigated in psychiatric treatments (Menegatti-Chequini et al., 2020; Menegatti-Chequini et al., 2019). It is also believed that investigating into the religious disposition of a patient might improve patient – provider relationship and thereby improve health outcomes (D'Souza & George, 2006; Lucchetti et al., 2016; Vasconcelos et al., 2020).

The sensitivity to spirituality and or religiosity in mental health care shows the importance of religious leaders as key stakeholders in mental health referral system. The believe in spiritual powers and divine healing as sources of help for mental health needs by clients/patients are factors that requires call for the involvement of religious leaders in the continuity of care for medical conditions (Arrey et al., 2016). The clergymen play important roles in mental health support and care including counselling, and other social supports (Hankerson et al., 2021; Kopacz et al., 2019; Mason, et al., 2019). However, for religious leaders to be effective in the mental health continuum of care, there must be understanding of the factors required to define and initiate referral for mental services (Gottloeb & Olfson, 1987). These factors include capacity to recognize and define the mental disorder, availability of resources,

economic incentives, amount of clinical information available, patient's attitude toward referral, therapeutic background of the referee, role perception of the referee, referee -patient (client) interaction, inter practitioner relation, provider – group influence (Gottloeb & Olfson, 1987).

Religious leaders are voices to reckon with, and play sensitive roles in creating awareness about health issues. They have the platform to spread information that they are convinced to be true and have many followers taking cue for action based on the recommendations of their spiritual leaders. Hence, improved understanding of religious leaders on mental health, its disorders and resources available for help of affected persons would provide a springboard to disseminate accurate information about mental health, while this improves the level of awareness on mental health and its disorders among faithful followers of the religious leader. This is expected to dispel myths and misconceptions about mental health, and thereby expected to reduce stigmatization, shame and poor attitudes toward mental disorders. By extension, it is expected that awareness would improve community support of persons affected by mental disorders and reduce stigmatization of mental disorders. Religious leaders could contribute to primary prevention of mental disorders through awareness creation.

The need for expedited mental health interventions in Nigeria is being emphasized by the various ill occurrences of suicide and other mental health challenges that have become the order of the day in the national dailies and various reports (Oyetunji et al., 2021). Early detection and treatment by qualified professionals have been proven to promote the secondary prevention of mental disorders; however, manpower for mental health care is quite limited in Nigeria even within the already mass shortage of manpower for health care delivery. This shortage of mental health care service providers is a major barrier to accessibility of mental health services; hence task shifting and task sharing to include non-clinicians such as teachers, lay counselors, religious leaders have been recommended as one of the ways to reduce burden on the limited clinical providers of mental health services globally (Dorsey et al., 2020; Hoeft et al., 2018). These laymen could be trained in basics of mental health counseling and referral skills (Burgess et al., 2020).

The broad objective of this study is to evaluate the effect of digital app intervention on mental health referral practices among religious leaders in Ogun State, Nigeria. The specific objectives of this study were to:

1. Assess the baseline referral practice for continuity of care for persons with mental health needs among religious leaders of Ogun State, Nigeria
2. Evaluate the effect of digital app (health-bloom app) intervention on the referral practices related to mental disorders among religious leaders of Ogun State, Nigeria

Research Method and Materials

This research was conducted using a quasi-experimental methodology. Nigeria's Ogun State's religious leaders made up the study's sample. The Christian and Islamic faiths, which make up the two main religions in the research site, were used to recruit study participants. A non-probability technique was used to choose willing religious leaders from these two groups of believers.

The sample size formula for the comparison of means is used to calculate the study's sample size. Results from Salazar de Pablo et al.'s systematic review and meta-analysis (cited in

Hassen et al., 2022) showed an effect size of =0.823 with a standard deviation, 2=1.55 for comparing the effectiveness of health education interventions on mental health literacy between the intervention group and the control group. The sample size for this study is based on an 80% power and 95% degree of confidence. The calculation of the sample size is given below:

$$n = \frac{2\,(z_\alpha + z_\beta)^2 \sigma^2}{(\delta)^2}$$ (Kadam & Bhalerao, 2010)

Where, Z_α: The critical value of the normal distribution at 95% level of confidence = 1.96

Z_β: The critical value of the normal distribution at power of 80%= 0.84

σ^2: Standard deviation of mental health literacy score in previous intervention study = 1.55

δ – Estimated effect size of mental health literacy intervention in previous study = 0.823

$$n = \frac{2\,(1.96 + 0.84)^2 1.55}{(0.823)^2}$$

$$n = \frac{24.30}{(0.6773)}$$

$$n = 35.88$$

However, attrition rate was added to the above calculation.

The recruitment criteria was used to purposively select religious leaders from the Christian and Islamic faiths. A total of 85 eligible religious leaders, 40 for experimental group and 45 for the control were recruited for the study.

Semi-structured questionnaires were used as a quantitative data collecting tool in the data gathering process. O'Connor and Casey (2015) and Jorm et al. (2010) developed a vignette and scale-based measure of mental health literacy, which served as the basis for the quantitative instrument.

Section A: The age and years of experience of the participants were assessed as an open-ended question

Section B: This was 18 item semi-structured questions on referral practices and other supports provided by religious leaders. The section covered referral practices, referral centres and collaborations, types of referrals, frequency of referral, follow up services and recommendations for improved referral practices from religious settings to mental health professionals.

In order to guarantee the face validity of the instruments, professionals in the fields of public and mental health, including psychiatrists and clinical psychologists, assessed the instruments. The reliability of the questionnaire was examined using the Cronbach's Alpha model approach. This was accomplished by distributing the questionnaire once to 30 religious leaders in the Remo division of Ogun State who were comparable to the study's participants.

The intervention for the Experimental Group was exposure to a purpose built digital based mental health app named health-bloom. The app was adapted from an existing app in the google play store named all mental and disorder. The health-bloom app was validated by pre-testing with a selected group of 20 adults who had basic literacy in reading and writing

English language. Prior to pre-test with community members, the app was reviewed for content and interface appropriateness with experts in the field of mental health, public health, health technology and information technology. The app was directly uploaded on the smart phone of each participant in the EG. The app utilization was monitored using the back-end server for the 12-weeks intervention period. A whatsapp group was also created for the participants for interactions with the researcher and other study participants.

Trained research assistants (RAs) gathered the data. At the beginning of the trial, immediately following the conclusion of the 6-week intervention, and at the conclusion of the 12-week follow-up phase, quantitative data were gathered at three separate periods.

For control and recall reasons, the pre- and post-intervention questionnaires were serially numbered. After being gathered from participants, they were reviewed for correctness and completeness. The investigator painstakingly sorted, modified, and coded them using a coding guide. For data analysis, IBM SPSS software version 21 was employed. Descriptive statistics, such as mean, median, standard deviation, ranges, frequencies, and proportions, were used to summarise the variables. The student's t-test, with a P value of 0.05, was used to compare the mean differences between the two groups.

Result

Referral practices of the experimental and control groups at baseline

The referral practice score was measured on a 13-point scale. Mean scores were computed for the three study arms. There was a significant difference for referral practices among the 2 groups at baseline. The mean score for referral practice was 1.06±0.05 for EG and 0.32±0.00 for CG, p=0.023 (Refer to Tables 1). The referral practice of the religious leaders was poor for all the study groups as none of the study groups scored below average of the referral practice score.

Table 1

Referral practice indicators of religious leaders at baseline

Referral practices at baseline assessment		
Selected referral practice indicators	Baseline (6 months prior to intervention)	
	EG (N=40)	CG (N=44)
	n (%)	*n (%)*
Number of religious houses that have collaboration with professional mental health services	0	0
Number of participants that facilitated mental health related message delivery in the religious house	0	0
Number of times mental health related message was delivered*	0	0
Number of times health care providers delivered mental health message as resource persons *	N/A	N/A
Number of times religious leaders delivered	N/A	N/A

mental health message as resource persons *		
Number of participants that suspected mental health cases	15	21
Number of participants that were approached on mental health related cases	1 (2.5)	0 (0.0)
Number of participants that referred clients	1 (2.5)	0
Number of referred clients*	1	0
Number of times that the participants used oral referral*	1	N/A
Number of times that the participants used written referral*	0 (0.0)	N/A
Number of participants that followed up referred client	0	N/A
Number of participants that received feedback	0	N/A

**Counts from frequency*

Note. The baseline indicators were self reported

Referral practices of the experimental and control groups at immediate-post intervention

At immediate post-intervention, the participants from the control group had no collaboration with any professional mental health service and there was no referral for mental health cases. Mean referral practice score for EG=1.28 ±0.55 while CG=0.00±0.00 at immediate post-intervention assessment (Refer to Table 2)

Table 2

Referral practice indicators of religious leaders at immediate post intervention

Referral practices at immediate post-intervention assessment		
Selected referral practice indicators	Immediate Post-Intervention (Within 6 weeks of intervention)	
	EG (N=40)	CG (N=44)
	n (%)	***n (%)***
Number of religious houses that have collaboration with professional mental health services*	All	0
Number of participants that facilitated mental health related message delivery in the religious house*	9 (22.5)	0
Number of times mental health related message was delivered*	9	0
Number of times health care providers delivered mental health message as resource persons *	2	N/A
Number of times religious leaders delivered mental health message as resource persons *	7	N/A
Number of participants that suspected mental health cases*	37	0
Number of participants that were approached on mental health	3 (7.5)	0 (0.0)

related cases*		
Number of participants that referred clients**	2 (5.0)	0 (0.0)
Number of referred clients*	3	0
Number of times that the participants used oral referral*	3	N/A
Number of times that the participants used written referral**	0 (0.0)	N/A
Number of participants that followed up referred client*	2 (100.0)	N/A
Number of participants that received feedback*	2	N/A

**Counts from self reported frequency only*
*** Referral form tracked and retrieved*

Mental health referral practices of the experimental and control groups at endline assessment

A total of 33 referral was made by the religious leaders from the experimental group at endline assessment. The mean referral practice scores for the experimental group was ($\bar{X}$=2.85 ±1.41). The mean referral score for the control group was nil ($\bar{X}$=0.00±0.00). However, the referral practice of the religious leaders was still poor across the two study groups as all groups scored less than the required upper quartile score required for good practices. Further details on referral practices at endline assessment are presented in Table 3.

Table 3

Selected referral practice indicators at endline assessment

Referral practices at endline assessment		
Selected referral practice indicators	Endline (Within 12 weeks of follow up)	
	EG (N=40)	CG (N=44)
	n (%)	*n (%)*
Number of religious houses that have collaboration with professional mental health services*	All	0
Number of participants that facilitated mental health related message delivery in the religious house*	40 (100.0)	0 (0.0)
Number of times mental health related message was delivered*	107	0
Number of times health care providers delivered mental health message as resource persons *	32	N/A
Number of times religious leaders delivered mental health message as resource persons *	75	N/A
Number of participants that suspected mental health cases*	37 (92.5)	17 (38.6)
Number of participants that were approached on mental health related cases	18 (45.0)	0 (0.0)
Number of participants that referred clients	18 (45.0)	0 (0.0)
Number of referred clients**	33	0
Number of times that the participants used oral referral*	21	N/A
Number of times that the participants used written referral**	12**	N/A

Number of participants that followed up referred client*	17 (94.4)	N/A
Number of participants that received feedback*	17	N/A

**Counts from self reported frequency only*
*** Referral form tracked and retrieved*

Discussion

Referral practice was significantly higher for the intervention group when compared with the control group. Previous studies have also proven that interventions that strengthen collaboration with mental health professional improve referral practices (Moore et al., 2022; Vaidyanathan et al., 2021). Furthermore, the referral practices of participants of the digital training were significantly higher when compared with the participants in the control group at immediate post intervention and 12th weeks follow up evaluation periods. However, the referral practice of the intervention group at the 12th weeks follow up was significantly improved when compared with the baseline and the immediate post intervention periods. This establishes the effectiveness of the intervention in improving referral practices among religious leaders.

Conclusion

In conclusion, this study revealed that digital educational intervention is effective in improving referral practices of religious leaders. Hence it is concluded that a user friendly, human centered digital intervention hinged on the principles and approach of public health education

Recommendations

Based on the findings from the study, the following recommendations are therefore proposed:

1. The results of the study revealed the effectiveness of digital app intervention fared at par, hence it is recommended that the use of validated mental health literacy digital application be promoted for use among religious leaders and other key populations by relevant mental health promotion programs.
2. Considering the effectiveness of digital public health application and solutions, current trend and global realities, it is recommended that students of public health, at the least master level should be exposed to basic training in user interface and user experience (UI/UX) design as it applies to public health interventions.

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