

International Journal of Medicine and Medical Sciences

Volume 8 Number 10 October, 2016

ISSN 2006-9723



*Academic
Journals*

ABOUT IJMMS

The **International Journal of Medicine and Medical Sciences** is published monthly (one volume per year) by Academic Journals.

The **International Journal of Medicine and Medical Sciences (IJMMS)** provides rapid publication (monthly) of articles in all areas of Medicine and Medical Sciences such as:

Clinical Medicine: Internal Medicine, Surgery, Clinical Cancer Research, Clinical Pharmacology, Dermatology, Gynaecology, Paediatrics, Neurology, Psychiatry, Otorhinolaryngology, Ophthalmology, Dentistry, Tropical Medicine, Biomedical Engineering, Clinical Cardiovascular Research, Clinical Endocrinology, Clinical Pathophysiology, Clinical Immunology and Immunopathology, Clinical Nutritional Research, Geriatrics and Sport Medicine

Basic Medical Sciences: Biochemistry, Molecular Biology, Cellular Biology, Cytology, Genetics, Embryology, Developmental Biology, Radiobiology, Experimental Microbiology, Biophysics, Structural Research, Neurophysiology and Brain Research, Cardiovascular Research, Endocrinology, Physiology, Medical Microbiology

Experimental Medicine: Experimental Cancer Research, Pathophysiology, Immunology, Immunopathology, Nutritional Research, Vitaminology and Etiology

Preventive Medicine: Congenital Disorders, Mental Disorders, Psychosomatic Diseases, Addictive Diseases, Accidents, Cancer, Cardiovascular Diseases, Metabolic Disorders, Infectious Diseases, Diseases of Bones and Joints, Oral Preventive Medicine, Respiratory Diseases, Methods of Epidemiology and Other Preventive Medicine

Social Medicine: Group Medicine, Social Paediatrics, Medico-Social Problems of the Youth, Medico-Social Problems of the Elderly, Rehabilitation, Human Ecology, Environmental Toxicology, Dietetics, Occupational Medicine, Pharmacology, Ergonomy, Health Education, Public Health and Health Services and Medical Statistics The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence. Papers will be published approximately one month after acceptance. All articles published in IJMMS are peer-reviewed.

Contact

Editorial Office: ijmms@academicjournals.org

Desk: helpdesk@academicjournals.org

Website: <http://www.academicjournals.org/journal/IJMMS>

Submit manuscript online <http://ms.academicjournals.me/>

Editors

Dr. J. Ibekwe

*Acting Editor-in-chief,
International Journal of Medicine and Medical
Sciences Academic Journals
E-mail: ijmms.journals@gmail.com
<http://www.academicjournals.org/ijmms>*

Afrozul Haq

*Editor, Laboratory Medicine
Department of Laboratory Medicine
Sheikh Khalifa Medical City
P.O. Box 51900, ABU DHABI
United Arab Emirates*

Editorial Board

Chandrashekhar T. Sreeramareddy

*Department of Community Medicine,
P O Box No 155, Deep Heights
Manipal College of Medical Sciences,
Pokhara,
Nepal*

Sisira Hemananda Siribaddana

*259, Temple Road, Thalpathpitiya,
Nugegoda, 10250
Sri Lanka*

Dr. santi M. Mandal

*Internal Medicine
UTMB, Galveston, TX,
USA*

Konstantinos Tziomalos

*Department of Clinical Biochemistry
(Vascular Prevention Clinic),
Royal Free Hospital Campus,
University College Medical School, University College
London, London,
United Kingdom*

Cyril Chukwudi Dim

*Department of Obstetrics & Gynaecology
University of Nigeria Teaching Hospital (UNTH)
P.M.B. 01129, Enugu. 400001,
Nigeria*

Mojtaba Salouti

*School of Medical and Basic Sciences,
Islamic Azad University- Zanjan,
Iran*

Imtiaz Ahmed Wani

*Srinagar Kashmir, 190009,
India*

Professor Viroj Wiwanitkit

*Wiwanitkit House, Bangkhae,
Bangkok
Thailand 10160*

Dr. Srinivas Koduru

*Dept of Clinical Sciences
Collage of Health Sciences
University of Kentucky
Lexington USA*

Weiping Zhang

*Department of Oral Biology
Indiana University School of Dentistry
1121 West Michigan Street, DS 271
Indianapolis, IN 46202
USA*

Lisheng XU

*Ho Sin Hang Engineering Building
Department of Electronic Engineering
The Chinese University of Hong Kong
Shatin, N.T. Hong Kong,
China*

Dr. Mustafa Sahin

*Department of Endocrinology and Metabolism
Baskent University,
Ankara,
Turkey*

Dr. Harshdeep Joshi

*Maharishi Markandeshwar
Institute of Medical Sciences and Research
Ambala, (Haryana).
India.*

ARTICLE

Quality of life and prevalence of depressive symptoms among patients on prolonged indwelling urinary catheters: A study from South west, Nigeria	96
Olajide Olusegun Abiola, Olorunfemi O. Ogunwobi, Oyeronke Titilope Williams-Abiola, Shola Christopher Ayeni, Segun Oladele Adeniyi	
Prevalence of psychoactive substance use among registered commercial motorcycle operators in Kano, North Western Nigeria: A community study	105
Gudaji M. I. and Habib Z. G.	
Up scaling mental health and psychosocial services in a disaster context: Lessons learnt from the Philippine Region hardest hit by typhoon Haiyan	112
Boris Budosan, Katherine P. O’Hanlon, John Mahoney, Sabah Aziz, Ratnasabapathipillai Kesavan and Kathryn Beluso6	

Full Length Research Paper

Quality of life and prevalence of depressive symptoms among patients on prolonged indwelling urinary catheters: A study from South west, Nigeria

Olajide Olusegun Abiola^{1*}, Olorunfemi O. Ogunwobi², Oyeronke Titilope Williams-Abiola³, Shola Christopher Ayeni¹, Segun Oladele Adeniyi¹

¹Urology unit, Department of Surgery, Bowen University Teaching Hospital, Ogbomoso, Nigeria

²Psychiatry unit, Department of Medicine, Bowen University Teaching Hospital, Ogbomoso, Nigeria

³Department of Medicine, Obafemi Awolowo University Teaching Hospital, Ile-Ife, Nigeria

Received 27 March, 2016; Accepted 17 June, 2016

Urinary catheters are used to relieve urinary retention. Its prolonged use has been associated with poor quality of life (QoL) and psychosocial distress among patients. We sought to evaluate the QoL and prevalence of depressive symptoms among patients on prolonged indwelling urinary catheters. A cross-sectional study of patients with indwelling urinary catheters at an outpatient urology clinic of a tertiary hospital in South west, Nigeria. One hundred and fifty-six patients completed a structured questionnaire. QoL was assessed with adapted quality of life assessment index question of International prostate symptoms score. Patients were screened for depressive symptoms using Patient Health Questionnaire 9(PHQ-9). Bi-variate analysis of QoL with route of urinary catheterization and type of bladder drainage; and correlation of duration of catheterization, QoL and PHQ-9 scores were done using chi-square and Spearman Rank's correlation respectively with p value at 0.05. All patients were males with urinary retention as the major indication for urinary catheterization. Average duration of catheterization was 21 months. Poor QoL reported in majority of the patients, worse in younger age group and patients on urethral catheters. The prevalence rate of depressive symptoms was 46.1%. A weak negative correlation exists between duration of catheterization and QoL scores; and between duration of catheterization and depressive symptoms; however, strong correlation existed between QoL scores and depressive symptoms. Prolonged indwelling urinary catheter was related with poor QoL worsened in younger age group and those on urethral catheters with a high prevalence rate of depressive symptoms which correlated with the QoL.

Key words: Urinary catheterization, quality of life, depressive symptoms, Nigeria.

INTRODUCTION

Urinary retention is one of the most common urological emergencies which requires initial urinary catheterization

either by urethral or suprapubic catheterization before the treatment of the underlying cause of the retention (NHS

*Corresponding author. E-mail: ooabiola2015@gmail.com

choices, 2015; Fitzpatrick and Kirby 2006). Its use is often regarded as prolonged or long-term when the duration of use exceeds four weeks (Jahn et al., 2007). There are few conditions where long term use of urinary catheters are required; such conditions include bladder outlet obstruction not correctable medically or surgically, palliative care of terminally ill patient, patients with neurogenic bladder and retention (Cravens et al., 2000). In such long-term use of urinary catheters, clean intermittent catheterization is preferred to indwelling urinary catheters because of complications associated with indwelling urinary catheters which include bacteraemia, urinary tract infections, bladder stones, fistula formation, erosion of urethra, epididymitis, pyelonephritis, pain along the urethra, loss of dignity and bleeding among others (NHS choices, 2015; Ikuerowo et al, 2007; Cravens et al., 2000; Ramakrishnan and Mold 2004). However, prolonged or long-term use of indwelling urinary catheters may be indicated in a urinary incontinent patient with limited hand dexterity or cognition problem with inability to perform a clean intermittent catheterization. Also, It may be required in a patient who have not responded to specific incontinence treatment who have expressed a preference for it. (Cravens et al., 2000; Fitzpatrick and Kirby 2006; Fitzpatrick et al., 2012; Selius and Subedi 2008).

In Nigeria, urinary retention accounts for substantial number of non-traumatic surgical emergencies (Ugbare et al., 2014; Ibrahim et al., 2015). However, data on the rate of urinary catheterization is limited, as the procedure is often not documented by medical practitioners. (Tijani et al., 2010) Nevertheless; studies have shown widespread use of indwelling urinary catheters in management of urinary retention with many of the patients on prolonged use of indwelling urinary catheters due to lack of funds for definitive treatment and long waiting list of surgery for the underlying pathology of the urinary retention (Bello et al., 2013; Ikuerowo et al., 2007; Nnabugwu et al., 2014). Evidence of practice of clean intermittent catheterization (CIC) by patients who required long term urinary catheterization in Nigeria is limited. The limitation was attributed to limited number of staff with the requisite experience to educate and pay home visit to patients who require CIC in order to ensure instructions are followed and sterility is maintained. (Ugbare et al., 2014). In addition, there is reduced capacity and willingness of patients to learn safe self intermittent urethral catheterization especially among uneducated subjects (Nnabugwu et al., 2014)

Complications which may occur over time in patients with indwelling urinary catheter may worsen the course of illness of the patients and affect their quality of life (QoL) (NHS choices, 2015; Ikuerowo et al., 2007; Cravens et al., 2000)

The presence of indwelling urinary catheter and the associated poor QoL may interfere with the patient's social, sexual and work activities (Jahn et al., 2007;

Onwujekwe et al., 2010; Savage, 2014) with possible effect on the psychosocial well being of the patients. Such psychosocial distress may trigger depressive symptoms with attendant short and long term implications on the patients. (Strömberg et al., 2011) Hence, we sought to evaluate the QoL and prevalence of depressive symptoms among patients on prolonged indwelling urinary catheters.

Patients and methods

This was a cross sectional study of patients on urinary catheters attending the outpatient urology clinic of a tertiary hospital in South West, Nigeria over a 6 months period (April to September, 2015).

Ethical consideration

Ethical approval for the study was obtained from the ethical review committee of the institution and a written consent obtained from the patients before being included in the study.

Inclusion criteria

All patients on urinary catheters of more than 4 weeks duration, who consented to participate in the study during the study period were enrolled.

Exclusion criteria

Patients who declined to give their consents and those with previous diagnosis of depressive disorders or being managed for depressive symptoms were exempted from the study.

Research instruments

The study was conducted with a semi-structured questionnaire designed to collect data on socio-demographic parameters, duration of use of urinary catheter, route of urinary drainage, type of bladder drainage, indication for urinary catheterization, reason(s) for delay in definitive management of the underlying condition, complications experienced over the duration of urinary catheterization, impact of the urinary catheters on daily physical activities and social interaction with people. Quality of life (QoL) was assessed using an adapted quality of life assessment question of International prostate symptoms score (Appendix I).

Screening for depressive symptoms and its severity was done with validated screening tool-Patient Health Questionnaire-9(PHQ-9) (Appendix II).

Data collection

Questionnaire were administered to consecutive consenting patients with prolonged indwelling urinary catheters (duration of >4 weeks) who presented at outpatient urology clinic of the hospital during the study period. Patients who declined to give their consents or had previous history of depressive disorders or being managed for depressive symptoms were excluded.

The questionnaires were administered to the patients by interviewers who are medical doctors in the urology unit of the hospital. Patients' hospital numbers were noted on each questionnaire filled to prevent double entry of respondents during the study period, as most of the patients often present every 4 weeks for urinary catheter change.

Analysis

Data collected include: Sex, age, level of education, occupation, indication for urinary catheterization, duration of catheterization in months; route of urinary catheterization, type of catheter drainage (continuous bladder drainage- in which a urine bag was applied to the catheter for continuous drainage; tidal bladder drainage-urethral catheter spigotted to allow for bladder drainage only when there is urge to void), reason(s) for delay indefinite management of the underlying condition, complications associated with the use of urinary catheters, effect of the indwelling catheters on daily physical activities and social interaction of the patients.

The response from the QoL assessment was scored from 0 to 6, depicting 0 as delighted, 1- pleased, 2- mostly satisfied, 3- mixed about equally satisfied and dissatisfied, 4- mostly dissatisfied, 5- unhappy and 6- terrible.

Screening for depressive symptoms and its severity using Patient Health Questionnaire-9(PHQ-9) had scores ranging from 0 to 27. Scores of 0 to 4 were categorized as having no depressive symptoms while those with score of 5 or more are considered as having depressive symptoms. The severity of depressive symptoms was further categorized into mild with a score of 5 to 9; moderate: 10 to 14; moderately severe: 15 to 19 and severe: 20 to 27.

Analysis of the data was done using Statistical Package for Social Sciences (SPSS) version 21.0.

Bi-variate analysis with Pearson's chi-square to determine the relationship of QoL with route of urinary catheterization and type of bladder drainage was done with p-value at 0.05(5%). Yates corrected chi-square were used where applicable because there were variables with frequency of less than 5 in more than 30% of the association table.

Correlation between duration of indwelling urinary catheterization and QoL, duration of indwelling urinary catheterization and PHQ-9 scores; and QoL and PHQ-9 scores were assessed with Spearman Rank's correlation with p-value at 0.05(5%).

RESULTS

One hundred and sixty five patients on prolonged indwelling urinary catheter presented at the urology clinic during the study period, nine patients declined to participate in the study and none of the patients was excluded on account of previous history of depressive disorders. Hence, 156 patients were enrolled for the study with a response rate of 94.5%. All the patients were males with an age range of 35 to 88 years and mean age of 65.0±13.0 years.

The Age groups, Level of education, Occupation, Route of urinary catheterization, Type of bladder drainage,

Indications for urinary catheterization and Reasons for the delay in definitive management are as summarized in Table 1.

The duration of use of indwelling catheters by the patients ranged from 2 to 144 months with an average of 21 months.

Complications of the indwelling urinary catheters recorded were pain along the urethra, blocked catheters/encrustation, epididymitis and bladder calculi (Figure 1) with a complication rate of 59.6%. Further analysis of the complications in relation to duration of urinary catheterization, route of urinary drainage and type of bladder drainage was depicted in Table 2.

The urinary catheter affected the normal daily physical activities in 75 (48.1%) of the patients while social interaction with people was affected in 54 (34.6%) of the patients.

Thirty (19.2%) of the patients had mixed feelings of equal satisfaction and dissatisfaction with the urinary catheter usage, 72 (46.2%) were mostly dissatisfied, 48 (30.8%) were unhappy and 6 respondents (3.8%) felt terrible. None of the respondents was delighted or pleased with urinary catheterization.

Bi-variate analysis of self-reported QoL scores with route of urinary catheterization and type of bladder drainage was depicted in Table 3.

Seventy two of the patients had PHQ-9 score of >4 hence, a prevalence of depressive symptoms of 46.1%. Forty five (28.8%) of which had mild depressive symptoms, 24(15.4%) had moderate depressive symptoms and 3 patients (1.9%) had moderately severe depressive symptoms. None of the patients had severe depressive symptoms.

The correlations of duration of urinary catheterization, QoL scores and depressive symptoms scores (PHQ-9 scores) were depicted in Table 4.

DISCUSSION

Urinary catheterization is often used as a temporary measure to relieve urinary retention prior to the treatment of the cause of the retention (Cravens et al., 2000; Savage, 2014; Thorne and Geraci 2009) such as bladder outlet obstruction from enlarged prostate which can be managed by medical or surgical therapy. Long term use of urinary catheters are often reserved for patients with bladder outlet obstruction not correctable medically or surgically, palliative care of terminally ill patient and patients with neurogenic bladder associated with urinary retention (Cravens et al., 2000). However, in this study, the indications for the long term use of the indwelling urinary catheters were urinary retention from enlarged prostates and urethral strictures (all respondents were males) amenable to treatment but majority of the patients had their treatment delayed because of lack of funds; only one patient had his definitive treatment delayed due to severe co-morbidity. This finding further

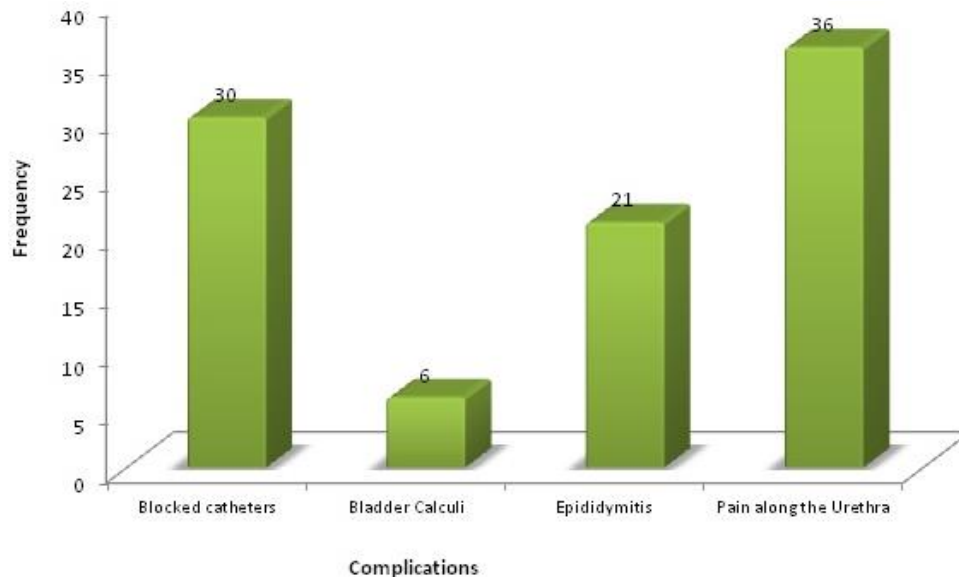


Figure 1. Complication of prolonged indwelling urinary catheters.

corroborated an earlier report from Nigeria attributing lack of funds for definitive treatment as one of the major reasons for prolonged urinary catheterization, a consequence of out-of-pocket payments required for the definitive treatment and near total lack of health insurance safety net among Nigerian patients (Bello et al., 2013).

Prolonged indwelling urinary catheters have been associated with complications such as bacteraemia, urinary tract infections, bladder stones, fistula formation, erosion of urethra, epididymitis, pyelonephritis, pain along the urethra and bleeding in patients (NHS choices, 2016; Ikuero et al., 2007; Cravens et al., 2000) Thus, with an average duration of urinary catheterization of 21 months from this study; a high complication rate of 59.6% was not unexpected. The complications recorded were pain along the urethra (23.1%), blocked catheters/encrustation of catheters (19.2%), epididymitis (13.5%) and bladder calculi (3.8%). A larger proportion of the respondents with complications such as blocked catheters, bladder calculi and epididymitis had prolonged indwelling urinary catheterization of 18 months and more. Indwelling urethral catheters were associated with more complications than indwelling suprapubic catheters. This compares with the study by Horgan et al. (1992) in which lower complications were recorded among patients on suprapubic catheters compared to patients on urethral catheters following catheterizations for enlarged prostates with a follow up period of 3 years. Also, a prospective randomized controlled trial of urethral versus suprapubic catheterization by Sethia et al. (1987) shows no major complications associated with the use of suprapubic catheters. Other known advantages of suprapubic catheters include comfortability of patients, easier to

manage, more cost-effective, improved self-image and better suited for sexual relationship (Chapple et al., 2015; Ichsan and Hunt 1987).

Complications reported by the patients were higher among patients on continuous bladder drainage compared to tidal bladder drainage. For example, blocked catheters were reported by 10 patients out of 15 patients (66.7%) on continuous bladder drainage as against 20 patients out of 141 patients (14.2%) on tidal bladder drainage reported blocked catheters. A possible explanation can be derived from a study by Sabbuba et al. (2005) with the objective to determine whether valve regulated-intermittent flow of urine from catheterized bladders decreases catheter encrustation; findings of which show an intermittent flow of urine through catheters increased the time that catheters require to become blocked with crystalline biofilms .

Complications of indwelling urinary catheter have been reported to impact negatively on the quality of life (QoL) of the patients on prolonged indwelling urinary catheters (Ikuero et al., 2007; Cravens et al., 2000). Hence, with the high complication rate recorded from this study it is not unexpected that majority of the patients (80.8%) reported a poor QoL ranging from mostly dissatisfied to feeling terrible about their condition with only a few number of patients (19.2%) reported mixed feeling of satisfaction and dissatisfaction.

In this study, age and route of urinary catheterization had a significant association with self-reported QoL of the patients. A worse QoL was reported by patients in the younger age group of less than 55 years ($p < 0.001^y$).

Also, the worst self-reported QoL was observed among patients on indwelling urethral catheters ($p < 0.001$).

Table 1. Socio-demographic characteristics, route of urinary catheterization, type of bladder drainage, Indications for urinary catheterization and reasons for delay of definitive management.

Variable	Frequency (n=156)	Percentage
Age groups		
<45	15	9.6
45-54	15	9.6
55-64	39	25.0
65-74	48	30.8
≥75	39	25.0
Level of Education		
Uneducated	57	36.5
Primary	51	32.7
Secondary	39	25.0
Tertiary	9	5.8
Occupation		
Artisans	27	17.3
Farming	51	32.7
Trading	18	11.5
Civil servant	21	13.5
Retiree	39	25.0
Route of urinary catheterization		
Urethral	96	62.0
Suprapubic	60	38.0
Type of bladder drainage		
Continuous bladder drainage with urine bag	15	9.6
Tidal bladder drainage with spigotted catheter	141	90.4
Indications for urinary catheterization		
Urinary retention from Enlarged prostate	96	61.5
Urinary retention from Urethral stricture	60	38.5
Reasons for delay of definitive treatment		
Lack of funds	153	98.1
co-morbidity	3	1.9

These observations may be related to an earlier report that presence of indwelling urethral catheter impaired sexual functions (Bostock and Kralik 2008, Chapple et al., 2014; Cravens et al., 2000) – one of the major domains in QoL of patients; thus, an assumption that more sexually active younger patients on prolonged indwelling urethral catheters may experience impaired sexual function associated with worsening QoL; however, further studies will be required to ascertain this assumption.

Type of bladder drainage which can be either continuous bladder drainage with a urine bag applied to the urinary catheter for continuous drainage or tidal bladder drainage

with the urethral catheter spigotted to allow for bladder drainage only when there is urge to void, may not necessarily influence the QoL of the patients as there was no statistically significant association between the method of bladder drainage and self-reported QoL of the patients.

Duration of urinary catheterization had a statistically significant weak negative correlation with QoL scores which implied that at a shorter duration of catheter use, the patients reported worse quality of life.

This finding may be explained by the fact that coping with new health realities requires time; hence, the poor QoL may improve with time as the patients accept the reality

Table 2. Analysis of complications in relation to duration of urinary catheterization, route of urinary drainage and type of bladder drainage.

Variable	Complications			
	Blocked catheters (n=30)	Bladder calculi (n=6)	Epididymitis (n=21)	Pain along the urethra (n=36)
Duration of urinary catheterization				
1-6months	0(0.0)	0(0.0)	1(4.8)	20(55.6)
7-12months	1(3.3)	0(0.0)	4(19.0)	12(33.3)
13-18months	3(10.0)	0(0.0)	4(19.0)	4(11.1)
18-24months	10(33.3)	2(33.3)	5(23.9)	0(0.0)
>24months	16(53.4)	4(66.7)	7(33.3)	0(0.0)
Route of urinary catheterization				
Urethral	20(66.7)	4(66.7)	21(100.0)	36(100.0)
Suprapubic	10(33.3)	2(33.3)	0(0.0)	0(0.0)
Method of bladder drainage				
Continuous bladder drainage with urine bag	10(33.3)	5(83.3)	7(33.3)	10(27.8)
Tidal bladder drainage with spigotted catheter	20(66.7)	1(16.7)	14(66.7)	26(72.2)

Table 3. Relationship of quality of life with age, route of urinary catheterization and type of bladder drainage.

Variable	Quality of life score			
	Mixed (%)	Mostly dissatisfied (%)	Unhappy (%)	Terrible (%)
Age Groups				
≤ 44	0 (0.0)	0 (0.0)	15 (31.2)	0 (0.0)
45 - 54	0 (0.0)	0 (0.0)	12 (25.0)	3 (50.0)
55 - 64	3 (10.0)	21 (29.2)	15 (31.2)	0 (0.0)
65 - 74	9 (30.0)	33 (45.8)	3 (6.2)	3 (50.0)
≥ 75	18 (60.0)	18 (25.0)	3 (6.2)	0 (0.0)
$\chi^2 = 91.093; p < 0.001^y$				
Route of urinary catheterization				
SPC	6 (20.0)	21 (29.2)	33 (68.8)	0 (0.0)
Urethral	24 (80.0)	51 (70.8)	15 (31.2)	6 (100.0)
$\chi^2 = 29.303; p < 0.001$				
Type of bladder drainage				
TBD	24 (80.0)	66 (91.7)	45 (93.8)	6 (100.0)
CBD	6 (20.0)	6 (8.3)	3 (6.2)	0 (0.0)
$\chi^2 = 5.123; p = 0.163$				

[†] SPC, Suprapubic catheterization; CBD, continuous bladder drainage, TBD, tidal bladder drainage

Table 4. Correlation of duration of urinary catheterization, quality of life and depressive symptoms.

Spearman rank's correlation	Correlation coefficient	P -value
Duration of urinary catheterization Vs QoL score	-0.425	0.002
Duration of urinary catheterization Vs PHQ-9 score	-0.476	<0.001
QoL score Vs PHQ-9 score	0.748	<0.001

[†]QoL, Quality of life; PHQ-9, Patient Health Questionnaire-9 score; P-value < 0.05

of using catheters and consider it as part of their body (Folkman, 2010; Wilde, 2003). However, it may be possible that other factors other than duration of urinary catheterization had a greater influence on the QoL of the patients as the relationship had a weak correlation.

Prolonged Indwelling urinary catheters prevented some of the patients in observing their daily physical activities (48.1%) such as routine work; and also affected their social interactions (34.6%) with other people. Such impaired daily physical activities and social interaction may be associated with economic impoverishment and social isolation which in previous studies have been related to susceptibility to depression especially in vulnerable elderly individuals (Alexopoulos, 2005; Capurso et al., 2007). However, possible relationships of economic impoverishment, social isolation and depression were not established in this study, but a high prevalence rate of depressive symptoms similar to the substantial number of patients who reported inability to observe daily physical activities and interact socially were observed among the patients;

There was a high prevalence rate of 46.1% among patients on prolonged indwelling urinary catheters; 28.8% of whom had mild depressive symptoms, 15.4% - moderate depressive symptoms and 1.9% had moderately severe depressive symptoms. The prevalence rate was substantially higher than the reported prevalence rate of 5.2% in the general population of Oyo state, Nigeria (Amoran et al., 2007) where the institution in which the study was carried out was located.

The depressive symptoms had a statistically significant strong correlation between QoL scores, which suggest patients on prolonged indwelling catheter with worsening quality of life may have propensity for depressive symptoms. Also, the relationship between duration of urinary catheterization and depressive symptoms scores (PHQ-9 scores) had a statistically significant weak negative correlation which may suggest at a shorter duration of urinary catheter use, the patients reported worse depressive symptoms scores. This finding may also be explained by the fact that coping with new health realities requires time (Folkman, 2010; Wilde, 2003); hence, the depressive symptoms may improve over time. However, other factors other than the duration of urinary catheterization may have a greater influence on susceptibility to depressive symptoms because of the weak correlation observed.

A major limitation of this study is that being a cross-sectional study, assessment of the mental state of the patients before the urinary catheterization to exclude those with depressive disorders was not possible; but subjectively assessed by patients' self-reporting of not having been diagnosed with depression.

CONCLUSION

The prolonged indwelling urinary catheter was related

with poor QoL worsened in younger age group and those on urethral catheters. The complication rate was high especially in patients on urethral catheters and continuous bladder drainage. A high prevalence rate of depressive symptoms was recorded among the patients with a strong correlation with their QoL. Hence, adequate attention should be paid to QoL of patient on prolonged indwelling urinary catheter due to its correlation with severity of depressive symptoms.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

- Alexopoulos GS (2005). Depression in the elderly. *The Lancet* 365(9475):1961-1970.
- Amoran O, Lawoyin T, Lasebikan V (2007). Prevalence of depression among adults in Oyo State, Nigeria: a comparative study of rural and urban communities. *Aust J. Rural Health* 15(3):211-215.
- Bello JO, Ushie FA, Kuranga SA, Ajape AA, Olute AO, Olanrewaju MO (2013). Prolonged use of indwelling urinary catheter following acute urinary retention in a tertiary care centre in sub-Saharan Africa: Causes, costs and concerns. *Afr. J. Urol.* 19(2):82-87.
- Bostock N, Kralik D (2008). Sexual health and living with a urinary catheter. *Aust. New Zealand Continence J.* 14(1):16-19.
- Capurso A, Capurso C, Solfrizzi V, Colacicco AM, D'Introno A, Panza F (2007). Depression in old age: a diagnostic and therapeutic challenge. *Recent. Prog. Med.* 98(1):43-52.
- Chapple A, Prinjha S, Feneley R (2015). Comparing transurethral and suprapubic catheterization for long-term bladder drainage: a qualitative study of the patients' perspective. *J. Wound Ostomy Continence Nurs.* 42(2):170-175.
- Chapple A, Prinjha S, Salisbury H (2014). How users of indwelling urinary catheters talk about sex and sexuality. *Br. J. Gen Pract.* 64(623):e364-e371.
- Cravens DD, Zweig S (2000). Urinary catheter management. *Am. Fam. Physician.* 61(2):369-376.
- Fitzpatrick JM, Desgrandchamps F, Adjali K, Gomez Guerra L, Hong SJ, El Khalid S, Ratana-Olarn K (2012). Management of acute urinary retention: A worldwide survey of 6074 men with benign prostatic hyperplasia. *BJU Int.* 109(1):88-95.
- Fitzpatrick JM, Kirby RS (2006). Management of acute urinary retention. *BJU Int.* 97(suppl 2):16-20.
- Folkman S (2010). Stress, coping and hope. *Psychooncology* 19(9):901-908.
- Horgan AF, Prasad B, Waldron DJ, O'Sullivan DC (1992). Acute urinary retention. Comparison of suprapubic and urethral catheterisation. *Br. J. Urol.* 70:149-151.
- Ibrahim NA, Oludara MA, Ajani A, Mustafa I, Balogun R, Idowu O, Osuji R, Omodele FO, Aderounmu AO, Solagberu BA (2015). Non-trauma surgical emergencies in adults: Spectrum, challenges and outcome of care. *Ann. Med. Surg.* 4:325-330.
- Ichsan J, Hunt DR (1987). Suprapubic catheters: a comparison of suprapubic versus urethral catheters in the treatment of acute urinary retention. *Aust N Z J. Surg.* 57(1):33-36.
- Ikuerowo SO, Ogunade AA, Ogunlowo TO, Uzodimma CC, Esho JO (2007). The burden of prolonged indwelling catheter after acute urinary retention in Ikeja - Lagos, Nigeria. *BMC Urol.* 7:16.
- Jahn P, Preuss M, Kernig A, Steifert-Hühmer A, Langer G (2007). Types of indwelling catheters for long-term bladder drainage in adults. *Cochrane Database Syst. Rev.* 18(3):CD004997.
- NHS Choices-Urinary catheterization. Available at: <http://www.nhs.uk/conditions/urinarycatheterization/pages/introduction.aspx> Accessed on 28 February, 2016.

- Nnabugwu II, Udeh EI, Enivwenae OA, Ugwumba FO, Ozoemena OF (2014). Reducing the burden of regular indwelling urinary catheter changes in the catheter clinics: the opinion of patients and relatives on the practice of self-catheterization. *Dove press Journal: Patient preference and adherence* 8:1179-1183.
- Onwujekwe OE, Uzochukwu BS, Obikeze EN, Okoronkwo I, Ochonma OG, Onoka CA, Madubuko G, Okoli C (2010). Investigating determinants of out-of-pocket spending and strategies for coping with payments for healthcare in southeast Nigeria. *BMC Health Serv Res.* 10:67.
- Ramakrishnan K, Mold J (2004). Urinary Catheters: A Review. *Int. J. Fam. Pract.* 3:2.
- Sabbuba NA, Stickler DJ, Long MJ, Dong Z, Short TD, Fenele RJC (2005). Does the valve regulated release of urine from the bladder decrease encrustation and blockage of indwelling catheters by crystalline *Proteus mirabilis* biofilms? *J. Urol.* 173(1):262-266.
- Savage AR (2014). Evidenced- based practice in relation to indwelling urinary catheter. *Afr. Health* 36(1):25-28.
- Selius BA, Subedi R (2008). Urinary retention in adults: diagnosis and initial management. *Am. Fam. Physician* 77(5):643-650.
- Sethia KK, Selkon JB, Berry AR, Turner CM, Kettlewell MG, Gough MH (1987). Prospective randomized controlled trial of urethral versus suprapubic catheterization. *Br. J. Surg.* 74(7):624-625.
- Strömberg R, Backlund LG, Löfvander M (2011). Psychosocial stressors and depression at a Swedish primary health care centre. A gender perspective study. *BMC Fam. Pract.* 2:120.
- Thorne MB, Geraci SA (2009). Acute urinary retention in elderly men. *The Am. J. Med.* 122(9):815-819.
- Tijani KH, Lawal AO, Ojewola RW, Badmus TA (2010). Quality of documentation of urethral catheterization in a Nigerian teaching hospital. *Nig. Q. J. Hosp.* 20(4):177-180.
- Ugbare UG, Ima-Abasi B, Udosen EJ, Aknimo E, Bassey OO (2014). Management of Lower Urinary Retention in a Limited Resource Setting. *Ethiop. J. Health Sci.* 24(4):329-336.
- Wilde MH (2003). Life with an indwelling urinary catheter: the dialectic of stigma and acceptance. *Qual Health Res.* 13(9):1189-1204.

Appendix I: Adapted quality of life assessment question of international prostate symptoms score to assess the quality of life.

	Delighted	Pleased	Mostly satisfied	Mixed about equally satisfied and dissatisfied	Mostly dissatisfied	Unhappy	terrible
How do you feel over the period of using the indwelling urinary catheters?	0	1	2	3	4	5	6
Quality of Life assessment index:							

Appendix II. Patient Health Questionnaire 9(PHQ-9).

Over the last two (2) weeks, how often have you been bothered by any of the following problems	Tick as appropriate for each question			
	Not at all(0)	Several days(1)	More than half of the days(2)	Nearly every day(3)
1 Little interest/pleasure in doing things?				
2 Feeling down, depressed or hopeless?				
3 Trouble falling asleep or staying asleep or sleeping too much?				
4 Feeling tired or having little energy				
5 Poor appetite/overeating				
6 Feeling bad about yourself or that you are a failure or have let yourself or your family down?				
7 Trouble concentrating on things such as reading the newspaper or watching television?				
8 Moving or speaking so slowly that other people could notice. OR the opposite- being so fidgety or restless that you have been moving around a lot more than usual?				
9 Thoughts that you would be better off dead OR of hurting yourself in some ways?				
TOTAL				

Scores: 0-4: No depressive symptoms; 5-9: Mild depressive symptoms; 10-14: Moderate depressive symptoms; 15-19: Moderately severe depressive symptoms; 20-27: Severe depressive symptoms.

Full Length Research Paper

Prevalence of psychoactive substance use among registered commercial motorcycle operators in Kano, North Western Nigeria: A community study

Gudaji M. I.* and Habib Z. G.

Department of Psychiatry, Faculty of Clinical Sciences, College of Health Sciences, Bayero University Kano/ Aminu Kano Teaching Hospital, Kano, Nigeria.

Received 27 November, 2015: Accepted 13 September, 2016

The present study was carried out in the most populated city in Northern Nigeria that is believed to have the highest number of commercial motorcyclists and highest prevalence of psychoactive substance use in the country. Research on psychoactive substance use among motorcycle operators in Northern Nigeria is limited, despite the high level of morbidity these substances cause to them. This study aimed to study the prevalence of psychoactive substance use among motorcycle operators in Kano, North western Nigeria. The study was cross-sectional descriptive. Participants for the study were commercial motorcyclists registered with the local branch of Amalgamated Commercial Motorcycle Owner's and Riders Association of Nigeria (ACOMORAN). Assessment was carried out with the use of socio-demographic questionnaire and World Health Organization Student Drug Use Questionnaire (SDUQ). Data obtained was analysed using Statistical Package for Social Sciences (SPSS), 17th edition. Three hundred and ninety four (394) subjects participated in the study. The results showed that the prevalence of overall psychoactive substance use was 19.3%. The prevalence of tobacco, stimulant (gadagi), and cannabis use were 19.3, 11.9 and 3.8% respectively, while the prevalence of inhalants and opiates use were 2.0 and 1.3%, respectively. There were no reported use of alcohol, benzodiazepines and cocaine. All the subjects were males, Moslems, within the age range of 22 and 60 years mean of 32.7 ± 6.6 years. They were mostly married (88.6%), and more than two third of them (70.1%) were from Kano. The study has highlighted the prevalence of substance use among commercial motorcyclists. It has important implication for policy makers to initiate primary preventive measures that could be focused towards the reduction of substance use among commercial motorcyclists in the community.

Key words: Motorcycle operators, psychoactive substance, Northwestern Nigeria, Student Drug Use Questionnaire (SDUQ).

INTRODUCTION

Substance use is common among young people (Mason et al., 2004; CDC, 2008; SAMHSA, 2009). Commercial

motorcycle operation is widely adopted in Kano, perhaps for both logistic and social reasons. It is possible that

*Corresponding author. E-mail: mgudaji@yahoo.com. Tel: +234803 700 6375.

commercial motorcyclists are at higher risk of substance use compared to the general population. Although previous studies did not document reasons for this, plausible explanations might be because of competition among the motorcyclists to be able to pick as much clients as possible in a day, leading them to use substances that would alter their sense of danger to perform careless maneuvers, over-speed, and beat traffics.

Hall (2005), in a study of alcohol and other psychoactive substance use in commercial transportation, reported a prevalence of cannabis as 52%, cocaine (63%), amphetamines (4.7%) and opiates (4.5%) among aviation transport workers in United States. In the same study psychoactive substance use among railroad workers was 3%, whereas a prevalence of 4.6% was found among commercial truckers. The study made use of breath alcohol analyzers and urine drug screening tests. In Seattle, USA, in a study of prevalence of psychoactive substance use in commercial tractor trailer drivers, Couper et al. (2002) reported that excluding caffeine and nicotine, positive findings were stimulants (9.5%), cannabis (4.3%) and alcohol (1.3%). The authors used urine specimen for drug analysis.

In Australia, Drummer et al. (2003) reported a prevalence of 26.7% of psychoactive substance use among fatally injured drivers. These included alcohol (18.6%), cannabis (13.5%), opiates (4.9%), stimulants (4.1%) and benzodiazepines (4.1%). In a study in Taipei, Taiwan, of comparison of the prevalence of substance use and psychiatric disorders between government and self-employed commercial drivers, Lin et al. (2003), reported a higher prevalence of 9.5% among self-employed commercial drivers compared to 8.3% among government drivers. The authors used many instruments for the assessment of substance use, such as Chinese Health Questionnaire (CHQ), Michigan Alcoholism Screening Test (MAST), Drug Abuse Screening Test (DAST) and urine drug screening test among others.

In a study in Ghana, of epidemiology of alcohol impaired driving, Asiamah et al (1998) reported that 21% of the respondents had a detectable BAC, with 7.3% above the legal limit of ≥ 80 mg/dl. The authors reported that 64% of impaired drivers were commercial drivers. However, the study was limited to alcohol use.

Information on the use of alcohol and other psychoactive substances among motorcyclists in Nigeria and more specifically in Northern Nigeria is limited. Reports of psychoactive substance use in Northern Nigeria were first published in the 1980's, long after the first reports from the southern parts of the country (Oshodi, 1986; Ahmed, 1986; Ifabumuyi, 1986). Current data indicate that drug use cuts across diverse groups, with high risk groups including males aged 10 to 29 years, law enforcement agents, commercial sex workers (CSW), commercial drivers and motor park touts (UNDCP, 2006; Suleiman et al., 2006; Gureje et al.,

2007). In a study in Sagamu, south western Nigeria, of psychoactive substance use among commercial drivers and their assistants, Adenekan and Osibogun (1999) reported a prevalence of salicylates as 80.3%, alcohol (72.9%), tobacco (50.5%), cannabis (31%) and sedatives (23.5%).

Makanjoula et al. (2007), in a study of psychoactive substance use among long distance drivers in Ilorin, Nigeria, reported a prevalence of stimulants to be 56.1%, tobacco (53.6%), alcohol (37.7%) and anabolic steroids (34.8%). In a study in Zaria, North western Nigeria, among commercial motorcycle operators, Alti-Mu'azu and Aliyu (2008) reported a prevalence of cannabis use as 25.8%, inhalants (24.5%), caffeine (15.8%) and coffee (4.5%). However, the authors did not use standard instrument for data collection.

James (2014) studied substance abuse among commercial tricycle operators in Kano metropolis. Pertinent findings of the study included the fact that majority of substance abusers were of young age groups (24-29 years) and single (45.6%). The commonest substance abused was cannabis (29%) while Gadagi and Zakami were abused by 14.8 and 10.4% of the participants respectively. However, the study was limited because it used a non-structured questionnaire designed by the researcher, who failed to provide details of the questionnaire design nor its validity. In addition, a non-probability sampling method (snowball) was used, and there were numerous statistical errors in the study.

The present study was carried out in the most populated city in Northern Nigeria that is believed to have the highest number of commercial motorcyclists and highest prevalence of psychoactive substance use in the country (NDLEA, 2009). This study of psychoactive substance use among commercial motorcycle operators might allow for more exploration on the use of different types of psychoactive substances among the studied population. Identification and description of the extent of psychoactive substance use will be useful in planning any mental health promotion or mental disorders prevention among any population. This study was designed to determine the prevalence of psychoactive substance use among motorcyclists in Kano.

Hypothesis

We hypothesized that psychoactive substance use will be high among the commercial motorcycle operators in Kano, just like the high prevalence reported from other parts of the country.

Ethical consideration

Before beginning the study, ethical clearance was obtained from the Research Ethical Committee of Aminu Kano Teaching Hospital. The National Patron of

ACOMORAN gave permission for the study. Participation in the study was entirely voluntary. No commercial motorcycle operator was forced to take part in this study against his wish. Informed consent was sought and obtained from the participants after the nature of the study, aim, objectives and the procedure have been explained to them. The information obtained was not released to any person and was not used against the subject in any way. The subjects found to be suffering from any problems associated with psychoactive substance use were referred to the department of psychiatry Aminu Kano Teaching Hospital for appropriate treatment.

Inclusion criteria

1. Age \geq 18 years.
2. Registered membership of ACOMORAN in Tarauni LGA.

Exclusion criterion

Motorcyclists with a history of mental illness.

METHODOLOGY

This was a cross sectional descriptive study carried out in Tarauni Local Government Area (LGA) of Kano State, the most populated state in Nigeria with population of more than nine million NPC, 2006). This LGA plays host to the Aminu Kano Teaching Hospital (AKTH). The LGA is made up of 12 political wards each represented by a Councilor in the Local Government Council. Tarauni is a predominantly Hausa community and most inhabitants are of the Moslem faith. The inhabitants are mainly subsistence farmers, planting maize, millet and guinea corn. There are no records of psychoactive plants grown in the LGA. The Local Government is undergoing a transition where tradition and modernity co-exist and some inhabitants have been employed as junior staff and domestic helps to the workers of AKTH and other businesses in the LGA. Some local inhabitants are self-employed selling in small shops and others are involved in ferrying workers to and from the LGA and other parts of Kano Metropolis. The commercial motorcyclists have specific stands along the taxi routes. In all the stands, there are local cafes ("me shayi") selling tea, coffee and the local stimulant ("gadagi") in the mornings and evenings. There is a modest functional urinal for the motorcyclists in each stand.

Sample size determination

The sample size was determined using the formula

$$N = \frac{z^2 p q}{d^2}$$

Where, N = minimal sample required; Z = Standard normal deviate at 95%; Confidence interval = 1.96; P = 34.3% (prevalence of substance use obtained from a previous study in Kano city

conducted by the Community Medicine Department of the AKTH); q = Complementary probability to P = 1 - P = 1 - 0.34 = 0.66; d = precision of the study = 5% = 0.05.

$$n = \frac{(1.96)^2 (0.34 \times 0.66)}{(0.05)^2}$$

= 338.

The sample size is 338. However the sample size was increased to 400 which is about 20% for greater precision.

Sampling technique

Multi-stage sampling technique was used in this study. The first stage involved systematic probabilistic selection of 4 political wards from the 12 existing wards (Marhaba, Kasuwa, Dangi, and Bawo wards). In Stage 2, three motorcycle operators stands on each selected wards were systematically selected, bringing the total number of randomly selected stands to twelve. Stage 3 involved whole population study of the commercial motorcyclists in each selected stand after being identified by their identity card of the association, until when the required sample size was achieved. At the time of the study there were 126 registered commercial motorcycle stands within Tarauni LGA, with 5040 registered members, and 14 to 66 members per stand.

Instrument for data collection

The WHO student drug use questionnaire (SDUQ)

The WHO student drug use questionnaire (SDUQ), also known as youth survey questionnaire was adapted for this study. The questionnaire was developed by the WHO in cooperation with the United Nations Fund for Drug Abuse Control, for use in different socio-cultural settings (Smart et al., 1980). The original questionnaire is made up of 22 items. The student drug use questionnaire has been used extensively in Nigeria, including among adult long distance vehicle drivers (Makanjoula et al., 2007; Akinhanmi, 1996). The questionnaire was translated to Hausa language by the researchers using back-iterative technique. An inter-rater reliability of 82% was obtained using the agreement method (Hall 1974) and was considered acceptable. The questionnaire was administered by the researchers themselves, who are trained psychiatrists.

Procedure

Data collection took place between November and December 2009. Specific visitation week was allocated to each of the wards in the study area. Each day of the week, a visit was paid to each of the selected motorcycle stands in the LGA, with assistance of the ACOMORAN. The motorcycle operators who were in their stand, who met the inclusion criteria, were administered the socio-demographic data and SDUQ. The questionnaires were interviewer administered. About ten interviews were conducted daily (with range of six to 14 interviews).

Data analysis

Data analysis was done with the statistical package for the social sciences (SPSS), 17th edition. Simple descriptive data were presented with frequencies, proportions and percentages.

Table 1. Sociodemographic characteristics of subjects (n = 394).

Variable	n	%
Age group (years)		
22 - 35	264	67.0
≥ 35	130	33.0
Educational level		
None	31	7.9
Primary (completed)	133	33.8
Secondary (completed)	158	40.1
Higher education (completed)	72	18.3
Marital status		
Single	45	11.3
Married	349	88.7
Years of motorcycling		
1 - 5	99	25.1
6 - 10	171	43.4
11 - 15	105	26.7
16 - 20	19	4.8

Table 2. Prevalence of specific substance use among respondents (n = 394).

Variable	Tobacco n (%)	Stimulants n (%)	Cannabis n (%)	Inhalant n (%)	Opiates n (%)
Lifetime use	76 (19.3)	47 (11.9)	15 (3.8)	8 (2.0)	5 (1.3)
12 months use	63 (16.0)	46 (11.7)	13 (3.3)	8 (2.0)	5 (1.3)
Current use	63 (16.0)	41 (10.5)	13 (3.3)	7 (1.8)	5 (1.3)

RESULTS

Socio-demographic characteristics of the participants

Table 1 shows the distribution of the participants according to socio-demographic variables. There were 394 participants, aged 22 to 60 years, with mean age of 32.7 years \pm 6.6. Nine in ten of the participants had completed at least Primary level of education, with 158 (40.1%) of them having completed secondary education, while 72 (18%) had completed higher education (diploma and NCE). Majority of the participants, 349 (88.7%) were married, with 306 (77.7%) being married to one wife and the majority of them had between 1 to 5 children.

All the respondents were males and practicing (>90%) Moslems. The table also shows that the duration of operating as commercial motorcyclist among the respondents was between one to 20 years, with a mean of 8.6 \pm 4.5 years. The modal duration of working as commercial motorcycle operators was 6 to 10 years, accounting for 171 (43.4%) of the participants.

Prevalence of substance use among the participants

Seventy six of the participants admitted using psychoactive substances in their lifetime, giving a lifetime prevalence of 19.3%. The lifetime use, 12 months use and current use of psychoactive substances are presented in Table 2. Tobacco had the highest prevalence for lifetime use with 76 respondents (19.3%), 12 month use with 63 respondents (16.0%) and current use of 63 respondents (16%). This is followed by stimulant use, with lifetime use of 47 respondents (11.9%), 12 month use with 46 respondents (11.7%) and current use with 41 respondents (10.5%).

There was no reported use of alcohol, heroin, cocaine and benzodiazepines among the respondents.

DISCUSSION

The present study was conducted among males, as commercial motorcycle operation is an all-male business in Kano state, and many studies have reported that there

is higher male preponderance in all psychoactive substance use (SAMHSA, 1998; Gureje et al., 2007; Alti-Muazu and Aliyu, 2008; Rashid, 2010).

The lifetime prevalence of drug use among the subjects in this study was 19.3%, far lower than most studies reviewed in Nigeria. Studies in southwestern Nigeria (Oluwadiya et al., 2004; Owoaje et al., 2005; Iribhogbe and Odai., 2009) and in Southeastern Nigeria (Adogu et al., 2009) among commercial motorcycle operators showed a higher prevalence of more than 30% of psychoactive substance use among the subjects. These observed differences might be due to socio-cultural differences between Northern and Southern Nigeria. The prevalence was also a little lower than 21% reported by Asiamah et al. (1998) in Ghana. However, their study was restricted to alcohol use among commercial drivers. In addition, in this study we excluded individuals with mental illnesses because studies have shown that mental illnesses predispose individuals to substance use, and hence might be a confounder in this study. It is possible that the studies reviewed did not exclude individuals with mental illnesses, which might account for the higher prevalence in them. The observed prevalence in this study agrees with 17% reported by Gomez-Talegon and his colleagues (2012) in Spain.

Five classes of psychoactive substances stood out as being used by the motorcyclists. They were tobacco (19.3%), stimulants (11.9%), cannabis (3.8%), inhalants (2.0%) and opiates (1.3%) in that decreasing order of prevalence. This contradicts a study by James (2014) in Kano metropolis which reported a higher prevalence of cannabis use (29%) and a lower prevalence of tobacco use (10%). However, in that study, the prevalence of specific substance use was rounded up to 100% even though the participants reported concomitant multiple substance use. The reported prevalence in this study is lower than 8.5% reported by Labat et al. (2008) in France. However, their study used specialized tests to detect substance use, which might detect more individuals with substance use compared to the WHO SDUQ.

Prominently absent was alcohol use. It is not clear whether the absence of alcohol use was an artifact of the responses or represents the true state of affairs. If alcohol breath analyzers were used or other biological examinations of alcohol, it would be easier to reach conclusion. The Holy Quran expressly forbids its (alcohol) use, but the religious leaders are divided over the use of other psychoactive substances (Gureje et al., 2007). The reported non-use of alcohol may also be due to proscription by religion and legislation against the use and sale of alcohol by the state government, which may also account for non-use of benzodiazepines.

The difference between lifetime use, 12 months use and current use is rather small, and coupled with the time at which they started using the psychoactive substances (more than 19 years), this may perhaps imply that once

people start using psychoactive substances as adults it is difficult to stop (Gureje et al., 2007).

Tobacco was found to be the most commonly used psychoactive substance both for life time use and current use. This finding is consistent with previous reports in Ilorin among long distance vehicle drivers where tobacco topped the list for both current and lifetime use with a prevalence of 30.4 and 53.6%, respectively (Makanjoula et al., 2007). On the other hand, the prevalence of tobacco use is higher than 9.8% reported by Achigbu et al. (2014) in Enugu, Southern Nigeria. However, their study was restricted to motorcyclists involved in accidents, and standard questionnaire was not used for data collection.

Stimulants were the second most used substance (second to tobacco) in this study, and 'gadagi' was the preferred stimulant. Among commercial motorcycle operators in Kano state, 'gadagi' is a common name (Atiku et al., 2009; James, 2014). It is a special tea, mixture of different herbs and shrubs, sold mostly by a tribe from neighboring Niger Republic that operates mainly as local security officers in Kano. Respondents claimed that it gives them a feeling of immortality, invulnerability and energy, and ensures that they work without fatigue. It has different brand names such as "Kano no junction, no roundabout". It is relatively recently introduced into the town, the biological property is not yet known. Some local newspaper has called 'gadagi' a hallucinogen, and its use is a rapidly growing habit among the youths in Kano. The rate of "gadagi" consumption is probably on the increase in Kano metropolis, especially among commercial motorcycle operators. It is a socially acceptable psychoactive substance, and there is no law governing its sale and consumption. It is considered to be a local energy booster and may be generally very addictive.

The bulk of the respondents knew nothing about some commonly used psychoactive substances in the country. Only about a quarter of the respondents knew about drugs like amphetamines, barbiturates, benzodiazepines and opiates. Even among those who knew about the drugs, the perceived ease of acquiring the drug varied. For example benzodiazepines (valium) as many said it was difficult to obtain as those that said it was easy.

None of the participants reported use of heroin and cocaine, and this is in keeping with a study in Ilorin among long distance drivers, the study in Kano metropolis among commercial tricycle operators, and the study in Zaria among commercial motorcyclists where there was no use of cocaine and heroin (Makanjoula et al., 2007; James, 2014; Alti-Muazu and Aliyu, 2008).

The prevalence of current cannabis use was 3.3%. This is consistent with the study in Ilorin and Zaria which reported current cannabis use as 4.3% (Makanjoula et al., 2007; Alti-Muazu and Aliyu, 2008). It is also in line with a study by Cooper et al. (2002) in USA which reported a prevalence of 4.3% among commercial trailer

drivers. However, the prevalence is much lower than 17.4% reported by Acar et al. (2013) in Istanbul, Turkey. The observed difference might be due to the fact that their study involved individuals involved in accidents due to driving under the influence of substances.

The common opiates used among the subjects was codeine (as found in the cough syrup "benyline with codeine"), and tramadol (tramal) tablets. This may be partly due to the fact that it is easily available and affordable in most of the pharmaceutical shops and outlets in Kano metropolis. There does not appear to be strong legislation against the sale of such substances without prescription. James (2014) reported similar finding of use of Benyline syrup as a psychoactive substance among commercial tricycle operators in Kano.

Current prevalence of inhalants use was 2.0% which is much lower than the study among long distance drivers in Ilorin, which reported 8.7%. The use of inhalants is reportedly popular among commercial motorcycle operators (Makanjoula et al., 2007).

The non-categorization under the law of these psychoactive substances (inhalants, cough syrup and tramadol) as illegal and the absence of legislation regulating their sale and consumption may perhaps aid their widespread availability and use.

The results of this study differ from a study in southwestern Nigeria among refugees from Liberia, where more of the respondents in the age group (31 to 40 years) used psychoactive substances more than the younger age group of 18 to 30 years (Amosu, 2008), the results however are in keeping with other studies done among commercial motorcyclists in Zaria and Nnewi (Alti-Muazu and Aliyu, 2008; Adogu et al., 2009; Rashid, 2010; James, 2014). The socio-cultural difference between Nigeria and Liberia may explain the variation in prevalence of age pattern of substance use in the two countries.

All the respondents were Moslems, which is the predominant religion in Kano state. Majority of the respondents participated regularly in their religious activities, which may partly account for the low prevalence of psychoactive substance use in them. This is consistent with the findings of similar studies in Ilorin and Abeokuta where significant association was found between substance use and religiosity, with those who were very religious being less likely to use psychoactive substances (Makanjoula et al., 2007; Amosu, 2008). It is also consistent with the finding of inverse relationship between substance use and religiosity (Gureje et al., 2007; Makanjoula et al., 2007; Akinhanmi, 1996).

More than 88% of the respondents were married, and more than 60% had between one and 5 children, in keeping with the study in Ilorin among long distance drivers with more than 95% of the subjects married with children (Makanjoula et al., 2007).

Most of the respondents in this study had some form of education, up to secondary school, which is consistent

with the study in Ilorin and Zaria where more than 68% had some form of education ranging from primary to tertiary education (Makanjoula et al., 2007; Alti-Muazu and Aliyu, 2008).

This study had some limitations. The study was among registered commercial motorcyclists, and the results cannot be generalized to all commercial motorcycle operators. As indicated earlier, there are many motorcycle operators not registered with ACOMORAN. However, the present study may help to provide baseline information for further studies dealing with the subject in the region. Future studies should recruit a wider range of motorcycle operators.

Conclusion

This study has highlighted the prevalence of psychoactive substance use among commercial motorcycle operators. The study has important implications for policy makers to initiate primary preventive measures that would be focused towards the reduction of psychoactive substance use among commercial motorcycle operators in the community. Clinicians working in the area, especially those not familiar with the culture of the people should be alert to the possibility of psychoactive substance use disorders, and where required interventional measures should be instituted early. There is need for more epidemiological studies, especially community based, covering wider areas, involving various medical specialties, psychologists, sociologists, so as to have a more comprehensive picture of psychoactive substance use problems among different population groups, especially commercial motorcycle operators.

Conflict of Interests

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the registered motorcycle operators under ACOMORAN for their time and AKTH management for providing support and permission for this research. They also extend their thanks to Prof's Richard Uwakwe and Owodoiho Udofia for their efforts towards the success of this research.

REFERENCES

- Acar F, Asirdizer M, Aker RG, Kucukbrahimoglu EE, Ates I, Erol Y, Sahin A (2013). A review of suspected cases of driving under the influence of drugs (DUID) involved in traffic accidents in Istanbul (Turkey). *J. Forensic Leg. Med.* 20(6):626-231.
- Achigbu EO, Ezepeue U, Achigbu KI, Fiebai B (2014). Role of drugs in

- RTA among motorcyclists. *Orient. J. Med.* 26:1-2.
- Adenekan AK, Osibogun A (1999). Drug use and road traffic accidents among commercial drivers and their assistants in Sagamu, Ogun state, Nigeria. *J. Commun. Med. Primary Care* 11:36-47.
- Adogu POU, Illika AL, Asuzu AL (2009). Predictors of Road Traffic Accidents, Road Traffic Injury and death among commercial motorcyclists in an Urban Area of Nigeria. *Niger. J. Med.* 18(4):393-397.
- Ahmed MH (1986). Drug abuse as seen in the university Department of Psychiatry, Kaduna, Nigeria, in 1980-1984. *Acta Psychiatr. Scand.* 74(1):98-101.
- Akinhanmi OA (1996). Drug Abuse among Medical students in a state University in Nigeria. A dissertation submitted to West African College of Physicians.
- Alti-Muazu M, Aliyu AA (2008). Prevalence of psychoactive substance use among commercial motorcyclists and its health and social consequences in Zaria, Nigeria. *Ann. Afr. Med.* 7(2):67-71.
- Amosu SM, (2008). Drug abuse: A Community sample of Refugees at Oru camp, Abeokuta. A dissertation submitted to National Postgraduate Medical College of Nigeria.
- Asiamah G, Amegashie J, Mack C (1998). Epidemiology of alcohol impaired driving in an African nation. *Annu. Proc. Assoc. Adv. Automot. Med.* 42:335-351.
- Atiku MK, Adamu DJM, Gadanya AM, Shehu MA (2009). The effect of "gadagi" tea on liver on serum glucose concentration in Albino rats. *Bayero J. Pure Appl. Sci.* 2(1):125-128.
- Centre for Disease Control and Prevention (CDC) (2008). Web-based injury statistics query and reporting system. National center for injury prevention and control. Available at: <http://www.cdc.gov/injury/wisqars/> Accessed online 14th July, 2014.
- Couper IJ, Pemberton M, Hughes M, Logan BK (2002). Prevalence of drug use in commercial truck trailer drivers. *J. Forensic Sci.* 47(3):562-567.
- Drummer OH, Gerostamoulos J, Batziris H (2003). The incidence of drugs in drivers' killer in Australian road traffic crashes. *Forensic Sci. Int.* 134:154-162.
- Gómez-Talegón T, Fierro I, González-Luque JC, Colás M, López-Rivadulla M, Javier Álvarez F (2012). Prevalence of psychoactive substances, alcohol, illicit drugs, and medicines, in Spanish drivers: a roadside study. *Forensic Sci. Int.* 223(1-3):106-113.
- Gureje O, Degenhardt L, Olley B, Uwakwe R, Udofia O, Wakil A, Adeyemi O, Bohnert KM, Anthony JC, (2007). A descriptive epidemiology of substance use and substance use disorder in Nigeria during the early 21st Century. *Drug Alcohol Depend.* 91(1):1-9.
- Hall JN (1974). Inter-rater reliability of ward rating scale. *Br. J. Psychiatry* 125:248-55.
- Hall EJ (2005). Alcohol and other drug use in commercial transportation. Accessed online 22nd June, 2011. Available at: <http://www.druglibrary.org/schaffer/misc/driving/s1p1.htm>
- Ifabumuyi OI (1986). Alcohol and drug addiction in Northern Nigeria. *Acta Psychiatr. Scand.* 73(5):479-480.
- Iribhogbe PE, Odai ED (2009). Driver related risk factors in commercial motorcycle (Okada) crashes in Benin City Nigeria: Brief report. *Prehosp. Disaster Med.* 24(4):356-359.
- James EO ((2014). Substances abuse among commercial tricycle riders in Kano metropolis, Nigeria. *Int. J. Educ. Res.* 2(6):2201-6333.
- Kilonzo G (1992). Reduction of demand for dependence producing drugs: Tanzanian experience. A paper presented at the international conference on drug abuse control in eastern and southern Africa, Drusha International conference centre. Arusha.
- Labat L, Fontaine B, Delzenne C, Doublet A, Marek MC, Tellier D, Tonneau M, Lhermitte M, Frimat P (2008). Prevalence of psychoactive substances in truck drivers in the Nord-Pas-de-Calais region (France). *Forensic Sci. Int.* 174(2-3):90-94.
- Lin SK, Lee CH, Pan CH, Hu WH (2003). Comparison of the prevalence of substance use and psychiatric disorders between government and self-employed commercial drivers. *Psychiatry Clin. Neurosci.* 57(4):425-431.
- Makanjuola BA, Oyeleke SA, Akande TM (2007). Psychoactive substance use among Long distance vehicle drivers in Ilorin, Nigeria. *Niger. J. Psychiatry* 5(1):14-18.
- Makanjuola JD (1986). The Aro Drug Addiction Research and Treatment Centre: A First Report. *Br. J. Addict.* 81(6):809-814.
- Mason M, Cheung I, Walker L (2004). Substance use, social networks and the geography of urban adolescents. *Substance Use Misuse* 39(10-11):1751-1777.
- National Drug Law Enforcement Agency (2009). Brief history of Nigeria's Counter – Narcotic Efforts. Accessed online on 12th June, 2013. Available at: <http://www.ndlea.gov.ng>
- National Institute on Drug Abuse (1991). National Household Survey on Drug Abuse: Highlights. Washington DC, US Government Printing Office.
- National Population Commission, (2006). National Census, Federal Republic of Nigeria, Official Gazette, 25:16.
- Oluwadiya KS, Oginni LM, Olasinde AA, Fadiora SO (2004). Motorcycle limb injuries in a developing country. *West Afr. J. Med.* 23:42-47.
- Oshodi OO, (1986). Drug dependence and addiction: my studies in Kaduna: 1970-1972, Cannabis and Amphetamine. *Niger. J. Psychiatry* 1:194-203.
- Owoaje ET, Amoran OE, Osemeikhain OE (2005). Incidence of road traffic accidents and pattern of injury among commercial motorcyclists in a rural community in south western Nigeria. *J. Commun. Med. Prim. Health Care* 17:7-12.
- Rashid SA, (2010). A study of the use of intoxicants among rural commercial motorcyclists in Kwara state, Nigeria. *J. Soc. Sci.* 22(2):85-91.
- Smart RG, Hughes PH, Johnson LD (1980). A Methodology for student drug use surveys, Geneva, WHO.
- Substance Abuse and Mental Health services Administration, (1998). SAMHSA.
- Substance abuse and mental health services administration (2009). National survey on drug use and health. Office of applied studies.
- Suleiman GT, Adeyemi SO, Adeponle AB (2006). An Overview of Psychoactive substance use and misuse in Northern Nigeria. *Niger. J. Psychiatry* 4(1):9-19.
- United Nations Drug Control Programme, (2006). Country Profile on Nigeria. www.unodc.org/unodc/undcp
- United Nations Office of Drug and Crime, (2005, 2009, 2010, 2011). World Drug Report.

Full Length Research Paper

Up scaling mental health and psychosocial services in a disaster context: Lessons learnt from the Philippine Region hardest hit by typhoon Haiyan

Boris Budosan^{1*}, Katherine P. O'Hanlon², John Mahoney³, Sabah Aziz⁴, Ratnasabapathipillai Kesavan⁵ and Kathryn Beluso⁶

¹Vocarsko Naselje 22, 10000 Zagreb, Croatia.

²Finger Lakes Health, Geneva, NY, USA.

³Centre for Global and Cultural Mental Health Melbourne School of Population and Global Health 207 Bouverie Street
The University of Melbourne Parkville 3010 VIC Australia.

⁴490 Mansehra Road, 22010 Abbottabad, KPK, Pakistan.

⁵WHO office. Avenue Mamba, P.O. Box 316, Monrovia, Liberia.

⁶Capiz Emmanuel Hospital Inc., Roxas Avenue, Roxas City, Capiz, Philippines.

Received 22 August, 2016; Accepted 16 September, 2016

In the aftermath of typhoon Haiyan which struck Philippines in 2013, the World Health Organization Philippines in collaboration with the Philippine government acted to improve access to mental healthcare in affected regions. Eastern Visayas with population 4, 3 million had merely four psychiatrists and seven generalists providing mental health care. It was selected as a model region for integration of mental health care into primary and secondary care. This study was carried out to evaluate the intervention's success in strengthening mental health services in Eastern Visayas with particular regard to availability, accessibility and affordability of these services. Between June 2014 and March 2015, 1038 community workers were trained in psychosocial care and support and 290 non-specialized healthcare providers received training on assessment and management of mental health conditions including on-the-job supervision. By the end of the March 2015, 155 of 159 or 97.5% of primary healthcare units, 21 of 24 District Hospitals (87, 5%) and all eight provincial hospitals had a doctor and a nurse trained in assessment and management of mental health conditions. The supervised sessions in each locale benefited 50 to 200 patients per location. Regional Medical Centre added a 10 bed inpatient unit for the mentally ill. All provincial hospitals developed the capacity to admit 2 to 4 patients for acute psychiatric care and additional capacity was established in at least 6 district hospitals. In addition, services were enhanced to include access to and use of psychotropic medicines, cross-sectoral collaboration and a clinical referral pathway from the community to the tertiary level. This study demonstrates the feasibility of an intervention in a resource poor context, post-disaster, to improve access to mental healthcare care services over a relatively short period of time.

Key words: Mental health; Philippines, typhoon Haiyan (Yolanda), WHO, Eastern Visayas.

INTRODUCTION

The mental health effects of disaster are best addressed through existing services and capacity building initiatives

to enhance these services; rather than the development of parallel systems (Perez-Salez et al., 2011). Countries

have improved their mental health services following major manmade or natural disasters (World Health Organization, 2013a). In Sri Lanka after the 2004 tsunami, 500 community-level workers were recruited, trained and appointed by the WHO to 14 tsunami-affected districts (Mahoney et al., 2006) and in two districts, non-specialized healthcare providers were trained (Budosan et al., 2007; Budosan and Jones, 2009). In Aceh, an area in Indonesia hardest hit by 2004 Tsunami, 483 people received mental health services in the first year after the disaster thanks to the joint effort of INGO International Medical Corps (IMC) and the Ministry of Health (MoH) to build local capacity at the primary healthcare (PHC) level (Jones et al., 2007). In Haiti, after the 2010 earthquake, 190 community-level workers and 115 non-specialized healthcare providers were trained and 616 mental health consultations were provided by INGO Cordaid in cooperation with local NGO partners (Budosan et al., 2014).

The Philippines has a natural vulnerability to disasters, and resources are scarce for disaster preparedness and response (Landoy et al., 2015). Although Philippine research demonstrated the feasibility of mental health (MH) care at the primary level; prior to typhoon Haiyan its integration was predominantly within a demonstration project (Conde, 2004). After typhoon Haiyan struck the Philippines, mental health services including psychological first aid to typhoon survivors and referral services for post-traumatic stress disorder, were identified by the WHO as one of priority interventions (World Health Organization, 2013b). In addition to addressing the immediate mental health needs of affected communities, WHO Philippines and the Philippine government collaborated to strengthen mental health services in regions affected by typhoon Haiyan. Eastern Visayas (Region VIII) was selected as the model region for the intervention. The main objectives of the intervention were to increase availability, accessibility and affordability of mental health services.

Pre-typhoon epidemiological data on prevalence of mental health problems were unavailable for Eastern Visayas. The WHO Disability Assessment Schedule (WHODAS) survey was undertaken in Eastern Visayas during the period from May to July 2014. It was based on WHODAS 2.0, a 36-items disability assessment tool that examines individuals' functional capabilities in the previous month as affected by a health condition. Survey results (World Health Organization - Department of Emergency Risk Management and Humanitarian Response, 2015) indicated that 40% of the people living in the affected communities had severe disability, physical or mental- that resulted in difficulty with mobility,

understanding and communicating, and participating in society. While mobility issues likely resulted from physical disability post-typhoon, the high scores in the other two domains more likely resulted from mental and psychosocial problems. The community based rehabilitation intervention in Eastern Visayas has already been described elsewhere in the literature (Benigno et al., 2015).

This study's rationale was to determine the success of the intervention in strengthening mental health services in Region VIII as measured by availability, accessibility and affordability of mental health care for the general population. The primary assumption of the study is that the intervention resulted in greater availability and accessibility of mental health services in Region VIII and that these services were affordable at the level of the general population.

MATERIALS AND METHODS

Study area, provider and population

WHO's Philippines' mental health/psychosocial support (MHPSS) program was conducted in the second half of 2014 and first quarter of 2015. Eastern Visayas with a population of 4.3 million people was selected as a model region for integration of mental health care into primary and secondary care. The effects of the typhoon were variable throughout Eastern Visayas, but all six provinces were selected for the intervention (Figure 1).

Primary healthcare units consisting of rural health units (RHUs) and city health units (CHUs) and government hospitals were involved in the intervention to increase access to mental health care for 4,292,522 beneficiaries (Table 1). WHO selected a multi-disciplinary MHPSS team including: a team leader with extensive experience in post-disaster settings, an international health systems expert, an international mental health expert, an international consultant for psychosocial support, five local psychiatrists and one psychiatric nurse. All were selected based on keen interest in assisting the affected population, broad knowledge of primary healthcare and MHPSS issues, and devotion to the integration of mental health care with primary care. Personal characteristics and professional qualifications were also considered. The program was later assisted by one international pharmacist and one international expert on alcohol problems. The areas of responsibility (AORs) were divided among MHPSS team members.

In most cases, international and local staff worked in a close cooperation, especially during delivery of training activities. The full implementation of the MHPSS program in Eastern Visayas was performed in close coordination with the INGO International Medical Corps (IMC). IMC took responsibility for training in 18 municipalities and two cities and took the supervisory role in all 43 municipalities in Leyte. Six international and two local psychiatrists supported IMC's MHPSS activities at various stages of the project. Community workers received training on psychosocial care and support. Non-specialized healthcare providers received mhGAP training on assessment and management of common mental health conditions and conditions specifically related to stress. These providers also

*Corresponding author. E-mail: bbudosan@yahoo.com.

Author(s) agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

Table 1. Health facilities in Eastern Visayas targeted by MHPSS intervention (by province / city).

Province / city	RHUs and CHUs	District hospitals	Provincial hospitals	Population (PSA, 2010)
Biliran	7	0	1	161,760
Leyte	43	5	2	1,567, 984
Southern Leyte	21	4	1	399,137
Samar	26	3	1	733, 377
Eastern Samar	24	5	1	428,877
Northern Samar	24	6	1	589,013
Tacloban City	8	0	1	221,174
Ormoc City	6	1	0	191,200
Total	159	24	8	4,292,522

Table 2. Objectives and activities at each level of healthcare system.

Level	Specific objective	Activities
Community	To increase capacity of various categories of community workers in provision of psychosocial care and support	Training in psychosocial care and support
Primary health care	To increase capacity of non-specialized healthcare providers	mhGAP training of non-specialized healthcare providers On-the-job supervision Provision of essential psychotropic medications Training on alcohol use disorders
Secondary healthcare	To increase secondary/hospital inpatient care capacity for severe cases and emergency treatment	Establishment of units for acute psychiatric care in provincial and district hospitals

received on-the- job training (supervision) in their health facilities

Design

The training intervention plus supervision lasted 10 months. In all areas, theoretical trainings were provided separately to community workers and non-specialized healthcare providers. Training group size varied from seven to more than 50 trainees. Supervision sessions were provided to non-specialized healthcare providers after the theoretical training. The intervention aimed to strengthen mental health services at three levels: (1) Community; (2) Primary healthcare, and (3) Secondary healthcare level (Table 2). During the initial phase, the existing training module for community workers was reviewed and training materials were piloted. At project end, the modules were modified as appropriate for training of midwives and barangay health workers. The mhGAP Intervention Guide (World Health Organization, 2010) and mhGAP presentations developed previously by WHO were used for training of non-specialized healthcare providers. The mhGAP module on assessment and management of conditions specifically related to stress (WHO and UNHCR, 2013), was used in training both community workers and non-specialized healthcare providers.

WHO's MHPSS team held training sessions for community workers and non-specialized healthcare providers in rented spaces of hotels and also at the WHO facility. Local consultants assisted with some of the trainings. Learning methods employed during the training were: Guided study with print-based modules, video materials, relevant Web resources, role playing, field demo/practice,

case studies, games, group discussions and interactive lectures. Operationalization of mental health services was discussed at completion of the theoretical training. Topics included: (1) Anticipated challenges for provision of mental health services at RHU, CHU and district hospital levels; (2) Mode of post-training supervision; (3) Functional indicators for mental health services at RHU/CHU and hospital level; (4) Resource mapping, and (5) Setting up in-patient and out-patient mental health services.

Data collection and analysis

The intervention was evaluated by the following parameters: (1) Availability and access of mental healthcare services with indicator of government health units in targeted areas with mhGAP trained health staff; (2) Affordability of mental health services with indicator of affordability of psychiatric medications and (3) Improved mental health competencies of trained staff. The number of government health facilities with mhGAP trained staff was monitored by each member of WHO's and IMC's MHPSS team in assigned AOR, as reported on a monthly basis. Each primary healthcare unit prepared monthly medicine consumption reports as medicine requests sent to the National Centre for Mental Health (NCMH) and National Centre for Pharmaceutical Access Management (NCPAM). Additional evaluative measures included satisfaction with various aspects of training by 3-point Likert scale survey, including: (1) Overall quality of training; (2) Length of training; (3) Lectures/instructions of trainer; (4) Participatory nature of training; (5) Acquired confidence to assess mental conditions, and (6)



Figure 1. Map of Eastern Visayas and its provinces.

Acquired confidence to manage mental conditions. All aspects of training were evaluated as very good, moderate or in need of improvement. Observation and evaluation occurred during supervision visits to government health facilities which were conducted by WHO's and IMC's MHPSS team in their AORs. Evaluated categories included: (1) History taking of presenting problem; (2) Thoroughness of mental status examination; (3) Demonstration of communication skills/empathy; (4) Knowledge of pharmacologic treatment options; (5) Knowledge of applicable psychosocial interventions; (6) Education of patient on diagnosis, treatment, side effects; and (7) Documentation of patient encounter. All results from all AORs were analysed by the WHO office in Manila and summarized in the final report (World Health Organization - Department of Emergency Risk Management and Humanitarian Response, 2015).

Ethical considerations

A close cooperation with the Philippine government and its Department of Health (DOH) occurred to ensure approval of MHPSS activities and their alignment with the national objectives for mental health. Informed consent was sought from patients during on-the-job supervision after the purpose of the intervention was explained. Confidentiality of the information was ensured by absence of patient identifying data on the study documents. There was no monetary compensation for this study.

RESULTS

Availability, accessibility and affordability of mental health services

In one year, the intervention increased the likelihood that

1038 trained personnel would properly provide community based MHPSS services. Those trained were 609 community health workers, 126 teachers and school guidance counsellors, 87 social workers, 127 first responders (firefighters and police personnel) and 89 others (local government unit, NGO, community first responders). The intervention increased the likelihood that 290 non-specialized healthcare providers, [130 medical doctors (MD) and 160 public health nurses (PHN)] would properly manage MH problems in general healthcare. At project end, 155 of 159 or 97.5% primary healthcare units [rural health units (RHUs) and city health units (CHUs)] in Region VIII had at least one healthcare provider (doctor or nurse) trained in mhGAP. Of 24 District Hospitals (DH), 21 or 87.5% had a doctor and a nurse trained in mhGAP. All eight provincial hospitals had at least one doctor and one nurse who could provide early assessment, treatment and management of common mental health problems (Table 3). Consequently, mental health care became more available and more accessible for the population of Eastern Visayas. Mental health medicines were included in the medicine supply packs that the NCPAM regularly delivered to the RHUs and CHUs. Thus, mental health medicines were also made more affordable for the general population in Region VIII. The Regional Mental Health Committee composed of representatives from: DOH, Department of Education, Department of Social Welfare and Development (DSWD), Philippine National Police (PNP), local government units (LGUs), PhilHealth and NGOs; was established for

Table 3. Number of health facilities in Region VIII with trained non-specialized healthcare providers (% in brackets).

Province / City	No. of RHUs and CHUs		No. of district hospitals		No. of provincial hospitals	
	Total	With at least one health practitioner trained on mhGAP	Total	With a doctor and nurse trained on mhGAP	Total	With a doctor and nurse trained on mhGAP
Eastern Samar	24	22 (92%)	5	5 (100%)	1	1 (100%)
Samar (Western Samar)	26	24 (92%)	3	2 (67%)	1	1 (100%)
Northern Samar	24	24 (100%)	6	4 (67%)	1	1 (100%)
Biliran	7	7 (100%)	0	0	1	1 (100%)
Leyte	43	41 (95%)	5	5 (100%)	2	2 (100%)
Southern Leyte	21	21 (100%)	4	4 (100%)	1	1 (100%)
Ormoc city	6	6 (100%)	1	1 (100%)	0	0
Tacloban	8	8 (100%)	0	0	1	1 (100%)
Total	159	155 (97%)	24	21 (88%)	8	8 (100%)

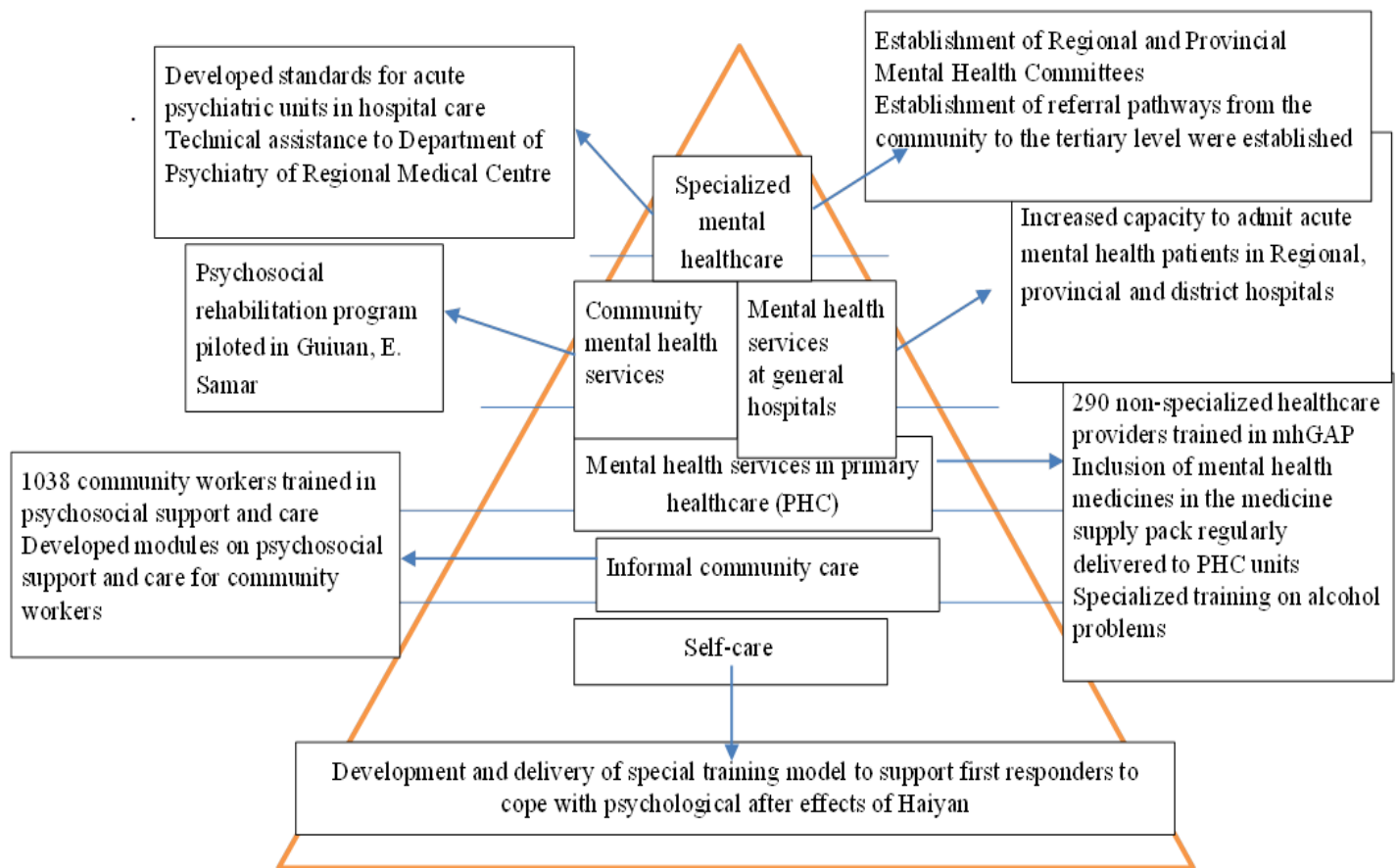


Figure 2. Summary of main achievements of MHPSS intervention in Eastern Visayas.

oversight. Provincial and City MHPSS committees were established as well. Use of the Two-Way Referral Form was encouraged for patient consultation to the psychiatrist or back to the referring institution. Figure 2 summarizes the main achievements of the intervention.

Mental health competencies of trained staff

The majority of non-specialized healthcare providers agreed that the most important knowledge / skills learnt in their training were: (1) Assessment and management of

- Mental health system of disaster-affected area can be significantly strengthened within a relatively short period of time, post-emergency
- Mental health system can be simultaneously strengthened at community, primary healthcare and secondary healthcare level, post-disaster
- Medicine Access Program for Mental Health, cross-sectoral collaboration and establishment of referral pathways from the community to tertiary level are important components of mental health system strengthening

Figure 3. Summary of main lessons learnt.

various mental health conditions; (2) Psychoeducation and (3) Pharmacotherapy. The majority of community workers noted most important training elements to be: Mental health conditions, communication with mental health patients, and referral system/organization of services in the community. Almost half of non-specialized healthcare providers noted that after theoretical training they were only somewhat confident in assessing and managing mental health conditions as described in mhGAP-IG; and a significant number of them said they were not confident. Most community workers said they were very or somewhat confident in providing psychosocial care and support services after their theoretical training, but a significant number of them said they were not confident. There were 50 to 200+ patients per site (province/city) who benefited from mental health services provided during supervision sessions. Although the majority of supervised non-specialized healthcare providers demonstrated good communication skills/empathy in patient encounters, lack of time often prevented them from taking a proper history for the presenting problem and performing a thorough mental status examination. In the majority of cases, they were able to properly diagnose the mental health condition; but they had difficulty with diagnosing more than one mental health condition in the same patient (co-morbidity). A challenge for the providers noted during supervision was proper prescribing of psychotropic medicines, especially when changing psychotropic medicines from the ones previously prescribed by private psychiatrist to the ones recommended by mhGAP. Most of the providers were able to educate the patient on diagnosis, treatment and side effects. A lack of standardized forms created difficulty with documentation of the patient encounter and patient records. Although most of the non-specialized healthcare providers were familiar with applicable psychosocial interventions; lack of time prevented them from actually delivering the complete care. Knowledge of the basic alcohol intervention was strengthened during a separate training program on alcohol use disorders in Tacloban city. At outreach clinics, trained health-care

workers were able to identify people with alcohol problems and provide them with treatment plans (Czaicki et al., 2015).

DISCUSSION

The study results confirmed the main assumption that MHPSS intervention would result in more available, accessible mental health services in Region VIII and that these services would be more affordable to the general population. At one year, the intervention strengthened the mental health system in Region VIII at the community level by training more than 1000 community workers in psychosocial care. At the primary level, 95% of government facilities had at least one MD or PHN trained in mhGAP-IG. At the secondary level; the Regional Medical Centre, provincial and district hospitals increased capacity to admit acute mental health patients. The Medicine Access Program (MAP) for Mental Health improved access and use for psychotropic medicines according to WHO recommendations (World Health Organization, 2005a). By project end, the NCPAM - a Department of Health administrative unit for the Medicine Access Program; coordinated the supply chain for psychotropic medications in conjunction with other medicines under their administration. This led to the inclusion of mental health medicines in the medicine supply packs that the NCPAM regularly delivered to the RHUs and CHUs. Cross-sectoral collaboration and clinical referral pathways from the community to the tertiary level were established (Figure 3). Collaboration within the health sector and with agencies outside the health sector is essential if outcomes related to mental illness are to be improved (World Health Organization, 2003).

The local environment was quite accepting of the intervention, because the main stakeholders of government and health authorities, health care providers and workers; were highly motivated to improve mental health services in their locales. All of them expressed

satisfaction with the results of the intervention. The high level of engagement in this intervention is best evidenced by the participation of almost 1300 non-specialized healthcare providers and community workers from 184 (95%) health facilities in all administrative areas of Eastern Visayas. This level of local support is important because community stakeholders can play a critical role in achieving better outcomes for MH care and psychosocial well-being (Ventevogel et al., 2012).

The project developed a critical mass of mhGAP-trained staff at the local level who can sustain and continue to develop the ongoing mental health care. The Eastern Visayas intervention considerably strengthened the local system of MHPSS services, especially in terms of human resources for mental health. Human resources are the most valuable asset of a mental health system (World Health Organization, 2005b). Because healthcare in the Philippines is managed at the local level, trained staff in local health facilities will play a major role in cementing the progress of the project. Another strategy that will promote sustainability is the strengthening of inter-sectoral collaboration at the local level.

The great majority of patients seen during supervision sessions were those with chronic psychosis who had not received treatment for some time. Patients with bipolar disorder and epilepsy were also seen with disproportionate frequency. The trend of increased utilization of mental health services in Eastern Visayas has been noticed during supervisory visits, but requires ongoing documentation with quantitative means. Supervisions in the field confirmed that it was more difficult for non-specialized healthcare providers to implement newly acquired methods than to understand them. Challenges in training non-specialized healthcare providers to modify their clinical practice have been documented in other disaster settings. For example, in Lebanon, a significant number of doctors continued to maintain their old prescribing habits in spite of the intervention for change (Hijazi et al., 2011).

Interventions in other countries post-disasters (Mahoney et al., 2006; Jones et al., 2007; Budosan et al., 2008; Ventevogel et al., 2012; Budosan et al., 2014) improved somewhat the systems of mental health services quickly after the disaster, those interventions were less comprehensive than the Philippine program in the first year after disaster. Prior efforts have established such components as a sustainable system of distribution, prescription and use of psychotropic medications; and an increase in local hospital capacity for admission of acute psychiatric patients only later after disaster. One possible explanation is that the WHO is better positioned than INGOs to implement comprehensive mental health interventions post-disaster because of its positive image and reputation among beneficiaries and humanitarian actors. Moreover, the WHO's apolitical status helps facilitate rapid collaboration with varied actors post-disaster. An incorporated goal of this intervention was a

strong and resilient system of MHPSS services across the region which would be prepared for future disasters. Functional resilience of the mental health system in Eastern Visayas was strengthened by augmenting the number of personnel trained in mental health and number of facilities capable of providing mental health services. This better prepares the system to cope with disasters that increase rates of distress and mental health problems.

According to the WHO (World Health Organization - Western Pacific Region, 2015), all routine health services, including routine mental health services should be capable of performing effectively under impact of a new hazard, and handling the workload originating from an emergency.

Limitations

The intervention and deliverables described in this study were not without limitations. The program lacked a formal needs assessment but baseline data were collected during field visits by WHO's MHPSS team to Eastern Visayas health facilities at inception of the intervention. Initial field visits identified areas of concern for improvement as: Absence of mental health programs, shortages of psychiatric medications and lack of mental health care knowledge/skills of non-specialized healthcare providers; but these concerns were not quantified. Formal predetermined metrics for evaluation were missing, although success was measurable as described previously. A comprehensive mental health education campaign and mental health advocacy with consumer groups were absent from the intervention.

Conclusion

The Philippine project, as evaluated in this study, supplied a critical mass of mhGAP-trained staff at the local level to develop and sustain mental health activities. Because health care in the Philippines is managed at the local level, trained staff at local facilities plays a major role in cementing and furthering the achieved advances. Up scaling of mental health care services after emergencies has been accomplished in diverse areas worldwide, and is best followed by sustainable efforts for health system development.

Future research might focus on routine clinical outcome data and quality of life indicators for beneficiaries, e.g. well-being, resilience and ability to function in daily life (Williamson and Robinson, 2006; Rajkumar et al., 2008; Ayazi et al., 2015).

Conflict of Interests

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENT

The study is funded by United Kingdom Department of International Development (DFID).

REFERENCES

- Ayazi T, Swartz L, Eide HA, Lien L, Hauff E (2015). Perceived current needs, psychological distress and functional impairment in a war-affected setting: a cross-sectional study in South Sudan. *Br. Med. J. Open* 5(8):e007534.
- Benigno MR, Kleinitz P, Liezel C, Alcido R, Gohy B, Hall JL (2015). Responding to the health and rehabilitation needs of people with disabilities post-Haiyan. *Western Pac. Surveill. Response J.* 6 Suppl 1:53-59.
- Budosan B, Jones L, Wickramasinghe WAL, Farook AL, Edirisooriya V, Abeywardena G, Nowfel MJ (2007). After the wave: A pilot project to develop mental health services in Ampara district, Sri Lanka, post-tsunami. Available at: <https://sites.tufts.edu/jha/archives/53>
- Budosan B, Jones L (2009). Evaluation of effectiveness of mental health training program for primary health care staff in Hambantota district, Sri Lanka, post-tsunami. *J. Hum. Assist.* 2009:1-13. Available at: <http://www.multiculturalmentalhealth.ca/wpcontent/uploads/2013/10/Program-evaluation-post-tsunami.pdf>
- Budosan B, O'Hanlon PK, Aziz S (2014). Improving access to community-based mental health care and psychosocial support within a disaster context: A case study from Haiti. *Disaster Health* 2(1):25-34.
- Conde B (2004). Philippines Mental Health Country Profile. *Int. Rev. Psychiatry* 16(1-2):159-166.
- Czaicki AE, Fabrigas G, Gocotano A, Hall JL (2015). Is my drinking a problem? A community-based alcohol intervention programme post-Haiyan in Tacloban City. *Western Pac. Surveill. Report J.* 6(Suppl 1):96-101.
- Hijazi Z, Weissbecker I, Chammay R (2011). The integration of mental health into primary health care in Lebanon. *Intervention* 9(3):265-78.
- Jones LM, Ghani HA, Mohanraj A, Morrison S, Smith P, Stube D, Asare J (2007). Crisis into opportunity: setting up community mental health services in post-tsunami Aceh. *Asia Pac. J. Public Health* 19:60-8.
- Landoy NVB, Hechanova RM, Ramos, PAP, Kintanar, NSM (2015). The Application and Adaptation of Psychological First Aid: The Filipino Psychologists' Experience After Typhoon Haiyan. *Philipp. J. Psychol.* 48(2):81-104.
- Mahoney J, Chandra V, Harischandra G, Mendis J, Suvendraan T (2006). Responding to the mental health and psychosocial needs of the people of Sri Lanka in disasters. *Int. Rev. Psychiatry* 18(6):593-597.
- Perez-Salez P, Liria AF, Baingana F, Ventevogel P (2011). Integrating mental health into existing systems of care during and after complex humanitarian emergencies. *Intervention* 9(3):345-357. Available at: http://www.ourmediaourselves.com/archives/93pdf/Perez_2011_Int_Integrating_MH_into_existing_systems.pdf
- Philippine Statistics Authority-PSA (2010). The 2010 Census of Population and Housing. Available at: <http://www.census.gov.ph/statistics/census/population-and-housing>
- Rajkumar AP, Premkumar TS, Tharyan P (2008). Coping with the Asian tsunami: perspectives from Tamil Nadu, India on the determinants of resilience in the face of adversity. *Soc. Sci. Med.* 67(5):844-853.
- Ventevogel P, van de Put W, Faiz H, van Mierlo B, Siddiqi M, Komproe IH (2012). Improving access to mental health care and psychosocial support within a fragile context: a case study from Afghanistan. *PLoS Med* 9:e1001225.
- Williamson J, Robinson M (2006). Psychosocial interventions, or integrated programming for well-being. *Intervention* 4(1):4-25.
- World Health Organization (WHO) (2003). Organization of services for mental health. Mental Health Policy and Service Guidance Package. Available at: http://www.who.int/mental_health/policy/services/essentialpackage1v2/en/
- World Health Organization (WHO) (2005a). Improving access and use of psychotropic medicines. WHO mental health policy and service guidance package. Available at: http://www.who.int/mental_health/policy/services/essentialpackage1v10/en/
- World Health Organization (WHO) (2005b). Human resources and training in mental health. WHO mental health policy and service guidance package. Available at: http://www.who.int/mental_health/policy/services/essentialpackage1v9/en/
- World Health Organization (WHO) (2010). mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings, 2010. Available at: www.who.int/mental_health/mhgap
- World Health Organization (WHO) (2013a). Building Back Better: Sustainable Mental Health Care After Emergencies. Available at: http://www.who.int/mental_health/emergencies/building_back_better/en
- World Health Organization (WHO) (2013b). Public Health Risk Assessment and Interventions. Typhoon Haiyan, Philippines. Second edition. Available at: <http://www.wpro.who.int/philippines/en/>
- WHO and UNHCR (2013). mhGAP module: Assessment and Management of Conditions Specifically Related to Stress. Available at: http://www.who.int/mental_health/emergencies/mhgap_module_management_stress/en/
- World Health Organization – Department of Emergency Risk Management and Humanitarian Response (2015). Psychosocial support in the mass casualty context of Typhoon Haiyan in the Philippines. End of Project Report to the Department for International Development (DFID), UK.
- World Health Organization – Western Pacific Region (2015). Western Pacific Regional Framework for Action for Disaster Risk Management and Health. Available at: <http://www.wpro.who.int/publications/en/>



International Journal of Medicine and Medical Sciences

Related Journals Published by Academic Journals

- *Journal of Medicinal Plant Research*
- *African Journal of Pharmacy and Pharmacology*
- *Journal of Dentistry and Oral Hygiene*
- *International Journal of Nursing and Midwifery*
- *Journal of Parasitology and Vector Biology*
- *Journal of Pharmacognosy and Phytotherapy*
- *Journal of Toxicology and Environmental Health Sciences*

academicJournals