
JOHASAM

JOURNAL OF HEALTH, APPLIED SCIENCES AND MANAGEMENT

Volume 3, March, 2020

Editor

Dr. Iheanyi Osondu Obisike

© 2020 Rivers State College of Health Science & Management Technology

ISSN: 1597-7085



Published by
**RIVERS STATE COLLEGE OF HEALTH
SCIENCE & MANAGEMENT TECHNOLOGY**
**ORO-OWO, RUMUEME
PORT HARCOURT, NIGERIA**

@ KELODAYC NIGERIA LIMITED
No. 114 Old Aba Road, Rumuogba, Port Harcourt

JOHASAM: Journal of Health, Applied Sciences and Management

Editor

Dr. Iheanyi Osondu Obisike

Associate Editors

Mandy George

Dr. Unwobuesor Richard Iloma

Edwin Isotu Edeh

Dr. John Hemenachi S. Nwogu

Dr. Ibiene Kalio

Dr. Rachael I. Ibulobo

Dr. Veronica Eke

Journal of Health, Applied Sciences and Management (JOHASAM) is a high quality peer-reviewed research journal which provides a platform for researchers, academics, health professionals and management experts to share universal knowledge on health science, technology and management in order to produce efficient, self-reliant and enterprising manpower that would meet the challenges of contemporary health care delivery services and management.

We welcome quality research papers on these areas:

Community Health, Public Health, Environmental Health, Medical Imaging, Laboratory Science, Pharmacy, Dispensing Opticianry, Dentistry, General Medicine, Anatomy, Health Education, Medical Social Work, Medical Sociology, Rural Sociology, Social Sciences, Biomedical Engineering, Physics, Biology, Chemistry, Physiology, Psychology, Entrepreneurship, Hospital Management, and all science-based courses.

Reference style: APA

Send your manuscript to the editor at:

editorjohasam@yahoo.com or call the following numbers:

07062527544, 08037736670

JOHASAM
Journal of Health, Applied Sciences and Management
Volume 3, March, 2020

Table of Contents

Title and Author(s)	Page
Determinants of Umbilical Cord Care Practices Among Postpartum Mothers in Selected Waterfront Areas in Port Harcourt, Rivers State <i>Rachael Itubosebiekpoma Ibulubo, Tamunoboma Gloria Ibulubo, Belinda Mordecai Jaja & Augustine Vincent Oribo Amachree</i>	1
Cervical Cancer Screening: Acceptance and Practice among Female Students in College of Health Science and Management Technology, Port Harcourt <i>Tamunoboma Gloria Ibulubo, Rachael Itubosebiekpoma Ibulubo & Belinda Mordecai Jaja</i>	8
Occupational Stress and Selected Psychosomatic Disorders among Pastors in Nyo-khana District in Khana Local Government Area <i>Dornu Gbeneneh, Ovie Agada & Nwite Deekor</i>	17
Survey on the Availability, Utilization and Importance of Life Support Equipment and Devices in Selected Healthcare Facilities in Port Harcourt Metropolis <i>Mark Ukelabuchi Ideozu, Gordon Amadi Ike-Ihunwo, Chikaire Ndamzi, Elechi Nelly Onyinyechi, Prince Sampson Ogbilikana & Zegere Goodnews</i>	28
Perception and Attitude of Mothers on Family Planning in Ban-Ogoi Community, Tai Local Government Area of Rivers State <i>Rorkeek Michael Offiah, Martha Deebari kpananwa, Stella Nne Okankwu & Adela Uganwa Ikwut-Ukwa</i>	34
Tuberculosis Transmission Mode Awareness in Minikpiti Community, Obio-Akpor Local Government Area of Rivers State <i>Catherine Ugwem Jeremiah, Flora Ile Sunday, Rorkeek Michael Offiah, & Gloria Stanley Jones</i>	43
Teenage Pregnancy and Its Implications to Public Health in Akpajo Community, Eleme Local Government Area of Rivers State <i>Rorkeek Michael Offiah, Blessing Simeon Okanje, Stella Nne Okankwu & Catherine Ugwem Jeremiah</i>	51
In Situ Yield in Primary Productivity of Sand Mined Ponds of Otamiri River in Owerri, South-East Nigeria <i>Alaye A.S.Bibiye & Henry D.Ogbuagu</i>	61
Influence of Work Stress on Job Performance of Health Information Management Personnel in Selected Hospitals in Bayelsa State, Nigeria <i>Prince Casmir Ifejirika & Adias Enegehe Spiff</i>	69
Performance of Unripe Plantain-Wheat Flour Blend in Pancake Production <i>Bills, U. S., Isong, N., Mkpao, J. I. & Mboi S. S.</i>	76
Factors Affecting the Practice of Exclusive Breastfeeding Among Nursing Mothers Working with Tertiary Institutions in Port Harcourt Metropolis, Rivers State <i>Patience Itaa, Ngozi Nwibana Azubuike & Barisuka Kofii</i>	83
Nutritional Status, Blood Pressure and Body Mass Index of Staff of Rivers State College of Health Science and Management Technology, Port Harcourt, Rivers State <i>Bills, U. S., Oguzor, B. G., Mkpao, J. I. & Mboi, S.S.</i>	91
Causes and Prevention of Hospital Acquired Infections During Clinical Postings Among Community Health Students of Rivers State College of Health Science and Management Technology, Port Harcourt <i>Itaa Patience & Azubuike Patience Ngozi</i>	100

Determinants of Umbilical Cord Care Practices Among Postpartum Mothers in Selected Waterfront Areas in Port Harcourt, Rivers State

Rachael Itubosebiekpoma Ibulubo, Tamunoboma Gloria Ibulubo, Belinda Mordecai Jaja & Augustine Vincent Oribo Amachree

School of Community Health, Rivers State College of Health Science and Management Technology, Port Harcourt, Nigeria
Email: tacjoc@gmail.com

Abstract

This study is aimed at ascertaining the determinants of umbilical cord care practices amongst postpartum mothers in selected waterfront areas of Port Harcourt, Rivers State. The study was a cross sectional descriptive survey with a sample size of 95. 95 Semi structured questionnaires were distributed to mothers with babies less than 2 months old. Result of the study revealed that 100% (n=95) of the respondents know about umbilical cord care. Out of the 100%, 64.2%, (n=61) used close-up tooth paste and methylated spirit for cord care, 8.4% (n=8) used Chlorhexidine. For those (64.2%, n=61) who used close up, the stump fell off within the first 3days, for Chlorhexidine (8.4%, n=8) and Herbal solution (2.1%, n=2) stump fell off within 4-8days. Reason for preference of a particular substance for the care of the umbilical cord was its effectiveness of the substance (49.2%), Friends/Family influence (14.7%, n=14), and easily accessed (64.2%, n=61). In conclusion, respondents had knowledge of umbilical cord care but applied varied substances such as close-up tooth paste, methylated spirit, and herbal solution for umbilical cord care as against the use of Chlorhexidine recommended by WHO. The researchers therefore recommend that during antenatal/postnatal visits health care personnel should make emphasis on the use of Chlorhexidine recommended by WHO for hygienic cord care practices both in health care facilities and at home.

Introduction

Umbilical cord care involves practical demonstrations of several phases of treatment given to the cord shortly after delivery to when the stump finally falls off. During this period extra care is needed in the handling of the stump to prevent contamination of the stump which is a common cause of death among neonates (Bhatt, Malik, Jindal, Sahoo & Sangwan, 2015). Monebenimp, Enganemben, Chelo, Foumane, Kamta & Kuaban, (2013) has it that in West Africa especially Cameroon and Nigeria, inadequate cord care practices are seen among mothers. In Nigeria, studies have reported umbilical cord infections accounting for between 10 and 19% of neonatal admissions and resultant estimated 30-4% neonatal deaths. Neonatal deaths, cord infection and sepsis can be prevented with good umbilical cord practices especially in areas where home deliveries are done. In developing countries such as Nigeria, umbilical cord infection accounts for 276,000 neonatal deaths annually, the second highest deaths in the world and in Nigeria alone it accounts for about 33% of neonatal mortality (Osuchukwu, 2014).

The umbilical cord is a tissue that has a vein and two arteries, it measures about 56cm in length and extend normally from the center of the placenta to the umbilicus of the unborn baby. During pregnancy, the umbilical cord connects the fetus to the mother through the placenta. The umbilical cord is responsible for the supply of blood rich in nutrients and oxygen from the mother to the fetus and the removal of carbon dioxide and other metabolites away from the fetus to the mother. Umbilical cord care is one of the most essential cares given to umbilical stump of newborns in the first few days of extra uterine life before the fall-off of the cord and immediately after its fall (Fraser & Cooper, 2009).

The availability of tetanus vaccine for pregnant women and topical application of antimicrobial agents should help reduce bacterial infection hence newborn deaths. Aside cleaning and drying of the umbilical cord stump, daily application of 7.1% chlorhexidine digluconate gel (delivering 4% chlorhexidine) aqueous solution or gel to the umbilical cord stump during the first week of life is strongly recommended for newborns who are born at home in settings with high neonatal mortality (Mullany, Darmstadt & Tielsch, 2006). 7.1% chlorhexidine digluconate gel (delivering 4% chlorhexidine) was used by 36,404 newborns delivered by 36,370 mothers to help reduce such neonatal deaths in Sokoto State, North West Nigeria, this low cost but highly effective gel used for the prevention of newborn sepsis should be made available in all delivery settings so as to reduce umbilical cord infection and then neonatal death (Orobaton, Abegunde, Shoretire, Abdulazee, Fapohunda & Lamiri, 2015).

Unqualified personnel provide health care services to majority of women especially during pregnancy, child birth and after child birth as there is lack of skilled personnel, needed resources and availability of essential drugs that has increased neonatal and childhood deaths. To achieve a healthy and productive society it is important pay attention to the health and wellness of the newborn as this will help reduce neonatal and newborn mortality and morbidity. Child birth and postpartum is a major strategy to improve child survival as low socio-cultural barriers to care, weak health care system and poor socio-economic development influence maternal and child health (Ezechi & David, 2012). According to the reports by Ambe, Bello, Yahaya, & Omotora, (2010), many of these neonates are brought in for admission in very bad state, consequently resulting in neonatal deaths. This study is therefore aimed at ascertaining the determinants of umbilical cord care practices among children of postpartum mothers in selected waterfront area of Port Harcourt, Rivers State.

Material and Method

The study was conducted in selected waterfront areas of Port Harcourt, Rivers State, using Newborns of less than 6 weeks of postpartum mothers who are house wives irrespective of whether they are educated or illiterates, or whether they delivered their babies at home or in a health facility.

Inclusion criteria: Only mother with babies less than 6 weeks old were used, mothers that were willing to participate in the study and mothers that were physically and mentally alert/stable.

Exclusion criteria Mothers who were not co-operative, mothers whose babies had serious illness and mothers with babies older than 6 weeks.

A cross-sectional descriptive design was adopted for this study whereby the researcher explored and described existing factors influencing umbilical cord care practices among the participants.

Sample was determined using Leslie Kish formula, $N = \frac{P(1-P)}{(SE)^2}$.

Where

N = sample size,

P = prevalent rate,

SE = c 0.05

According to Osuchukwu (2014), prevalence of poor cord practices is 69%

Therefore substituting the values we have

$$\begin{aligned} N &= \frac{0.69(1-0.69)}{(0.05)^2} \\ &= 0.69(0.31) \end{aligned}$$

$$\begin{aligned}
 &0.0025 \\
 &= \frac{0.22139}{0.0025} \\
 &= 85.5 \quad \text{Apprx} = 86
 \end{aligned}$$

Non response rate of 10% = 8.6 was added, therefore minimum sample size = 86 + 8.6 = 94.6, approximately 95mothers.

Multistage sampling technique was employed to select the sample for this study. The procedure involves the Identification of 13 waterfronts in Port Harcourt south, namely; old Bundu waterfront, new Bundu waterfront, Ebeto waterfront, wait and push waterfront, Enugu waterfront, Ibadan waterfront, Abuja estate waterfront, Nembe waterfront, Borokiri sandfill waterfront, Okrika waterfront, marine base waterfront, Ogu waterfront, Prisons waterfront. Of these 13 waterfronts in Port Harcourt south, 5 were selected using simple random techniques namely Old Bundu waterfront, marine base waterfront, Enugu waterfront, Borokiri waterfront and Nembe waterfront. 19 participants were taken from each of the pre-selected waterfronts by simple random sampling technique making up the sample size of 95.

The instrument used for the study was a structured questionnaire divided into 2 sections. Section A: Demographic data, while section B answers the research questions. After selection of samples as per inclusive criteria informed consent was taken by explaining the purpose of the study. Copies of the questionnaire were administered to the women and were collected on the same day of administration. Data was analyzed using descriptive statistic via frequency and percentage tables.

Result

Table 1: Mother's Knowledge on Umbilical Cord Care/chemicals used

Variables	Frequency	Percentages
Have you heard of umbilical cord care		
Yes	95	100
No	-	-
Total	95	100
Do you know any chemical used for umbilical treatment?		
Yes	95	100
No	-	-
Total	95	100
Common substance used for unbilical cord treatment identified by mothers (<i>multiple responses</i>)		
Herbal solution	32	7.2
Close-up tooth paste and methylated spirit	211	47.7
Chlorhexidine	91	20.6
Methylated spirit alone	108	24.4
Total	442	100
Which of these chemicals have you used?		
Close-up tooth paste and methylated spirit	61	64.2
Methylated spirit alone	24	25.3
Chlorhexidine	8	8.4
Herbal solution	2	2.1
Total	95	100

Table 1 shows a representation of the respondent's knowledge on umbilical cord care/chemicals commonly used. All (95, 100%) of the respondents claimed they have heard of umbilical cord care and also are aware of substances used for cord care.

Some commonly used substances for umbilical cord care by the mothers include: Close-up tooth paste and methylated spirit (47.7%, n=211), Methylated spirit alone (25.3%, n=108) Chlorhexidine (20.6%, n=91) and Herbal solution (7.2%, n=32). Majority (64.2%, n=61) of the respondents claimed they used close-up tooth paste and methylated spirit, 24 (25.3%) of the respondents used methylated spirit alone, 8.4% (n=8) used Chlorhexidine, while 2.1% (n=2) used herbal solution.

2: Bases of Umbilical Cord Care Practices amongst Postpartum Mothers

Various Substances used by respondents for cord care		Observations made by mother s on baby's Stump/skin			Duration of substance used/Time of cord separation			Reason for the preference of the substance used			
		Normal skin	Bleeding	Red skin	First 3days	4-8 days	9-13 days	Effectiveness of the substance	Friend/ family Influence	Medically recommen ded	Easily accessible
Substances used	F (%)	F (%)	F (%)	F (%)	F(%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)
Close-up tooth paste/methylated spirit	61 (64.2)	61 (64.2)			61 (64.2)			47 (49.5)	14 (14.7)		61 (64.2)
Methylated spirit alone	24 (25.3)	24 (25.3)				8(8.4)	16 (16.8)			24 (25.3)	
Chlorhexidine	8 (8.4)	8 (8.4)				8(8.4)		8 (8.4)		8 (8.4)	
Herbal solution	2 (2.1)		2 (2.1)	2 (2.1)		2 (2.1)			2 (2.1)		
Total	95 (100)	83 (87.4)	12 (12.6)	2 (2.1)	61 (64.2)	18 (18.9)	16 (16.8)	55(57.9)	16 (16.8)	32 (33.7)	61 (64.2)

Table 2 shows result of the bases of umbilical cord care practices amongst postpartum mothers. According to the observations made by mother on baby's Stump/skin, 64.2% (n=61) of respondents who used close-up tooth paste/methylated spirit, 25.3% (n= 4) of the respondents who used methylated spirit alone and 8.4% (n=8) who used Chlorhexidine observed normal skin during the period they used the different substances, while only 2.1% (n=2) of the respondent who used Herbal solution reported they observed bleeding and red skin during the period they used the substances.

Concerning the duration of substance used/time of cord separation, the respondents (64.2%, n=61) who used close-up tooth paste/methylated spirit for cord care affirmed that they used the substance for the first 3days and within this period, the stump fell off. Of the 25.3% (n=24) of the respondents who used Methylated spirit alone, 16.8% (n=16) reported they used the substance for 9-13days within which the umbilical cord stump fell while only 8.4%, (n=8), claimed that the umbilical cord stump fell within the 4-8days they used the substance 8.4%, (n=8) of the respondents who used Chlohexidine and 2.1%, (n=2) who used Herbal solution claimed the solution was used for a period of 4-8days and the stump fell off within that 4-8days,

Regarding the reason for the preference of a particular substance used, out of the 61 (64.2) who used close-up tooth paste and methylated spirit for cord care, all 64.2% (n=61) of them claimed that close up toothpaste and methylated spirit is easily accessible, 49.2% (n=47) said because of the effectiveness of the substance, while only 14.7% (n=14) report it was due to friends/family

influence. All the respondents who used methylated spirit alone (25.3%, n=24) and Chlorhexidine (8.4%, n=8) for cord care claimed they do so because it was medically advised, while the respondents that used Herbal solution (2.1%, n=2) claimed it was due to Friends/Family influence.

Discussion

This study was designed to ascertain the determinants of umbilical cord care practices among postpartum mothers in selected waterfront areas of Port Harcourt, Rivers State. The result of this study showed that 100% (n=95) of the respondents have heard of umbilical cord care before. This corresponds to the study of Abhulimhen-Iyoha and Ibadin (2012) who stated that 71.2% of the mothers in their study were aware of beneficial cord care practices. Mothers in this study were also aware of the substances commonly used for cord care, 47.7% (n=211) identified Close-up tooth paste and methylated spirit, 25.3% (n=108) reported Methylated spirit alone, 20.6% (n=91) reported Chlorhexidine while only 7.2% (n=32) pointed out Herbal solution.

When asked what substances were used by them, majority (64.2%, n=61) of the respondents claimed they used close-up tooth paste and methylated spirit, 24 (25.3%) of the respondents used methylated spirit alone, 8.4% (n=8) used Chlorhexidine, while 2.1% (n=2) used herbal solution. In a similar study by Mukhtar-Yola, Iliyasu & Wudil, (2011), 349 (60.9%) mothers applied methylated spirit, 145 (25.3%) hot compress, and 50 (8.7%) used toothpaste. Other applications included herbal preparation in 20 (3.5%) and dusting powder in 9 (1.6%) others. Most mothers in Opara et al., (2012) study used similar substance for cord care. About 27 (15.9%) used salt, 12 (7.1%) tooth paste, 2 (1.2%) cow dung, 43 (25.3%) saliva solution, 35 (20.6%) herbal solution and 92 (54.1%) used methylated spirit. Also in a study by Joel-Medewase, et al., (2008), multiple agents were used to treat the cord in most babies with poor care. Among the 33 with poor cord care, fomentation with hot water, lantern, knife and application of menthol containing creams were used in, 23 (40.4%), 20 (35.1%), 1 (1.8%) and 13 (22.8%) cases, respectively. It was also discovered that in Abhulimhen-Iyoha, et al., (2011) study, women engaged in traditional practices of cord care which include the use of hot compress (over 46.1%), (that is, the use of a piece of cloth soaked in hot water to massage the cord stump); use of herbs e.g. leaves, native chalk, petroleum jelly, palm oil, toothpaste, salt, sand and saliva.

In this study, it was discovered that mothers observed different changes on their baby's Stump/skin during the use of preferred substance; 64.2% (n=61) of respondents who used close-up tooth paste/methylated spirit, 25.3% (n=4) of the respondents who used methylated spirit alone and 8.4% (n=8) who used Chlorhexidine observed normal skin during the period they used the different substances while only 2.1% (n=2) of the respondent who used Herbal solution reported they observed bleeding and red skin during the period they used the substances. This result corroborates with that of Kapellen, (2009) which revealed that cord-related adverse events (erosion, irritation, lesion, omphalitis, erythema, umbilical granuloma, purulence, bleeding, discharge, or weeping of the navel) were more common in the dry cord care.

Respondents (64.2%, n=61) who claimed to use close-up tooth paste and methylated spirit for cord care affirmed that within the first 3 days the stump fell off, 18.9% (n=18) of the respondents, Mukhtar-Yola et al., (2011) affirmed that the application of toothpaste to the cord stump is an developing method of cord care used by more than 8% of mothers in their study, and that babies of such mothers had the shortest mean separation time of 3.12 days. Those who used Methylated spirit alone (8.4%, n=8), Chlorhexidine (8.4%, n=8) and Herbal solution (2.1%, n=2) claimed the stump fell off within 4-8 days, while 16.8% (n=16) of respondents who used Methylated spirit alone reported the stump fell off within 9-13 days. In a similar study by Shwe (2018), the mean cord separation time in (days) in the methylated spirit and CHX gel treatment groups were 7.96 ± 4.07 , (CI 6.28 – 9.64) and 6.43 ± 3.13 , CI (5.08 – 7.79) respectively,

Respondents in this study had different choices of cord care practices with different reasons; 61 (64.2) who used close-up tooth paste and methylated spirit for cord care, 49.2% (n=47) of them said because of the effect of the substance, 14.7% (n=14) said Friends/Family influence, however, all 64.2% (n=61) of them claimed that close up toothpaste and methylated spirit is easily accessed. All the respondents who used methylated spirit alone for cord care (25.3%, n=24), and Chlorhexidine (8.4%, n=8) claimed they do so because it was medically advised, while the respondents that used Herbal solution (2.1%, n=2) claimed it was due to Friends/Family influence. This study corroborates with the study of Opara et al., (2012) in which 64 (29.0%) mothers had their babies cord cleaned with only Methylated spirit while 138 (62.4%) cleaned with Methylated spirit and applied other substances. In a similar study by Abhulimhen-Iyoha and Ibadin (2012), it was discovered that the choice of cord care practices eventually embarked upon by the mothers (participants) was mainly influenced by other caregivers, these were mainly their attending nurses at antenatal clinic (51.3%), their mothers (32.0%), and their mothers-in-law. Nurses' influence was dominant among those who carried out beneficial cord care practice.

Conclusion/Recommendation

This study aimed at ascertaining the determinants of umbilical cord care practices among children of postpartum mothers, result revealed that though respondents had good knowledge of umbilical cord care, they do not practice it. Respondents applied different substances from close-up tooth paste, methylated spirit, and herbal solution for umbilical cord care. It is therefore recommended that during antenatal and postnatal visits health care personnel should make emphasis on the use of Chlorhexidine recommended by WHO for hygienic cord care practices both in healthcare facilities and at home.

References

- Abhulimhen-Iyoha, B.I., Ofili, A. & Ibadin, M.O. (2011). Cord care practices among mothers attending immunization clinic at the University of Benin Teaching Hospital, Benin City. *Nigeria Journal of Paediatrics*, 38(3),104-108.
- Ambe, J., Bello, M., Yahaya, S. & Omotora, B. (2010). Umbilical cord practices in Konduga Local Government Area of Bornu State, North East Nigeria. *Journal of Tropical Medicine*, 9 (6), 87–92.
- Antai, T. E. & Effion, F. O. (2009). Septicaemia among neonates with tetanus. *Journal of Tropical Pediatrics*, 3 (10) 2010-213
- Bhatt, B., Malik, J.S., Jindah, H., SahooSahoo, S. & Sangwan, K. (2015) A study to assess cord care practices among mother of new borns in urban areas of Rohtak Haryana. *International Journal of Basic Applied Medical Sciences*, 5(1), 55-60.
- Ezechi O.C. & David A.N. (2012). *Overview of global perinatal mortality*. Retrieved from: <http://www.intechopen.com/books/perinatal-mortality/overview-of-global-perinatal-mortality>.
- Fraser, D., & Cooper, M. (2009). *Myles textbook for midwives*. China: Elsevier.
- Joel-Medewase, V.I., Oyedeji, O.A., Elemile, P.O. & Oyedeji, G.A. (2008). Cord care practices of South- western Nigerian mothers. *International Journal of Tropical Medicine*, 3:15-8.

- Kapellen, T.M., Gebauer, C.M., Brosteanu, O., Labitzke, B., Vogtmann, C. & Kiess, W. (2009). Higher rate of cord-related adverse events in neonates with dry umbilical cord care compared to Chlorhexidine powder: results of a randomized controlled study to compare efficacy and safety of chlorhexidine powder versus dry care in umbilical cord care of the newborn. *Neonatology* 96(1),13–18
- Monebenimp, F., Enganemben, M.M., Chelo, D., Foumance, P. & Kamta, C. (2013). Mothers' knowledge and practice on essential newborn care a health facilities in Goroua city, Cameroon. *Health Science Dis*, 14(2), 1-6
- Mullany, L.C., Darmstadt, G.L. & Tielsch, J.M. (2006). Safety and impact of chlorhexidine antiseptics interventions for improving neonatal health in developing countries. *Pediatric Infectious Disease Journal*, 25(8):665–675
- Mukhtar-Yola, M., Iliyasu, Z. & Wudil, B. J. (2011) Survey of umbilical cord care and separation time in healthy newborns in Kano. *Nigerian Journal of Paediatrics*;38(4):175 -181
- Opera, P.I., Jaja, T, Dotimi, D.A. & Alex-Hart, A.B. (2012). Newborn cord care practices amongst mothers in Yenagoa Local Government Area, Bayelsa State, *Nigeria International Journal of Clinical Medicine*, 3,22-27
- Orobaton, N., Abegunde, D., Shoretire, K., Abdulazee, J., Fapohunda, B. & Lamiri, G. (2015). A report of At-/scale distribution of chlorhexidinedigluconate 7.1% gel for newborn cord care to 36,404 newborns in Sokoto State, Nigeria: Initial lessons learned. *PLOS ONE*. DOI: 10.137/journal.pone.0134040
- Osuchukwu, E. C. (2014). Umbilical care and management outcome among mothers in Calabar South Local Government Area, Cross River State, Nigeria. *International Journal of Nursing, Midwife and Health Related Cases* 4 (1), 1-11
- Shwe, D.D., Abok, I.I., Diala, U.M., Egbodo, C., Toma, B.O., Nathan, S., Pam, V.C., Ocheke, A. & Oguche, S. (2018). Methylated spirit versus 4% chlorhexidine gel in neonatal umbilical cord infection: A short report of a randomized, open labelled, parallel-group trial. *Nigerian Journal of Paediatrics*, 45 (2):118 - 122

Cervical Cancer Screening: Acceptance and Practice among Female Students in College of Health Science and Management Technology, Port Harcourt

Tamunoboma Gloria Ibulubo, Rachael Itubosebiekpoma Ibulubo & Belinda Mordecai Jaja

School of Community Health, Rivers State College of Health Science and Management Technology

Abstract

Cervical cancer screening is a health intervention used on population of woman at risk of developing cervical cancer. This study aimed at determining the acceptance and practice of cervical cancer screening among female students in college of health science and technology, Port Harcourt. A descriptive research survey was used for the study and the sample size for this study was 220. It was obtained using the Fisher's formula. Results showed that Majority (86.8%) of the respondents knew that cervical cancer is the commonest cancer of the female reproductive tract and 91.8% agreed that Papilloma Virus (HPV) was the primary cause of cervical cancer. Majority (85.9%) of the respondents disagreed with the opinion that CCS should form part of the routine examination for women of menopausal and child bearing age, 55.9% of the respondents agreed that women who maintain good genital hygiene and one sex partner do not need CCS. All (100%) of the respondents agreed that non-existence of national free cervical screening among others increase the prevalence of cervical cancer in Nigeria, 93.2% disagreed that they look forward to being screened for cervical cancer screening, 73.2% claimed they would like to study about cervical cancer screening to develop my knowledge about womanhood. Based on the findings, the following conclusions were made: The attitude and practice of female health workers towards cervical cancer screening is poor most surprisingly these respondents were recruited from health training institute. There is no influence of the Profession on the attitude and practice of female health workers towards the uptake of CCS as almost all female respondents from the different department responded in a similar manner. Cervical cancer screening initiatives should therefore be aimed at reaching women who have never had a Pap smear done and all eligible women.

Keywords: *Acceptance, Practices, Cervical Cancer Screening, Female Students.*

Introduction

The burden of disease such as diseases caused by Human Immune Virus (HIV) and Human Papilloma Virus (HPV) is on the increase especially in developing countries where about half a million new cases are seen annually worldwide (Anorlu, 2006). Tate and Anderson (2002) have shown a statistical significant relationship between HIV, HPV and cervical abnormalities. Cancer is responsible for about 51 million deaths yearly, out of which cervical cancer accounts for about 8.5%, most of which occurring in the developing countries including Nigeria (Anorlu, 2006). Carcinoma of the cervix is associated with a lot of risk factors such as early age at first sexual intercourse, multiple male sexual partners, male sexual partners who have had multiple partners, early age at first birth, multiparty, smoking, long-term use of oral contraceptive pills and immuno suppressed states (Anorlu, 2006).

Prevention can be achieved by immunizing young girls between the ages of 9-16 (before the age of sexual debut) while cervical screening is used for early detection (WHO, 2006). A key aspect of its prevention is the detection of the pre-malignant form by cervical screening; it is also one type of cancer that can be prevented and cured if detected early enough (Arevian, Noureddine & KabakianKhasholian, 2006). The long transition time from a premalignant lesion to frank cancer of the cervix affords ample time for early detection and nearly complete cure even in secondary health

care centres. This difference is attributed to effective national screening programs of cervical cytological testing (the Papanicolaou test) to identify cell abnormalities that may indicate or precede cervical cancer (Peto, Gilham, Fletcher & Matthews, 2004).

Some factors have been implicated in this tragic and unnecessary loss of lives. WHO (2006), observed that many women do not attend screening programmes because of ignorance of the risk for cervical cancer and/or the benefit of screening in its early detection and cure. Qiao (2008) from his clinical study reported that well organized cervical cancer prevention programmes based on primary screening with cervical cytology lead to impressive reductions in cervical cancer rates in developed Countries. Screening in the UK saves up to 5000 lives per year (Olaitan, 2008). Consequently in industrialized world, effective screening programme has helped identify precancerous lesions at a stage when they can be easily treated thereby leading to impressive reduction in cervical cancer death rates while lack of screening programmes in poorest countries means that the disease is not identified until it is too late resulting in high mortality (Qiao, 2008). This is similar to what is prevalent in Nigeria where most cervical cancer cases seen in health facilities are in stages II and above.

Cervical cancer screening is a health intervention used on population of woman at risk of developing cervical cancer (WHO, 2006). It is not undertaken to diagnose the disease but to identify individuals with a high probability of having or developing the disease at the precancerous stage. The individual may actually feel perfectly healthy and may see no reason to visit a health facility. Preventing the incidence of cancer causing Human papilloma virus infection, significantly reduces the incidence of cervical cancer and the burden of the sickness on women, family and the nation at large. There are different screening programmes that can be used to detect the precancerous changes so as to prevent the development of the diseases and curb its serious consequences. Some of these programmes include; visual method such as Pap smear or visual inspection with acetic acid (VIA), visual inspection with Lugol's iodine (VLI), care Human papilloma virus, HPV-DNA based screening among others. The screening programmes are performed by qualified health professionals and they serve as models to the public. They are generally believed to be well informed on health issues better than the public. Their attitude and practice transcends to society health behaviors (Ojiyi & Dike, 2010).

The more knowledgeable women are about Pap smear testing, the more likely they are to make a screening visit and to adhere to recommended follow-up for an abnormal result. Early detection is important in the management of cervical cancer, however most of the women in developing nations present advanced stages of the disease when nothing can be done for remedy (Ayinde, Omigbodun & Ilesanmi, 2004). Several reasons for the late presentations have been noted, namely ignorance about the symptoms, fatalistic attitude (fear of death from the disease), readiness to attribute neoplastic disease to supernatural causes thereby resulting in delays in seeking help, fear of confirmation of suspicion and of course the perennial problem of low coverage of the population by health centre services especially the rural areas. Furthermore, it has been reported that 50-90% of women who develop or die from cervical cancer have never been screened. Knowledge about the disease and risk factors are therefore important in determining appropriate health seeking behaviours with the aim to prevent invasive cancer and reduce mortality rates.

Nigeria has not had a great deal of success in implementing effective cervical cancer screening till date. In Nigeria, screening for cervical cancer is an opportunistic procedure which is dependent on the woman's initiative and/or that of her health care provider. This inadvertently leads to inappropriate utilization of screening facilities and lack of follow-up of abnormal results. There is currently no mass screening program for the detection of cervical cancer in Nigeria. Services are only available in teaching hospitals and are not adequately utilized (Ngoma, 2006).

Statement of the Problem

Generally the knowledge and care-seeking attitude for cervical cancer in Nigeria is so low that majority of the affected patients present late in the hospital when little or nothing can be done again. The location of women seems to be affecting their knowledge of cervical cancer screening for early detection. It seems that they still ignore the occurrence and the likelihood of cervical cancer prevalence among women. The researchers observed that despite a good number of health campaigns, warning labels, doctor's advice and pleadings, more than 50% of female students in College of Health Science and Technology have not been exposed to cervical screening and there is a lack of knowledge regarding risk factors related to cervical cancer and the screening for and prevention of cervical cancer. Female Health workers are expected to have a better understanding of the benefits of cervical screening than women in other spheres of life, thus be effective agents in creating and disseminating information about the importance of the screening programmes for the sexually active, post menopausal women as well as immunization for the girl child between the ages of 9- 16 years by example. Thus their attitude and practice towards screening for cervical cancer have a far reaching implication to its acceptance consequently contributing to the reduction in death of women from cervical cancer.

Objectives

Specifically, the study was designed to:

1. determine the Knowledge of female health students towards cervical cancer screening;
2. determine the attitude of female health students towards cervical cancer screening;
3. determine the practice and influence of profession on the practice of female health workers towards cervical cancer screening .

Research Design

A descriptive research was used for this study. This was considered appropriate and adopted because it will describe psychosocial factors and knowledge of cervical screening among female student. It was considered appropriate to discover the source of information, the level of cervical cancer knowledge and the trend of cervical cancer screening among women.

Sample and Sampling Technique

The sample size for this study was 220 and it was obtained using the Fisher's formula:

$$N = Z^2 pq/d^2$$

Hence, 220 respondents were selected via multistage sampling technique. The first stage involved selection of 5 schools from the 10 schools in the department. The second stage involved the selection of one department from the pre-selected school using simple random sampling technique by balloting system, giving us 5 departments to work with. The fourth stage involved the selection of 44 study participants from each pre-selected department via convenience sampling (also known as accidental sampling). A structured questionnaire was used to elicit information from respondents. This instrument was self-administered to 220 respondents and was collected on the spot.

Result

Table 1: Knowledge of Cervical Cancer and Screening

Knowledge Response	Agreed		Disagreed		
	f	(%)	f	(%)	
Cervical cancer is the commonest cancer of the female reproductive tract	191	(86.8)	29	(13.2)	220 (100)
The primary cause of cervical cancer is the Human Papilloma Virus (HPV)	202	(91.8)	18	(8.2)	220 (100)
The Human Papilloma Virus (HPV) spreads through sexual intercourse	98	(44.5)	122	(55.5)	220 (100)
Cervical cancer is caused by having multiple sexual partners	157	(71.3)	63	(28.7)	220 (100)
There is a relationship between HIV and cervical cancer	109	(49.5)	111	(50.5)	220 (100)
Visual method such as Pap smear or visual inspection with acetic acid (VIA) are methods used for cervical cancer screening	178	(80.9)	42	(19.1)	220 (100)

Table 1: shows the scores on knowledge of cervical cancer and screening. Majority (86.8%) of the respondents knew that cervical cancer is the commonest cancer of the female reproductive tract and 91.8% agreed that Papilloma Virus (HPV) was the primary cause of cervical cancer. Less than half (44.5%) of the respondent agreed that the Human Papilloma Virus (HPV) spreads through sexual intercourse, 71.3% of the respondents agreed that cervical cancer is caused by having multiple sexual partners, 49.5% agreed that there is a relationship between HIV and cervical cancer, and 80.9% also agreed that visual method such as Pap smear or visual inspection with acetic acid (VIA) are methods used for cervical cancer screening.

Table 2: Attitude of Female Health Workers towards the Uptake of Cervical Cancer Screening

Attitude Responses	Agree f (%)	Disagree f (%)	Total f (%)
The proposal that all women of menopausal and childbearing age should present themselves for cervical cancer screening is a good one	25 (11.4)	195 (88.6)	220 (100)
Cervical cancer screening should form part of the routine examinations for women of menopausal and childbearing age	31 (14.1)	189 (85.9)	220 (100)
Women that maintain good genital hygiene and one sex partner do not need cervical cancer screening	123 (55.9)	97 (44.1)	220 (100)
Non- existence of national free cervical screening among others increase the prevalence of cervical cancer in Nigeria	220 (100)	0 (0)	220(100)
I look forward to being screened for cervical cancer screening	15 (6.8)	205 (93.2)	220(100)
I would like to study about cervical cancer screening to develop my knowledge about womanhood	59 (26.8)	161 (73.2)	220 (100)

Table 2 show that a good number (88.6%) of the respondents did not agreed to the opinion that all women of child bearing age should participate in the uptake of CCS while a few 11.4% agreed to it. Also, a high number (85.9%) disagreed with the opinion that CCS should form part of the routine examination for women of menopausal and child bearing age, only a few 14.1% agreed. 55.9%of the respondents agreed that women who maintain good genital hygiene and one sex partner do not need CCS while 44.1% (n= 97) disagreed. All respondents (100%) agreed that non-existence of national free cervical screening among others increase the prevalence of cervical cancer in Nigeria, 93.2% disagreed to look forward to being screened for cervical cancer screening, only 6.8% agreed. 73.2% disagreed that they would like to study about cervical cancer screening to develop knowledge about womanhood while only 26.8% agreed.

Table 3: Practice and Influence of Profession on the Practice of Cervical Cancer Screening among Female Health Students

Practice and Influence of Profession	Community Health n=44		Pharmacy n=44		Medical Lab n=44		Radiography n=44		Environmental n=44	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
I have voluntarily presented myself for cervical cancer	2 (5%)	42 (95%)	3 (7%)	41 (93%)	6 (13%)	38 (83%)	1 (2%)	43 (98%)	3 (7%)	41 (93%)
I have encouraged and /or referred some friends and relations /patients to present themselves for the screening exercise	34 (77%)	10 (23%)	12 (27%)	32 (73%)	29 (66%)	15 (34%)	29 (66%)	15 (34%)	6 (13%)	38 (83%)
I will willingly join a group that is engaged in educating the populace on cervical cancer screening in the community	37 (84%)	7 (16%)	5 (11%)	39 (89%)	40 (91%)	4 (8%)	17 (39%)	27 (61%)	31 (70%)	13 (30%)
I will be willing to follow-up cases who have tested positive to cervical cancer smear test	35 (80%)	9 (20%)	6 (13%)	38 (83%)	31 (70%)	13 (30%)	5 (11%)	39 (89%)	2 (5%)	42 (95%)
I will subject myself for cervical cancer treatment if I test positive	16 (36%)	28 (63%)	3 (7%)	41 (93%)	37 (84%)	7 (16%)	12 (27%)	32 (73%)	14 (77%)	30 (23%)

Table 3 shows that out of the 44 respondents in each department (profession) only 5% community health, 7% pharmacy, 13% medical laboratory, 2% radiography student and 7% Environmental health students have voluntarily presented themselves for cervical cancer screening. 77% community health, 27%, pharmacy, 66% medical laboratory, 66% radiography and 13% environmental health students have encouraged and /or referred some friends and relations /patients to present themselves for the screening exercise. 84% community health, 16% pharmacy, 91% medical laboratory, 39% radiography and 70% environmental health students would willingly join a group that is engaged in educating the populace on cervical cancer screening in the community. A high number (80%) of community health students, 13% pharmacy, 70% medical laboratory, 11% radiography and 5% environmental students are willing to follow- up cases who have tested positive to cervical cancer smear test. While 36% of community health students, 7% pharmacy students, 84% medical laboratory students, 27% radiography students and 77% environmental health students will subject themselves for cervical cancer treatment if tested positive.

Discussion

This study was carried out among selected female health students in River State College of Health Science and management Technology. It was discovered that though health students, respondents had varied attitude and opinion on the practice of cervical cancer screening among female health students.

Knowledge of Cervical Cancer and Screening

The level of knowledge found in this study shows that majority (86.8%) of the respondents knew that cervical cancer is the commonest cancer of the female reproductive tract and 91.8% agreed that Papilloma Virus (HPV) was the primary cause of cervical cancer. About 44.5% of the respondents agreed that the Human Papilloma Virus (HPV) spreads through sexual intercourse, 71.3% of the respondents agreed that cervical cancer is caused by having multiple sexual partners, 49.5% agreed that there is a relationship between HIV and cervical cancer, and 80.9% also agreed that visual

method such as Pap smear or visual inspection with acetic acid (VIA) are methods used for cervical cancer screening. This is in line with the study of Oyedunni and Opemipo (2012) whose result revealed that majority 407 (80.9%) of the respondents knew that cervical cancer is the commonest cancer of the female reproductive tract and 54.5% correctly identified Papilloma Virus (HPV) as the primary cause of cervical cancer. A small percentage (37.4%) of the respondents said that cervical cancer mostly affects women from the age of 50 years and above, while 33.0% reported that cervical cancer is common in women between 40 and 49 years. Very few 7.0% said that cervical cancer is common in women below 30 years of age. Majority (77.9%) of the respondents had sexual intercourse at early age, heredity (72.6%) and the Human Papilloma Virus were risk factors for cervical cancer (70.4%) while 41.9% erroneously mentioned HIV as a risk factor for cervical cancer.

Ojiyi and Dike (2010) explained that there are different screening programmes that can be used to detect the precancerous changes so as to prevent the development of the diseases and curb its serious consequences. Some of these programmes include; visual method such as Pap smear or visual inspection with acetic acid (VIA), visual inspection with Lugol's iodine (VLI), care Human papilloma virus (careHPV), HPV-DNA based screening among others. The screening programmes are performed by qualified health professionals and they serve as models to the public. They are generally believed to be well informed on health issues better than the public. Their attitude and practice transcends to society health behaviors.

Attitude of Female Health Students towards the Acceptance of Cervical Cancer Screening (CCS)

From the result in table 2, a good number (88.6%) of the respondents did not agreed to the view that all women of child bearing age should participate in the uptake of CCS while a few 11.4% agreed to it. Also, 85.9% of the respondents disagreed with the opinion that CCS should form part of the routine examination for women of menopausal and child bearing age, only a few 14.1% agreed. More than half (55.9%) of the respondents agreed that women who maintain good genital hygiene and one sex partner do not need CCS while 44.1% disagreed. All (100%) respondents agreed that non- existence of national free cervical screening among others increase the prevalence of cervical cancer in Nigeria, 93.2% of the respondents disagreed to look forward to being screened for cervical cancer screening, only 6.8% agreed. A higher number (73.2%) of the respondents do not accept that they would like to study about cervical cancer screening to develop their knowledge about womanhood while only 26.8% agreed.

In a similar study conducted by Obalase et al. (2017) it was revealed that women generally had poor attitude towards CCS: as 91.7% of the respondents did not support the opinion that all women of child bearing age should participate in the uptake of CCS while a few (8.3%) supported it. Majority of the health workers (92.6%) did not support that CCS should be for only those in O & G unit while 7.3% supports it. Majority (92.3%) disagreed with the opinion that CCS should form part of the routine examination for women of menopausal and child bearing age, only a few (7.6%) agreed. Small percentage (13.7%) of the respondents agreed that women who maintain good genital hygiene and one sex partner do not need CCS while 86.3% disagreed. less than half (45.3%) of the respondents agreed that subjecting self for cervical cancer screening amounts to debasing one's womanhood but others 44.7% did not. Also 36.4% of the respondents supported that participating in CCS should be made compulsory for all female health workers while 63.6% did not. About 42.9% of the respondents favoured the view that lack of national cervical cytology screening, political will, funding and poor advocacy for CCS are responsible for high prevalence of cervical cancer while 57.1% did not favour this opinion.

Acceptance of the Practice of Cervical Cancer Screening among Female Health Students

A total of 220 respondents were involved in this study with 44 female students from each of the preselected departments. Of the 44 respondents in each department (profession) only 2 community health students, 3 pharmacy students, 6 medical laboratory students, 1 radiography students and 3 environmental health students have voluntarily presented themselves for cervical cancer screening. 34 community health, 12 pharmacy, 29 medical laboratory, 29 radiography and 6 environmental health students have encouraged and /or referred some friends and relations /patients to present themselves for the screening exercise. 37 community health students, 5 pharmacy students, 40 medical laboratory students, 17 radiography students and 31 environmental health students would willingly join a group that is engaged in educating the populace on cervical cancer screening in the community. 35 community health students, 6 pharmacy students, 31 medical laboratory students, 5 radiography students and 32 environmental students are willing to follow- up cases who have tested positive to cervical cancer smear test. 16 community health students, 3 pharmacy students, 37 medical laboratory students, 12 radiography students and 14 environmental health students will subject themselves for cervical cancer screening if tested positive.

In a similar study conducted by Ehiemere et al. (2015) only 168 out of 234 nurses, 63 out of 75 doctors, 14 out of 22 pharmacists 8 and 6 of medical laboratory scientists and radiographers respectively have voluntarily presented themselves for cervical cancer screening. 53 of the nurses, 8 of the doctors, 4 of the pharmacists, none of the medical laboratory scientists and 1 of the radiographers have encouraged and /or referred some friends and relations /patients to present themselves for the screening exercise. 14 the nurses, 5 of the doctors, none of the pharmacists, 2 of the medical laboratory scientists and 2 of the radiographers have conducted cervical cancer screening on patients requiring such services. 195 the nurses, 65 of the doctors, 20 of the pharmacists, 9 of the medical laboratory scientists and 6 of the radiographers have interpreted the result of pap smear test to patients that have undergone the test. 33 of the nurses, 15 of the doctors, 2 of the pharmacists, 5 of the medical laboratory scientists and 3 of the radiographers follow- up cases who have tested positive to cervical cancer smear test. Also in a study conducted by Mutyaha et al. (2006) study revealed that 81% eligible respondents had never been screened; Dim, et al., (2008) observed that only 4.4% out of 159 respondents in their study had availed themselves of the opportunity for the test.

Conclusion/Recommendation

Based on the findings, the following conclusions were made: Female health workers involved in the study demonstrated negative attitude towards cervical cancer screening. The attitude and practice of female health workers towards cervical cancer screening is poor most surprisingly these respondents were recruited from health training institute. There is no influence of profession on the attitude and practice of female health workers towards the uptake of CCS as almost all the female respondents from the different department responded in a similar manner. Therefore, the study recommends that cervical cancer screening initiatives should be aimed at reaching women who have never had a Pap smear done and to all eligible women.

References

- Anorlu, R.I. (2006). Tumours of the cervix uteri. In A. Agboola (Ed.), *Textbook of obstetrics and Gynaecology for medical students (2nd ed.)*, 167 -182. Ibadan: Heinemann.
- Arevian. M, Nouredine, S & KabakianKhasholian T. (2006). Raising awareness and providing free screening improves cervical cancer screening among economically disadvantaged Lebanese/Armenian women. *Journal of Transcultural Nursing*, 17:357–65

- Ayinde, O.A, Omigbodun, A.O. & Ilesanmi, A.O. (2004). Awareness of cervical cancer, papanicolaou's smear and its utilisation among female undergraduates in Ibadan. *African Journal of Reproductive Health* (8),68-80.
- Dim, C.C., Ekwe, E., Madubuko, T., Dim, N.R. & Ezegwui, H.U. (2008). Improved awareness of pap smear may not affect its use in Nigeria: A case study of female medical practitioners in Enugu South – Eastern Nigeria. *Tropical Journal of Obstetrics and Gynaecology*. 25(1);1-2.
- Ehiemere, I.O., Maureen, D.F., & Robinson-Bassey, G.C. (2015). Attitude and practice of cervical cancer screening among female health workers in university of Port Harcourt teaching hospital, Rivers State . *Journal of Research in Nursing and Midwifery (JRNM)*, 4 (4),072-082.
- Mutyaha, T., Mmiro, F. & Weiderpass, E. (2006). Knowledge, attitudes and practice on cervical cancer screening among the medical workers of Mulago hospital, Uganda. *BMC Medical Education*, 6 (13), 6-13.
- Ngoma, T. (2006). World Health Organization cancer priorities in developing countries. *Ann. Oncol.*, 17 (8),9-4.
- Obalase, S.B., Akindutire, I. O., Adelusi, J. O. & Adegboro, J. S. (2017). Knowledge and awareness of cervical cancer screening among women of reproductive age in Ikere Ekiti Local Government Area, Ekiti State, Nigeria. *International Journal of Caring Sciences*, 10 (2),755
- Obalase, S. B., Akindutire, I. O., Adelusi, J. O. & Adegboro, J. S. (2017). Knowledge and awareness of cervical cancer screening among women of reproductive age in Ikere Ekiti Local Government Area, Ekiti State, Nigeria. *International Journal of Caring Sciences*, 10 (2),755
- Ojiyi, E. & Dike, E. (2010). The influence of sexual attitudes on genital human papilloma virus infection. *Port Harcourt Medical Journal*, 4,135 – 140.
- Oyedunni, S. A. & Opemipo, O.M. (2012). Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. *The Pan African Medical Journal*, 11, (69),1580.
- Peto, J., Gilham, C., Fletcher, O. & Matthews, F.E. (2004). The cervical cancer epidemic that screening has prevented in the UK. *Lancet*, 364,249- 256.
- Qiao, Y. (2009). A new HPV-DNA test for cervical cancer screening in developing regions: A cross sectional study of clinical accuracy in rural China. *Cancer in Africa, Epidemiology and Prevention IARC Publications* No 153.
- Tate, D.R. & Anderson, R.J. (2002). Recrudescence of cervical dysplasia among women who are infected with the human immunodeficiency virus: A case-control analysis. *American Journal of Obstetrics & Gynecology*, 186, 880-882.
- World Health Organization (2006). *Comprehensive cancer control. A guide to essential practice*. Geneva: World Health Organization

Occupational Stress and Selected Psychosomatic Disorders among Pastors in Nyo-khana District in Khana Local Government Area

Dornu Gbeneneh, Ovie Agada

School of Environmental Health, Rivers State College of Health Science and Management
Technology, Rumueme,
Port Harcourt.

&

Nwite Deekor

Department of Estate Management and Valuation, School of Environmental Health Technology,
Ken Saro Wiwa Polytechnic, Bori.

Abstract

This study investigated occupational stress and selected psychosomatic disorders among pastors in Nyo-Khana District in Khana Local Government Area of Rivers State. The study adopted the descriptive survey design. The population for the study was 520 pastors serving in the study area. A structured questionnaire that had its reliability co-efficient (r) as 0.81 was used as instrument for data collection. Descriptive statistics in percentage and frequency distribution tables, Pears Product Moment correlation co-efficient set at $P > 0.1$ (2 – tailed) and Cronbach Alpha were used in analyzing the data generated for the study. Findings revealed that 85.22% of pastors have had migraine, 2.4% of pastors have had breathing problems and there was significance relationship between occupational stress and gastrointestinal problems ($r = 0.806$ & 0.686) respectively. The study also revealed that there was low significant relationship between occupational stress and cardiovascular diseases ($r = 0.218$ & 0.218) respectively. In order to reduce stress to the bearest minimum among pastors, the study recommended that pastors should endeavor to go for medical check-up from time to time and where they are diagnosed to have diseases, they should take their drugs as prescribed by qualified medical personnel, besides taking time off their job to relax, rest and sleep well-among others.

Keywords: Occupational, stress, psychosomatic, disorders, pastors.

Introduction

Stress is part of man's daily existence. In order to do well in life, man must allow himself to be exposed to certain amount of stress which is called eustress or positive stress. The numerous achievements which society has recorded today are traceable to eustress. When stress is in small doses, stressors can help give us increased energy and alertness, even helping to keep us focused on the problem at hand, and people may refer to the experience of this type stress as feeling “pumped” or “wired” (Stoppler & Jerry, 2018).

As the level of pressure gets too great, stress eventually surpasses our ability to cope with it in a positive way (Stoppler & Jerry, 2018). When this happens, people describe themselves as being stressed out, burned out, or at wits end. At this point, it is important to find positive end productive ways to deal with the stress and more important to address the person or situation that is causing the stress (Stoppler & Jerry, 2018).

According to Cleveland Clinic (2015) stress is the body's reaction to any change that requires an adjustment or response. In doing so, the body react to these changes with physical, mental and emotional responses. Stress can be experienced from the environment, body, one's thought and even positive life changes such as a promotion, a mortgage or birth of a child (Cleveland Clinic, 2015). Similarly, stress, in everyday terms is a feeling that people have when they are overloaded and struggling to cope with demands (Nordgrist, 2017). He stated that stress, can be related to finance, work, relationships, and other situations, but anything that posses a real or

perceived challenge or threat to a person's well-being can cause stress.

When stress is too much for an individuals to handle, it manifests itself in signs and symptoms. The signs and symptoms of stress as listed by Helpguide (2019) include cognitive symptoms which involves memory problems, inability to concentrate, poor judgment, seeing only the negative, anxious or racing thought and constant worrying; emotional symptoms: depression or general unhappiness, anxiety and agitation, moodiness, irritability, or anger, feeling overwhelmed, loneliness and isolation and other mental or emotional health problems; physical symptoms include aches and pains, diarrhoea or constipation, nausea, dizziness, chest pain, rapid heart rate, loss of sex drive and frequent colds or flu. Behavioural symptoms of stress according to HelpGuide include eating more or less, sleeping too much or too little, withdrawing from others, procrastinating or neglecting responsibilities, using alcohol, cigarette or drugs to relax and nervous habits like nail-biting and pacing.

It is necessary to point out here that when stress has actually affected the body, it results in disorders which are known as psychosomatic disorders or diseases which are the main focus of this article. Psychosomatic disorder or illness is any illness that has physical symptoms, but has the mind and emotion as its origin (Schimelpfening, 2019). A psychosomatic illness originates from emotional stress or damaging thought patterns and progresses as with physical symptoms, usually when a person's immune system is compromised due to stress, Schimelpfening added. In the same vein, the Editors of Encyclopaedia Britannica said psychosomatic disorder is also called psychophysiological disorder which is a condition that psychological stresses adversely affect physiological (Somatic) functioning to the point of distress. It is a condition of dysfunction or structural damage in bodily organs through an inappropriate activation of the involuntary nervous system and the glands of internal secretion which is responsible for the psychosomatological concomitant of an emotional state (The Editors of Encyclopaedia Britanical). However, how the mind can affect actual physical diseases (rashes, blood pressure, etc) is not clear (Henderson, 2016), although, there is also some evidence that the brain may be able to affect certain cells of the immune which is involved in various physical diseases, Henderson posited.

Stress only becomes an issue when the amount of it that is available to man is too much to handle. Suyarman (2017) gave examples of psychosomatic diseases to include pain, hysteria and headache. While Newsmedical (2018) submitted that examples of psychosomatic diseases include diabetes, cancer, hypertension, heart disease, associated arteriosclerosis, respiratory problems (bronchial problems), gastrointestinal problems (peptic ulcer formation). Other illness conditions which are related to stress according to Newsmedical (2018) include body dysmorphic disorder which is a condition a person gets stressed about; others include appearance of his/her body such as wrinkles and obesity which results in severe anorexia; pain disorder: here, a person senses severe pain over any part of the body, which might last for six months to one year, without any physical cause, for example, migraine, tension, headaches, backpain and so on (Newsmedical, 2018). Another health condition that is associated with stress is hypochondriasis. This is a condition in which the person believes a minor physical symptoms to be a grave diseases, for example, concluding the temporary flatulence problems into colon cancer (Newsmedical, 2018). Somatization disorder is a stress related condition in which an individual feels frequent headaches and diarrhoea, which does not have any relation to serious medical condition (Newsmedical, 2018). There is also what Newsmedical described as conversion disorder which is when a person who does not have any medical illness experiences, neurological symptoms such as seizures, which have an effect on movement and senses.

In spite of an elaborate consideration of psychomatic diseases in this article, particular attention is given to hypertension, stroke, breathing problems, lost of appetite for food, ulcer and migraines. According to Mayo Clinic Staff (2019) your body produces a surge of hormones when you are in a stressful situation. These hormones temporarily increase your blood pressure by causing

your heart to beat faster and your blood vessels to narrow (Mayo Clinic Staff, 2019). Also Mayo Clinic Staff submitted that there is no proof that stress by itself causes long-term high blood pressure, however, reacting to stress in unhealthy ways can increase your risk of high blood pressure, heart attacks and strokes. Conditions that serve as stressors here include anxiety, depression, isolation from friends and family, eating unhealthy foods, drinking too much alcohol, smoking and so on. It should, however, be noted that, overall, studies show that stress does not directly cause hypertension, but can have an effect on its development (Kulkarni, et al., 1998). Stroke is a disease that affects the arteries leading to and within the brain (American Heart Association, 2019). It is referred to as the No. 5 cause of death and a leading cause of disability in the United states. A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or burst (or ruptures) (American Heart Association, 2019). When that happens, part of the brain cannot get the required oxygen and nutrients, thereby leading to the death of brain cells.

According to Heart Matters Magazine (2019) research has shown how stress can lead to stroke, as feeling constantly stressed could increase your risk of heart and circulatory diseases. Continuing, the magazine said, “feeling stressed all the time could raise your risk of heart attack and stroke, according to a new study”. The research which is published in the “Lancet” the magazine said had received widespread media coverage. The study showed for the first time how stress could be linked to heart and circulatory diseases in humans. The research which was conducted by researchers from Harvard University in the United States discovered that constant stress has been linked to higher activity in an area of the brain linked to processing emotions, and an increased likelihood of developing heart and circulatory diseases. The researchers noted that stress could be as important a risk factor as smoking or blood pressure.

The research by Researchers from Harvard University as reported by Heart Matters Magazine (2019) said that the research was made up of two studies. The larger study was made up of 293 people, looked at their brain scans, and suggested that when you are stressed, your amygdala (an area of the brain that deals with stress) signals to the bone marrow to produce extra white blood cells. This in turn causes the arteries to become inflamed. It is already known that inflammation is involved in the process that leads to heart attacks, angina and strokes. The magazine went further to report that when you experience stress, the amygdala sends a distress signal to your hypothalamus, which then communicates this to the rest of your body so it is ready to fight or for flight.

The second (smaller) study, Heart Matters magazine (2019) said looked specifically at inflammation of the arteries and activity in the amygdala in highly stressed people and again found an association between raised amygdala activity and more arterial inflammation. People who rated themselves as more stressed were also more likely to have higher levels amygdala. According to MedlinePlus (2019) breathing problems occur when you are short of breath, it is hard in uncomfortable for you to take in the oxygen your body needs. Medline plus added that you may feel as if you are not getting enough air, and sometimes you can have mild breathing problems because of a stuffy nose or intense exercise, noting that shortness of breath can also be a sign of a serious disease. MedlinePlus said that the following conditions can make you feel short of breath.

1. Lung conditions such as asthma, emphysema, or pneumonia
2. Problems with your trachea or bronchi, which are part of your airway system.
3. Heart diseases can make you feel breathless if your heart cannot pump blood to supply oxygen to your body.
4. Anxiety and panic attacks
5. Allergies.

Medline Plus (2019) recommended that if you often have trouble breathing, it is important to find out the cause. Cadiosmart (2019) opined that stress can cause shortness of breath or make it worse. Thus Cardiosmarth said, can make your shortness of breath even worse as being anxious

tightens the muscles that help you breathe, and this makes you start to breath faster. As you get more anxious, your breathing muscles get tired. Sissors (2019) said that there is an association between nausea and a lack of appetite and that nausea can often lead to lack of appetite and a person may feel nauseated if he/she has not eaten enough. Loss of appetite means not feeling hungry, eating much less than usual or not eating at all (Sissors, 2019). In some cases, Sissors observed, loss of appetite and nausea can result from intensive exercise or have a psychological cause such as stress. It should be noted that loss of appetite is not narrowed to stress as there are other facts such as diseases conditions or treatment being received for a diseases condition among others, can also lead to loss of appetite.

Villines (2019) posited that a stress ulcer causes sore in the upper gastro intestinal tract which damage the gastrointestinal lining and cause a pain and a feeling of burning as well as an increased risk of infection. The damage that takes place involves minor irritation to severe bleeding. Villinese opined that ulcers are common among people under immense physical stress, such as those in intensive care units. Previous studies suggested that pastors are exposed to enormous stress. It should be noted that stress ulcers come on suddenly as against peptic or stomach ulcers that come on gradually. This may be because stress increases stomach acid (Villines, 2019). Stress can play many roles in migraine as it can exacerbate migraine attack frequently, or be a premonitoring feature, prognostic factor, or a consequence of an attack (Mdedge, Neurology, 2019). In addition, stress can be a risk factor for the onset of migraine and is a common trigger attack (Mdedge, Neurology, 2019).

Stress is the factor listed most often by migraine sufferers as a trigger for their attacks, but in addition, there is evidence that stress can help initiate migraine in those predisposed to the disorder, and may also contribute to migraine chronification (Sauro, et al, 2009). Sauro, et al submitted that migraine attacks themselves can act as a stressor, thereby potentially leading to a vicious of increasing migraine frequency. Since the important factor in the stress migraine interaction is likely the individual's response to Stressors themselves, the acquisition of effective stress management skills has the potential to reduce the impact of stressors on those with migraine (Sauro, et al, 2009).

HRzone (2019) defined occupational stress as the physiological and physical effects of negative activity in the workplace as a result many factors including external events, internal events, job demands and colleague behaviour Occupational stress is stress related to an employee's work (Market Business News, 2019). This is stress that builds up in the workplace. Helping to deal with unexpected responsibilities may trigger this type of stress, or if workers have to deal with pressures for which they do not have the necessary training or skills, their ability to cope suffers, Market Business News added.

Falae (2018) looked at who a pastor is, anchoring her definition on the Bible. According to Falae, a pastor is a person generally regarded as “the feeder of the sheep” or “helper”. Concordia Theological Seminary (2019) took a step further by stating that a Pastor is one who leads worship, preaches the sermon, gives us Christ's body and blood, the first one to the hospital and the last one at the grave side. A pastor's work involves all of these and more. However, Gowulltiere (2019) said “pastors and other ministry leaders are often under so much stress that they may find themselves just hanging on by a thread, about to burn out from exhaustion or blow out morally”. Since pastor's job is not just uncomfortable but can also be debilitating or ruin families or end careers and lead to emotional, spiritual or physical burnout the suggestions of Lathrop (2014) become necessary. Lathrop submitted that pastors have to be very conscious of their stress level and have ways to moderate it. Some of the ways pastors can manage stress according to Lathrop are have a mentor, find other pastors friends, work out, invest in your family and seek professional growth.

Globally, most studies conducted among pastors have agreed to very high level of occupational stress among them. Surprisingly, most studies conducted in relation to pastors worldwide have also agreed to very high level of job satisfaction among pastors. It is, however,

necessary to point out at this point that studies concerning pastors in Nyokhana District were almost in non-existence until 2017 and 2018 when studies were conducted on pastors in Nyokhana District in Khana Local Government Area of Rivers State and the discoveries of the studies were no deviation from global findings concerning occupational stress and job satisfaction among pastors. For instance, Zyistoa (2016) while reporting about Larry's death who was a pastor said "Larry's depression, which was in part biological, had likely worsened from diabetes medication. Other issues that were responsible for Larry's death included church conflicts and unworthy comparison with other ministers. Hannaford, a clinical psychologist who consults to the Southern Baptist Convention (SBC) in Southern Carolina town said he believes that the rate in suicide among pastors in Southern Carolina town has increased during his 30 years of practice and that the increase will continue. He was noted as saying, "Being a Pastor is a dangerous job especially in certain evangelical circles where you have more of a fundamentalist orientation theologically" (Xyistra, 2016).

According to the Pentecostal theology Group (2017) citing the New York Times (2010) members of the clergy now suffer from obesity, hypertension and depression at rates higher than most American and that the use of antidepressant has risen while their life expectancy has fallen, adding that many would change jobs if they could. In the same vein, Barna Research Group (2013) said Pastors in the United States are not immune to mental health struggles, almost half have faced depression, while one in five pastors has struggled with an addiction – most commonly to porn. The source stated that the bad news for the church is the graying of American clergy as other careers woo millennials of young people and older generations struggle to hand the baton to young pastors as the median age of pastors has risen from 44 to 54 over the last 25 years. This situation could be attributed to how the younger generation sees pastoral job as being very stressful.

Globally available researches agree that the pastor's job is very stressful and therefore results in the associated diseases such as mentioned above. The interest of this article is to find out if the health of pastors in Nyokhana District have any way been affected in terms of selected psychosomatic diseases as they "shepherd" their churches. It should be pointed out that most of the studies done in Nigeria and outside Nigeria have agreed that occupational stress among pastors has indeed translated into psychosomatic diseases.

Statement of the Problem

It is impossible to live in a world without stress (Pastor Care Inc., 2010). Pastors that are working in Nyokhana District are not immuned to stress as there are some indicators that suggest that they are faced with stress. Such indicators are handling of churches with few members very busy schedules, low pay, insecurity occasioned by cult wars, support system among others. Observation has indeed revealed that some pastors in the District are regular visitors to medicine stores and other health facilities within and outside the area of study.

Pastors despite their spiritual height, are people that are faced with lack of the basic necessities of life like food, clothing, shelter, and education of children. Many of them can be seen struggling under the weight of these needs. People that are close to pastors can bear witness to this claim, as they (pastors) confide in them how difficult it has been for them to meet up with the basic things of life. It was on the basis of the foregoing that this study was conducted to investigate occupational stress and selected psychosomatic disorders among pastors in Nyo-khana District in Khana Local Government Area of Rivers State.

Objectives of the Study

1. To determine the prevalence of occupational stress-related migraine among pastors in Nyo-Khana District in Khana Local Government Area.
2. To find out the breathing problems as a result of occupational stress among pastors in Nyo-

khana District in Khana Local Government Area.

3. To determine the relationship between occupational stress and gastrointestinal problems (lost of appetite and ulcer) among pastors in Nyo-khana District in Khana Local Government Area.
4. To find out the relationship between occupational stress and cardiovascular diseases (hypertension and stroke) among pastors in Nyo-khana District in Khana Local Government Area.

Research Questions

The following research questions were formulated to guide the study

1. What is the prevalence rate of pastors that have had migraine because of occupational stress in Nyo-khana District in Khana Local Government Area?
2. What is the prevalence rate of pastors that have had breathing problems as a result of occupational stress in Nyo-khana District in Khana Local Government Area?

Research Hypotheses

1. There is no significant relationship between occupational stress and gastro-intestinal problems (loss of appetite and ulcer) among Pastors in Nyo-Khana District.
2. There is no significant relationship between occupational stress and cardiovascular diseases (hypertension and stroke) among Pastors in Nyo-Khana District.

Population of the Study

The population of the study consisted of all denomination pastors in Nyo-khana District in Khana Local Government Area of Rivers State. However, the study did not include Assistant Pastors as they appeared to lack the necessary experience concerning their job.

Sample Size and Sampling Techniques

A sample size of 520 pastors which was made up of the entire population of Pastors except Assistant Pastors in Nyo-khana District was used for the study. Since the population of the study was not large, there was no need to sample it. To lend his position to this, Eke (2004 in Gbeneneh, 2017) opined that the whole population of the study can be used as sample for the study when it is not too large.

Instruction for Data Collection

A structured questionnaire was used for this study. The instrument was divided into two sections: A and B, Section A of the instrument was concerned with personal data of the respondents and section B of it dealt with questions that related to the research proper. It is important to point out here that modified Likert Scale questionnaire type was used in framing some of the questions in selection B which tot the response arrangement of Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD). The ranking order was in 4,3,2 and 1 depending on whether the questions were negative or positive. There were also "Yes" or "No" response format among other questions in the questionnaire.

Method of Data Collection

Personal contact was used in serving copies of the questionnaires to the respondents. A total number of 520 copies of the questionnaire were served to the respondents to agree with the sample size of the study. It should be noted that out of the total number of copies of the questionnaire that was served, nine (9) copies were improperly filled, eleven (11) copies of the instrument could not be retrieved because of non-availability of the respondents, thereby bringing the total number to twenty (20).

Therefore, a total number of 500 copies instead of 520 of the instrument was used for analysis.

Method of Data Analysis

Descriptive statistics in percentage and frequency distribution Tables were employed in analysing the data collected for the study. Also, Pearson Product Moment Correlation Co-efficient was used to test the hypotheses of the study which was set at 0.01 level of significance. Also, the reliability coefficient (r) for the study was arrived at through the aid of Crumbach Alpha.

Results

Table 1. The percentage of Pastors that have had migraine as a result of occupational stress in Nyo-Khana District (N = 500).

Item	N	Yes	No
Have you had migraine that was traceable to occupational stress?	500	426(85.2%)	74(14.8%)

From Table 1 above, 426 respondents, representing 85.2% of the total respondents, said that they have had migraine that was traceable to occupational stress while 74 respondents representing 14.2% of the studied population, said “No”, that they have not had migraine that was traceable to occupational stress. It is crystal clear that majority of Pastors in Nyo-khana District have had migraine due to stress associated with their work as pastors.

Table 2. The percentage of pastors that have had breathing problems due to occupational stress in Nyo-khana (N = 500).

Item	N	Yes	No
Have you had breathing problems as a result of stress having to do with your work as a pastor?	500	12(2.4%)	488(97.6%)

From Table 2 above, 12 pastors representing 2.4% of the total respondents said they have had breathing problems due to occupational stress. On the other hand, 488 respondents out of a total of 500 respondents said that they have not had breathing problems as a result of job occupational stress and this number represent 97.6% of total respondents. The analyzed data show that most of the pastors have not had breathing problems that were traceable to stress having to do with their work.

Table 3. Relationship between occupational stress and gastro-intestinal problems among pastors in Nyo-khana District.

Variables	N	Mean	SD	(r)	Comment
Loss of appetite	500	1.200	0.400	0.806	There is significant relationship
Ulcer	500	1.400	0.490	0.685	
Occupational stress	500	31.600	3.203		

**Correlation is significant at 0.01 level (2-tailed).

The above Table 3 indicates that there is significant relationship between occupational stress and gastro-intestinal problems (loss of appetite and ulcer) as r-values are 0.806** and 0.685** respectively at 0.01 level of significance. So the alternative hypothesis that says: there is significant relationship between occupational stress and gastro-intestinal problems among pastors in Nyo-Khana District is retained while the null hypothesis is rejected.

Table 4. Relationship between occupational stress and cardiovascular diseases (hypertension and stroke) among pastors in Nyo-khana District.

Variables	N	Mean	SD	(r)	Comment
High blood pressure	500	1.801	0.401	0.218**	There is low significant relationship
stroke	500	1.802	0.402	0.218**	
Occupational stress	500	31.600	3.203		

**Correlation is significant at 0.01 level (2-tailed).

From Table 4 above, it is very clear that there is low significant relationship between occupational stress and cardiovascular diseases (high blood pressure and stroke) among pastors in Nyo-khana District at 0.01 level of significant as the r-values of the variables tested are significantly low. Therefore, the null hypothesis is rejected and the alternative hypothesis that states, “There is significant relationship between occupational stress and cardiovascular diseases among pastors, in Nyo-khana District” retained. Although There is low significance relationship between the variables.

Discussion

Results from the study revealed that a vast majority (85.2%) of pastors have had migraine as a result of exposure to work stress. This finding is in agreement with the opinion of Mgedge (2019) who stated that stress can play many roles in migraine as it can exacerbate migraine attack frequently or be a premonitoring feature, prognostic factor for the onset of migraine and is a common trigger. In the same vein, Sauro et al (2009) submitted that stress is the factor listed most often by migraine sufferers as a trigger for their attacks, but in addition, there is evidence that stress can help initiate migraine in those predisposed to the disorder.

Concerning the prevalence of breathing problems as a result of exposure to occupational stress among pastors in Nyo-khana, only a small number of pastors (2.4%) said that they have had breathing problems. This finding is in line with the view of Cardiosmart (2019) who said that shortness of breath is related to stress or can make it worse. The result of the study having to do with the relationship between occupational stress and gastrointestinal problems (loss of appetite and ulcer) was significant as the r-values were 0.806** and 0.686** respectively at 0.01 level of significance. There was significant relationship between occupational stress and gastrointestinal problems among pastors in Nyo-khana District. This finding is supported by the view of Sissors (2019) who stated that in some cases, loss of appetite and nausea can result from intensive exercise or have a psychological cause such as stress. In the same vein, Villines (2019) posited that ulcers are common among people under immense physical stress, such as those of intensive care units.

Pastors are people that are exposed to intensive stress according to previous studies. It should, however, be noted that there are other risk factors that can lead to the on-set of ulcers.

The study also revealed that there was significant relationship between occupational stress and cardiovascular diseases (high blood pressure and stroke) among Pastors in Nyo-khana District at 0.01 level of significance as the r-values showed 0.218** and 0.218** respectively for high blood pressure and stroke. It is necessary to point out that going by the r-values, there was low significant relationship between occupational stress and cardiovascular diseases among pastors in Nyo-khana District. This finding is in agreement with the opinion of Mayo Clinic Staff (2019) that reported that your body produce a surge of hormones when you are in a stressful situation. These hormones according to Mayo Clinic Staff temporarily increase your blood pressure by causing your heart to beat faster and your blood vessel to narrow. Importantly, there is no proof that stress by itself causes long-term high blood pressure, however, reacting to stress in unhealthy ways can increase your risk of high blood pressure, heart attacks and strokes, Mayo Clinic staff added.

Conclusion

The study has made it very clear that the percentage of Pastors in Nyo-khana District, that have had migraine as a result of exposure to job stress was 85.2% which was very high. Also, the study stated that out of the total population of 520 pastors that was studied only 2.4% have had breathing problems which were due to likely exposure to occupational stress. As for the relationship between occupational stress and gastrointestinal problems (loss of appetite and ulcer), the study discovered that there was significant relationship between them as the r-values for loss of appetite and ulcer were put at 0.806** and 0.686** respectively, thereby showing high and moderate levels of significance for the two “sub-variables” in the order they have been presented in this work. Furthermore, the study showed the relationship between occupational stress and cardiovascular diseases (high blood pressure and stroke) among Pastor in Nyo-Khana District. The study discovered low significant relationship between them. The r-values for high blood pressure and stroke were put at 0.218** and 0.218* respective set at 0.01 level of significance.

Recommendations

The following recommendations were made in line with the findings of the study:

1. Pastors in Nyo-khana District should endeavor to go for medical check-up from time to time.
2. Where pastors have been diagnosed to have migraine or other diseases that are related to stress, they should be able to take their drugs as prescribed by qualified medical personnel.
3. Pastors should be able to take time off their job to relax, rest and sleep well.
4. Pastors should endeavor to avoid self-medication and patronizing quacks. Doing so will make their health condition worse.
5. When pastors have been diagnosed to have stress related diseases which they do not have the capacity to handle, they should be able to confide such in people who can be of help to them than to die in silence.
6. “All work and no play” they say, “makes Jack a dull boy”. Therefore, pastors should endeavor to take part in sporting activity and leisure. Sporting activity here could be by walking briskly a distance of one kilometer every day or jogging for 30 minutes 3 times a week.
7. Pastors should not fail to go for counselling when they are psychologically weighed down by issued of life as pertaining to their job.
8. Pastors should prevent too much stress by planning their activities well with such plan undue stress will be avoided.

References

- American Heart Association (2019). *What is stroke?* Retrieved from www.stroke.org.
- Barna Research Group Press Release (2017). *New research reveals disturbing trend among ministry today.* Retrieved from ministrytoday.may.com.
- British Heart Foundation (2019). *How does stress lead to heart attack and stroke?* Retrieved from www.bhf.org.uk.
- Cardiosmart (2019). *Breathing problems: How to control stress?* Retrieved from www.cardiosmart.org.
- Cleveland Clinic (2015). *What is stress? Symptoms, signs and more.* Retrieved from my_clevelandclinic.org.
- Concordia Theological Seminary (2019). *Who is a pastor?* Retrieved from www.ctsfw.edu.
- Falae, V. (2018). *Who is a pastor according to the Bible?* Retrieved from www.legit.ng.
- Gbeneneh D. (2018). Job satisfaction among pastors in Nyo-khana District of Khana Local Government Area of Rivers State. *Journal of Health, Applied Sciences and Management* (2),135-143.
- Gerultiere, B. (2019). *Pastor stress statistics.* Retrieved form www.soulshepherding.org.
- Helpguide (2019). *Stress symptoms signs and causes.* Retrieved from www.helpguide.org.
- Henderson, R. (2016). *Mental health: Psychosomatic disorders.* Retrieved from patient.info.
- HRzone (2019). *What is occupational stress?* Retrieved from www.hrzone.com.
- Lathrop, J. (2014). *Charisma leader.* Retrieved from ministrytoday.may.com.
- Market Business News (2019). *What is occupational stress? Definition and examples.* Retrieved from marketbusinessnews.com.
- Mayo Clinic Staff (2019). *Stress and high blood pressure: What's the connection?* Retrieved from www.mayoclinic.org.
- MDedge Neurology (2019) *How are migraine and stress related.* Retrieved from www.mdedge.com.
- Medplus (2019) *Breathing problems/shortness of breath* Retrieved from medlineplus.gov.
- News Medical (2018). *Psychosomatic disorders.* Retrieved from www.news-medical.net.
- Nordquist, C. (2017) *Stress why does it happen and how can we manage it.* Retrieved from www.medicalnewstoday.com.

Pastoral Care Inc. (2018). *Stress and burnout in the ministry*. Retrieved from www.pastoralclinic.com.

Pentecostal Theology Group (2017). *Pastors burnout*. Retrieved from www.pentecostaltheology.com.

Sauro, K. M.(2009). *The stress and migraine interaction*. Retrieved from www.nchi.nim.gov.

Schimelpfennig, N. (2019). *Stress, depression and psychosomatic illness*. Retrieved www.verywellmind.com.

Sissons, C. (2019). *Loss of appetite and nausea; why does it happens?* Retrieved from www.medicalnewstoday.com.

Stoppler, M.C. & Jerry, R. (2018). *Stress causes, symptoms, effects types and management*. Retrieved from www.emedecinehealth.com.

Zyistra, E. (2016). *Whypastors are committing suicide*. Retrieved from www.theyospeicoation.org.

Survey on the Availability, Utilization and Importance of Life Support Equipment and Devices in Selected Healthcare Facilities in Port Harcourt Metropolis

Mark Ukelabuchi Ideozu, Gordon Amadi Ike-Ihunwo, Chikaire Ndamzi, Elechi Nelly Onyinyechi, Prince Sampson Ogbilikana & Zegere Goodnews

School of Engineering and Biomedical Technology, Rivers State College of Health Science and Management Technology, Rumueme, Port Harcourt.

Correspondence: 08038775448, idemac2000@yahoo.co.uk

Abstract

This study examined the availability, utilization and importance of life support equipment and devices; in selected healthcare facilities in Port Harcourt metropolis. The study adopted cross-sectional research design and a sample size of 80 respondents were determined from a population of 40 doctors and 60 nurses in five (5) in the healthcare facilities in Port Harcourt using Taro Yamane' formula. 80 copies of questionnaire were distributed to the (5) hospitals of which 74 copies were retrieved and analyzed using the Mean Score descriptive statistic which was facilitated through (SPSS) software package 21.0 developed for social sciences. The study found a higher utility of life support equipment and device in selected healthcare facilities (mean 3.59). Different life supports equipment and devices were available (mean value 3.45). The healthcare workers know the importance of life support equipment (mean value 4.13. The study also deduced that the training received on futility and trials therapy assisted them in using the equipment and devices to save lives (mean value 3.44) in the different healthcare facilities. Recommendations are that management should ensure that there is a frequent maintenance of life supports equipment and devices in health care facilities in Port Harcourt Metropolis.

Keywords: life support, equipment, devices, healthcare

1. Introduction

In this busy and stressful world, humans tend to develop different diseases as a result of stress, over labouring for material gains, high thinking and craving for satisfaction and survival. In the instance where there is a breakdown of human health with emergency necessities, the need for a life support mechanism which will assist in such situation. Hence, the importance of life support equipment and devices cannot be over emphasized.

Medical researchers have stressed more on the use of life support mechanisms (Jacqueline, 2006). A patient requires life support when one or more vital organs fail, due to causes such as trauma, infection, cancer, heart attack, or chronic disease. Among the purposes of life support are to establish and maintain the ABC's of resuscitation—airway, breathing, and circulation restore the patient's homeostasis—the internal chemical and physical balance of the body and protect the patient from complications of the underlying disease and its treatment (Marmot, 2003)

When most people talk about a person being on life support, they are usually talking about a ventilator, which is a machine that helps someone breathe. A ventilator (or respirator) keeps oxygen flowing throughout the body by pushing air into the . It is used temporarily for conditions like pneumonia, but it may be needed longer for someone with lung failure. One end of a tube goes into the windpipe through the nose or mouth while the other end attaches to the electric pump. Some people get medicine to make them more comfortable and sleepy while on a breathing machine (Marmot et al., 1997).

When a person's heart stops, doctors will try to restart it. These life support methods include CPR, which keeps blood and oxygen flowing throughout the body, electric shocks (called defibrillation) to get the heart beating again, and medication to help the heart work (Adabag, Roukoz, Anand, & Moss, 2011). Healthcare providers and emergency medical technicians are generally certified to perform basic and advanced life support procedures; however, basic life support is sometimes provided at the scene of an emergency by family members or bystanders before emergency services arrive. In the case of cardiac injuries, cardiopulmonary resuscitation is initiated by bystanders or family members 25% of the time. Basic life support techniques, such as performing CPR on a victim of cardiac arrest, can double or even triple that patient's chance of survival (Alic, 2013).

Physicians often ignore treatments they deem ineffective, causing them to make more decisions without consulting the patient or representatives. However, when they decide against medical treatment, they must keep the patient or representatives informed even if they discourage continued life support. Whether the physician decides to continue to terminate life support therapy depends on their own ethical beliefs. These beliefs concern the patient's independence, consent, and the efficacy and value of continued life support (Gedge, Giacomini, & Cook, 2016).

In a prospective study conducted by Predergast and Luce (1987) to (1993), it was found that when physicians recommended withholding or withdrawing life support, 90% of the patients agreed to the suggestion and only 4% refused. When the patient disagreed with the physician, the doctor complied and continued support with one exception. If the doctor believed the patient was hopelessly ill, they did not fulfill the surrogate's request for resuscitation.

In a survey conducted by Jean-Louis (1999), it was found that of European intensivists working in the Intensive Care Unit, 93% of physicians occasionally withhold treatment from those they considered hopeless. Withdrawal of treatment was less common. For these patients, 40% of the physicians gave large doses of drugs until the patient died. All of the physicians were members of the European Society of Intensive Care Medicine (Critical Care Medicine). Based on the facts considered above, it vital to examine the importance of life support equipment and devices in the healthcare sector so as to emphasize on its usage and practice (Jean-Louis, 1999).

2. Objectives of the Study

- i. To investigate the level utilization of life support equipment and devices in selected hospitals in healthcare facilities in Port Harcourt.
- ii. To find out if life support equipment and devices are available in selected hospitals in healthcare facilities in Port Harcourt.
- iii. To investigate if life support equipment and devices are used in saving lives in selected hospitals in healthcare facilities in Port Harcourt.

3. Materials and Methods

The sample size was determined using Taro Yamene's formula. Seventy-four respondents were selected from healthcare facilities in Port Harcourt metropolis. Questionnaire was used in collecting data for the study. The questionnaire was given to the respondents and retrieved immediately. The data gathered for this study were analyzed using descriptive statistic which include; simple percentage and mean score methods. Mean was used in the analysis of the research variables. The decision for acceptance and rejection was based on the means score of response to the items on questionnaire. The benchmark was 3.00 means score or above for acceptance, while below 3.00 was considered unfavorable response and was rejected. The computation was facilitated through the use of Statistical Package for Social Sciences (SPSS) version 21.0 produced by IBM.

Results

Table 1: Use ventilators for respiratory system devices

Use of ventilators for respiratory System											
		SD 1	D 2	U 3	A 4	SA 5	%	N	TS	Mean	Rmk
1) My healthcare facility uses life support equipment to save lives especially ventilators for respiratory system		4	18	9	12	31		74			
		5.4	24.3	12.2	16.2	41.9	100			3.59	> 3.00
		4	32	27	48	155		74	266		
2). There are different types of life support equipment and devices available in my hospital and can be handled effectively		11	8	18	26	11		74			
		14.9	24.3	24.3	21.6	14.9	100			3.45	>3.00
		11	32	54	104	55		74	256		
3). My hospital sector knows the importance and relevance of life support equipment and devices in healthcare sector in Port Harcourt.		11	4	10	12	37		74			
		14.9	5.4	13.5	16.2	50.0	100			4.13	>3.00
		11	32	30	48	185		74	306		
4). My hospital frequently organize program for training in using life support equipment and devices		23	4	16	22	9		74			
		31.1	5.4	21.6	29.7		100			2.86	. 3.00
		23	8	48	88	45		74	212		

Source: Researcher Survey (2019)

Table 1 reports on the extent to which ventilators for respiratory system has been utilized in saving lives in the healthcare facility for this study. The mean score of responses to the items is 3.59 greater than 3.00 bench mark. This implies that majority of the respondents agreed that their healthcare facilities utilize ventilators for respiratory system in saving lives. With respect to responses to the second item, the means score is 3.45 which is greater 3.00 mean benchmark. This indicates that the

hospitals do have different types of life support equipment and as a result of this; they are effective in handling different types of life support equipment and devices in saving lives. The mean score of response to the third items 4.14 which is greater than 3.00 bench mark. This implies that the hospitals in the sector know the importance and relevance of life support equipment and devices. The mean score of response to item four is 2.86 which is less than 3.00 benchmark. This shows that the hospitals do not frequently organize programme for training in using life support equipment and devices.

Table 2: Use of Cardiovascular Life Support Systems

Use of Cardiovascular System										
	SD	D	U	A	SA	%	N	TS	Mean	Rmk
	1	2	3	4	5					
5). I am conversant with the used of Cardiovascular System	17	4	7	11	35		74			
	23.0	5.4	9.5	14.9	47.3	100			3.58	>3.00
	17	8	21	44	175		74	265		
6). I have used the Cardiovascular System many times in saving lives	12	23	10	22	7		74			
	16.2	31.1	13.5	29.7	9.5	100			2.85	..
	12	46	30	88	35			211		
7). I have undergone training on the use of Cardiovascular System	11	31	4	8	12	12	74			
	14.9	41.9	10.8	16.2	16.2	100			2.77	?3.00
	11	62	12	32	60			205		

Source: Research Survey (2019)

From the responses to the use of Cardiovascular System on table 2, the mean score of response to item five is 3.58 which is greater than 3.00 mean benchmark. This shows that the hospitals are conversant with the use of Cardiovascular System. The mean score of response to item six is 2.85 which is less than 3.00 mean benchmark. This shows that the hospitals do not frequently make use of the Cardiovascular System many times in saving lives. The mean score of response to item seven is 2.77 which is less than 3.00 mean benchmark. This shows that many of the respondents have not undergone training on the use of Cardiovascular System.

Table 3: Use of Futility and Trials of Life Support Therapy

Futility and Trials of Therapy										
	SD	D	U	A	SA	%	N	TS	Mean	Rmk
	1	2	3	4	5					
8). The training received on the use of Futility and Trials of Therapy has assisted me in using it to save lives.	18	4	7	17	28		74			
	24.3	5.4	9.5	23.0	37.8	100			3.44	>3.00
	18	8	21	68	140			255		
9). I do not find it difficult to use Futility and Trials of Therapy	14	21	10	22	7		74			
	18.9	28.4	13.5	29.7	9.5	100			2.82	?3.00
	14	42	30	88	35			209		
10). I have handled cases that involved the use of Futility and Trials of Therapy	13	12	6	12	31		74		3.49	>3.00
	17.6	16.2	8.1	16.2	41.9	100				
	13	24	18	48	155			258		

Source: Researcher Survey (2019).

From table 3, with respect to Futility and Trials of Therapy, the mean score of response to the items eight is 3.44 greater than 3.00 bench mark. This implies that the training received on the use of Futility and Trials of Therapy has assisted m any of the respondents in saving lives. With respect to responses to the ninth item, the means score is 2.82 which is less than 3.00 mean benchmark. This indicates that many of the respondents find it difficult to use Futility and Trials of Therapy in saving lives. The mean score of response to item ten is 3.49 which is greater than 3.00 benchmark. This implies that the majority of the respondents have not handled cases that involved the use of Futility and Trials of Therapy.

4. Discussion of Findings

The result shows that Ventilators for Respiratory System has been practiced in saving lives in the health care facilities. Many healthcare facilities know the importance and relevance of life support equipment and devices. Different types of life support equipment and devices are available in the healthcare facilities. However the findings also revealed that, they have not frequently organized training programs on the safe use of life support equipment and devices (See table 1). The hospitals are conversant with the use of Cardiovascular System, which they frequently use it in saving lives. This shows that majority of the respondents make use of Cardiovascular System life support equipment in saving lives. (See table 2).

On the use of Futility and Trials of Therapy, the study found that the healthcare workers make use of Futility and Trials of Therapy in saving lives, they have handled cases that involved the use of

Futility and Trials of Therapy but they still find it difficult to use it effectively, this means that they need further training on the use of Futility and trials of therapy (See Table 3).

The findings in this study are supported by the work of Buck-Barret and Squire (2004) and Brown et al. (2006). They found that in the healthcare facilities, CPR/BLS competency is considered a fundamental skill for health care workers, but the evidence suggests that retention of CPR/BLS knowledge and skills is generally poor in healthcare facilities (Brown et al., 2006; Buck-Barret & Squire, 2004). This implies that there should be more training and retraining for effective use of the life supports equipment and devices in the health care sectors.

5. Conclusion

From the findings, the study made the following conclusions:

- i. There is a higher percentage in the utility of life support equipment and devices in saving lives in healthcare sector in Port Harcourt.
- ii. different types of life support equipment and devices which affected the extent to which lives are saved in health care sector in Port Harcourt are available.
- iii. Some of the workers in healthcare facilities are trained in the use of life support equipment and devices, but they require further and frequent training to meet with current practices

6. Recommendations

Based on the findings and conclusion, the following recommendations were put forward to build an effective orientation on the use of life supports equipment and devices in saving lives in health care sectors in Port Harcourt.

- i. Management should ensure that workers in healthcare facilities are frequently trained by organizing seminars and workshops on the use of life support equipment and devices.
- ii. Management should ensure that there is a frequent maintenance of life supports equipment and devices in health care sector in Port Harcourt.

References

- Adabag S, Roukoz H, Anand IS, Moss AJ. (2011). Cardiac resynchronization therapy in patients with minimal heart failure. *Systematic Review and Meta-Analysis*, 23;58(9):935-41
- Alic M. (2013). *Basic life support*. Retrieved from http://go.galegroup.com/ps/i.do?id=GALE%7CCX2760400129&v=2.1&u=csumb_main&it=r&p=GVRL&sw=w&asid=40d96ff26746d55939f14dbf57297410.
- Baridam, D.M. (2001). *Research methods in administrative sciences (2nd ed.)*. Port Harcourt.
- Brown, T.B., Dias, J.A., Saini, D., Shah, R.C., Cofield, S.S., Terndrup, T.E., ... Waterbor, J.W. (2006). Relationship between knowledge of cardiopulmonary resuscitation guidelines and performance. *Resuscitation*, 69(2):253-261
- Buck-Barret, I. & Squire, I. (2004). The use of basic life support skills by hospital staff; what skills should be taught? *Resuscitation*, 60(1):39-44.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Gedge, E., Giacomini, M. & Cook, D. (2016). Withholding and withdrawing life support in critical care settings: Ethical issues concerning consent. *Journal of Medical Ethics*. 33(4), 215–218. doi:. ISSN 0306-6800. PMC 2652778?

Perception and Attitude of Mothers on Family Planning in Ban-Ogoi Community, Tai Local Government Area of Rivers State

***Rorkeek Michael Offiah, Martha Deebari kpananwa, Stella Nne Okankwu & Adela Uganwa Ikwut-Ukwa**

***School of Public Health, Rivers State College of Health Science and Management Technology, Port Harcourt; 08038887854; rmof2004@yahoo.com**

Abstract

This study was carried out to determine the perception and attitude of mothers within child-bearing age on family planning utilization in Ban-Ogoi Community, Tai Local Government Area of Rivers State. This was a cross-sectional descriptive study design. The target population was 1,065 and the proportion (20%) of it derived as sample size of 242. The instrument for data collection was self-structured questionnaire. Multi-stage sampling procedure was used in this community survey. The retrieved and properly filled copies of the questionnaire were 159 following sudden crisis in that community. Data obtained were analyzed using simple percentages. A majority (76.73%) of the respondents had positive attitude towards family planning (FP) use. Findings on perception for their use of FP based on certain views about FP were agreeing with FP being against natural reproductive process (49.69%), methods not totally effective (86.16%), methods being against religious beliefs (59.12%) and 'Children being for future fame and success' (66.04%); but disagree with ensuing serious side-effects (62.26%). Utilization level was 66.04% but 33.96% of these mothers was not using any family planning method. Factors influencing non-use of FP included "Fear of side effects" (29%), "Desire more children" (4.40%) and "Against religious beliefs" (3.77%). The study recommended that adequate health education be carried out by health workers to dispel fears and encourage higher contraceptive use among women of child-bearing age. Government and other private organizations should help fund the effort to modernize few traditional FP contraceptives (FPCs) for enormous availability and accessibility of these products.

Keywords: Perception, attitude, mothers, family planning and Ban-Ogoi Community

Introduction

This issue of family planning all over the world has attracted attention due to its pertinence in decision-making about population growth and development issues. Meanwhile, public health intervention groups have become increasingly alarmed by the precipitous rise in its effects on population growth, not only in Nigeria or the United States of America but throughout the world. The World Health Organization (2011) further defined family planning as the practice that help individuals or couples to attain certain objectives such as avoiding unwanted pregnancies and bringing about unwanted babies, but allowing them at the right time and regulating the interval between pregnancies, controlling the time at which birth occurs in relation to the ages of the parents and determining the number of children in the family. Onokerhoraye (2017) also explained the concept of family planning as the provision of preventive information services and applications; it also involves teaching mothers about their bodies and how to prevent birth usually with contraceptives but sometimes, also with abortion or sterilization which will make it impossible for them to have or produce babies when they are not ready. Gold, Sonfield, Richard and Frost (2009) added that contrary to popular belief, 'family planning' does not coincide with abortion. The term "family planning" covers a wide range of services concerning mothers, children, and their families.

Various works and researches have also been done on perception and attitude of mothers on

family planning, but major emphases had always been placed on the role of mothers with approaches in many cases. For example, Onokerboraye (2017) gave detailed analyses of mothers' perceptions on family planning in Rivers State Nigeria. He also examined a comparative analysis and mothers perspectives on health care facilities. In spite of the introduction of family planning services as means of curbing fertility rate, the population still rises because of the perception and attitude of mothers involved. This is noticed especially in mothers and the role they play in reproduction. Further works showed that family planning helps mothers to protect themselves from unwanted pregnancies since the 1960s. Family planning programmes had helped mothers around the world to be saved from high risk pregnancies and unsafe abortions (Carignam, 2017).

However, most available works still point to emphases being place on mothers at the detriment of mother concern. Large population at the mother folks feel less concerned about family planning. Perhaps, the emergence of responsible parenthood and the need to protect mother-folk sexuality have improved this awareness. Family planning has proven to be an effective way of controlling fertility and spacing birth. The benefits of family planning are numerous as it is a unique and widely advantageous programme. The outcome of this programme include: reduction of poverty, maternal and child mortality, empowerment of mothers by lightening the burden of excessive childbearing and enhancement of environmental sustainability by stabilizing the population of the planet. In a world of quick reducing resources, excessive poverty, and overpopulation, family planning intervention decreases fertility and reduce birth. The FP programme with its diverse forms/methods was shown to be both effective and successful as a public health intervention services to decrease population growth.

Though various family planning services are available both in the United States and internationally, there is a dramatic gap in services between the rich and the poor (Kohler, 2001). Family planning services include: access to birth control, contraceptives, sexual education, and other health resources. Access to family planning services can provide much needed reproductive resources, such as prevention and treatment of sexually transmitted diseases and HIV (Gold, Sonfield, Richard & Frost, 2009). Family planning clinics are also sources of knowledge for birth spacing and help make known the benefits of spacing birth.

Family planning with its attendant benefits is now seen as human right basic to human dignity; people and government around the world understand such a fact. Due to ignorance and negative attitude of some mothers towards it certain advantages derivable are not being utilized fully. (Onokerboraye, 2017; Jaravaza, 2013) The researchers had observed in Ban-Ogoi Community inadequate care for children such as good education, clothing, and feeding along with increasing cases of teenage pregnancy that lead to abortion. It is, therefore, of the researchers' interest to investigate the perception and attitude of mothers within child-bearing age towards family planning in Ban-Ogoi Community, Tai Local Government Area of Rivers State.

Specific Objectives of the Study

The specific objectives of this study are:

1. To investigate the perception of mothers on family planning in Ban-Ogoi Community of Tai Local Government Area.
2. To ascertain the attitude of mothers towards family planning in Ban-Ogoi Community of Tai Local Government Area.
3. To determine the factors influencing the use of family planning in Ban-Ogoi Community.

Research Questions

1. What are the perceptions of mothers on family planning in Ban-Ogoi community of Tai Local Government Area?
2. What are the attitudes of mothers towards family planning in Ban-Ogoi community of Tai Local Government Area?
3. What are factors influencing the use of family planning by mothers in Ban-Ogoi Community?

Methods

A cross-sectional survey has been applied in the research. The Ban-Ogoi Community current population is 4,841 projected from 2,320 of the 1996 figure (National Population Commission, NPC, 1996). Taking 22% of the present community population as women of child-bearing age (WCBA) gave study population of 1065 (RSMOH, 2003). A sample size of approximately 213 was determined by taking 20% of 1065 (Dillman, 2007; Smith, 2013). A 15-item structured questionnaire with mainly two options of 'Yes' or 'No' and minimally three options of 'Agree', 'Disagree' or 'Undecided' were used for data collection. Note that on likert scale application for "perception" the researchers try to avoid duplication since 'strongly agree' and 'strongly disagree' with their related responses of 'agree' and 'disagree' would respectively imply *positive* or *negative* perception. The pilot study was carried out at Bunu-Tai with its analysis giving a reliability index of 0.69. A multi-stage sampling procedure was applied to gather primary data; the steps involved using stratified, systematic, and simple, random sampling techniques. Out of 213 copies of the questionnaire distributed, 159 copies of the questionnaire were retrieved because of sudden communal crisis during field work for data collection. The field work took place in August, 2019. Secondary data were from reviewed related literatures. The data were analysed using simple percentage.

Results

The analysed data were presented in Tables 2-4. How the information summarized answered the research questions and thus achieved specific objectives have been stated below the tables. Our study had also considered the awareness level of respondents on family planning (FP). The awareness level on FP by these respondents was very high (95.60%) and commendable. Among the sources of information were clinic (44.03%), school (14.46%), friends (12.58%) other social gatherings (9.43%). The FP methods known include pills (25.16%), injectables (22.01%), condom (18.87%) and Herbs/other traditional material use (13.21%).

Table 1: Socio-economic characteristics of respondents

PARAMETER	RESPONSE FREQUENCY	PERCENT (%)
Marital Status		
Single	47	29.56
Married	69	43.40
Divorced	10	6.29
Separated	19	11.95
Widowed	14	8.80
Total	159	100
Household size		
2-5	26	16.35
6-9	111	69.81
10-13	17	10.69
=14	5	3.14
Total	159	100
Level of education		
Non-formal education	34	21.38
Primary (F.S.L.C)	29	18.24
Secondary (WAEC)	71	44.65
Tertiary	25	15.72
Total	159	100
Occupation		
Trading	69	43.40
Farming	51	32.07
Civil service	20	12.58
Student	19	11.95
Total	159	100
Income level (net gain/month, Naira)		
10,000-30,000	80	50.31
31,000-50,000	38	23.90
51,000-70,000	31	19.50
=71,000	10	6.29
Total	159	100

Source: *Offiah, Okanje, Okankwu & Ikwut-Ukwa Field Work, 2019*

Table 1 presented the socio-economic characteristics of these mothers with the married ones (43.40%) in the majority and the household size of 6-9 range (69.81%) being in the majority. The single mothers were nearly three-quarter (29.56%) of the married ones population. Petty-trading (43.40%) along with other occupation led most of them to earn a meagre net income of ₦10,000-30,000 (50.31%) to manage large households. They are fairly educated with a large number of mothers with non-formal education (21.38%).

Table 2: Respondents' Perception of Family Planning in Ban-Ogoi Community

VARIABLE	RESPONSE FREQUENCY (PERCENT, %)			TOTAL (%)
	Yes	No	---	
Ever heard of Family Planning (FP)	Yes	No	---	
	152 (95.60)	7 (4.40)	---	159 (100)
Perception on views about FP	Agree	Disagree	Undecided	
Against natural reproductive process	79 (49.69)	31 (19.50)	49 (30.82)	159 (100)
Not totally effective	137 (86.16)	8 (5.03)	14 (8.81)	159 (100)
Serious side effects associated	20 (12.58)	99 (62.26)	40 (25.16)	159 (100)
Against religious belief	94 (59.12)	42 (26.41)	23 (14.47)	159 (100)
Children for future fame and success	105 (66.04)	48 (30.19)	6 (3.77)	159 (100)

Source: *Offiah, Okanje, Okankwu & Ikwut-Ukwa Field Work, 2019*

Table 2 showed Ban-Ogoi Community respondents' perception of family planning (FP). The majority (49.69%) of them felt it was 'Against natural reproductive process' but a sizeable number (30.82%) were undecided on this option. Others expressed the following perceptions by agreeing with the options: 'Not totally effective' (86.16%), 'Against religious belief' (59.12%) and 'Children were for future fame and success' (66.04%). But on the option of 'Serious side effects associated' a large number of respondents (62.26%) disagreed with a sizeable fraction (25.16%) of them undecided. The small proportion (12.58%) might have used any FP contraceptives and experienced some side-effects. Table 2 has clearly presented the perception of Ban-Ogoi Community respondents in answer to research question two.

Table 3: Respondents' attitudes towards FP in Ban-Ogoi Community

Variable	Response frequency	Percent (%)
Attitude towards FP		
Positive	122	76.73
Negative	37	23.27
Total	159	100
Reasons for negative attitude		
To avoid side effects	13	8.18
Against religious belief	14	8.80
Desire more children	10	6.29
Total	37	23.27

Source: Offiah, Okanje, Okankwu & Ikwut-Ukwa Field Work, 2019

Table 3 presented respondents' attitudes towards FP in Ban-Ogoi Community. There was 76.73% positive attitude towards FP while one-third of the respondents had negative attitude. The key reasons for exhibiting such unnecessary response were avoiding side effects, being against religious belief and desiring more children. Table 3 by showing attitudes towards FP by Ban-Ogoi Community mothers answered research question three.

Table 4: Factors influencing family planning utilization in Ban-Ogoi Community

Variable	Response Frequency	Percentage (%)
Use family planning		
Yes	105	66.04
No	54	33.96
Total	159	100
Method of FP used		
Injectables	33	20.75
Pills	26	16.35
Condom	20	12.58
IUCD	12	7.55
Natural	14	8.81
Total	105	66.04
Factors affecting non-use of FP		
Fear of side effects	29	18.24
Husband objection	4	2.52
Don't know where to get it	5	3.14
Desire more children	7	4.40
Against religious beliefs	6	3.77
Can't access method because of cost	3	1.89
Total	54	33.96

Source: Offiah, Okanje, Okankwu & Ikwut-Ukwa Field Work, 2019

Table 4 has shown factors influencing family planning utilization in Ban-Ogoi Community as stated by respondent mothers. Utilization was 66.04% but about one-third of these mothers were not using any family planning method (33.96%). Reasons for non-use or factors affecting utilization of FP had been advanced as proportions of overall respondents including “Fear of side effects” (29%), “Husband objection” (2.52%), “Don't know where to get it” (3.14%), “Desire more children” (4.40%) and “Against religious belief” (3.77%).

Discussion

Perceptions of these mothers in Ban-Ogoi Community indicated a large proportion (49.69%) agreed it was against natural reproductive process set by God. This proportion nearly correlates with those agreeing to “family planning being against religious belief” (59.12%). Others had opined or felt that it won't be totally effective (86.16%) and a large fraction (62.26%) of them disagreeing that it is froth with associated serious side effects. These are almost in line with the work of Asekun-Olarinmoye et al (2013) who noted that the perceived side effects of modern contraceptives mentioned included irregular menstruation (59.1%), abdominal pain (24.0%), headache (22.3%), and infertility (21.2%). Apart from “infertility” the stated side-effects by Asekun-Olarinmoye et al (2013) are not severe ones as perceived by our respondents. Mosha, Mgimwa and Msuya (2017) in their study concluded that knowledge and a positive perception suggest increased use of contraceptives.

Finding had shown respondents' attitudes towards FP in Ban-Ogoi Community as being positive with 76.73% disposition towards FP. For the one-third that had negative attitude reasons given were avoiding side effects, being against religious belief and desiring more children amongst others. This study is in line with Mosha, Mgimwa and Msuya (2017) on positive attitude who rather reported 96%.

Some factors affecting FP utilization negatively included 'fear of side-effects (53.49%)', 'husband's objection (9.43%)', 'don't know where to get it (8.80%)', 'desire more children (12.57%)' and 'higher cost preventing access to method (6.25%)'. These findings were in line with Asekun-Olarinmoye et al (2013) research which found that the most commonly perceived barriers of respondents accounting for low use of FP methods in the community were fear of perceived side effects (44.0%), ignorance of contraceptive methods (32.6%), misinformation (25.1%), superstition (22.0%), and culture (20.3%). But the present study got response of 12.58% on fear of perceived side effects whereas the earlier research at its centre got 44.0% because present study was focused on the word “serious”. On the other hand, while this project investigated not knowing where to get it and desire for more children the earlier study considered ignorance, misinformation, superstition, and culture. Jaravaza (2013) noted the continual use of herbs, protracted breast feeding, rhythm and withdrawal as contraceptive alternatives to modern contraceptives which have a little similarity to the present project on the use of indigenous methods. But none of our respondents even with further probing accepted use of herbs. Jaravaza (2013) had reported that indications for couples opting for traditional contraceptives was that they are afraid of “side-effects” of modern contraceptives and extended family ethos in rural areas, especially the influence of “mother-in-law” influencing women to accept traditional contraceptives.

The work also showed a tremendous awareness of family planning (95.60%). This was associated with some sources of information on modern FP contraceptives. This finding was in line with Megabiaw (2012) who found hundred and eight five (90.7%) said they had heard about modern contraceptives.

Conclusion

The outstanding focus of family planning is to improve the overall health of mothers, children and ultimately, the family unit. It also has the target/goal of family planning is to reduce teenage pregnancy. In addition to the depletion of environmental resources, and the impact of global climate

change, other potential adverse effects of rapid population growth and high fertility include poor health among mothers and children, slow economic growth and widespread poverty, and potential instability in countries with large number of unemployed young people. Since 1960s, alongside with the effort to increase levels of education and improve health conditions, the main response to rapid population growth has been the implementation of voluntary family planning programmes that provide information about, and access to contraception. Individuals learning modern family planning methods and having positive attitude for these methods, may increase the usage and contribute to the formation of healthy communities.

Recommendations

Based on the findings from the study, the following recommendations were made:

1. Public enlightenment programmes should be held for further awareness creation on family planning needs.
2. Government and other private organizations should help fund the effort to modernize few traditional FP contraceptives (FPCs) for enormous availability and accessibility of these products.
3. Modern Contraceptives should be made available for easy purchase by the public.
4. There is need to make long-lasting modern FPCs readily available and cheaper for easy purchase by the public.

References

- Asekun-Olarinmoye, E.O., Adebimpe, W.O., Bamidele, J.O., Odu, O.O., Asekun-Olarinmoye, I.O. & Ojofeitimi, E.O. (2013). Barriers to use of modern contraceptives among women in an inner city area of Osogbo metropolis, Osun State, Nigeria. *Int J Women's Health*, 5, 647–655.
- Carignan, S. C. (2017). *The attitude of men towards family planning (5th ed.)*.
- Clifton. D., Kaneda, T. & Ashford, L. (2008). *Family Planning Worldwide 2008*
- Dillman, D.A. (2007). *Mail and internet surveys: The tailored design method (2nd ed.)*. Hoboken, NJ, USA: John Wiley & Sons.
- Gold, R.B., Sonfield, A., Richard, C.L. & Frost, J.J. (2009). *Net steps for America's family planning programme: Leveraging the potential of Medicaid and title X in an enrolling health care system*.
- Jaravaza, D.C. (2013). Traditional contraceptives and indigenous knowledge systems in Mutasa District of Manicaland Province, Zimbabwe. *International Journal of Academic Research in Progressive Education and Development*, 2(2), 29-35. ISSN: 2226-6348.
- Kholer, H.P., Behrman, J.R. & Wafkins, S.C. (2001). The density of social networks and fertility decisions: Evidence from South Nyanza District, Kenya. *Demography*, 1(38), 48-58.
- Megabiaw, B. (2012). Awareness and utilization of modern contraceptives among street women in North-West Ethiopia. *BMC Women's Health*, 12, 31. doi.org/10.1186/1472-6874-12-31.

Mosha, P.E., Mgimwa, C.A. & Msuya, S.M. (2017). Assessment of knowledge and perception towards modern contraceptives use among women of reproductive age in Mtwivila, Tanzania. *Science Journal of Public Health*, 5(4), 335-340. doi: 10.11648/j.sjph.20170504.19.

National Population Commission(1996). *Population and Housing Census*. Abuja, Nigeria.

National Population Commission (2006). *National Population Commission (NPC) Nigeria Demographic and Health Survey 2006*. Calverton, MD: NPC and ICF Macro.

Onokerhoraye, G. A. (2017). *Knowledge and pattern of family planning adoption (9th ed.)*. Lagos: Oyediran Publishing.

Rivers State Ministry of Health (2003). *Projected population of local government areas and specific targeted groups for NPI*. Port Harcourt: Rivers State Ministry of Health, Department of Planning Research Statistics.

Smith, S. (2013). Determining sample size: How to ensure you get the correct sample size. *Qualtrics* 8,

WHO (2011). *Special programme of research development and research training in human reproduction*, Geneva, Switzerland.

Tuberculosis Transmission Mode Awareness in Minikpiti Community, Obio-Akpor Local Government Area of Rivers State

Catherine Ugwem Jeremiah, Flora Ile Sunday, Rorkeek Michael Offiah, & Gloria Stanley Jones

School of Public Health, Rivers State College of Health Science and Management Technology,
Port Harcourt; 08038887854; rmof2004@yahoo.com

Abstract

This study examined tuberculosis transmission mode awareness in Minikpiti Community, Obio-Akpor Local Government Area of Rivers State. The research design used was descriptive survey. The population for this study was total population of Minikpiti Community estimated at 12,171 based on NPC 2016 projected population of Obio-Akpor LGA. A sample size of 243 persons was selected using 2.0%. A well-validated self-structured questionnaire was used to collect data for the study. Analysis of the data was done using simple percentages. Results of the study showed that inhabitants of Minikpiti were aware of the occurrence of tuberculosis (70.32%), and of tuberculosis transmission mode was high (65.30%). There was about average proportion (48.22%) of preventive measures against tuberculosis transmission modes in Minikpiti Community. Several recommendations were made among which are: Government to promote more sensitization campaigns in the state on transmission of tuberculosis, and establish more health centres/hospitals in Rumuolumeni Community due to her thick population; tuberculous patients should not be stigmatized within the family circles; the inhabitants of Minikpiti should accord high priority towards immunization against tuberculosis; and companies operating within the communities should be integrated in respect of projects geared towards the modification of tuberculosis transmission in Minikpiti Community. It was recommended that this study be replicated with extension to other parts of the state/country for a wider generation of data to make appropriate findings for the betterment of health of humanity.

Key words: Awareness, tuberculosis, transmission mode, Minikpiti Community

Introduction

The pre-historic era and modern man from every society has always attached high priority to human health. A universally accepted maxim has it that a healthy man is a happy man in much the same way as a healthy society is a happy one. Tuberculosis is one of the deadly diseases that plague our contemporary society. Thus every society strives to apply precautionary measures towards curbing the transmission mode of tuberculosis. In Africa and other continents from the distant past, tuberculosis has been a dreaded, deadly bacterial disease claiming a very high death toll across the globe (Zumia & Lawn, 2011). In some of the pre-colonial African societies including Nigeria, tuberculosis was perceived as the wrath of the gods that is associated with supernatural causes. The people resorted to oracles to provide cure for the disease. Modernization and development have greatly emasculated this antiquated belief of the disease by the people. This situation has attracted international concerted efforts to tackle the occurrence of the disease. In the contemporary society, the awareness level of tuberculosis as contagious disease has mounted over the years. This has also motivated medical scientists to invent curative drugs for the disease, being currently in existence.

Transmissions occur from only people with active tuberculosis. However, people with latent tuberculosis do not spread the disease. Each of infectious aerosol droplets may transmit the disease, since the infectious dose of tuberculosis is very small that the inhalation of fewer than 10 bacteria may cause an infection. When people with active pulmonary tuberculosis cough, sneeze, speak,

sing, or spit, they expel infectious aerosol droplets of 0.5 to 5.0µm in diameter; and a single sneeze can release up to 40,000 droplets. (Behera, 2010; Elegonye, 2008) Notable extra pulmonary infection sites with 15-20% of active cases of tuberculosis includes: the pleura (in tuberculosis pleurisy), the central nervous system in tuberculosis meningitis, the lymphatic system (in scrofula of the neck), the genitourinary system (in urogenital tuberculosis) and the bones and joints (in Potts' disease of the spine) among others (Bekker, Hawn, Day & Evans, 2014). Those with prolonged, frequent or close contact with people with tuberculosis are at particularly high risk of becoming infected with an estimated 22% infected rate. A person with active but untreated tuberculosis may infect 10-15 or more other people per year. The cascade of person-to-person spread can be circumvented by segregating those with active (overt) tuberculosis and putting them on anti-tuberculosis drug regimens. (WHO, 2006a) The causative agent of tuberculosis is *Mycobacterium Tuberculosis* (MTB), which is a small aerobic non-mobile *bacillus*. The Mycobacteria Tuberculosis Complex (MTBC) includes four other tuberculosis-causing mycobacteria (*Mycobacterium bovis*, *Mycobacterium africanum*, *Mycobacterium canatti*, and *Mycobacterium microti*). (Behera, 2010)

According to the World Health Organization, WHO (2002), the US National Health Interview Survey stipulates that one-third of rural habitants in China were not aware of the main tuberculosis symptom; this lack of knowledge could delay or prevent suspected infected people from seeking medical care. Some health practitioners expressed opinions that tuberculous patients should be isolated. However, in Karnataka, nearly four-fifths of Doctors and Nurses were of the opinion that tuberculous patients should not be isolated from society (Lu et al, 2009). This has become necessary to provide health education programmes with information on the mode of transmission of the disease and to develop a series of policies and measures to fight against tuberculosis in China. China's Ministry of Health (2015), x-raying or auditing the effectiveness of a National Tuberculosis Prevention and Control Plan between 2011 and 2015 noted that a public awareness of infectious diseases played an important role in disease control; a lack of reasonable knowledge of infectious diseases leads to low detection rates, the interruption of treatment, discrimination and stigma. Liu et al (2011) study stated that infections with the human immunodeficiency virus, tuberculosis (TB) and hepatitis B virus infection are major public health problems in many parts of China. In China, approximately 780,000 people live with human immunodeficiency virus; 26,000 died from Acquired Immune Deficiency Syndrome in 2009, while 4.5 million Chinese have been infected with active pulmonary tuberculosis, 1.5 million of whom are smear-positive; meanwhile 120 million people have been chronically infected with HBV, and more than 300,000 people die from HBV-related diseases every year.

Prevention of tuberculosis involves screening those at high risk, early detection and treatment of cases and vaccination with the *Bacillus Calmette-Guerin* (BCG) vaccine. Those at high risk include persons in household, at workplace, and social contacts of people with active tuberculosis. The propensity to seek care depends on knowledge and perceived risk of tuberculosis within reference groups (families, neighbourhoods) and communities at large. As demonstrated in studies in Ethiopia, India, Mexico, Pakistan, Thailand and Nigeria, patients with low knowledge about symptoms are more likely to postpone care-seeking and get tested. Tuberculosis prevention and control efforts rely primarily on the vaccination of infant and the detection and appropriate treatment of active cases.

The World Health Organization has achieved some success with improved treatment regimens, and a small decrease in case numbers. As of 2011, the only available vaccine is *Bacillus Calmette-Guerin* (BCG). In children, it decreases the risk of infection turning into disease by nearly 60%. The vaccine is most widely used worldwide with more than 90% of all children being vaccinated. However, the immunity it induces decreases after about ten years. (WHO, 2013) Anjum, Khan, Han and Abi (2005) opined that, keeping body and house clean, avoiding infected

people, regular exercise, eating clean food, drinking clean water, clean dishes, eating healthy food, avoiding dusty air and stop smoking can help to prevent one from being infected. The finding indicates that Directly Observed Treatment Short Course (DOTS) if implemented effectively can achieve its targets of detection of tuberculosis among symptomatic and their treatment. In this sense, a vast majority of the Nigerian populace are warned to keep clean dwellings and environment, with a view to averting or emasculate the rate of tuberculosis transmission (Mandell, Benneth & Raphael, 2010).

Tuberculosis exists everywhere across the globe, and every country always strives to curb it. In spite of the international concerted efforts put in place to checkmate tuberculosis, it is still infecting the population to some extent. (WHO, 2013; Harris, 2013; Tamba & Sichinga, 2005) All things being equal, the extent to which the people are aware of tuberculosis transmission is also the extent to which they can apply precautionary measures to checkmate the disease. The view that most people living within the Rumuolumeni Community are not aware of the mode of transmission of tuberculosis points to the fact that they are vulnerable to the disease. It becomes expedient for the researchers to investigate the level of awareness of tuberculosis transmission mode in Minikpiti Community, an entity of Rumuolumeni, Obio-Akpor Local Government Area of Rivers State.

Specific Objectives

This research articulates to fulfill the following specific objectives:

1. To identify the awareness of tuberculosis generally among the people of Minikpiti.
2. To determine the awareness of transmission mode of tuberculosis in Minikpiti Community.
3. To ascertain the preventive measures put in place in Minikpiti Community against transmission mode of tuberculosis.

Research Questions

This research shall be guided by the following research questions:

1. What is the awareness on tuberculosis generally by the inhabitants of Minikpiti?
2. What is the awareness of tuberculosis transmission mode among the inhabitants of Minikpiti?
3. What preventive measures had been put in place against tuberculosis transmission mode in Minikpiti Community?

Methodology

The research employed descriptive survey design. It was a retrospective study that took place in July, 2018. In the absence of community breakdown from 2006 population census Rumuolumeni population was estimated from NPC 2016 projected Obio-Akpor LGA total population of 649,600 (NPC, 2016) to be 60,853. Next, the researchers decided to assume equal population for Rumuolumeni Community five component parts to arrive at a population of 12,171 (twelve thousand one hundred and seventy-one) people by simply dividing 60,853 into five places. By stratified random sampling, Rumuolumeni was grouped according to its five sub-communities: Mgbuoshimini, Mgbuakara, Nkpor, Mgbuodohia and Minikpiti. Minikpiti was chosen out of these communities by simple random sampling. A proportion (2%) of 12,171 derived population of Minikpiti Community was taken as the sample (243) although slightly higher or lesser number could be taken (Dilman, 2007; NPC, 2006; Smith, 2013). A self-structured, validated and pre-tested, questionnaire was the main instrument for data collection. A systematic random sampling technique was applied to select buildings/households to study. Nevertheless, 230 copies of the questionnaire were administered and 219 retrieved. Simple percentage was mainly used for data analysis.

Results

The results were stated in Tables 1-3. Information in these Tables was in response to research questions 1-3 and subsequently ensures achievement of specific objectives 1-3.

Table 1: Awareness of tuberculosis generally among the inhabitants of Minikpiti

Awareness of tuberculosis	Response Frequency (percent, %); N=219		
	Yes (%)	No (%)	Total (%)
Tuberculosis seen as a deadly disease	154 (70.32)	65 (29.68)	219 (100)
Tuberculosis patients feed with separate plates	176 (80.37)	43 (19.63)	219 (100)
Awareness of tuberculosis transmission reduced its occurrence in Minikpiti Community	152 (69.40)	67 (30.60)	219 (100)
Sensitization increased people's awareness on transmission of tuberculosis in Minikpiti Community	133 (60.73)	86 (39.27)	219 (100)
Modernization greatly increased awareness of tuberculosis transmission	145 (66.21)	74 (33.79)	219 (100)

Source: Jeremiah, Sunday, Offiah & Jones Field Work, 2018

Table 1 showed the awareness of tuberculosis generally among the inhabitants of Minikpiti. The Table proved that 69.40% of the inhabitants of Minikpiti were aware of the disease tuberculosis. Out of the 219 respondents, 154 representing 70.32% of the respondents agreed that the inhabitants saw tuberculosis as a deadly disease while 65 representing 29.68% of the respondents said 'No' to the assertion. 176 representing 80.37% of the respondents said the inhabitants of Minikpiti fed tuberculous patients with separate plates.

Table 2: Awareness of tuberculosis transmission mode by the inhabitants of Minikpiti

Mode of tuberculosis transmission	Response Frequency (Percent, %); N=219		
	Yes (%)	No (%)	Total (%)
Tuberculosis transmits from an infected person cough	175 (79.90)	44 (20.10)	219 (100)
Tuberculosis spreads through spit from infected person	152 (69.41)	67 (30.59)	219 (100)
Tuberculosis transmits by breathing contaminated air with the causative bacteria	181 (82.65)	38 (17.35)	219 (100)
Tuberculosis spreads through sneeze from an infected person.	114 (52.05)	105 (47.95)	219 (100)
Tuberculosis transmits when an infected person sings.	93 (42.47)	126 (57.53)	219 (100)

Source: Jeremiah, Sunday, Offiah & Jones Field Work, 2018

Table 2 showed the awareness of tuberculosis (TB) transmission mode among the inhabitants of Minikpiti. From the Table awareness of TB transmission modes average was 65.30%. Out of the 219 respondents, 175 representing 79.90% of the respondents agreed that tuberculosis can be transmitted through coughing from an infected person. 152 representing 69.41% of the respondents agreed that one can contact tuberculosis through spit from infected person. 181 representing 82.65% of the respondents agreed that it is possible to contact tuberculosis by breathing air that is contaminated with the bacteria that causes it. Responses to other modes of TB transmission are stated herein. The average extent on awareness of TB transmission modes (65.30%) was done to have overview of the diverse modes.

Table 3: Preventive measures against tuberculosis transmission mode in Minikpiti Community

Preventive measure	Response frequency (Percent, %); N=219		
	Yes (%)	No (%)	Total (%)
Health personnel in Minikpiti provide vaccines against tuberculosis	130 (59.36)	89 (40.64)	219 (100)
Vaccinations against tuberculosis given to inhabitants of Minikpiti	76 (34.70)	143 (65.30)	219 (100)
Suspected tuberculous patient(s) restricted association by community members in Minikpiti	88 (40.18)	131 (59.82)	219 (100)
Subjecting children to immunization against tuberculosis reduced the rate of tuberculosis transmission in Minikpiti Community	158 (72.15)	61 (27.85)	219 (100)
Periodic screening carried out by health personnel in Minikpiti Community.	76 (34.70)	143 (65.30)	219 (100)

Source: Jeremiah, Sunday, Offiah & Jones Field Work, 2018

Table 3 showed the preventive measures that had been put in place against tuberculosis transmission mode in Minikpiti Community. Some respondents (59.36%) agreed that health personnel provide vaccines against tuberculosis in Minikpiti Community while 40.64% of them disagreed. Respondents (34.70%) agreed that inhabitants of Minikpiti go for vaccinations against tuberculosis, and periodic screening is carried out by health personnel in Minikpiti Community while 65.30% of them disagreed. Respondents (72.15%) agreed that subjecting children to immunization against tuberculosis has reduced the rate of tuberculosis transmission in Minikpiti Community. Further analysis of data on the Table showed that 48.22% of the respondents agreed that there were preventive measures put in place against tuberculosis transmission mode in Minikpiti Community.

Discussion

This study like some other researches on related topics have engaged a legion of literatures from various scholars of Health Sciences and related disciplines which have gained a position over the years, hence optimally compared. There was high awareness (70.32%) of tuberculosis in Minikpiti Community. This finding agreed with the work of Liu et al (2011) in rural China having 87.3% awareness level although higher thereof. Respondents (152, representing 69.40%) have agreed that awareness of tuberculosis had reduced the occurrence of tuberculosis in Minikpiti Community. Furthermore, 133 respondents (60.73%) agreed that sensitization on tuberculosis has increased

people's awareness of the disease in Minikpiti Community. Hence 176 (80.37%) of the respondents said the inhabitants of Minikpiti feed tuberculous patients with separate plates. This study was averse to that of Anjum, Khan, Han, and Abi (2005) who noted that poor knowledge and misconceptions concerning tuberculosis were common in Pakistani communities. Similarly, Ali (2001) found various misconceptions concerning tuberculosis and lack of knowledge on tuberculosis was alarming among its participants in Karachi, Pakistan.

The respondents (175, 79.90%) agreed that tuberculosis could be transmitted through coughing from an infected person. In the same vein, 181 (82.65%) of the respondents agreed that it is possible to contract tuberculosis by breathing air that is contaminated with the bacteria that cause it. Other responses as per mode of tuberculosis transmission include 152 representing 69.41% of the respondents agreed that one can contract tuberculosis through spit from infected person; 114 of the respondents (52.05%) agreed that one can contract tuberculosis through sneeze from an infected person while 105 (47.95%) of them disagree; and 93 (42.47%) of the respondents agreed that tuberculosis can be transmitted when an infected person sings with 126 (57.53%) disagreed on the assertion. Based on the finding, the awareness of the inhabitants of Minikpiti on transmission mode of tuberculosis was high (65.30%) as that proportion of the respondents agreed to the assertion. That modernization has greatly increased the awareness of transmission of tuberculosis was accepted by 145 (66.21%) respondents. A proportion of 57.53% disagreeing with the assertion of singing as a mode of tuberculosis transmission should be worrisome and require more awareness campaign on TB prevention and control.

Respondents (158, 72.15%) agreed that subjecting children to immunization against tuberculosis has reduced the rate of tuberculosis transmission in Minikpiti Community. It was accepted by 40.18% respondents that Minikpiti Community members restrict contact with suspected tuberculosis patient(s), while 131 (59.82%) of them disagreed. Some respondents (76, 34.70%) agreed that inhabitants of Minikpiti go for vaccinations against tuberculosis, and periodic screening is carried out by health personnel in Minikpiti Community while 143 representing 65.30% of the respondents disagreed. The study revealed that an average of 48.22% of the respondents agreed that there was preventive measure put in place against tuberculosis transmission mode in Minikpiti Community. The high proportions of 59.82% and 65.30% indicating not taking appropriate measures against contracting TB or going for periodic screening on it respectively point to possible decrease in the success to reduce TB spread and curb its burden. The few respondents (34.70%) who probably noticed TB vaccinations in Minikpiti corresponds to those who observed health personnel coming to the Community for periodic screening and might be the same persons. Large number among the respondents did not witness any open campaign for TB vaccinations and might not have been involved in special or routine children immunization.

Conclusion

The study on the awareness of the tuberculosis transmission mode in Minikpiti Community, Obio-Akpor Local Government Area LGA of Rivers was carried out to find the extent at which the inhabitants are aware of the occurrence of tuberculous disease and how to curb its occurrence among the inhabitants of the Community. In this study, it was found that in some families tuberculous patients are fed with secluded plate and drinking cup, and used a particular set of bathing materials. In this perspective, it is worthy to state that a very high level of awareness of tuberculosis transmission mode in Minikpiti Community has the potentials of checkmating the occurrence of the disease. The contemporary high awareness of tuberculosis transmission mode has also induced the vast majority of tuberculous patients to opt for early medical treatment to wipe out the disease. In a nutshell, awareness has played a prominent role towards precautionary measures against the occurrence of tuberculosis in the society. From all analysis, it is hereby

concluded that the heightened extent of awareness on the transmission of tuberculosis has greatly lessened the occurrence of the disease among the inhabitants of Minikpiti.

Recommendations

Based on the study, the following recommendations are thereby suggested:

1. Government should establish more Health Centres/Hospitals in Rumuolumeni due to her thick population and to properly equip existing ones.
2. Tuberculous patients should not be stigmatized within the family circles of the community.
3. The inhabitants of Minikpiti should accord high priority towards immunization against tuberculosis.
4. Government to promote sensitization campaigns in the state on transmission of tuberculosis.
5. Medical and health personnel serving in the communities should live above board in the cause of discharging their duties.
6. Companies operating within the communities of Rumuolumeni should be integrated in respect of projects geared towards the modification of tuberculosis transmission in the area especially Minikpiti community.

References

- Ali S. S. (2001). Tuberculosis: Do we know enough? A study of patients and their families in an out-patient hospital setting in Karachi, Pakistan. *International Journal of Tuberculosis and Lung Disease*, 7(11), 1052-1058.
- Anjum, Q. K., Khan, S. J, Han, N. U. & Abi, F. G. (2005). Awareness about common diseases in selected Female College Students of Karachi. *JPMA*, 55, 195.
- Behera, D. (2010). *Textbook of Pulmonary Medicine (2nd Ed.)*. New Delhi: Jaypee Brothers Medical Publishers.
- Bekker, L.G., Hawn, T. R., Day, T. A. & Evans, T. G. (2014). Tuberculosis vaccines and prevention of infection. *Microbiology and Molecular Biology Reviews (MMBR)*, 78(4), 560.
- China's Ministry of Health (2015). National Tuberculosis Prevention and Control Plan (2011–2015). Beijing, China.
- Dillman, D.A. (2007). *Mail and internet surveys: The tailored design method (2nd ed.)*. Hoboken, NJ, USA: John Wiley & Sons.
- Elegonye, K. N. (2008). A family case-study on pulmonary tuberculosis carried out at Niger Hospital, Port Harcourt, Rivers State.
- Gibson, P. G., Abramson, M. & Wood-Baker, R. (2005). *Evidence-based Respiratory Medicine (1st Ed)*. New Delhi: Elsevier BMJ Books.
- Harris, R. E. (2013). *Epidemiology of Chronic disease: Global perspectives*. Burlington, Massachusetts, USA: Jones & Bartlett Learning.
- Liu, H., Li, M., Jin, M., Jing, F., Wang, H. & Chen, K (2011). Awareness of infectious diseases among rural residents in China Zhejiang Province: Exploring socio-demographic determinants of the awareness of these infectious diseases. *International Journals Tuberculosis (Lung Diseases)*, 15(4), 135-146.

- Lu, S. H., Tian, B. C., Kang, X. P., Zhang, W., Meng, X. P., Zhang, J. B. & Lo, S. K. (2009). Public awareness of tuberculosis in China: A national survey of 69, 253 subjects. *International Journals Tuberculosis, Lung Dis.*, 13(12), 1493–1499.
- Mandell, G. L., Benneth, J. E. & Raphael, D. (2010). *Principles and Practice of Infectious Diseases (7th Edition)*. Philadelphia: Churchill Livingstone/Elsevier.
- National Population Commission (2006). *Nigeria demographic and health survey 2006*. Calverton, MD: NPC and ICF Macro.
- National Population Commission (2016). *National Bureau of Statistics*. Retrieved from www.NPCN.com/nationalbureauofstatistics/
- Smith, S. (April 8, 2013). Determining sample size: How to ensure you get the correct sample size. *Qualtrics*
- Tamba, L. & Sichinga, K. (2005). Scale-up tuberculosis control: Development of information, education and communication materials for behaviour of change. *International Journals of Tuberculosis (Lung Diseases)*, 9 (11 Sup 1), 138.
- World Health Organization (2002). *The US national health interview survey worldwide*, Geneva, Switzerland.
- World Health Organization (2006a). *Tuberculosis*. WHO, Geneva.
- World Health Organization (2006b). *Stop TB Partnership. The Stop TB Strategy --- Building on and enhancing DOTS to meet the TB-related Millennium Development Goals*. Retrieved from who/html/tb/2006.368.
- World Health Organization (2008). *Implementing the WHO stop tuberculosis strategy: A handbook for national tuberculosis control programmes*. Geneva: World Health Organization, p 179. ISBN 9789241546676.
- World Health Organization (2013). *Global tuberculosis control report: Profiles of high-burden countries*. WHO, Geneva.
- Zumia, S. D. & Lawn, A. L. (2011). “Tuberculosis”. *Lancet* 378(9785), 57-72. doi: 10.1016/S0140-6736(10)62173-3. PMID 21420161.

Teenage Pregnancy and Its Implications to Public Health in Akpajo Community, Eleme Local Government Area of Rivers State

Rorkeek Michael Offiah, Blessing Simeon Okanje, Stella Nne Okankwu & Catherine Ugwem Jeremiah

School of Public Health, Rivers State College of Health Science and Management Technology, Port Harcourt; 08038887854; rmof2004@yahoo.com

Abstract

This study was carried out to investigate teenage pregnancy and its implications to Public Health in Akpajo Community, Eleme Local Government Area of Rivers State. It was a descriptive study design. The population was 12,824 and the proportion (2.5%) of it derived as sample size of 321. The instrument for data collection was self-structured questionnaire. A multi-stage sampling procedure was applied in questionnaire administration. A total of 321 copies of the questionnaire were distributed with 310 copies retrieved. Data obtained was analyzed using simple percentage. A majority of such associated contemporary issues were lack of sex education (91.29%), parents' absence from home (95.81%), peer pressure (89.35%), low socio-economic status (69.68%), the media promoting untoward influence (68.39%) among others. Some consequences of teenage pregnancy includes associated complication of pregnancy (86.45%), inadequate care/love for the born child (91.61%), increased dropout from school (89.68%) and reduced family moral value (93.87%). The proffered solutions to teenage pregnancy by the respondents were provision of adequate employment opportunities (83.55%), applying sex education in both school and at home (97.77%), adequate and affordable housing for the populace (78.39%) and providing social security (69.35%). Mothers to have good child relationship to enhance adequate communication between them and parents should monitor their teenagers especially on the kind of friends they keep.

Key words: Teenage, pregnancy, implications, Public Health, Akpajo Community.

Introduction

Teenage pregnancy as one of the biggest public health challenges of the 21st century remains a challenge requiring urgent resolution the world over (United Nations Fund for Population Activities, *UNFPA, 2013*). Alabi and Oni (2017) iterated 'Teenage Pregnancy', a case of under-aged girl usually within ages of 13-19 years becoming pregnant, is a serious cankerworm that has eaten deep to the fabric of our societies in this contemporary period. They explained that the social menace termed "Teenage pregnancy" in every day speech usually refers to women who have not reached legal adulthood to become pregnant. Some other and earlier stated definition of pregnancy include: "Teenage pregnancy is a pregnancy in human females under the age of 20 at the time that the pregnancy ends (Hamilton & Ventura, 2012). Teenage pregnancy is simply defined as an unintended pregnancy during the age of 13-19 years old. Undiyaundeye (2012) sees teenage period as a transitional stage of physical and psychological human development generally occurring between puberty and legal adulthood." Undiyaundeye, Agba and Mandeun (2015) noted that in developed and developing countries teenage pregnancy continue to receive increased attention because of early age at which teenagers engage in sexual activity and the result of unplanned and unintended pregnancies associated with the risk and problems of early motherhood, education and communication on reproductive health services. It is also estimated that 75 percent of the world population, younger than 15 years has no access to information regarding sexuality and reproduction. It has been stated that globally, almost a million girls get pregnant each year with 89 percent of birth by teenage girls occurring outside marriage (Public Health Nigeria, 2017) and that

global birth rate among 15-19-year-old girls is 49 in 1,000 (TeenHelp, 2017). In 2014 the World Health Organization reported that 11% of all births were from women aged 15-19 years, an estimated 16 million women globally (WHO, 2014a). According to Guttmacher Institute (2008), the percentage of young men and women that had sexual intercourse between the ages of 13-19 years vary from country to country of which about 56% of young women and 73% of young men have had intercourse by the age of 18 years compared with 55% of young men and 35% of young women in early 70s.

In the United States of America (USA), in 2017, there were 18.8 births for every 1,000 adolescent females aged 15-19, or 194,377 babies born to females in this age group (CDC, 2018a). Births to teens ages 15-19 account for 5.0 percent of all births in 2017. Nearly nine in ten (89.2%) of these births occurred outside of marriage. The 2017 teen birth rate (births per 1,000 females of ages 15-19 in a given year) is down seven percent from 2016, when the birth rate was 20.3, and down 70 percent from 1991 when it was at a record high of 61.8. The teen birth rate has declined to a new low each year since 2009. (Centers for Disease Control and Prevention, CDC, 2018a) Still, the teen birth rate in the United States remains higher than that in many other developed countries, including Canada and the United Kingdom (United Nations Statistics Division, 2015). Teenage birth in the USA is the highest in the developed countries, and abortion among teenagers is also high. (Chen, Ward, Williams & Abdullah, 2013) Even though the teen pregnancy rate has declined over the past few decades, the fact of the matter is that the United States has the highest teen pregnancy rate of the Western industrialized world; 16 million girls of ages 15-19 give birth each year (TeenHelp, 2017). In 2017, Hispanic adolescent females aged 15-19 had a higher birth rate (28.9 births per 1,000 adolescent females) than black adolescent females, 27.6 and white adolescent females, 13.4 (CDC, 2018b). Approximately 750,000 of 15-19-year-old female individuals become pregnant each year, according to the American College of Obstetricians and Gynecologists, though many teenagers do not believe that they will get pregnant if they engage in sexual activity. (Awake!, 2004) Each year, nearly one million teenagers in the United States at the age of 19 become pregnant, while one third of this group abort their pregnancies; 14% miscarriage, 55% bear burden of parenthood and 75% of them bear children out of wedlock.

Approximately 95% of teenage pregnancies happen in developing countries with 36.4 million women becoming mothers before age 18 and 5.6 million having a live birth before age 15 in 2010. Sub-Saharan Africa had the highest prevalence of teenage pregnancy in the world in 2013 (UNFPA, 2013). Public Health Nigeria (2017) found that the highest birth rates among 15-19-year-old teenagers of up to 299 were recorded in sub-Saharan Africa. Births to teenage mothers account for more than half of all the births in this region: an estimated 101 births per 1000 women aged 15 to 19 which almost doubled the global average (UNFPA, 2013; Clifton & Hervish, 2013). The rate of pregnancies across South Africa in respect to the provinces, show that currently high pregnancy rates in schools including the Eastern ones do exist (Macleod & Tracey, 2010). The Nigerian case is not an exception. Iwu (2017) stated that the charity organization 'Help Kids' identified 10 countries, e.g. Nigeria, Niger, Liberia, Mali and other Sub-Saharan African countries where being a mother were extremely hazardous for adolescents and their children. He added that the sad statistics information stipulated that 1 in 6 teenage girls from 15-19 years old gives birth yearly and approximately 1 child out of 7 born by this age range dies before the first birthday. Fourteen of the fifteen countries worldwide that had more than 30% of 20-24-year olds giving birth before age 18 are in sub-Saharan Africa and include Niger, Mozambique, Malawi, Uganda and Cameroon (Loaiza & Liang, 2013).

Undiyaundeye, Agba and Mandeun (2015) asserted that the incidence of teenage pregnancy has been very high in the Nigerian society and that statistically, girls who are reared from poor background families have the highest rated sexual activity that lead to early pregnancy. Alabi and

Oni (2017) investigated the general causes, effect and the way out of this social menace in Nigerian societies and stated the obvious: 'Some of the root causes identified are poverty, peer pressure, poor parental care, street hawking, imbibing immoral values and media influence while the effects include school drop-out, inadequate care for the child born by teenage mother, health problems and a host of other vices'. Ogori, Ajeya & Yunusa (2013) found high level of teenage pregnancy in Kontagora Local Government Area, LGA (37.5%) of Niger State in Nigeria and that it was caused by lack of sex education (62.5%), lack of love, affections and care from both parents (42.5%), financial handicap (42.5%), psychopaths in the LGA (40%) as well as peer pressure (35%) as indicated by proportions of the respondents. An analytical comparative cross-sectional study in a rural town (of Sagamu LGA, Ogun State) in Western Nigeria found that the prevalence of teenage pregnancy was 22.9%. The study also noted that teenagers [48.2%] reported more unwanted pregnancy when compared with the older age group [13.6%]. Furthermore, about half [41.1%] of the teenage pregnant women and 28.6% of the older pregnant women did not know how to correctly use condom to prevent pregnancy. From the study, predictors of teenage pregnancy were low social class, religion, being a student and having a white collar job. (A Moran, 2012) Through a survey carried out at Pedro Village, one of the poorest neighborhoods in Lagos, Nigeria, the United Nations was quoted to have stated that 53,000 women in Nigeria die annually of pregnancy-related illnesses, which is one of the highest maternal mortality rates in the world. The survey added that doctors and youth counselors in Nigeria said teenage mothers are more at risk because of poverty, lack of access to health care, and a culture that does not like to talk about sex. (VOA, 2012) Iwu (2017) narrated that in 2008, Nigeria was the first African country with teenage pregnancy of 121 live births per 1000 births. According to Bradley (2006), over 900,000 teenagers give birth annually and 150 out of every 1000 women who give birth in Nigeria were 19 years old or below. Public Health Nigeria (2017) noted that in Nigeria an estimated 23% of women aged 15-19 years have begun childbearing, of which 17% have had their first child and 5% are pregnant with their first child. The Body went further to relate the National Population Commission (NPC) report that more teenage girls in Nigeria are getting pregnant, stressing that the occurrence of teenage pregnancy in the country might increase to over 60 million in two years if urgent steps are not taken to curb the trend.

Teenage pregnancy may result from many associated contemporary issues or factors such as rape, lack of sex education, socio-economic factor, the environment (conducive/non-conducive) etc. These could expose individuals or victims to the risk of being infected with sexually transmitted infections such as HIV and unplanned, unwanted pregnancies. Poverty as a factor can also lead young people who are trapped in it to end up being victims of sexual trafficking. (Nwosu, 2017) Study showed evidence that poor parenting, poverty, dating, violence, age discrepancy in relationship, child environmental factors, medical care inadequacy etc are the major causes that lead to the consequences of teenage pregnancy (Undiyaundeye, Agba & Mandeun, 2015). Lack of information among young people about sex education is still a problem in Nigeria because parents do not have enough time to sit with their children and talk about sex. This is severely worsened by cultural beliefs about fertility, religious beliefs and taboos relating to sexuality and public disclosure on sex (Nwosu, 2017; WHO, 2014c; UNFPA, 2013). Teenage pregnancy can be a result of poverty because some are involved sexually with older men in relationships where gifts such as money, clothes, and other goods are exchanged for sexual favours. Teenagers who are born and have grown up into the circle of poverty may end up into prostitution as a way of compensating the salaries of the parents. This may lead to lack of schooling and decrease in employment opportunity. (Lee, 2010; Habitu, Yalew & Bisetegn, 2018; Amoran, 2012) When the family is dysfunctional there is little or no love offered to the off-springs in such households. The young tend to seek love and affection elsewhere. Media can also be a contributory factor in early sexual relationship amongst the teenagers from an early age. (WHO, 2014b) Undiyaundeye (2012) posited that "a pregnant girl face

the trauma of parents and peers showdown”. Here some parent themselves become angry and fail to give support for the preservation of the girl and the unborn baby. Some as a result of their pregnancies seek to remedy the condition thereby indulging in criminally induced abortion and theft; such steps often lead to certain complications including uterine infection, pelvic infection, infertility and even death. (Hoque, Hoque & Anwar, 2013; Assefa, Abiyou & Yeneneh, 2015; Adam, Elhassan, Ahmed & Adam, 2009)

Teenage pregnancy countrywide is growing rapidly among school going pupil and Junior Secondary School students with its attendant adverse outcomes (Vincent & Alemu, 2016; WHO, 2011). The researchers had observed that teenage girls become sexually active in the Akpajo Community with pregnancy among young people presently assuming uncontrolled proportions and that by the time they get to 20 years of age many would have had two (2) or more children without being married. It is on this note that the researchers resolved to elicit the contemporary issues linked to teenage pregnancy and x-ray its implications to Public Health with proffered solutions to the problem in Akpajo Community, Eleme Local Government Area of Rivers State.

Specific Objectives

These are:

1. To explore associated contemporary issues linked to teenage pregnancy in Akpajo Community.
2. To find out the consequences of teenage pregnancy in Akpajo Community.
3. To ascertain remedies that can strengthen teen pregnancy prevention strategies relevant to the needs of Akpajo Community.

Research Questions

The following research questions will guide this study.

1. What are the associated contemporary issues linked to teenage pregnancy in Akpajo Community?
2. What are the consequences of teenage pregnancy in Akpajo Community?
3. What remedies are there to strengthen teen pregnancy prevention strategies relevant to Akpajo Community?

Methodology

A descriptive survey research design was used. The community population had been further projected from 6,149 of 1996 to 12,824 at growth rates of 2.8%, 3.2% and 3.5% in 2019 as the community breakdown in 2006 Population Census is no more available (National Population Commission, NPC, 1996 & 2016). Taking 2.5% of the study population (12,824) as sample it becomes approximately 321 participants required (NPC, 2006; Dillman, 2007; Smith, 2013). In this work the total community population was being studied. A structured questionnaire constituted the basic instrument of data collection for this study. There were 24 items most of which were for two-option of “Yes” and “No” responses organized in four sections. Multi-stage sampling procedure was applied. For sampling purpose, the community was divided into sections with usage of stratified random sampling technique. Subsequently, systematic random sampling and simple random sampling were used in gathering the data. A total number of 321 copies of the questionnaire were distributed to the respondents but 310 copies of it were retrieved. The rest were not retrieved or incompletely filled.

The data obtained in August, 2019 were summarized by tallying and coding, then presented in frequency Tables and analysed using percentages.

Results

The results were stated in Tables 1-3. Information in these Tables was in response to research questions 1-3 and subsequently ensures achievement of specific objectives 1-3.

Table 1: Associated contemporary issues influencing teen pregnancy in Akpajo Community

Variable	Response (Percentage, %)		
	Yes (%)	No (%)	Total (%)
Lack of sex education	283 (91.29)	27 (8.71)	310 (100)
Low socio-economic status/poverty	216 (69.68)	94 (30.32)	310 (100)
Parents' absence from home	297 (95.81)	13 (4.19)	310 (100)
Unstable home	199 (64.19)	111 (35.81)	310 (100)
Sexual abuse/rape	220 (70.97)	90 (29.03)	310 (100)
Curiosity on any matters	114 (36.77)	196 (63.23)	310 (100)
Extreme peer pressure	277 (89.35)	33 (10.65)	310 (100)
Dictates of culture	121 (39.03)	189 (60.97)	310 (100)
Media promoting untoward influence	212 (68.39)	98 (31.61)	310 (100)

Source: Offiah, Okanje, Okankwu & Jeremiah Field Work, 2019

Table 1 considered contemporary factors/issues associated with teen pregnancy. Parents' absence from home (95.81%), lack of sex education (91.29%), peer pressure effect (89.35%) and sexual abuse/rape (70.97%) were the most implicated issues. Nevertheless, 63.23% and 60.97% of these respondents did not see curiosity on matters and dictates of culture as outstanding associated contemporary of teenage pregnancy. On the other hand, media promoting untoward influence (68.39%) was increasingly being associated with cause of teen pregnancy.

Table 2: Consequences of teen pregnancy in Akpajo Community

Variable	Response (Percentage, %)		
	Yes (%)	No (%)	Total (%)
Associated pregnancy complications	268 (86.45)	42 (13.55)	310 (100)
Possible resultant death	195 (62.90)	115 (37.10)	310 (100)
Likely malnutrition	209 (67.42)	101 (32.58)	310 (100)
Inadequate care/love for born child	284 (91.61)	26 (8.39)	310 (100)
Reduced family moral value	291 (93.87)	19 (6.13)	310 (100)
Increased dropout from school	278 (89.68)	32 (10.32)	310 (100)

Table 2 presented the consequences of teen pregnancy in Akpajo Community. Consequences such as reduced family moral value (93.87%), inadequate care/love for the born child (91.61%), increased dropout from school (89.68%) and associated pregnancy complications (86.45%) were the noted resultant effect of teenage pregnancy.

Table 3: Proffered preventable measures against teen pregnancy in Akpajo Community by the respondents.

Variable	Response (Percentage, %)		
	Yes (%)	No (%)	Total (%)
Provision of adequate employment opportunities	259 (83.55)	51 (16.45)	310 (100)
Applying sex education in both school and at home	300 (96.77)	10 (3.23)	310 (100)
Discouraging teenage marriage	121 (39.03)	189 (60.97)	310 (100)
Providing social security	215 (69.35)	95 (30.65)	310 (100)
Ensuring amenities in community	186 (60.00)	124 (40.00)	310 (100)
Adequate and affordable housing for the populace	243 (78.39)	67 (21.61)	310 (100)

Source: *Offiah, Okanje, Okankwu & Jeremiah Field Work, 2019*

Table 3 indicated suggested preventable measures against teen pregnancy in Akpajo Community by the respondents. Among such actions were application of sex education both in school and at home (96.77%), provision of adequate employment opportunities (83.55%), adequate and affordable housing for the populace (78.39%) and providing social security (69.35%). But these Akpajo respondents did not think 'discouraging teenage marriage' (60.97%) could solve the problem or contemporary issue of teen pregnancy.

Discussion

Findings from the study showed that parents' absence from home (95.81%), lack of sex education (91.29%) and peer pressure (89.35%) are among the most outstanding factors influencing or contemporary issues associated with teen pregnancy in the semi-urban Akpajo Community. This is in line with the work of Qolesa (2017) who added that various factors were identified from individual level, social level and structural level which contributed to early sexual initiation resulting in unplanned teenage pregnancy.

The findings were the observed consequences of teen pregnancy in Akpajo Community over some years past. Amongst them were reduced family values (93.87%), inadequate care/love for the born child (91.61%), and increased dropout from school (89.68%). These findings are related to the work of *Odimegwu and Mkwanzani (2016)*, who in their results showed that teenage pregnancy was associated with family disruption, community-levels of female unemployment and community poverty.

Some suggested solutions for teen pregnancy were made by Akpajo residents. They ascertained that the followings could suffix: Applying sex education in both school and at home (96.77%), Provision

of adequate employment opportunities (83.55%), Adequate and affordable housing for the populace (78.39%) as well as providing social security (69.35%). Implementing those measures is expected to curb the menace of teen pregnancy. Diverse authorities had taken steps to stem the tide of teen pregnancy leading to some results in Africa.

Conclusion

Teenage pregnancy is a major contemporary issue or social problem. Teenage pregnancy mostly occurs when the parents, schools and government fail to perform a good campaign on total abstinence to sex. The effect of teenage pregnancy includes loss of education, loss of relationship, financial trouble, homelessness and sexually transmitted diseases on the teenager and the child. There are effects on the teenage mothers, their babies and the entire society such as reduced family morale, pregnancy complications, the poor standard of living and school drop-outs. On the other hand teaching teenagers comprehensive sex education mostly at the basic level is very important. It is important to note that good sex education in a girl child helps to prevent unwanted pregnancy. Although there are many ways to prevent teenage pregnancy but the absolutely effective one is abstinence. This is the only method that guarantees no risks of getting pregnant and protects the teenager from getting sexually transmitted diseases.

Recommendations

The following recommendations are hereby made:

1. The community should strategize on how to effectively disseminate information on adverse teenage pregnancy outcome in order to discourage the younger generation.
2. Parents should monitor their 9-12-year children and teenagers especially on the kind of friends they keep.
3. Sex education should comprehensively be given to 9-12-year children and teenagers on the effect of teenage pregnancy.
4. A good mother and child relationship should be encouraged to enhance adequate communication between them.
5. Sex talks including puberty changes should regularly be given by mothers to their teen daughters.
6. Opportunity has to be provided for the older teens to serve as mentors to the younger ones.
7. Parents and teachers should be plain and frank about the effect of premarital sex to teenagers that are liable to suffer from such a contemporary issue.

References

Adam, G. K., Elhassan, E. M. Ahmed, A. M. & Adam, I. (2009). Maternal and perinatal outcome in teenage pregnancies in Sudan. *International Journal of Gynecology and Obstetrics*, 105(2), 170-171.

- Alabi, O. T. & Oni, I. O. (2017). Teenage pregnancy in Nigeria: Causes, effect and control. *International Journal of Academic Research in Business and Social Sciences*, 7(2), 17-32.
- Amoran, O. E. (2012). A comparative analysis of predictors of teenage pregnancy and its prevention in a rural town in Western Nigeria. *International Journal for Equity in Health*, 11(37).
- Assefa, B., Abiyou, M. & Yeneneh, G. (2015). Assessment of the magnitude of teenage pregnancy and its associated factors among teenage females visiting Assosa General Hospital. *Ethiopian Medical Journal*, 53, 53.
- Awake! Magazine (April, 2004). *Teenage pregnancy: A global tragedy*.
- Centers for Disease Control and Prevention, CDC (2018a). Births: Final data for 2017. *National Vital Statistics Reports*, 67(8). Retrieved from https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_08-508.pdf.
- CDC (2018b). *Natality public-use data 2007-2017*. Retrieved from <http://wonder.cdc.gov/natality-current.html>.
- Chen, C-K., Ward, C., Williams, K. & Abdullah, A. (2013). Investigating risk factors affecting teenage pregnancy rates in the United States. *European International Journal of Science and Technology*, 2(2), 41-51. ISSN: 2304-9693 www.cekinf.org.uk/EIJST.
- Clifton, D. & Hervish, A. (2013). *The world's youth 2013 data sheet*. Washington DC: Population Reference Bureau.
- Dillman, D.A. (2007). *Mail and internet surveys: The tailored design method (2nd ed.)*. Hoboken, NJ, USA: John Wiley & Sons.
- Guttmacher Institute (2008). *Adolescent pregnancy and sexual risk taking among sexually abused girls*.
- Gyan, C. (2013). The effects of teenage pregnancy on the educational attainment of girls at Chorkor, a suburb of Accra. *Journal of Educational and Social Research*, 3(3), 53.
- Habitu, Y.A., Yalew, A. & Bisetegn, T.A. (2018). Prevalence and factors associated with teenage pregnancy, Northeast Ethiopia:: A cross-sectional study. *Journal of Pregnancy (Hindawi)*, 1-7.
- Hamilton, B.E. & Ventura, S.J. (2012). *Birth rates for U.S. Teenagers reach historic lows for all age and ethnic groups*. USA: Centres for Diseases Control and Prevention Press.
- Hoque, M., Hoque, E., Anwar, M. (2013). Assessment and Comparison of Obstetric Characteristics and Perinatal Outcomes of Rural Population of South Africa. *Tropical Journal of Obstetrics and Gynaecology*, 26(1), 60-67.

- Iwu, N. (2017). *Teenage pregnancy in Nigeria*. Retrieved from <https://www.legit.ng/1099525-teenage-pregnancy-nigeria.html>.
- Lee, D. (2010). The early socioeconomic effects of teenage childbearing: A propensity score matching approach. *Demographic Research*, 23(25), 697-736.
- Loaiza, E. & Liang, M. (2013). *Adolescent pregnancy: A review of evidence*. New York: United Nations Population Fund.
- Macleod, C.I. & Tracey, T. (2010). A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. *South African Journal of Psychology*, 40(1), 18-31.
- National Population Commission, NPC (1996). *Nigeria population and housing census*. Abuja, Nigeria: NPC.
- NPC (2006). *Nigeria demographic and health survey 2006*. Calverton, MD: NPC and ICF Macro.
- NPC (2016). *National bureau of statistics*. Retrieved from www.NPCN.com/nationalbureauofstatistics/
- Nwosu, U. M. (2017). Contemporary factors of teenage pregnancy in rural communities of Abia State, Nigeria. *International Journal of Community Medicine and Public Health*, 4(2), 588–592.
- Odimegwu, C. Mkwanzani, S. (2016). Factors associated with teen pregnancy in sub-Saharan Africa: A multi-country cross-sectional study. *Afr J Reprod Health*, 20(3), 94-107.
- Ogori, A. F., Ajeya, S. F. & Yunusa, A. R. (2013). The cause and effect of teenage pregnancy: Case of Kontagora Local Government Area in Niger State, northern part of Nigeria. *International Open Journal of Educational Research*, 1(7), 01 - 15.
- Public Health Nigeria (2017). *Teenage pregnancy in Nigeria: 7 things it completely destroys*. Retrieved from <https://www.publichealth.com.ng/teenage-pregnancy-7-things-it-destroys/>
- Qolesa, S.K. (2017). *Factors influencing teenage pregnancy in Heidedal location, Mangaung District of Free State Province*. Retrieved from <http://etd.uwc.ac.za/>
- Smith, S. (April 8, 2013). Determining sample size: How to ensure you get the correct sample size. *Qualtrics* .
- TeenHelp (2017). *Teen pregnancy statistics*. Retrieved from <https://www.teenhelp.com/>
- Undiyaundeye, F.A. (2012). *Introduction to child studies: Help us grow into our dreams*. Obudu: Refjamic

Undiyaundeye, F. A., Agba, A. A. & Mandeun, T. (2015). The effect of teenage pregnancy on the girl-child. *International Journal of Multidisciplinary Thought*, 05(04).

United Nations Population Fund, UNFPA (2013). *Motherhood in childhood: Facing the challenge of adolescent pregnancy. State of world population*. New York: UNFPA.

United Nations Statistics Division (2015). *Demographic yearbook 2013*. New York, NY: United Nations. Retrieved from <http://unstats.un.org/unsd/demographic/products/dyb/dyb2013/Table10.pdf>.

Vincent, G. & Alemu, F. M. (2016). Factors contributing to, and effects of teenage pregnancy in Juba. *South Sudan Medical Journal*, 9(2), 28–31.

Voice of America (November 2, 2009). *Teen pregnancy in Nigeria perpetrates health risks, poverty*. Retrieved from <https://www.voanews.com/archive/teen-pregnancy-nigeria-perpetrates-health-risks-poverty>.

World Health Organization, WHO (2011). Guidelines on preventing early pregnancy and poor reproductive outcome among adolescents in Developing Countries. Geneva: WHO.

WHO (2014a). Adolescent Pregnancy: Secondary adolescent pregnancy. Retrieved from http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/.

WHO (2014b). *Adolescent pregnancy*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs364/en/>.

WHO (2014c). *Adolescent pregnancy fact sheet*.

***In Situ* Yield in Primary Productivity of Sand Mined Ponds of Otamiri River in Owerri, South-East Nigeria**

¹Alaye A.S.Bibiye and ²Henry D.Ogbuagu

¹School of Environmental Health Technology, Department of Environmental Health, Rivers State College of Health Science and Management Technology, Port Harcourt, Nigeria

²School of Environmental Science and Management Technology, Department of Environmental Sciences, Federal University of Technology, Owerri, Nigeria

Abstract

This study investigated the possible impact of sand mining on primary productivity of mine ponds along the banks of Otamiri River in Imo State. Six sampling locations, designated as WC1, WC2, WC3, WC4, WC5 and WC6 were established in sand mine ponds of the river. WC1-WC3 was established in ponds where active mining had ceased while WC4-WC6 was established in ponds with ongoing mining. *In situ* measurements for surface water temperature, pH, Dissolved Oxygen (DO), Conductivity, salinity and Total Dissolved Solids (TDS) were made with HANNA I-H 9828 PH/ORP/EC/DO meter. The light and dark bottle technique was used to estimate primary productivity. Water samples were collected in 1ml sterile plastic containers for determination of other physicochemical variables and transferred to the laboratory in an ice packed cooler to preserve their integrity. Wide variations were observed in conductivity 25-58(36.67±5.35)µS/cm, TSS 3.31-6.00(4.69± 0.44)mg/L, TDS 12.00-29.009(18.00±2.73)mg/L, SO₂ 9.44-14.44 (10.64± 0.34) mg/L and turbidity 1.50-4.00 (2.56± 0.37) NTU. The descriptive statistics, Pearson correlation(r), and single factor: ANOVA, student's t-test, structure detection of group means and Principal Components Analysis (PCA) were used for the analysis of data. Gross and Net primary Productivity (GPP and NPP) as well as community respiration (CR) ranged from 0.18-0.64 (0.31±0.70)mgCL⁻¹d⁻¹, 0.05-0.32 (0.18± 0.04)mgCL⁻¹d⁻¹ and 0.01-0.59 (0.13±0.09) mgCL⁻¹d⁻¹, respectively. WC 6 showed the highest GPP and CR of 0.64 and 0.59 mgCL⁻¹d⁻¹ each while WC 4 showed the highest NPP of 0.32mgCL⁻¹d⁻¹. Least GPP (0.18mgCL⁻¹d⁻¹) was recorded in WC 1 while WC 6 and WC 5 least recorded NPP (0.05 mgCL⁻¹d⁻¹ each) and CR (0.01 mgCL⁻¹d⁻¹). There was significant spatial heterogeneity in mean variance of primary productivity ($F_{(62.47)} > F_{crit(4.13)}$), at **P?0.05**; with the actively sand mined ponds showing higher productivity, accompanied with higher nutrient levels (PO₄²⁻, SO₄²⁻ and NO₃⁻) and slightly higher turbidity than the non-mined ponds. Findings indicate that though primary productivity regime of the sand mine ponds of Otamini River was low, active sand mining appeared to enhance productivity in the mine ponds probably through re-suspension and elevation of growth nutrients in water column, even as this was associated with slightly increasing turbidities. Inorganic nutrients and turbidity were the key determinate impact factors of productivity in the water column.

Keywords: Gross Primary Productivity, Net Primary Productivity, Community Respiration, Sunlight, Ecosystem

1. Introduction

Primary production proceeds through the process of photosynthesis (global change, 2008). A very tiny fraction of primary production is driven by organism utilizing the chemical energy of inorganic molecules. In aquatic ecosystem, the major limiting factors to primary production are light (solar

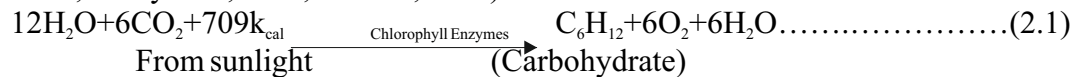
radiation) and nutrients (Guildford & Hecky, 2000; Simmons, Long, et al., 2004), though temperature and seasonal variation in light intensity also exert influences on distribution of phytoplankton (algae) (Vaillancourt, Marra, et al., 2003). According to Bellamy (2007), carbon (IV) oxide concentration in addition to temperature, nutrient and light concentration also limit primary production. However, the intensity of light is a direct function of weather and perturbation and turbidity could exert a negative influence on light intensity and this may affect photosynthetic process in water bodies.

Furthermore, one of the anthropogenic causes of increased turbidity in water bodies could be traceable to sand mining activities. Sand mining according to Ofomata (2009) simply means the process of scooping or obtaining sand, mud or gravel from the bottom of water bodies. According to Tamuno (2005), sand mining could exert both detrimental and beneficial effects. He outlined the benefits of inland dredging to include navigational channels improvement, land reclamation, socio-economic development, flood mitigation and beneficial usage of dredge materials. On the contrary alterations of hydrological regimes, loss of wetlands and flood plains, sediments suspension and increased turbidity, impacts on flora and fauna, and impacts on livelihood have been recognized as the localized adverse impacts of sand mining. Sand mining along the length and breadth of Otamiri Rivers in Owerri, southeastern Nigeria could therefore impact the biological, chemical and physical characteristics of the aquatic ecosystem. Incessant and unregulated sand mining activities in the ponds could lead to other ecological problems.

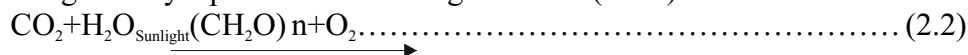
In an aquatic ecosystem, the pelagic and benthic zones play an essential role in primary production. Light rays pass through the pelagic zone to the benthic zone in a shallow stream or river and to some extent terminate at the pelagic zone in deep seas. Thus, if this zone is perturbed anthropogenically (i.e. by sand mining) activities, there will be major ecological process disruption and a decline in population of organisms will set in (Bray, Bates & Land 1998; Tamuno, 2005; Simmons, Long et al., 2004; Bush 2003).

2. Primary Productivity Process

Plant requires sunlight, carbon (IV) oxide, water and nutrients, and through photosynthesis the plant multiplied carbon compound and oxygen by the process of photosynthesis which converts light energy into energy stored within plant tissues. The energy fuels the metabolic machinery of the plant (Global Change, 2008; Molles, 2002; Ogbuagu & Ayoade, 2011). Photosynthesis occurs in tiny membranous organelles called chloroplasts that resides within plant cells. The most important key to this process is chlorophyll, a unique green molecule that can absorb light energy and use it to create high-energy chemical bond in compounds that serve as the fuel for all subsequent cellular metabolisms (Cunningham & Cunningham, 2008). During the process the chlorophyll is aided by large group of other lipid, sugar, protein and nucleotide molecules (Cunningham & Saigo, 1990; Tilzer & Dubinsky, 1987). Below is an equation expressing primary productivity process (Kiely, 1998; Narayanan, 2011; Molles, 2002):



It is generally represented according to Molles (2002) as



3. Materials and Methods

The Otamiri River which rises from Egbu in Owerri Local Government Area, Imo State, Southeastern Nigeria, is one of the major surface water bodies traversing the city, providing domestic source of water and fisheries as well as artisanal sand mining by local inhabitants. The city

lies between latitude 5° 29' O6S and longitude 7° 02' O6S. The area is characterized by two major seasons-a wet (which lasts from April to November) (Ogbuagu & Ayoade, 2011) and a dry season (that lasts the rest of the year). The vegetation of the area is semi-deciduous forest whose density has been altered by anthropogenic activities (Onweremadu, et al.,2008). Mean daily average temperature range between 28 and 35°C, with average humidity of up to 80%. The topsoil is slightly moderately humus in composition. With a population of about 400, 000 people in a 5100, 000 square mile (100 km²) land area (NPC, 2006) and an estimated increase since then, it is expected that exploitation of the natural resources will be accelerated. In addition, trading and subsistence farming characterized the inhabitant of the area.

A total of six sampling points designated as WC1 - WC6 were established in the sand mine ponds along the middle course of the Otamiri River in Owerri, Southeastern Nigeria. Of the six sampling points, three (WC4 –WC6) were selected within an actively sand-mined pond (actively perturbed) while the other three (WC1-WC3) were sited within an abandoned sand-mine pond (actively unperturbed).The HANNA HI 9828 PH/ORD/EC/DO meter was used to measure surface water temperature, pH, Dissolved Oxygen (DO), conductivity, salinity and Total Dissolved Solids (TDS) *in situ*. Measurements were made in replicates and averages samples of were used in the analysis. Water samples for laboratory analysis were collected in 1ml sterile contains from the six sampling points and labeled WC1, WC2, WC3, WC4, WC5 and WC6 respectively. Samples for the determination of heavy metal contents were fixed with 2 drops of concentrated trioxonitrate (V) acid (HNO₃) and transported to the laboratory in an ice-packed cooler.

Primary Productivity Measurements

Three identical transparent 1-litre bottles were filled with the pond water and stoppered while still submerged. The first bottle was analyzed immediately and used to determine the initial O₂ concentration, while that of the other two bottles were suspended in the pelagial water zones where the water had been taken with the aid of a rope; one covered with black polythene (dark bottle) and the other not covered (transparent or light bottle) and the other not covered (transparent or light bottle). The setup was incubated for four hours in a sunny afternoon (Ikenweibe & Otubusin, 2005). Immediately after the incubation period, the bottles were brought out and the oxygen concentrations in them measured with HANNA H1 9828 PH/ORD/EC/DO meter. This experiment was done in replicates and the average recorded. As photosynthesis would not have taken place in the dark bottle, it provided a measure of respiration while the light bottle that permitted both photosynthesis and respiration provided a measure of net photosynthesis.

The relevant primary productivity variables were calculated and expressed as mg of O₂ produced per liter of water per day using the following formula:

$$GPP \text{ (mg O}_2\text{ L}^{-1}\text{ d}^{-1}\text{)} = NPP \text{ (mg O}_2\text{ L}^{-1}\text{ d}^{-1}\text{)} + CR \text{ (mg O}_2\text{ L}^{-1}\text{ d}^{-1}\text{)} \dots\dots\dots 3.1$$

Where GPP is gross primary productivity (photosynthesis), NPP is net primary productivity (photosynthesis) and CR is community respiration (Simmons et al., 2004). The carbon equivalents of productivity variables were computed by multiplying the Oxygen values by 0.375 and expressed as mgCL⁻¹d⁻¹ (Global Change, 2008).

All the water quality parameter measured were expressed in mg/L, except pH, temperature(°C), turbidity (NTU) and EC (µS/cm). Samples were analyzed for 17 (Temperature, DO, pH, EC, Salinity, TDS, SO₄²⁻, PO₄³⁻, NO₃⁻, TSS, Turbidity, Cd, Cu, Ni, Zn and Pb) parameters using Standard Methods for Examination of Water and Wastewater in line with the experimental procedure of the American Public Health Association (APHA) (1985). Details of the experimental methods and equipment used are given elsewhere (American Public Health Association, 1985; Chounlamany, 2015).

Data generated were subjected to statistical analysis by the MS Excel version 2007 and SPSS© such as mean and standard version 17.0. Descriptive statistics was used to compute minimum and maximum data sets, ranges, errors of the primary productivity variables as well as physicochemical properties of surface water samples. The test of homogeneity in means variance of primary productivity variables was conducted with single factor analysis of variance (ANOVA). The student's t-test of significance was used to determine difference in primary productivity between the actively perturbed and derelict ponds.

4. Result

Variation in Primary Productivity

There were narrow variations in the primary productivity parameters measured at the sand mine ponds along the course of the Otamiri River during the study period (Table 2). Gross primary productivity (GPP) varied from 0.1800-0.6413 (0.3128 ± 0.7018) $\text{mgCL}^{-1}\text{d}^{-1}$, Net Primary Productivity (NPP) varied from 0.0518-0.3150 (0.1819 ± 0.0432) $\text{mgCL}^{-1}\text{d}^{-1}$ and community respiration (CR) varied from 0.0135-0.5859 (0.1309 ± 0.0926) $\text{mgCL}^{-1}\text{d}^{-1}$ (Table 4.1).

Table 1: Descriptive statistics of primary productivity of Otamiri River

Productivity ($\text{mgCL}^{-1}\text{d}^{-1}$)	Minimum	Maximum	Range	Mean	S.E
GPP	0.1800	0.6413	0.4613	0.3128	0.7018
NPP	0.0518	0.3150	0.2632	0.1819	0.0432
CR	0.0135	0.5859	0.5760	0.1309	0.0926

SE=Standard error of mean

Spatial Variation in Primary Productivity

The primary productivity parameters showed variations across the sampling points. Maximum GPP of $0.6413 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in sampling point 6 (WC6) while minimum GPP of $0.1800 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in WCI (Fig 4.1). Maximum NPP of $0.3150 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in WC4 while minimum productivity of $0.0518 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in WC6 (Fig. 4.1) maximum CR of $0.5895 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in WC6 while minimum CR of $0.0135 \text{ mgCL}^{-1}\text{d}^{-1}$ was recorded in WC5 (Fig 4.1). The test of homogeneity in mean variance of the primary productivity variables across the sampling locations using the single factor analysis of variance (ANOVA) revealed significant heterogeneity [$F(62.47) > F_{crit}(4.13)$ at $P < 0.05$ (Table 1).

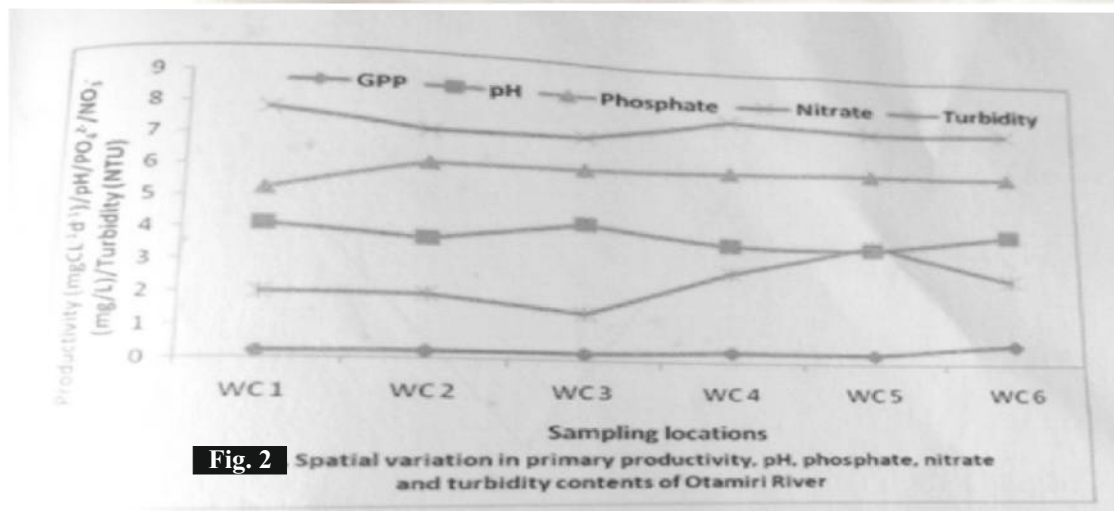
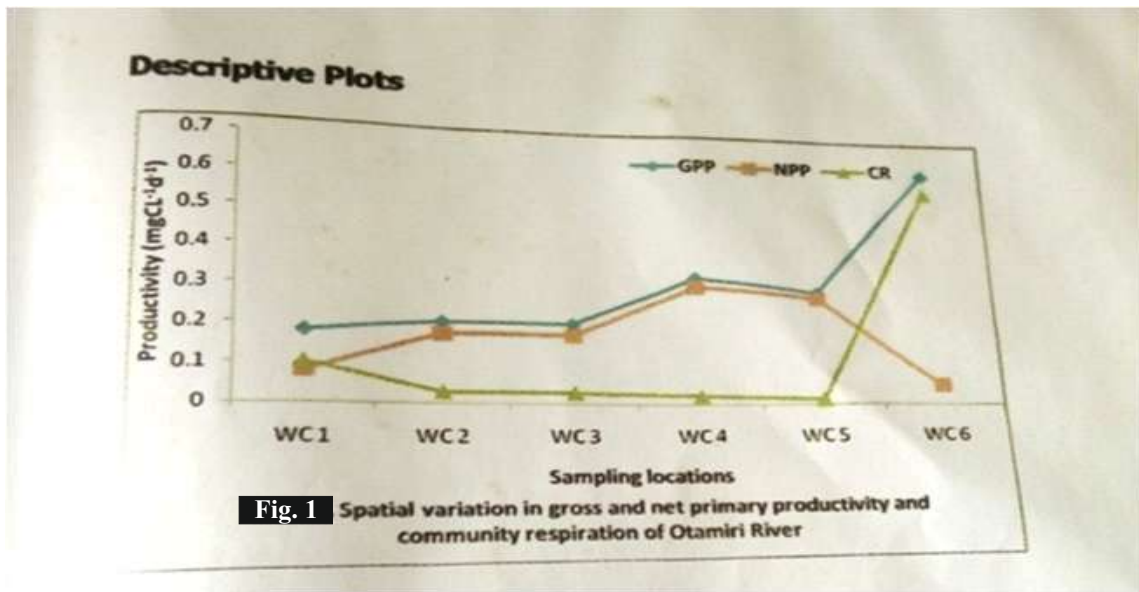


Table 2: Primary Productivity of Sand Mine Ponds of Otamiri, River Across the Sampling Points

Productivity (mgCL ⁻¹ d ⁻¹)	WC1	WC2	WC3	WC4	WC5	WC6
GDP	0.1800	0.2093	0.2093	0.3375	0.2993	0.6413
NPP	0.0788	0.1800	0.1800	0.3150	0.2858	0.0518
CR	0.1013	0.0293	0.0293	0.0225	0.0135	0.5895

GPP = Gross Primary Productivity, NPP = Net Primary Productivity
 CR = community Respiration, WC = Water column

Table 3: Homogeneity in spatial mean variance of primary productivity of Sand mine of Otamiri. ANNOVA: single factor

SUMMARY						
GROUPS	COUNT	SUM	AVERAGE		VARIANCE	
Column 1	18	3.7535	0.208528		0.033343	
Column 1	18	63	3.5		3.088235	
ANONA						
SourceP-Variation	Of SS	df	MS	F	P-Value	Fcrit
Between Groups	47.5041	1	97.5041	62.4710	3.32E	4.130018
3	0.9					
Within Groups	53.06683	34	1.560789			
Total	150.5709	35				

5. Discussion

The mean gross primary productivity recorded in this study was low and comparable to that obtained by Ogbuagu & Ayoade, (2011) in the Imo River in Etche, South-Eastern Nigeria. However, values were lower than those recorded by Ikenweibe and Otubusin (2005) in Oyan Lake, South-Western Nigeria but higher than that recorded by Adeniji (1990) in Asa Lake, South-Western Nigeria. Elsewhere, values were also higher than those recorded by Simmons *et al.*, (2004) in the US Appalachian coal region.

The current work gives an annual productivity of 114.48mgCL⁻¹yr⁻¹ only. This low *in situ* productivity could be linked to ongoing intense sand mining in the mine ponds bordering the river. Tamuno (2005) and Ogbuagu & Ayoade (2011) had observed that stream sand mining could exert negative influence on the productivity of aquatic ecosystems. The current work, with higher nutrients and lower turbidity levels contrasts the observations of low nutrients and very high turbidities in Imo River by Ogbuagu & Ayoade (2011). This higher nutrient level may have been introduced from the ongoing perturbations of the benthic regions of the pond during sand mining. It is known that the sediments of aquatic ecosystems are repository for nutrients and pollutants, as well as home to many biotic components of water bodies (Sikoki & Zabberly, 2006; Bamikole, Ndubusi, Ochuko & Olaronke, 2009).

The marked spatial variation in productivity reflects varying abiotic influences (especially of nutrients and turbidity) which, as key drivers to primary productivity in aquatic ecosystems, are impacted by sand mining activities in the locations. Productivity varied distinctively between the actively mined and derelict locations; with the actively mined ponds recording higher productivity most probably due to the re-suspension and bioavailability of growth nutrients to the autotrophs responsible for photosynthesis in water columns. For example, sampling location 6, with the highest yields in primary productivity also had the highest sulphate and phosphate, as well as high nitrate contents. Nitrate and phosphate ions are key contributors of eutrophication in aquatic ecosystems (Molles, 2002; UNEP GEMS, 2006). Consequently therefore, productivity increased with increasing nutrient levels from the derelict to the actively perturbed locations, to such an extent that it seemed to have deferred increasing turbidities and suspended solids (TSS) which would have otherwise impaired productivity (Ogbuagu & Ayoade, 2011).

The very low salinities recorded in the freshwater ponds indicate possible re-suspension of such salinity constituting cations as Ca_2^+ , Mg_2^+ , Na^+ and K^+ and anions such as CO_3^{2-} , HCO_3^{2-} , SO_4^{2-} and Cl^- from excavations of sediments of the ponds. This is collaborated by increasing values from the derelict to the actively mined ponds.

6. Conclusion

Studies have revealed that some pollutants such as the heavy metals are more bio available and so have greater toxicities towards aquatic lives, including autotrophic algae, at acidic pH (UNEP GEMS, 2006). The higher productivities recorded in the actively mined locations could thus, also be associated with the observed slightly higher acidity recorded in the derelict locations. Active sand mining appeared to encourage primary productivity in mine ponds of Otamiri River, with the inorganic nutrients and turbidity as key driver impact factors of the process.

7. Recommendation

1. Sand mining influences benthic organism biota and this can lead to biodiversity loss of such aquatic organisms. Thus, there should be enforcement of necessary regulation(s) by the concern agency.
2. The turbidity factor of intense sand mining is an adverse impact on primary productivity mostly in areas where there are paucities of elevations of growth nutrients in water column. Therefore, sand mining activities along the Otamiri River should be monitored, regulated and impact evaluated by the concerned agency in a bid to create environmental awareness.

References

- Adeniji, H.A. (1990). *Limnology and biological production in the pelagic zone of Jebba lake, Nigeria*. Ph.D Thesis, University of Ibadan, Nigeria.
- American Public Health Association (1998). *Standard methods for the examination of water and wastewater (20th ed.)*. Washington DC: APHA/AWWA/WEF.
- Bamikole, W.A., Ndubusi, A., Ochuko, A.P. & Olaronke, O.O.O. (2009). Macrobenthic fauna of snake island area of Lagos lagoon, Nigeria. *Research Journal Science*, 4(3), 272—276.
- Bellamy, P. (2007). *Academic dictionary of environmental (1st ed.)*. New Delhi: Star Offset.
- Bray, R. N., Bates, A.D. & Land, J.M. (1998). *Dredging a handbook for engineers*. New York: John Wiley.
- Bush, M.D. (2003). *Ecology of a changing planet (3rd ed.)* Upper Saddle, New Jersey: Pearson Education. Retrieved from <http://www.prenhall.com/bush>.
- Chounlamany, V. (2015). *Effect of the Quezon city-controlled dump facility leachate on the water quality of a segment of Marika River*. Ph.D Dissertation, University of the Phillipines, Dilima
- Cunningham, W.P. & Cunningham, M.N. (2008). *Principles of environmental science: Inquiry and applications (4th ed.)*. McGraw Hill High Education.
- Cunningham, W.P. & Saigo, S.B. (1990). *Environmental science*. Dobuque, Iowa: Wm. CBrown.
- Global Change (2008). *The flow of energy: Primary production to higher trophic levels. The Regents of the University of impact on streams in the Mid-Atlantic and Southeastern United States. Michigan*. Retrieved from <http://www.globalchange.umich.edu>.
- Guildford, S.J. & Hecky, R.T. (2000). *Total Nitrogen, Total Phosphate, and Nutrient Limitation in Lakes and ocean is there a common Relationship? LimnolOceanogr*, 45, 1213-1223.
- Ikenweibe, N.B. & Otubusin, S.O. (2005). An evaluation of the pelagial primary productivity and potential fish yield of Oyan Lake, South Western Nigeria. *The Zoologist*, 3, 46-57.
- Kiely, G. (1998). *Environmental engineering (International ed.)*. McGrawHill
- Molles M. C. Jr (2002). *Ecology concept and applications (2nd ed.)*. Molles Ecology

- Narayanan, P. (2011). *Environmental pollution: Principles, analysis and control (Rev. ed.)* Edition, Setist Kura, India.
- Ofomata, G.E.K. (2009). *Basic geomorphology for Africa*. Enugu: Jaoc Publisher
- Ogbuagu, D.H. & Ayoade, A.A. (2011). Estimating of Production along Gradients of the Middle course of Imo Rivers in Etche, Nigeria. *International Journal of Bioscience (IJB)*, 1(4), 68-73. Available online at <http://www.innspab.net>.
- Onweremadu E.U., Akamigbo F. & Igwe, C.A. (2008). Soil quality morphological index in relation to organic carbon content of soils on Southwestern Nigeria. *Trends App. Sci. Res.* 3(1), 76-82.
- Sikoki, E.D. & Zabbey, N. (2006a). Environmental gradients and benthic community of the middle reaches of Imo River, South-Eastern Nigeria. *Environmental and Ecology*, 24(1), 32-36.
- Simmons, J.A., Long, J.M. & Ray, J.W. (2004). Mine water and environment, the production of acid mined drainage treatment ponds/technical articles. *IMWA Spenger-Verlage, USA*, 23, 44-53.
- Tamuno, P.B.L. (2005). *Eco-livelihood assessment of inland river and dredging: the Kolo and Otuoke Creeks, Nigeria: A case study*. Ph.D Thesis, Loughbourogh University.
- Tilzer, M.M. & Dubinsky, Z. (1987). Effects of temperature and day length on the mass balance of antarctic phytoplankton. *Polar Biology*, 7, 35-42.
- UNEP/GEMS (2006). United Nations Environmental Programme/Global Environment Monitoring System water quality for ecosystem and human health.
- Vaillancourt, R.D., Marra, J., Barber, R.T. & Smith Jr., W.O. J. (2003). Primary productivity and *in situ quantum yields* in the Ross Sea and Pacific sector of the antarctic circumpolar current. *Deep-Sea Research*, 11(50), 559-578.

Influence of Work Stress on Job Performance of Health Information Management Personnel in Selected Hospitals in Bayelsa State, Nigeria

Prince Casmir Ifejirika

Department of Health Information Management, Rivers State College of Health Science and Technology, Port Harcourt, Nigeria.
princecasyman@yahoo.com

Adias Eneghe Spiff

Department of Health Information Management, Bayelsa State College of Health Science and Technology, Otuogidi Ogbia, Nigeria.

Abstract

Health information management personnel constitute the swivel around which the successful attainments of quality health care goals revolve. Job performance is of high relevance in hospital administration and for personnel alike. Moreover, high performing personnel get promoted and rewarded. Job performance of health information management personnel does not occur in a vacuity but is dependent on leadership styles, work stress and other motivational factors that are apropos to increasing their productivity. However, preliminary survey revealed chaotic state of patient health records in the medical records repository or library with adverse inference for access to patient health information, continuation of patient care and decision making in selected hospitals. It is against this background that this study investigated the influence of work stress on job performance of health information management personnel in selected hospitals in Bayelsa State, Nigeria. The descriptive survey design of correlational type was used for the study. The population of the study was made up of eighty (80) health information management personnel in the two selected hospitals. The total enumeration technique was adopted due to the manageable size of the population. The questionnaire was the instrument for data collection. The result showed that factors that predispose health information management personnel to work stress were undefined and conflicting roles workload, lack of support from co-workers and supervisor, mismatch of task with knowledge and ability and unconducive work environment, while job performance was low. Finally, since job performance does not occur capriciously, it is imperative that hospital management should address those predisposing factors that emits work stress of personnel that negates their optimum job performance, by employing qualified Health Information Management personnel as well as train the existing ones, to efficiently collect, preserve and promptly provide access to medical information to meet the needs of authorized users and other stakeholders in the health industry.

Keywords: Work stress, Job performance, Hospital, Health Information Management Personnel

Introduction

Patient medical records constitute the corporate memory of the hospitals' asset required for patient's continuation of treatment, referral, effective planning, monitoring, evaluation and decision making (Abioye & Ifejirika, 2018). The extent to which patient medical records are capable of meeting the information needs of the hospital, medical and paramedical personnel, Government and its agencies and other stakeholders in health industry is, however, dependent on the health records management system of the hospital which, in turn, is conditioned by the job performance of health information management personnel. The attainment of hospital goals, mission and vision is dependent on successful implementation of patient medical records management programme in the hospital. Job performance of health information management personnel is therefore of high significance in the health care delivery system. High performance in the accomplishment of tasks associated with data collection, filing and prompt access and retrieval of patient medical records inculcates in the

personnel the feelings of gratification, self-efficacy and mastery (Bandura, 1997; Kanfer & Ackerman, 2005). Moreover, health information management personnel who perform their assigned tasks prudently get recognised, promoted, rewarded and honoured in the hospital. Yet career opportunities for health information management personnel who perform well are much better than those of moderate or low performing personnel in the hospital (Van Scotter, Motowidlo & Cross, 2000).

Job performance is a core concept within work and organisational psychology (Muchinsky, 2003). It connotes the orientation of an employee on the approach to whatever work task the person is to carry out at a given period of time. Job performance of health information management personnel is the manner in which assigned task is performed by them in the hospital. This assertion was supported by Stefan (2011) who described job performance as results of activities of either an employee or organisation for a specific time. Job performance involves taking series of actions to produce results and this is done through proper integration of job knowledge, competence and skills (Elger, 2013). Sonnentag and Freese (2002) described it as what an employee does in work situation and how effective and efficient it was done for accomplishment of elucidated goals and objectives. The successful implementation and execution of medical records management programme in the hospital revolves around health information management personnel in the hospital. Effective medical records management strategies are to ensure that the patient health information needed is promptly retrievable, preserved, authentic, and accurate at all times to meet the needs of authorized information users or stakeholders. This is particularly a challenging goal in the 21st century when health information management personnel generates and processes patient health information on an unparalleled scale. Managing and preserving the physical and intellectual content of patient medical records in an effective and cost-efficient manner can be an onerous task which has the propensities of predisposing health information management personnel to work stress (Abioye & Ifejirika, 2018).

The choice of leadership styles to adopt by the hospital administrators and Head of Department in the hospital in managing health information management personnel's actions and inactions should be critically examined to avoid introducing factors capable of predisposing them to work stress that negates their job performance, owing to the fact that the way and manner in which this recorded patient information is being organized, preserved and managed by health information management personnel is very imperative in effective provision of patient information resources to meet the needs of authorized users in health care delivery system (Abioye & Ifejirika, 2018). It is on this premise that the study aimed at unraveling the influence of work stress on job performance of health information management personnel in selected hospitals in Bayelsa State.

Statement of the problem

Efficient collection of patient's medical information, preservation and timely access and retrieval to patient's medical records is crucial to the survival of the modern day hospital administration. Patient's medical records are indispensable hospital corporate asset and constitute a veritable tool for patient continuation of treatment, medical research, statistical data for monitory of diseases trend and prevalence, planning, evaluation and decision making in both public and private hospital institutions. The extent to which patient's medical records are readily retrieved to meet the information needs of the legitimate users in the hospital and other stakeholders is, however, dependent on its records management practices which are closely connected with the job performance of health information management personnel. Preliminary assessment revealed a messy state of patient medical records in the medical records repository or library in the selected hospitals with attendant difficulty in having timely access to and retrieval of patient medical information resources for research, planning and informed decision making. This deduces the poor job performance of health information management personnel in such hospitals. There are copious

factors that can foretell the job performance of health information management personnel. What role do work stress play in this regard? It is against this backdrop that the study seeks to investigate the influence of work stress on job performance of health information management personnel in selected hospitals in Bayelsa State, Nigeria.

Objectives of the Study

The aim of this study is to investigate the effect of work stress on job performance of health information management personnel in selected hospitals in Bayelsa State, Nigeria. The specific objectives are to:

- (i) determine the predisposing factors of work stress of health information management personnel in selected hospitals in Bayelsa State;
- (ii) ascertain the level of job performance of health information management personnel in the selected hospitals in Bayelsa State; and

Research Questions

To realize the objectives of the study, the following research questions were answered:

- (i) What are the predisposing factors of work stress of health information management personnel in the selected hospitals in Bayelsa State?
- (ii) What is the level of job performance of health information management personnel in selected hospitals in Bayelsa State?

Methodology

The study adopted descriptive survey design of correlational type to determine the relationship between the independent and dependent variables of the study. The population of the study comprised 55 health information management personnel (HIMP) in Federal Medical Center Yenagoa and 25 HIMP in Niger Delta University Teaching Hospital Okolobiri in Bayelsa State, giving a total of 80 HIMP in the selected hospitals. Total enumeration of the entire 80 HIMP was undertaken due to the manageable size of the population. Questionnaire was the instrument used for data collection. The instrument was considered appropriate because of the large number of the respondents involved. The questionnaire has 4 sections A-D. Section A dealt with the demographic information of the respondents while sections B-D was based on a 4 point rating scale, ranging from Strongly Agreed (SA) to Strongly Disagreed (SD). The expected mean response per item was 2.50 (either in favour or disfavour of what was measured). The scale has a Cronbach's Alpha coefficient of 0.87 indicating that the scale is reliable. Data collection lasted three weeks. Data collected were analyzed using descriptive statistics, which include; percentage frequency table and percentage distribution mean.

Result

Table 1: Predisposing Factors of Work Stress of Health Information Management Personnel

ITEMS	SA	A	D	SD	Total	(?)	(σ_x)
I do have work overload in my place of work	22 (30.6%)	22 (30.6%)	18 (25.0%)	10 (13.9%)	72 (100%)	2.22	1.038
My job is physically and emotional demanding	17 (43.3%)	15 (43.7%)	30 (9.6%)	10 (3.3%)	72 (100%)	2.46	1.006
I work in a poor and unconducive physical environment	19 (26.4%)	15 (20.8%)	19 (26.4%)	19 (26.4%)	72 (100%)	2.53	1.150
My role in the work place is not well defined and it's conflicting.	14 (19.4%)	23 (31.9%)	17 (23.6%)	18 (25.0%)	72 (100%)	2.54	1.074
I don't receive support always from my co-workers and supervisor in the work place	14 (19.4%)	22 (30.6%)	18 (25.0%)	18 (25.0%)	72 (100%)	2.56	1.073
I work in place where people don't complement each other	16 (22.2%)	26 (36.1%)	22 (30.6%)	8 (11.1%)	72 (100%)	2.31	.944
There is a mismatch of assigned task and my knowledge and ability.	15 (20.8%)	17 (23.6%)	28 (38.9%)	12 (16.7%)	72 (100%)	2.51	1.007
My knowledge and ability is under-utilized in my work place	16 (22.2%)	18 (25.0%)	22 (30.6%)	16 (22.2%)	72 (100%)	2.53	.966
I'm under a anxiety while performing my duties in the work place	19 (26.4%)	18 (25.0%)	23 (31.9%)	12 (16.7%)	72 (100%)	2.39	1.056
Weighted Mean = 2.45							
Criterion Mean = 2.50							

NB: SD-Strongly disagree, D-Disagree, A-Agree, SA-Strongly Agree, mean (?), standard deviation (σ_x)

Table 1 reveals that the most predominant predisposing factors of work stress of health information management personnel in selected hospital in Bayelsa State were lack of support from co-workers and supervisors (N=72; \bar{x} = 2.56; σ_x = 1.073), undefined and conflicting roles (N=72; \bar{x} = 2.54; σ_x = 1.072), poor and unconducive physical environment (N=72; \bar{x} = 2.53; σ_x = 1.150), under-utilized knowledge and ability (N=72, \bar{x} = 2.53; σ_x = .966) and mismatch of assigned task with knowledge and ability (N=72, \bar{x} = 2.51; σ_x = 1.007). However, the extent to which these factors predispose work stress of health information management personnel in selected ministries is minimal and not that strong, this was attested by test of criterion validation which shows that the criterion mean 2.50 outgrows the values of weighted mean 2.45

Table2: Level of Job Performance of Health Information Management Personnel

Statement	SA	A	D	SD	Total	\bar{x}	σ_v
I always arrive for work on time every day.	22 (30.6%)	26 (36.1%)	22 (30.6%)	2 (2.8%)	72 (100%)	2.06	.854
I volunteer for activities beyond my formal job	18 (25.0%)	24 (33.3%)	20 (27.8%)	10 (13.9%)	72 (100%)	2.31	1.002
I always meets work deadlines in my work place	22 (30.6%)	18 (25.0%)	28 (38.9%)	4 (5.6%)	72 (100%)	2.19	.944
I feel encouraged to come up with new and better ways of doing things.	19 (26.4%)	19 (26.4%)	24 (33.3%)	10 (13.9%)	72 (100%)	2.35	1.023
I co-operate with my supervisors and co-workers in accomplishing demanding task.	17 (23.6%)	22 (30.6%)	20 (27.8%)	13 (18%)	72 (100%)	2.40	1.044
I deal appropriately with confidential records/information under my custody.	20 (27.8%)	22 (30.6%)	24 (33.3%)	6 (8.3%)	72 (100%)	2.22	.953
I do manage documents, files, information and retrieve same quickly and effectively.	21 (29.2%)	18 (25.0%)	22 (30.6%)	11 (15.3%)	72 (100%)	2.32	1.059
I deal appropriately with the security and preservation of records under my custody	16 (22.2%)	19 (26.4%)	30 (41.7%)	7 (9.7%)	72 (100%)	2.39	.943
I'm rewarded, appreciated and commended for job well done in the work place	21 (29.2%)	17 (23.6%)	23 (31.9%)	11 (15.3%)	72 (100%)	2.33	1.061
Weighted Mean = 2.29							
Criterion Mean =2.50							

Discussion

The finding revealed that the main predisposing factors of work stress of records management personnel in selected hospitals in Bayelsa State were lack of support from co-workers and supervisor, undefined and conflicting roles, poor and uncondusive physical environment, under-utilized knowledge and ability, mismatch of assigned task with knowledge and ability and work load. However, the extent to which these factors predispose health information management personnel in selected hospital to work stress is minimal and not that strong. The finding is in line with the position of National Institute of Occupational Safety and Health (1999) and Jex (1998) that work-related stress is the response personnel may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope, a situation where the personnel cannot properly coordinate available resources and job demands with personal abilities. Furthermore, this finding is in conformity with the research work conducted by Abioye and Ifejirika (2018), who elucidated several sources of work stress of records management personnel in selected ministries in Rivers State, which include workload, lack of support from co-workers and supervisor, undefined and conflicting roles, poor and uncondusive physical environment, under-utilized knowledge and ability, mismatch of assigned task with knowledge and ability and insufficient work materials. Finally, this study is in conformity with the study conducted by Sharpley et al (1996) on university staff in Monash University, Australia. The most commonly reported sources of work stress were lack of regular feedback about how well I am doing my job, lack of promotion opportunities, workload, time pressure, lack of necessary equipment and/or infrastructural support. Meanwhile the university employees were suffering from moderate job stress level in that study

The finding further revealed that the overall level of job performance (task and contextual performance) of records management personnel was slightly low in selected hospitals in Bayelsa State. Their slightly low job performance were characterised by the level of deteriorated folders and

records in the medical library, inability to meet work deadlines, lack of mutual co-operation between supervisors and co-workers in accomplishing demanding task, poor storage and misfiling of records in the file shelves, poor maintenance of records schedule and appraisal standards, delay in accessing and retrieving medical records, lack of willingness to volunteer for activities beyond their formal job requirement. This finding is in support of the submission by Curral (2013) when he described individual job performance as the unique contribution of an employee to the achievement of organisational goals. In conformity with this finding, Ifejirika and Abioye (2018) in their research work entitled Influence of management styles and job stress on job performance of records management personnel in selected ministries in Rivers Sate, finding revealed low job performance (task and contextual) among records management personnel in selected ministries. The finding is in line with the assertion of Kottewari and Sharief (2014) that maximum performance from employee can be achieved when organisation provides the needed tools and the right atmosphere to perform expected tasks.

Conclusion

There is a seeming paucity of literature on the influence of work stress on job performance of health information management personnel in hospitals in Nigeria. This study seems to have bridged the gap to an extent and showed the slightly low level of job performance of health information management personnel in selected hospitals. The study further established undefined and conflicting roles, workload, and lack of support from co-workers and supervisors, poor and uncondusive work environment and lack of training were the predominant predisposing factors of work stress of health information management personnel in the selected hospitals in Bayelsa State. The styles of leadership in the hospital are therefore, one of the influencing factors that stimulate personnel inherent potentials, knowledge and skills and work stress free that promote job performance of health information management personnel in hospitals, since it does not occur capriciously or in a vacuum. The failure of hospital administrators to adopt appropriate leadership styles that are goal oriented has been a major setback to the modern health information management practice in both public and private hospitals.

Recommendations

Arising from the conclusion drawn from the findings, the study recommended the following:

1. Hospital administrators must adopt effective leadership styles that are goal oriented, sensitive to the plight of the personnel and capable of ameliorating those factors associated with job stress that negates the job performance and productivity of health information management personnel in the hospital.
2. The finding revealed slightly low level of job performance of health information management personnel in selected hospitals. Since job performance does not occur arbitrarily or in a vacuum, hospital administrators and its leadership should employ trained and qualified health information management personnel as well as train the existing personnel to reposition the Medical Records Department and to enhance the level of job performance of health information management personnel in the hospitals.
3. Hospital administrators and its leadership should ensure that work is designed with a commensurate salary packages in a way that is capable of improving health information management personnel's feeling of satisfaction and commitment to their work and by implication, enhancing the efficient patient's medical records management in the hospitals.

References

- Abioye, A.A. and Ifejirika, P.C. (2018). Influence of management styles and job stress on job performance of records management personnel in selected ministries in Rivers State civil service. *Ibadan Journal of Education Studies*, 15(2): 11-19
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Curral L. (2013). Core performance measures. *Encyclopedia of Quality of Life Research Science+Business Media Dorecht*
- Elgar, D. (2013). *Theory of performance*. Retrieved from File://F:\12/T0heoryofP.htm 1-6.
- Jex, S. M. (1998). *Stress and job performance: Theory, research, and implications for managerial practice*. Thousand Oaks, CA: Sage.
- Kanfer, R. & Ackerman, P. L. (2005). Work competence: A person-oriented perspective. In A. J. Elliot & C. S. Dweck (Eds), *Handbook of Competence and Motivation* (pp. 336-353). Guilford Publications
- Kotteswari, M. & Sharief, S. T. (2014). Job stress and its impact on employees' performance: A study with reference to employee working in BPOS. *Journal of Business Administrative Research Review*, 2(4), 1-25.
- Muchinsky, P.M. (2003). *Psychology applied to work (7th ed.)*. Belmont, CA: Wadsworth.
- National Institute for Occupational Safety and Health (1999). Stress at work: Centers for Disease Control and Prevention. *U. S. Department of Health and Human Services*, 26, 99-101.
- Sharpley, C. F., Reynolds, R. & Acosta, A. (1996). The presence, nature and effects of job stress on physical and psychological health at a large Australian university. *Journal of Educational Administration*, 34, 73-86.
- Sonnentag, S. & Frese, M. (2002). Performance concepts and performance theory. In S. Sonnentag (ed.), *Psychological management of individual performance* (pp. 3 – 25). Chichester: Wiley.
- Van Scotter, J. R., Motowidlo, S. J. & Cross, T. C. (2000). Effects of task performance and contextual performance on systemic rewards. *Journal of Applied Psychology*, 85, 526-535.

Performance of Unripe Plantain-Wheat Flour Blend in Pancake Production

¹Bills, U. S., ²Isong, N., ³Mkpaoro, J. I. & ⁴Mboi S. S.

^{1,3,4}School of Dental Health Science, Rivers State College of Health Science
And Management Technology, Port Harcourt, Rivers State.

²Department of Home Economics, Nutrition and Dietetics, University of Uyo, Uyo,
Akwa Ibom State.

urobills30@gmail.com, 08033387328.

Abstract

This research work was on developing an enhanced pancake product for appearance, taste, tenderness and overall acceptability. Unripe plantain flour was prepared and blended with wheat flour at 10%, 20%, 30% and 50% levels of substitution for pancake production. Sensory panelists from Department of Human Ecology, Nutrition and Dietetics, University of Uyo, Akwa Ibom State in Nigeria, evaluated the baseline and enhanced products (pancake) for appearance, taste, texture and general acceptability, on a hedonic scale of 1=liked extremely and 9= unlike extremely. The result indicated that the sensory properties for appearance, taste, texture and general acceptability of the 10% unripe plantain substituted pancakes were statistically almost the same with the 100% wheat flour pancake samples. The mean score of the sensory attributes decreases as plantain flour increases in the formulation. The result showed that samples produced using 10%, 20% and 30% unripe plantain flour showed significant difference from sample produced using 50% unripe plantain flour in terms of general acceptability. From the study, it is shown that 10%-30% levels of unripe plantain flour could be used in composite pancake production, whereas up to 50% and above is unacceptable as pancake characteristics maybe affected. It is therefore recommended that substitution level of 10%-30% unripe plantain flour be used for plantain/wheat composite pancake production. The proximate composition of the pancake samples ranged from 44.30-54.8% moisture, 2.19-5.25% protein, 12.65 -14.50% fat, 2.95%-4.21% Ash, 1.88-2.33% fibre, and 23.68-31.26% carbohydrate.

Keywords: Wheat flour, Unripe plantain flour, Pancakes, Sensory evaluation.

Introduction

Plantain (*Musa paradisiaca*) is an important staple food crop in Nigeria and some West African countries. It is a starchy food cooked by either boiling or frying method before consumption. Plantain is usually harvested in abundance during the latter part of the rainy season especially in Nigeria, the period of September up to February and with records of much wastage during this period due to peak supply. These food products are highly perishable as they do not store for a longer period of time, resulting in seasonal availability (Idoko, 2013).

They are harvested mostly unripe and sometimes when ripe, and the starch in ripe products has the nutritional advantage of being converted to reducing sugars and sucrose (Lii, Chang & Young, 2011). Plantain flour could be used or combined with wheat flour for the production of pancakes, as seen in this work. The choice of plantain flour for this study stems from the fact that plantain is readily available in our society and also is very cheap to afford than the wheat flour, especially considering the high exchange rate of Naira to the Dollar, for the importation of wheat flour.

Plantain is said to contain fibre and the U. S. 2010 Dietary Guidelines recommend for increase in individuals' daily intake of whole grains and fibres. Researches have also shown that these dietary practices help to reduce the risk of high blood pressure, coronary heart disease and diabetes (Hayes, Howe & Surges-Champoux, 2015).

Furthermore, pancakes are “ready-to-eat” breakfast food products. It is relatively a breakfast entree serve as a potentially vehicle for further increasing whole grain due to their ease in preparation (Case, 2008). Increased intake of whole grains such as wheat flour, along with corresponding higher fiber intakes, has been associated with reduced risk of diabetes, high cholesterol levels, obesity, strokes and cardio vascular diseases, and also aids in digestion process (Jacobs, Meyer & Solvoil, 2011).

In traditional medicine practice, unripe plantain has been shown to be useful in the management of weight loss/obesity and diabetes. This is confirmed by a report of the study of hypoglycemic action of unripe plantains in experimental animals (Ojowole & Adewunmi, 2003). Unripe plantains have some medicinal value as it has been discovered that their extracts contain not only minerals, but some secondary metabolites with anti-oxidant potentials (Akinmoladun, et al., 2007). These anti-oxidant potentials of unripe plantain have been implicated in the therapeutic effects of the product and its use by the traditional medicine practitioners of Nigeria in the dietary management of diabetes mellitus and other diseases conditions (Eleazu, Okafor & Ikpeama, 2010).

The phytochemical composition of unripe plantain flour showed that it contained significant qualities of saponins, flavonoids, alkaloids and tannins and the saponins are known to possess beneficial properties by lowering the cholesterol level in the body (Price, Johnson & Fenwick, 1987). Unripe plantain has anti-ulcerogenic healing and anti-diabetic activities as studies have shown that these activities of unripe plantain products were found in experimental models, and more effective when compared with some conventional agents with known anti-ulcerogenic activity (Kumar, Gautama, Singh & Goel, 2013).

Several health benefits including reduce blood cholesterol level, slow absorption of glucose and improved insulin sensitivity are associated with intake of dietary fibre and available data from studies indicate that significantly lower risk of obesity, type 2 diabetes, constipation, coronary heart diseases and some cancers are associated with dietary fibre consumption (Krunz, Brauchia, Slavin & Miller, 2012). Plantain fruits have high fibres and resistant starch content and their flours are a high dietary fibre source (Pacheco-Dalahaye, Maldonado, Perez. & Schroeder, 2008). The production of suitable flours from local raw materials, such as unripe plantain, is in line with Food and Agricultural Organization (FAO) promoted and sponsored composite flour technology programme, to overcome the technical restraints on the utilization of local grain and starchy flours in the production of bakery and other food products (Ogazi, 1988).

The above is shown in the use of plantain flour in the production of cakes, biscuits and other bakery products with general likeability of the products (Idoko & Nwajiku, 2013; Jideon & Jideani, 2011). Plantain is said to have a high hypoglycemic action than wheat. Its hypoglycemic properties as shown in research studies, is said to be useful in inducing weight loss/management of obesity, treatment of diabetes and other systemic disease conditions (Iweala, Obichi,. & Omotosho, 2011; Ojowole & Adewunmi, 2003).

The main ingredient for the production of pancake is flour and it contains starch and protein. The protein in flour especially wheat flour is called gluten, which is important for the formation and structure of pancakes (Rolfes, Pinna & Whitney, 2012). When flour is mixed with water, the protein gluten loosens from one another and stretches out to rearrange, giving a good structure of the food products (Larson, 2012). Unripe plantain flour incorporated with wheat flour showed some degree of gelatin capacity, which is useful in the preparation of pancakes and other bakery products such as cakes and biscuits (Ogazi, 1986). The major problem that attracts the attention of the researcher in

this study is the difficulty in importing wheat flour due to the high cost, as a result of the high exchange rate of Naira to the dollars in the country, whereas there is availability of plantain in our society where plantain flour could be easily and affordably processed.

This difficult condition has an adverse effect in the production of wheat flour-based food products, including pancakes which served in many homes for meal, especially for breakfast and foods in between meals.

Materials and Methods

Study Location

The study location was at the Department of Human Ecology, Nutrition and Dietetics, University of Uyo, AkwaIbom State in Nigeria. The locations are predominantly occupied by Ibibio, Annang, Oron and Obolo ethnic groups in Nigeria, who cultivate and consume plantain in a very large proportion.

Sources of Ingredients and Preparation

The wheat flour and other ingredients were bought in one lot from mile one market in Port Harcourt. The unripe plantain was also bought from mile one market and was converted into flour following the method describe below:

- a. Peel the unripe plantains and slice them into 2-3mm disc.
- b. Lay them out on a mesh tray with some air spaces and flip half way through to ensure even drying.
- c. Dry in the sun for about 8 hours daily until very dry and crunchy.
- d. Once the chips are dried, remove from the sun and allow the chips to cool completely before grinding.
- e. Use a high powered blender (preferably glass) and grind the chips in small batches until they are powdered.
Always sift in between grinding repeatedly until all the chips are powdered.
- f. Place flour in an air tight container and store in a dark cool place.

Recipe Standardization

A standard pancake recipe was modified from pancake recipes obtained from about five different sources of pancake producers (Appendix II). Pancakes were produced separately from each of these recipes and a sensory evaluation conducted using staff and students from the Department of Human Ecology, nutrition and Dietetics, University of Uyo; to choose the best of all the five products into one standard recipe used as a baseline product for the experiment.

Below is the baseline recipe for the experiment:125gm of flour, 2 medium sized eggs, 250mls of milk, 1 table spoonful of sugar, Vegetable oil and a pinch of salt.

Equipment used: Non-sticky frying pan, Gas cooker, mixing bowls or liquid blender, Wooden or rubber spatula, weighing scale, measuring bowls and spoons, Egg whisk, Chopping board and Knife.

Experimental Procedure

A series of six experimental phases were conducted to determine the optimal incorporation of pancake flour in enhanced pancake products.

The experimental phases were:

- a. 100% wheat flour (OPM)

- b. 90% wheat flour and 10% plantain flour (FBN)
- c. 80% wheat flour and 20% plantain flour (ECO)
- d. 70% wheat flour and 30% plantain flour (FBI)
- e. 50% wheat flour and 30% plantain flour (QRO)
- f. 100% maintain flour (PAM)

In the experiments, the ingredients and their quantities remained the same as in the standard recipe, except for the flours which will be substituted in percentages in each phase of the experiments. A standard recipe is used for all the phases, exception of the percentages of wheat and plantain flours in each phase.

Preparation of Pancake

- (a) Mix flour, salt and sugar
- (b) Beat eggs until they turn creamy
- (c) Add the dry ingredients
- (d) Add milk, then mix everything together
- (e) Pre-heat the frying pan over medium-low heat
- (f) Pour the batter (about 3-4 table spoons) into the pan.
- (g) Cook for 2 minutes, flip and cook until the bubbles burst and turn golden.

Sensory Evaluation

A ranking test was used to conduct the sensory analysis.

Twenty panelists drawn from staff and students of the Department of Home Ecology, Nutrition and Dietetics, University of Uyo, Akwalbom State in Nigeria, were invited prior to the day of the evaluation. The participants were given a questionnaire to assess the sensory characteristics of the products (both baseline and the enhanced), according to their preference. A plate of pre-cut samples of all the pancake products were coded with a three digits' random letters, and attributes were tested on a 9-point hedonic ranking scale to include appearance, taste, texture and general acceptability; in order of reduced acceptability where 1 = liked extremely and 9=dislike extremely. Water was provided for participants (i.e. the panelists) to rinse and clean their mouth between samples. This was to prevent the taste of one sample from masking that of another sample.

Statistical Analysis

Duncan's multiple range tests were used for proximate and sensory evaluation analysis. All measurements were carried out in triplicates. The triplicate mean values of the samples were subjected to one-way ANOVA (Analysis of Variance) using SPSS version 20.0 statistical software. Differences considered significant at 5% ($P < .05$). Results were expressed as mean \pm standard deviation. The one-way ANOVA was also used for comparison of the means.

Result and Discussion

Table I: sensory evaluation mean scores of pancakes produced from unripe plantain- wheat flour blend.

Formulation Sample	Appearance	Taste	Texture	Overall Acceptability
OPM	1.45 ^a ± 0.07	1.70 ^a ± 0.06	1.35 ^a ± 0.30	1.65 ^a ± 0.27
FBN	2.35 ^{ab} ± 0.07	2.60 ^{ab} ± 0.06	2.30 ^b ± 1.00	2.20 ^{ab} ± 0.27
ECO	2.65 ^b ± 0.54	3.10 ^{bc} ± 0.06	3.30 ^c ± 0.05	2.90 ^{bc} ± 0.16
FBI	3.75 ^c ± 0.47	3.55 ^{bc} ± 0.06	3.45 ^c ± 0.05	3.35 ^{cd} ± 0.14
QRO	4.10 ^c ± 0.47	3.7c ^c ± 0.06	3.80 ^c ± 0.05	4.10 ^d ± 0.14
PAM	5.10 ^d ± 1.00	4.05 ^d ± 0.06	4.25 ^c ± 0.05	5.00 ^d ± 0.07

Values are means ±SD of triplicate determination. Means in the same column with different superscript are significantly different at p<0.05.

Table II: Proximate Composition of Unripe Plantain- Wheat Flour Blend

Sample	Moisture	Protein	Fat	Ash	Fibre	CHO
OPM	44.30 ^a ± 0.22	5.25 ^{ab} ± 0.00	12.65 ^a ± 0.12	4.21 ^a ± 0.07	2.33 ^d ± 1.00	31.26 ^e ± 1.00
FBN	53.70 ^b ± 0.74	7.01 ^{bc} ± 0.06	12.45 ^a ± 0.12	3.88 ^a ± 0.07	4.42 ^c ± 1.00	20.54 ^b ± 1.00
ECO	62.55 ^c ± 1.00	3.94 ^{bc} ± 0.10	14.90 ^a ± 0.12	3.85 ^a ± 0.07	2.10 ^b ± 0.53	12.66 ^a ± 1.00
FBI	47.60 ^a ± 0.22	8.32 ^c ± 0.09	14.50 ^a ± 0.12	3.29 ^a ± 0.07	2.22 ^c ± 1.00	24.07 ^c ± 1.00
QRO	54.15 ^b ± 0.74	3.50 ^a ± 0.10	14.60 ^a ± 0.12	2.99 ^a ± 0.07	2.09 ^b ± 0.53	22.67 ^c ± 1.00
PAM	54.80 ^b ± 0.74	2.19 ^a ± 0.10	14.60 ^a ± 0.12	2.95 ^a ± 0.07	1.88 ^a ± 1.00	23.68 ^d ± 1.00

Values are means ±SD of triplicate determination. Means in the same column with different superscript are significantly different at p<0.05.

A. Sensory evaluation of pancake samples from different plantain-wheat flour blend

The values of result obtained from the sensory evaluation of pancake samples are presented in table1. The study showed that the appearance, taste, texture and overall acceptability of the 10% unripe plantain substituted pancakes were statistically almost the same with the 100% wheat pancake, but differ slightly from all other pancake samples. The mean score of the sensory attributes decreases as plantain flour increases in the formulation. The result showed that up to 30% level of substitution of wheat with unripe plantain flour was acceptable for Pancake Production. It was shown that samples produced using 10%, 20% and 30% unripe plantain flour were significantly different from sample produced using 50% unripe plantain flour in terms of overall acceptability.

One hundred percent (100%) unripe plantain flour pancake gave the worst product that was unacceptable to the panelists, except for its texture. The result of the research shows that unripe plantain flour could be used in composite pancake production at 10% -30% level of substitution, but beyond this level; pancake characteristics may be affected. Similarly, the results of this study

showed that as the amount of unripe plantain flour increased to 50%, pancake was less acceptable.

B. Proximate composition of pancake samples from different plantain-wheat flour blend

The moisture content of the samples ranged from 44.30 - 54.80%, protein from 2.19-5.25%, fat from 12.65 - 14.50%, Ash from 2.95% - 4.21%, Fibre from 1.88-2.33%, and carbohydrate 23.68-31.26%, as shown in Table 2. There was a significant ($P>0.5$) difference in the proximate composition of the pancake samples. The moisture contents increased as unripe plantain flour increased in the formulations. There appeared to be greater retention of moisture by the pancake samples as the unripe flour levels increased. On the contrary, the increased plantain flour level lead to a slight decrease in the Fat and Ash composition of the pancake samples but with no significant difference in the proximate composition of the products. There is no significant difference of carbohydrate and protein in the proximate composition of the pancake samples. The study shows a significant difference of fibre in the ECO and QRO pancake samples, than in the other samples.

Conclusion

The result of this research work shows that pancake can be produced from the composite flour of unripe plantain and wheat. The moisture content of the enhanced pancakes shows an increase more than that of the wheat flour, thus suggesting that unripe plantain flour may be useful in food formulations where this characteristic is of more importance. Acceptable pancake comparable to wheat flour pancake can be produced at 10-30% level of unripe plantain flour substitution. This study therefore recommends that the cultivation of plantain (*musaparadisicae*) in a very large extent should be encouraged, since they could be used as supplements for composite pancake production and other flour-based bakery products.

References

- Akinmoladun, A. C., Ibukun, E. O., Afor, E., Akirinlola, Bili, Onibon, T. R., ... Farombi, E. O. (2007). Chemical constituent and anti-oxidant activity of *Alstoniaboonei*. *African Journal of Biotechnology*, 6(10), 1197-1201.
- Case S. (2008). *Gluten-free diet in "A comprehensive Resource Guide"*. Case Nutrition Consulting, Canada: Regina Publishers.
- Eleazu, C. O., Okafor, P. N. & Ikpeama, A. I. (2010). Total Antioxidant capacity, Nutritional Composition and Inhibitory Activity of unripe plantain (*musaparadisicae*) on oxidative stress in Alloxan induced Diabetic Rabbits. *Pakistan Journal of Nutrition* 9(11), 1052-1057.
- Hayes, A. M., Howe, S. C. & Burges – Champoux, T. L. (2015). Enhancing whole grain, Fibre and Iron content of pancakes: Impact on quality attributes and Adult receptivity. *Journal of Student Research*, 4(2), 36-43.
- Idoko, J. O. & Nwajiku, I. (2013). Performance of ripped and unripe plantain-wheat flour blends in Biscuit production. International. *Journal of Scholarly and scientific Research and Innovation*, 7(12), 1179-1182.
- Iweala, E. J., Obichi, I. C. & Omotosho, I. E. (2011). Biochemical and histological responses of hepatotoxic rats fed *musaparadisicae* supplemented diet. *International Journal of Pharmacology*, 7, 471-477.

- Jacobs, D. R., Meyer, H. E., & Solvoil, K. (2001). Reduced mortality among whole grain bread eaters, in men and women in the Norwegian country study. *European Journal of Clinical Nutrition*, 55, 137-143.
- Krunz, S., Brauchia, M., Slavin, J. L. & Miller, K. B. (2012). The effects of fibre intake in constipation, obesity and diabetes in children. *Advance Nutrition Journal*, 3, 47-53.
- Kumar, M., Gautama, M. K., Singh, A. & Goel, R. K. (2013). Healing effects of Musa Sapientum Var. Paradisicae in diabetic rats with co-occurring gastric ulcer: cytokines and growth factors by PCR amplification. *British Medical Council Complementary and Alternative Medicine*, 13:305.
- Larson D. R. (2012). Flour Powder. *Food and Nutrition Magazine*, 16-19.
- Lii, C. Y., Chang S. & Young, Y. L. (2011). Investigation of the Physical and Chemical Properties of Banana Starches. *Journal of Food Science*, 3(47), 1493-1497.
- Ogazi, P. O. (1988). *Plantain utilization and Nutrition in food crops production, and utilization*. Ibadan: Dotam Publishers.
- Ogazi P. O. (1986). *Plantain as a raw material for Baking Industry*. 8th Annual Conference of National Horticultural Research Institute (NIHORT), Ibadan.
- Ojowole, J. A. & Adewunmi, C. O. (2003). Hypoglycemic effect of methanolic extract of musaparadisicae green fruits in normal and diabetic mice. *Journal of Experimental Clinical Pharmacology*, 25, 453 - 456.
- Pacheco Dalahaye, E., Maldonado, R., Perez & E., Schroeder, M. (2008). Production and Characterization of Unripe plantain (musaparadisicae) flours. *Journal of Interscience* 33(4):290-296.
- Price, K. R., Johnson I. T. & Fenwick, C. R. (1987). The Chemical and Biological Significance of Saponins in foods and feeding stuff. *Critical Review Food Science and Nutrition*, 26, 27-135.
- Rolfes, S. R., Pinna K. & Whitney, E. (2012). *Understanding Normal and Clinical Nutrition* (9th ed.) Belmont, C.A: Wadsworth, Congage Learning.
- U. S. Department of Health and Human Services (USDHHS) & U. S. Department of Agriculture (USDA), (2010). *Dietary Guidelines for Americans* (7th ed.) Washington, DC: US Government Printing Office.

Factors Affecting the Practice of Exclusive Breastfeeding Among Nursing Mothers Working with Tertiary Institutions in Port Harcourt Metropolis, Rivers State

Patience Itaa, Ngozi Nwibana Azubuike & Barisuka Kofii

Rivers State College of Health Science and Management Technology,
Port Harcourt, Nigeria

Abstract

The purpose of the study was to determine the factors affecting the practice of exclusive breastfeeding among nursing mothers working with tertiary institutions in Port Harcourt metropolis. The study adopted the descriptive survey research design with a sample of 60 nursing mothers randomly selected from 2 tertiary institutions in Rivers State using the multi-stage sampling technique. A self-structured and validated questionnaire was used as the instrument for data collection with all ethical procedures carefully observed. Data obtained were carefully coded and analyzed using descriptive statistics of frequency and percentages. Findings revealed that nursing mothers working with tertiary institutions in Port Harcourt metropolis were very knowledgeable about exclusive breastfeeding and its benefits but exhibited negative attitude and practice. The main factors that negatively affected the practice of exclusive breastfeeding were lack of time due to the full time employment status of mothers, absence of supportive facilities in the workplace and lack of support from family members. The study recommended that nursing mothers under full time employment should be given additional break times to enable them breastfeed their babies at regular intervals. Again, crèche and other supportive facilities should be provided in the workplace for nursing mothers.

Keywords: Practice, Exclusive-Breastfeeding, nursing mothers.

Introduction

There has been a growing attention in recent times, for the endorsement of Exclusive Breastfeeding (EBF) as the recommended feeding practice for newborns globally. This trend has been encouraged to a large extent by the increasing scientific substantiation on the significance of EBF in reducing infant morbidity and mortality especially in developing countries (Labbok & Taylor, 2008). Breast milk is the natural and original first food for babies and it provides all the essential nutrients that a child needs for the first six months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life (WHO, 2012).

EBF is therefore the act of feeding newborns with breast milk alone from age 0-6 months without water or any other kind of liquid or solid except for medications as the need may arise such as oral rehydration solution, drop or syrups (World Health Organization, 2012). The United State breastfeeding committee (USBC) and the American Academy of Pediatrics (AAP) declared that breastfeeding is the physiologically normal form of child and infant feeding and that it is the most efficient type of infant feeding for the first six months of life (USBC & AAP, 2018). Several health benefits have been associated with the practice of EBF for both the mother and child. Apart from the fact that it is safe, free of charge, readily available in the right temperature, EBF also creates bonding between mother and child, serves as birth control method in most women and it protects the child against common childhood illnesses including reducing the risk of overweight and infant obesity (Meek, 2001; Wyatt, 2002; Venneman, 2009 & Brulde, 2011).

Deprived and sub-optimal breastfeeding practices regularly result to child undernourishment which is a key cause of more than half of all child deaths (Sokol Aguayo & Clark 2007). It is estimated that about 6.9 million under five children who were reported dead globally in 2011 alone, out of which, at least, 1 million lives could have been saved if they were exclusively breastfed (WHO, 2012). The practice of not giving breast milk has been connected with unexpected infant death syndrome and other neonatal morbidity and mortality. Breastfeeding can save premature infants from life intimidating gastro-intestinal diseases such as necrotizing *enterocolitis*.

Regardless of the importance of EBF to the survival of newborns, several factors have been identified as barriers to the practice of EBF in Nigeria and other developing countries (Aidam 2005; Otoo, Lartey & Perez-Escamilla 2009; Senarath, Dibley & Agho, 2010). This includes poor knowledge of mothers about the health benefits of EBF, the assumption that no child can survive for that long with breast milk alone, lack of time due to the active engagements of mothers now, lack of enabling facilities in work places for mothers and lack of social support among others (Duncan, 1993; coutsoudis1999; Arora, Mcjunkin, Wehrer & Kuhn, 2000; Kramer, 2003; Susin & Giuglian 2008). More so, not much has been documented in literature about the practice of EBF among working class mothers in this study area. The purpose of this research was therefore to determine the factors affecting EBF among working class women in Port Harcourt metropolis.

Methods

The study adopted a descriptive survey research design. This design was considered appropriate because the study made use of existing data without any form of manipulation of any variable in order to have a given outcome. The sample size for the study consisted of 60 working-class mothers in the employment of 6 tertiary institutions in Rivers State. To arrive at this, two (2) out of the (6) public-owned tertiary institutions in Port Harcourt metropolis were randomly selected using the multi-stage sampling technique. The tertiary institutions are University of Port Harcourt, Rivers State University, Ignatius Ajuru University, National Open University, Captain Elechi Amadi Polytechnic and Rivers State College of Health Sciences & Management Technology. Secondly, three faculties with more working class mothers were purposively selected while 30 persons were randomly drawn from each of the two selected faculties. The instrument for data collection was a 15-item self-structured and validated questionnaire with a reliability index of 0.67 which is within the acceptable limits set by the study. Copies of the instrument were administered on and retrieved from 60 respondents using the interviewer-administration method. Descriptive statistics of percentage and mean were used to analyze the demographic details and the research questions.

Results

Table 1: Age of respondents

Responses	Frequency	Percentage
20-25	4	6.67%
26-30	8	13.3%
31-35	22	36.7%
36-40	26	43.33%
Total	60	100%

Source: Authors’ Field survey, 2019

Sixty (60) working class mothers completed their questionnaires and participants ranged in age from 20-40 years in table 1. Respondents within the ages of 20-25 years constituted 6.67%, and those between the ages of 26-30 years were 13.33% and working class mothers within the ages of 31-35 years represented 36.7%. Working class mothers within the ages of 36-40 years constituted 43.33%.

Table 2: Educational qualification of respondents

Responses	Frequency	Percentage
Primary	9	15%
Secondary	12	20%
Tertiary	27	45%
Others	12	20%
Total	60	100%

Source: Authors' Field survey, 2019

From table 2, respondents sampled for the study, 15% of them have possessed primary level of education, 20% of the respondents had secondary level of education and 45% had tertiary level of education while others were 20%. It is assumed respondents' educational status would provide in-depth information regarding the practice of exclusive breastfeeding among working class mothers.

Table 3: Categories of Respondent Occupation

Responses	Frequency	Percentage
Academic staff	21	35%
Non-academic staff	12	20%
Business	18	30%
Others	9	15%
Total	60	100%

Source: Author's Field survey, 2019

From table 3, categories of respondents' occupation were analyzed. Various categories of working class mothers working within the higher institutions in Port Harcourt of Rivers State both in public and private sectors were selected to be part of this study. 35% of the respondents were academic staff, 20% were non-academic staff and 30% were business women while 15% said other occupation.

Table 4: Respondents' Knowledge on exclusive Breast Feeding

Responses	Frequency	Percentage
Yes	60	100%
No	-	-
Total	60	100%

Source: Authors' Field survey, 2019

In table 4, all the working-class mothers (100%) in the study were found to be well knowledgeable on exclusive breastfeeding practice and were also able to define, in their various words, exclusive breastfeeding according to the World Health Organization (WHO) definition 'that the infant receives only breast-milk; no other liquid or solid food is given, exception of oral hydration solution, or drops/syrups of vitamins, minerals or medicines' if necessary.

Table 5: Sources of Exclusive Breastfeeding Information

Responses	Frequency	Percentage
Health care centers/professionals	36	60%
Friends /neighbours	6	10%
Mass media	9	15%
Relative	6	10%
Others	9	5%
Total	60	100%

Source: Authors' Field survey, 2019

From table 5, above, 60% of the respondents said that the main sources of exclusive breastfeeding information originated from health care professionals/centers when they visit clinics, health centers and hospitals. To a great extent, hospitals and health care centers constitute the major source of exclusive breastfeeding information to nursing mothers particularly during postpartum. Apart from the health care centers, about 30% of working-class mothers got information on exclusive breast feeding from friends and neighbours, while 45% of the respondents said they learnt about exclusive breastfeeding through mass media, such as, television, radio, face-book, newspaper etc. 30% said from relatives and 15% said through other sources.

Table 6: Barriers to exclusive breastfeeding among working class mothers

Responses	Frequency	Percentage
Work status	42	70%
Family influence	3	5%
Mother's health	18	10%
Others	9	15%
Total	60	100%

Source: Authors' Field survey, 2019

In table 6, respondents were asked to state the barriers that undermine their practicing of exclusive breastfeeding. 70% of the respondents said that the main challenge that hinders exclusive breastfeeding practice is their work demands while 5% said family members influence them to follow the old practice of breastfeeding with water and other food supplements. 10% respondents stated mother's health and 15% respondents stated that other things had been the barriers to the practice. In this study, work status, family members' influence, mother's health and the other influences on exclusive breastfeeding negatively affected the efforts and decisions of working class mothers towards EBF despite the adequate information at their disposal on the benefits of EBF on

both mother and child.

Table 7: Challenges Working Mothers face at work places

Responses	Frequency	Percentage
Child at home due to work pressure	30	50%
Inadequate time at work to breastfeed	12	20%
No proper place to breastfeed	12	20%
Others	6	10%
Total	60	100%

Source: Authors' Field survey, 2019

Working class mothers are supposed to return to work after they have exhausted their three months' maternity leave. From table 7, half of the respondents (50%) leave their children at home with their family members due to work pressure. Some go to breastfeed their children when they have break and it is quite challenging both for the mothers and the family members. Furthermore, 20% of the respondents said they do not have adequate time to breastfeeding their children and 20% said no place to breastfeed their babies while 10% indicated other reasons.

Table 8: Exclusive breastfeeding practice among class mothers

Responses	Frequency	Percentage
Yes	24	40%
No	36	60%
Total	60	100%

Source: Author's Field survey, 2019

In line with the main objectives of the study, respondents were asked to state if they were able to practice the recommended exclusive breastfeeding according to the World Health Organization standard with their current breastfeeding babies and with their various professional works. In table 8, 40% of working class mothers were able to practice exclusive breastfeeding and 60% could not practice exclusive breastfeeding according to WHO recommended practice of exclusive breastfeeding due to the demands of their work. This study confirms earlier research finding that type of work and hours of work have shown to influence breastfeeding (Visness & Kennedy, 1997).

Discussion of Findings

The study revealed that majority of the respondents had good knowledge of the benefits of practicing EBF. This is in line with the findings of previous studies which revealed that the problem with working class mothers in Nigeria is not that of ignorance about the benefits of EBF but the practice in itself (Roe, Whittington, Fein & Teisl, 1999; Senarath, Dibley & Agho, 2010 & Sokol, Aguayo & Clark, 2007). This implies that a vast majority of mothers who do not practice EBF are fully aware of the benefits but constrained by other factors which need to be carefully identified and studied. The implication of this to practice is that creating EBF sensitization alone among working class mothers is not sufficient to engender practice. Something more intentional must be done to motivate working class mothers to effectively practice EBF while working in their respective

organizations.

On the sources of awareness about EBF, findings from the study revealed that majority of the respondents (60%) knew about EBF and its benefit from healthcare professionals especially during antenatal and postnatal visits. This agrees with the findings of Arora, Mcjunkin, Wehrer & Kuhn (2000) that due to improved attendance to antenatal clinics, more pregnant women are becoming very familiar with the concept of EBF and its benefits. This is also in line with the findings of American Academy of Pediatrics (2012). The implication of this to practice is that women who do not attend antenatal clinics are less likely to be aware of the benefits of EBF and this will adversely affect the practice of EBF.

Findings from the study also revealed that majority of working class mothers do not practice EBF as recommended by the World Health Organization (WHO) regardless of their high levels of knowledge about the benefits of EBF. This agrees with the findings of previous studies that EBF awareness alone without enabling work environment will not yield desirable results with regards to the practice of EBF by working class women (Auerbach & Guss, 1984; Frank, 1998; Duncan, 1993; Coutoudis, 1999; Cai, Wardlalw & Brown, 2012). The implication of this to practice is that knowledge alone is not sufficient for behaviour change. Thus, working class mothers must be motivated with incentives such as maternity leaves, longer break periods and baby-friendly infrastructures in the workplace.

Again, the study identified work pressure, absence of baby-friendly facilities like crèche, negative attitude of management and influence of family members who always feel that breast-milk alone was insufficient for healthy growth and development as major barriers to the practice of EBF among working class mothers. Other factors also identified were unwillingness of working class mothers to bring out their breasts in public places in order to feed their children, assumption that consistent breastfeeding could easily sag their breasts, work distractions by periodically going out to breastfeed their babies and inadequate break time that will allow for the effective breastfeeding of their babies among others. This is in line with earlier research findings (Kurini, Shiono, Erine & Rhoads, 1989; Visness & Kennedy, 1997; Libbus & Bullock, 2000; Pascoe, Pletta, Beasley & Schellpfeffer, 2002; Kramer, 2003).

Recommendations

In view of the findings of the study, the following recommendations were made:

1. Employees should reduce the workload of breastfeeding mothers in order to allow them more time for their babies.
2. Employers should be legally compelled to provide baby-friendly facilities like crèche in workplaces and these facilities should be adequate, hygienic and convenient and this should include hand washing and milk storage facilities.
3. Family members should be enlightened about the efficacy and benefits of EBF so that they can be a source of encouragement to working class mothers in the practice of EBF
4. Institutions must ensure that the workplace is free of harassment and discrimination against women who prefer to breastfeed their babies through appropriate mechanisms.
5. Appropriate authorities should ensure the protection of women's right to EBF in their workplaces.

References

Aidam, B. A. Perez- Escamilla, R., Lartey, A. & Aidam, J. (2005). Factors associated with exclusive breastfeeding in Accra. *European Journal of Clinical Nutrition*: 59, 789-796.

American Academy of Family Physicians Breastfeeding Advisory Committee (2008). Breastfeeding, family physicians supporting (Position Statement). Retrieved from:

http://www.aafp.org/online/en/home/policy/policies/b/breastfeeding_position_paper.html.

American Academy of Pediatrics. (2012). Breastfeeding and the use of human milk. *Pediatrics*, 129(3), 827-841.

Arora, S., Mcjunkin, C., Wehrer, J. & Kuhn, P.(2000). Major factors influencing breastfeeding rates: mother's perception of fathers attitude and milk supply. *Pediatrics* 10:67.

Auerbach, K.G. & Guss, E. (1984). Maternal employment and breastfeeding. A study of 567 women's experiences. *American Journal Disease Child*; 138(10): 958-960.

Brülde, B., (2011). Health, disease and the goal of public health. In Dawson, A. (Ed.), *Public health ethics: key concepts and issues in policy and practice* (pp. 20-45). Cambridge: Cambridge University Press.

Cai. X., Wardlaw, T., & Brown, D.W., 2012 Global trends in exclusive breastfeeding. *International Breastfeeding journal*, 7:12.

Calverton, M. (2002). A 5-year follow-up study of hospital breastfeeding policies in the Philadelphia area: a comparison with the ten steps. *Journal of Human Lactation*; 18(2): 144-154.

Coutsoudis, A. (1999). Influence of infant feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa: a prospective cohort study. *Lancet*, 354: 471-76.

Duncan, B. (1993). Exclusive breastfeeding for at least 4 months protects against otitis media. *Pediatrics*; 91(5).

Frank E. (1998). Breastfeeding and maternal employment: two rights don't make a wrong. *Lancet*; 352(9134): 1083-1084.

Kramer, M. S., (2003). Infant growth and health outcomes associated with 3 compared with 6 months of exclusive breastfeeding. *American Journal of Clinical Nutrition* 78: 291-5.

Kurini, N., Shiono, P. H., Erine, S. F. & Rhoads, G. G. (1989). Does maternal employment affect breastfeeding? *American Journal of Public Health*, 79 (9):1247-1250.

Labbok, M. & Taylor, E. (2008). *Achieving exclusive breastfeeding in the United States: Findings and recommendations*. Washington, DC: United States Breastfeeding Committee.

Libbus, M. K., & Bullock, L. F. (2000). Breastfeeding and employment: an assessment of employer attitudes. *Journal Human Lactation*; 18(3), 247-251.

Martens, P. J. (2000). Does breastfeeding education affect nursing staff beliefs, exclusive breastfeeding rates, and Baby friendly Hospital Initiative compliance? The experience of a small, rural Canadian hospital. *Journal Human Lactation*; 16(4), 309-318.

Meek, J. Y. (2001). Breastfeeding in the workplace. *Pediatric Clinical Northern America*, 48, 461-474.

- Otoo, G. E. Lartey, A. A. & Perez-Escamilla, R. (2000). Perceived incentives and barriers to exclusive breastfeeding among peri-urban Ghanaian Women *Journal Human of Lactation*; 25-34.
- Pascoe, J. M., Pletta, K., Beasley, J., & Schellpfeffer, M. (2002). Best Start breastfeeding promotion campaign. *Pediatrics*, 109,170.
- Philipp B. L., Merewood, A. & O'Brien S. (2001). Physicians and breastfeeding promotion in the United States: a call for action. *Pediatric*; 109(3), 584-587.
- Roe, B., Whittington, L. A Fein, S. B. & Teisl, M. F. (1999). Is there competition between breastfeeding and maternal employment? *Demography*, 36, 157-171.
- Scott, J. A., & Binns, C. W. (1999). Factors associated with the initiation and duration of breastfeeding: a review of the literature. *Breastfeeding Review*, 7,5-16.
- Senarath, U., Dibley, M. J. & Agho, K. E., (2010). Factors associated with nonexclusive breastfeeding in 5 East and Southeast Asian countries: A Multilevel Analysis. *Journal of Human Lactation*; 27:36-37.
- Sokol, E., Aguayo, V. & Clark, D., (2007). Protecting breastfeeding in West and Central Africa: 25 years implementing the international code or marketing breast milk substitutes. UNICEF Publication.
- Susin, L. R. O., & Giugliani, E. R. J., (2008) Inclusion of fathers in an intervention to promote breastfeeding: impact on breastfeeding rates. *Journal Human of Lactation* 24: 386.
- United States Department of Health and Human Services. (2011). The surgeon General's Call to Action to Support Breastfeeding. Washington, DC: U.S Department of Health and Human Services, office of the Surgeon General.
- Visness, C. M., & Kennedy, K. I. (1997). Maternal employment and breastfeeding: findings from 1998 national maternal and infant health survey. *American Journal of Public health*, 87, 945-950.
- World Health Organization. (2012). 10 facts on child health. World Health Organization: Geneva.
- World Health Organization (2019). Exclusive breastfeeding for optimal growth, development and health of infants. https://www.who.int/elena/titles/exclusive_breastfeeding/en/
- Wyatt, S. N. (2002). Challenges of the working breastfeeding mother: workplace solutions. *American Association of Occupation Health Nurses Journal*, 50, 61-66.

Nutritional Status, Blood Pressure and Body Mass Index of Staff of Rivers State College of Health Science and Management Technology, Port Harcourt, Rivers State

¹Bills, U. S., ²Oguzor, B. G., ³Mkpaoro, J. I. & ⁴Mboi, S.S.

^{1,3,4}.School of Dental Health Science, Rivers State College of Health Science and Management Technology, Port Harcourt, Rivers State.

²Primary Health Care Services, Ahoada East L.G.A, Rivers State

urobills30@gmail.com, 08033387328

Abstract

This study was designed to assess the nutritional status, blood pressure and body mass index of staff of Rivers State College of Health Science and Management Technology, Port Harcourt. One hundred respondents were randomly selected and administered with pretested and validated questionnaire to obtain relevant data. The blood pressure and anthropometric measurement were taken according to standard procedures. The result showed that 33.0% of the respondents had normal BMI, 29.0% were overweight, while 38.0% were obese. The result further revealed that BMI increased with advance in age, as 18.0% and 38.0% of the respondents aged 38- 60years had incidence of overweight and obesity respectively. Blood pressure values also showed a similar trend as respondents aged 38 -60 years had 33.0% of respondents have high blood pressure. Correlation coefficient between BMI and income showed a very high relationship ($r= 0.9$), which indicates that as income increased, BMI also increased. The relationship between income and blood pressure was poor ($r=0.2$). However, exercise and blood pressure had a high correlation ($r = 0.7$). Similarly, alcohol consumption and blood pressure showed a good relationship ($r = 0.6$). These findings thus reflect the need for enlightenment of the masses on healthy lifestyles through healthy eating habits, regular exercise, and reduction in alcohol consumption in order to minimize the risk of high blood pressure.

Keywords: Body Mass Index, Blood pressure, Nutritional status.

Introduction

The nutritional status of an individual is said to be a measure of the condition of health of an individual as affected or determined by the intake of food and the utilization of nutrients. It is therefore a state of health produced by the balance between requirement and intake of nutrients (Baker, 2006). If an individual's intake of food and the utilization of nutrients in the body are low, then the nutritional status of such a person is low and need to be supported in order to avert irreversible damage to the body and death (Hill & Blender, 1973). The nutritional status of an individual should be assessed as regular intervals in order to avert undesirable health problems and complications arising from malnutrition. Eating an unhealthy diet and highly processed foods with low energy expenditure give rise to obesity which is a significant risk factor of cardiovascular diseases including high blood pressure (Ravvsian & Swinburn, 1992). A survey of the body mass index (BMI) profile and nutritional status of adults of two rural coastal villages in Northern Malaysia, showed that those who were obese had hypertension and that a higher number of women especially housewives were affected (Harrison & Marshall, 2006). Obesity is also associated with an increased risk of premature deaths in adults younger than 65 years. The leading causes of deaths in obese adults include ischemic heart disease, diabetes, respiratory diseases and cancer (i.e. liver, kidney, breast, endometrial, prostate and colon). Therefore, weight loss in obese individuals is associated with a lower incidence of health problems and a reduced risk of premature deaths (United

States Preventive Services Task Force, 2012 & American Academy of Family Physicians, 2013). Physical inactivity is an important risk factor for high blood pressure. Lack of regular exercise increases an individual's chances of becoming overweight and obese, developing high blood pressure (United Nations Economic Commission, 2007). According to the U.S Public Health Services, an estimated 50 million Americans have high blood pressure. This staggering report also stated that hypertension resulting from overweight and obesity affects more than half of all Americans of over the age of sixty-five (Gyuse, Adat, Udonwa & Ndebbio, 2016), and that the percentage of African-American population with high blood pressure is approximately one-third higher than that of the whites (American Heart Association, 2005).

Men tend to develop hypertension more than women, but the risk for women rises with menopause and intake of oral contraceptives (Balch & Balch, 1997). A meta-analysis found that six out of nine studies in South Eastern Nigeria recorded higher prevalence of hypertension in males than in females (Ordinoha, 2013). A study also showed that in Nigeria hypertension occur more in women than in men (Iyalomhe & Iyalomhe, 2010). The incidence of high blood pressure is 50% more prevalent in older obese persons, than and twice as prevalent in young obese subjects as in persons with normal weight (Stamler & Algera, 1978). It also revealed that African-Americans are likely to develop high blood pressure than Asians, and so easily in life (Wardlaw & Kessel, 2002). The incidence of high blood pressure is on the increase all over the world, with a high prevalence in the black race, especially the African States. This is attributed to factors ranging from financial restrictions on choice of foods, lack of information, poor education, low self-esteem and lack of opportunity and facilities for exercise (Stunkard, 1975). Globally, high blood pressure affects approximately one billion people (4.5% of global burden of disease) and is estimated to cause 7.1 million deaths, (annually 13% of global deaths). In Sub-Saharan Africa, it is estimated that over 20 million people are affected by hypertension, with the prevalence increasing because of adoption of western lifestyle practices (Gutherie & Picciano, 1999). In Nigeria, hypertension and other non-communicable diseases are currently responsible for at least 20% of all deaths constituting up to 60% of the patients, admitted in the medical wards of most tertiary hospitals in Nigeria (Garrow, 1988). In the Niger Delta, class values are placed on obese state which is believed to be a show of affluence, and this influences the incidence of high blood pressure, as obesity is a risk factor of hypertension (Ekunife & Oguma, 2011; Helm & Atwine, 2011). These people eat large meals twice or thrice a day especially at bed time without adequate provision for exercise to expend energy.

Objectives of the Study

The aim of this study was to assess the nutritional status, blood pressure and body mass index (BMI) of staff of Rivers State College of Health Science and Technology, Port Harcourt, Rivers State.

Below are the specific objectives of the study:

1. To determine the socio-demographic characteristics of study participants.
2. To collect the anthropometric data (height and weight) to determine their body mass index (BMI) and their nutritional status
3. To determine their blood pressure with the aid of the sphygmomanometer and stethoscope.
4. To obtain information on their income level, physical activity and tobacco intake, to know if there is any association between their socioeconomic status and blood pressure

Methodology

Design of the Study: The study was a descriptive cross sectional survey.

Study Location: The study was carried out in the Rivers State College of Health Science and Management Technology in Port Harcourt. This college is located in Obio/Akpor Local

Government Area of Rivers State, Nigeria. Obio/Akpor Local Government Area is in the metropolis of Port Harcourt, one of the major centers of economic activities in Nigeria.

Sample Size: The sample population of this study consisted of both academic and non-academic staff (income /salary earners). Both males and females between the ages of 25-60 years were considered. One hundred staff of the institution were randomly selected for the study.

Ethical approval and consent form: The respondents were provided with consent form and assured of strict confidentiality. These were signed by each of them before the study was carried out.

Data collection: Semi-structured, pretested, and validated questionnaire was used to collect information on demographic, socio-economic, food consumption pattern and anthropometric characteristics of the respondents. Information on blood pressure was also obtained using sphygmomanometer and stethoscope. Other instruments used were meter rule and weighing Scale. Meter rule and weighing scale were used to determine height and weight of the respondents.

Anthropometric measurements: Height was measured using a specially constructed wooden calibrated stadiometer, and measurement was to the nearest 0.1cm. Each respondent was asked to stand and look forward with the head, back, buttocks, calves and heels against the stadiometer. Weight was measured with Hanson's bathroom scale (BR 9011) and measured to the nearest 0.1kg. The weighing scale was placed on a hard floor surface and the respondent asked to mount on it without heavy clothing, shoes, pocket contents and carrying no items to ensure accurate measurement.

Blood pressure: A Mercurial sphygmomanometer (KRIS 051220) and a Sprague Rappaport Stethoscope (BK 3003) model was used to measure the blood pressure. The sphygmomanometer with an appropriate sized cuff was wrapped round an unclothed upper left arm of the respondent in a seated position, after at least five minutes of rest. The apparatus (sphygmomanometer) was inflated while listening to the heart beat through the Stethoscope, taking note of the figures of the first heart beat (systolic) and the last heart beat (diastolic), then record the measurements.

Statistical Analysis

Simple descriptive statistics was used to analyze data presented as frequencies and percentages in tabular forms. Pearson Product Moment Correlation Coefficient (PPMCC) was done using Microsoft Excel Version 13.0 Package to test the relationship between selected variables such as the Body Mass Index (BMI) and income blood pressure and income, exercise and blood pressure, alcohol and blood pressure.

Results

Table 1: Age Distribution of Respondents

Age Range (Yrs.)	Male (%)	Female (%)
25- 30	7.0	10.0
31 – 37	5.0	9.0
38 – 45	9.0	11.0
46-50	18.0	14.0
51-60	12.0	5.0
	50.0	49.0

Table 1 shows the age range of the study group of which 51.0% were males and 49.0 females. These were grouped as follows: 7.0% of males and 10.0% of females were within the age range of 25 and 30 years; 5.0% of males and 9.0% of females were aged 38 - 45 years; 18.0% of males and 14.0% of females were aged 46 - 50 years, and 12.0% of males and 5.0% of females were aged between 51 and 60 years.

Table 2: BMI of Respondents

Age Range	BM CLASSIFICATION					
	Normal Weight		Over Weight		Obesity	
	M	F	M	F	M	F
	(Percent)		(Percent)		(Percent)	
25-30	4.0	5.0	3.0	5.0	0.0	0.0
31-37	5.0	6.0	0.0	3.0	0.0	0.0
38-45	6.0	4.0	0.0	3.0	3.0	4.0
46-50	3.0	0.0	4.0	6.01	1.0	1.0
	18.0	15.0	8.0	21.0	25.0	13.0

Table 2 shows the body mass index of the respondents. 18.0% of the males and 15.0% of the females had normal weight, while 8.0% of males and 21.0 of females were overweight, whereas 25.0% of males and 13.0% of females were obese. While between 4.0% and 5.0% of males and females respectively within the age range of 25 - 30 years had normal BMI, the proportion of persons with normal BMI decreased with advancing age. 3.0% males and 0.0% females within the age range of 46 – 50 years had normal BMI, while no respondent aged 51 - 60 years had normal BM1. Between the age ranges of 25 and 45 years, 3.0% males and 11.0% females were overweight, while between the age and 46 - 60 years, 5.0% males and 10.0% females were overweight. In the obesity category, there were no cases in the age range of 25-37 years in either of the gender. However, in the males, the incidence increased from 3.0% at age of 38-45 years, to 11.0% each in the age groups of 46 - 50 and 51 – 60 years, whereas in the females, 4.0%, 8.0% and 1.0% within the age range of 38 – 45 years, 46 – 50 years and 51 – 60 years respectively were obese.

Table 3: Blood Pressure of Respondents

Age Range	BLOOD PRESSURE CLASSIFICATION			
	Normal B.P		High B.P	
	Males %	Females %	Male %	Females %
25-30	7.0	10.0	0.0	0.0
31-37	5.0	9.0	0.0	0.0
38-45	8.0	8.0	1.0	3.0
46-50	8.0	7.0	10.0	7.0
51-60	4.0	1.0	8.0	4.0
	32.0	35.0	19.0	14.0

In Table 3, the blood pressure data of the respondents showed that 32.0% of males and 35.0% of females had normal blood pressure, while 19.0% of males and 14.0% of females had high blood pressure. This gives a total number of 67 subjects of both sexes with normal blood pressure, and 33

persons with high pressure. In both sexes, there were no cases of high blood pressure within the range of 25-37 years. From 38-45 years, 1.0% male and 3.0% females were hypertensive, while the highest percentage of 10.0% males and 7.0% females were hypertensive within the age bracket of 46 -60 years, and decreasing to 8.0% of males and 4.0% of females within the age 51-60 years.

Table 4: Income Level (Salary brackets) of Respondents

Salary Bracket (CONHESS)*	SEX	
	Male (%)	Female (%)
07-10	16.0	15.0
12-13	15.0	22.0
14-15	17.0	10.0
>15	3.0	2.0
	51.0	49.0

*CONHESS- Consolidated Health Salary Structure.

Table 4 shows the income level (salary brackets) of respondents. 16.0% of males and 15.0% of females earned salaries of CONHESS 7 -10, 15.0% of males and 22.0% of females were within CONHESS 12 -13 salary bracket, while 17.0% of males and 10.0% of females were within the salary bracket of CONHESS 14 - 13, and 3.0% of males and 2.0% of females were above salary bracket of CONHESS 15.

Table 5: Exercise and Alcohol intake of Respondents.

Exercise Age Range (Yrs.)	BLOOD PRESSURE CLASSIFICATION			
	Alcohol		Alcohol	
	Males %	Females %	Male %	Females %
25-30	28.0	27.0	6.0	4.0
31-37	9.0	5.0	8.0	5.0
38-45	5.0	3.0	6.0	7.0
46-50	3.0	1.0	5.0	73.0
51-60	1.0	1.0	4.0	2.0
	46.0	37.0	29.0	21.0

Table 5 shows exercise and alcohol intake of respondents. A total of 46 males and 37 females were involved in exercise, with the highest percentage of 28.0% males and 27.0% females within the age range of 25 - 30 years; 9.0% of males and 5.0% of females were aged 31 - 37 years, 5.0% of males and 3.0% of females aged 38 - 45 years, while 3.0% of males and 1.0% of females were aged 46 - 50 years, and 1.0% of males and females respectively were aged 51 - 60 years.

The results on alcohol intake shows that a total of 29 males and 21 females consumed alcohol, and these were grouped under the different age ranges as follows: 6.0% of males and 4.0% of females were within the range of 25 - 30 years, 8.0% of males and 5.0% of females were aged 31 - 38 years, 6.0% of males and 7.0% of females were aged 38 - 45 years, while 5.0% of males and 3.0% of females were aged 46 - 50 years, and 4.0 of males and 2.0% of females were aged 51 - 60 years.

Table 6: Correlation coefficient between BMI and Income

Salary Bracket (CONHESS)	Male (X)	Female (Y)	(X) ²	(Y) ²	XY
07-10	16.0	15.0	256	225	240
12-13	15.0	10.0	225	100	150
14-15	17.0	10.0	289	100	170
>16	3.0	2.0	9	4	6
	51.0	37.0	779	429	566

r=0.9

Table 6 shows the relationship between BMI and income (salary brackets). The r value of 0.9 shows that there is a high correlation between income and BMI, precisely the higher the income, the greater the BMI.

Table 7: Correlation Coefficient between High Blood Pressure and Income of both sexes

Salary Bracket (MHSS)	High B.P Male (X)	High B.P Female (Y)	(X) ²	(Y) ²	XY
07-10	6.0	2.0	36	4	12
12-13	7.0	3.0	49	9	21
14-15	7.0	6.0	49	36	42
>16	1.0	1.0	1	1	1
	21.0	12.0	1.35	50	76

r= 0.2

Table 7 shows the correlation coefficient between high blood pressure and income. The r value of 0.2 shows that the relationship between these two variables is very low.

Table 8: Correlation Coefficient between Exercise and Blood Pressure of Both Sexes

B. P. (Classification)	Exercise Male (X)	Exercise Female (Y)	(X) ²	(Y) ²	XY
Normal B. P.	28.0	27.0	784	729	756
High B. P.	18.0	10.0	324	100	180
	46.0	37.0	1108	829	936

r= 0.7

In Table 8, the relationship between exercise and blood pressure of respondents is presented. The r value of 0.7 shows that there is a substantial correlation between exercise and blood pressure.

Table 9: Correlation Coefficient of Alcohol Intake and Blood Pressure for Both Sexes

B. P. (Classification)	Alcoholic Intake Male	Alcoholic Intake Female	(X) ²	(Y) ²	XY
Normal B. P.	14.0	9.0	196	81	126
High B. P.	15.0	12.0	225	144	180
	29.0	21.0	421	225	306

r = 0.6

Table 9 shows the correlation coefficient between alcohol intake and blood pressure of both sexes. The r value of 0.6 shows a strong relationship between alcohol and blood pressure.

Discussion

This study found that there are more males than females that are hypertensive. This finding is contrary to the finding of a study carried out among patients attending the Family Medicine Clinic of University of Calabar Teaching Hospital (UCTH) where hypertension occur more in females than males (Iyalomhe & Iyalomhe, 2010), but in an agreement with a meta-analysis done in Nsukka, South East Nigeria, which found that six out of nine studies record higher prevalence of hypertension among males (Ordinoha, 2013).

Hypertension is a health risk associated with obesity and its precursor, overweight, and obesity is the number one life style factor related to hypertension. Studies have shown that both men and women tend to gain weight from the age of 50 due to the lowered basal metabolic requirements and decreased activity, with failure to reduce energy intake. This is shown in Table 2 where the highest percentage (10.0% and 19.0%) of respondents all under the age range of 46-50 years were overweight and with different degrees of obesity respectively.

Another factor encouraging corpulence may be related to urbanization with longevity and changes in lifestyle from traditional active way of life to sedentary, with unhealthy diets combined with genetic susceptibility to obesity (Ravvsian & Swinburn, 1992). This finding also confirms study from U.S. National center for health statistic which estimate that 26.0% of adult population are either overweight or obese (Gyuse, Adat, Udonwa & Ndebbio, 2016). The result of the present study shows no incidence of obesity amongst the age range of 25-30 year and 31-37 years in both male and female respondents.

The study as shown in table 6, also showed that the highest percentage of 17.0% males and 10.0% female with high BMI are within the high salary bracket of CONHESS 14-15. This information is related to the situation in developing countries, especially in the study area of the Niger Delta Region of Nigeria where obesity is seen as a status symbol. This belief which is cultural in the region influences the incidence of overweight and obesity in relationship to their earning status.

This study has shown a relationship between high earning status and obesity and since obesity is a risk factor for hypertension, there is also a relationship between high earnings status and hypertension (Ekunife & Aguma, 2011; Helm & Atwine, 2011). High income earners have enough money at their disposal and can afford to eat variety of foods, most of which are unhealthy, thus predisposing them to obesity with its attendant's risks. This is corroborated by the result in Table 6 where the correlation coefficient (r) between BMI and salary bracket is 0.9, indicating a high relationship between the two variables, thus the higher the income, the greater the BMI.

The study also showed that the highest percentage of 17.0% and 12.0% of all the respondents in both sexes with high blood pressure were under the age range of 46-50 years and 51-60 years respectively. This is in accordance with the report of (Wardlaw & Kessel, 2002) who indicated that high blood pressure; a condition that is associated with obesity and overweight is more likely to develop amongst the African – Americans and in the middle age than the whites and Asians. The high blood pressure in this study indicated poor blood pressure control among the study population. This may be due to the fact that hypertension which is termed as a silent killer is mostly asymptomatic and in general, most people only present to hospital when they develop symptoms even when they are on antihypertensive medication. However, the slight reduction in the blood pressure could have resulted from level of awareness due to the field of study of the respondents, being health professionals.

There is a relationship between high income and hypertension as shown in table 7 of the study where the highest percentage of both male and female respondents with high blood pressure

are on a high income level of CONHESS 13- 15. The highest number of respondents in this study that are overweight, obese and hypertensive were aged 46 - 60 years, showing a relationship between overweight, obesity and high blood pressure with age. The above findings confirmed the study by Stamler and Algera (1978) which reported that the incident of high blood pressure is 50% more prevalent in older obese persons.

Exercise is important in the maintenance of a desirable body weight and preventing the development of overweight, obesity and hypertension. Exercise is considered the number two life style factor related to hypertension. The result in Table 8 shows that the highest percentage of 28.0% males and 27.0% females that engage in exercise had normal blood pressure. It is also shown in table 3 that the highest percentages of 17.0% respondent of both sexes, under the age range of 25-30 years have normal blood pressure. This age range had the highest percentage of respondents with normal blood pressure and who engages in physical activity, as seen in Table 5; thereby confirming the importance of exercise in the maintenance of a desirable body weight and control of hypertension. According to UNECA (2007), physical activity is a very important tool for the maintenance of a healthy body weight and control of health problems associated with overweight. Excessive intake of alcohol is considered the number three life style factor related to high blood pressure. This factor is responsible for about 10% of all cases of hypertension. In this study as shown in table 9, out of 29.0% and 21.0% females that consumed alcohols, the highest percentage of 15.0% males and 12.0% females have high blood pressure; thereby confirming that alcohol intake is associated with high blood pressure.

Conclusion

The incidence of hypertension is on the increase all over the world, with high prevalence in the black race especially the African – Asian countries. However, this study showed that most of the people with high blood pressure are those with overweight and obesity; and are also on high earning status. There is also a high consumption of alcohol as shown in this study, and this could have serious consequences on their health, as alcohol is a lifestyle factor related to high blood pressure.

Recommendations

1. Routine assessment of blood pressure and BMI during visits to the clinic, should be done so that clients with risk factors will be counselled on the consequences of obesity and the health benefits of weight control.
2. Adequate nutritional education not only be on the dangers of poor hypertensive management, but also on several other non-communicable diseases should be intensified.
3. Lifestyle changes need to be encouraged while exercise and proper dietary practices should be emphasized.

References

- American Heart Association (2005). *Heart facts: Africans American and heart disease*. Retrieved from <http://www.Aha.org>.
- American Academy of Family Physicians (2013). *Diagnosis and management of obesity*. Retrieved from www.nhlbi.nih.gov/guidelines/obesity.ob_gdlns.pdf.
- Baker, H. (2006). *Nutrition and dietetics for health care: Diet and obesity (8th ed.)*. Edinburg: Longman.

- Balch, P. A. & Balch, J. F. (1997). Norms for nutritional assessment of American adults. *American Journal of Clinical Nutrition*, 5(341), 2530-2539.
- Ekunife, O.I., & Aguma, C. N.A (2011).A meta-analysis of prevalence rate of hypertension in Nigerian populations. *Journal of Public Health and Epidemiology* 3(13), 604-607.
- Garrow, J. S. (1998). *Obesity and related diseases: Hypertension and cardiovascular diseases (6th ed.)*. Edinburg: Churchill Livingstone.
- Gyuse,A.N., Adat, P., Udonwa, N.E. & Ndebbio, U.J (2016). Prevalence of obesity among hypertensive patients attending Family Medicine Clinic of UCTH Calabar. *Pioneer Medical Journal*, 5 (9),1-16.
- Gutherie, H. A., & Picciano, M. F. (1999). *Obesity and hypertension in adult (4th ed.)*. New York: McGraw-Hill.
- Harrison, W. & Marshall, T. (2006). The epidemiology of blood pressure in East Asia. *Tanzania Journal of Health Research*, 10, 59 – 67.
- Helm, K. & Atwine, F. (2011). Health-care seeking behavior among persons with diabetes in Uganda: An interview study. *British Medical Council International Health Human Rights*.11:11.
- Hill, L & Blender, A. E. (1973).*Nutrition and dietetic foods (2nd ed.)*. London: Longman
- Iyalomhe, G. B. S. & Iyalomhe, S. I. (2010). Hypertension-related knowledge, altitude and lifestyle machines among Hypertension patients in a suburban Nigerian Community. *Journal of Public Health and Epidemiology*, 2 (4), 71-77.
- Ordinioha, B. (2013). The prevalence of hypertension and its modifiable risk factors among lecturers of medical school in Port Harcourt, South-South Nigeria: Implications for control effort. *Niger Journal of Clinical Practice*, 16, 1-4.
- Ravvsian, E. & Swinburn, B. A. (1992). Pathophysiology of obesity. *Lancet*, 340, 404-408.
- Stamler, R. & Algera, W. F. (1978). Weight and Blood Pressure. *American Medical Association Journal*, 240, 1607 – 1610.
- Stunkard, A.J. (1975), *Obesity and the Social Environment (5th ed.)*. Howard: Newman Publishing.
- US Preventive Services Task Force (2012).Screening for a management of obesity in adults. *American International Medical Journal*, 157(5), 373-378.
- United Nations Economic Commission (2007). The state of older people in Africa: Regional Review and Appraisal of the Madrid International of Action.
- Wardlaw, G.M. & Kessel M. (2002), *Perspectives in nutrition. (5th ed.)*. New York: McGraw-Hill.

Causes and Prevention of Hospital Acquired Infections During Clinical Postings Among Community Health Students of Rivers State College of Health Science and Management Technology, Port Harcourt

**Itaa Patience
&
Azubuiké Patience Ngozi**

Abstract

One of the major challenges of students in clinical postings is exposure to hospital-related infections. The purpose of this study was to determine the causes and prevention of hospital related infections among community health students during clinical postings. Descriptive research design was adopted for this study while the instrument for data collection was a well-structured questionnaire formulated by the researcher and validated by experts to suit the main purpose of the study. The sample size which was one hundred and ninety three (19) community health students on clinical posting was determined using Taro Yamane formula. Simple random sampling technique was employed to select the respondents. Data obtained was analyzed using descriptive statistics of frequencies and percentages. Findings revealed that possible causes of hospital-related infections during clinical posting are viruses, fungi, bacteria and parasites while preventive measures of hospital related infections among community health students during clinical posting includes; hand washing, sterilization of equipment, the use of personal protective equipment, isolation of patients and surface sanitation. The proper orientation on the causes, consequences and prevention of hospital related infections before clinical posting as well as disposal of medical waste in the appropriate receptacles during clinical procedures, were recommended.

Keywords: Hospital, Infection, Causes and Prevention.

Introduction

Healthcare-acquired infections (HAIs) continue to trouble the healthcare industry. The Centre for Disease Control and Prevention (CDC) in Becker (2014) estimates that 1 in 20 patients contract HAIs every day. Unfortunately, hospitals are great breeding grounds for infections as a lot of people, often with infections are usually found together in close quarters of a hospital, with suppressed immune systems thereby making other patients and health workers highly susceptible to infections (Andersen, 2012). In a related development (Goniewicz,) asserted that the healthcare workforce represents about 12% of the working population worldwide and healthcare workers, operate in an environment that is considered to be one of the most hazardous occupational settings (Moore, 1990).

Hospital-acquired infections also known as nosocomial infections refer to any infection that can be acquired in a hospital or other health care facility. According to Hospital Associated Infections Data and Statistics-HAIDS, (2018), such an infection can be acquired in hospital, nursing home, rehabilitation facility, outpatient clinic, or other clinical setting by various means. These infections can originate from the outside environment,, another infected patient, staff that may be infected, or in some cases, the source of the infection cannot be determined (Benenson, 2015). In some cases, the microorganism may originate from the patient's own skin microbiota, becoming opportunistic after surgery or other procedures that compromise the protective skin barrier and can be spread through contaminated equipment, bed linens, or air droplets (Wilks & Michels, 2015). Though the patient may have contracted the infection from their own skin, the infection is still considered nosocomial since it develops in the health care setting (Lautenbach, 2011; Akbari & Kjellerup, 2015).

A nosocomial infection also called “hospital acquired infection” is *acquired in hospital by a patient who was admitted for a reason other than that infection* (Ducel, 2012). This includes

infections acquired in the hospital but appearing after discharge, and also occupational infections among staff of the facility (Benenson, 2015). According to Graham (2016), nosocomial infections are contracted because of an infection or toxin that exists in certain locations, such as a hospital. However, people now use nosocomial infections interchangeably with the terms health-care associated infections and hospital-acquired infections (Haverstick, 2017). For HAIs, the infection must not be present before someone has been under medical care. One of the most common wards where HAIs occur is the intensive care unit (ICU), where doctors treat serious diseases (Wilks & Michels, 2015).

According to a related study carried out, about 1 in 10 of people admitted to a hospital will contract a HAI (Arrowsmith, & Taylor, 2014). They are also associated with significant morbidity, mortality, and hospital costs (Graham, 2016). In addition to the usual workplace related exposures, healthcare workers encounter diverse hazards due to their work-related activities (Moore, 2012; Otter & French, 2013; McBryde & Bradley, 2014; Manyele, 2018). In spite of this knowledge, the healthcare work environment continues to be neglected by governments and organizations (Lipscomb, 1997). A higher annual prevalence of back pain was reported at (77%) among healthcare workers compared to other occupational groups (Andersen, 2012).

In a study carried out recently, it was observed that back injuries are associated with a direct cost of \$37,000 and an indirect cost ranging from \$147,000 to \$300,000 (Andersen, 2012; Graham, 2016). In fact, ergonomic related injuries pose a significant health risk to workers and yet it is the most prevalent occupational injury in healthcare industry (Health and Safety Education, 2015). Healthcare workers are exposed to blood-borne infections which usually expose them to diseases such as HIV, TB, and hepatitis B and hepatitis C (Goniewicz, 2012). Substantial morbidity and mortality among these workers inevitably lead to loss of skilled personnel and adversely impact healthcare services which are already strained in many low- and middle-income countries in Africa, including Nigeria (Kolar & Latal, 2011; Becker, 2014; Leun & Chan, 2016).

In sub-Saharan Africa, the scarcity of human resource for health is described as a humanitarian resource crisis due to significant emigration of trained professionals, difficult working conditions, poor salaries, low motivation, and high burden of infectious diseases, particularly HIV/AIDS (WHO, 2016). All of these have contributed to shortage of man power in our health facilities as there are no provisions for good working environment and no measures are put in place for health workers who may be infected in one way or the other in cause of carrying out their duties (Nsubuga, 2015; Anicetus, 2016; Haverstick, 2017).

Every year, most Community Health students posted on clinical attachment to different health facilities come back with infections suspected to have been acquired from those facilities as a result of their exposures to disease agents. This has made it expedient to find out the predisposing factors associated with clinical infections among healthcare workers in order to protect students through possible occupational health and safety policies. In view of the above, this study investigated the causes and prevention of hospital acquired infections among community health students of Rivers State College of Health Science and Management Technology, Port Harcourt, during clinical posting.

Methods

The study adopted a descriptive survey method. The choice of this design was informed because the researcher drew sample from a large population and made use of existing data without any form of manipulation in order to achieve certain outcomes and this is in line with the assertion of Robert (2016). The study population comprised of all 354 students of Community Health Department of Rivers State College of Health Science and Management Technology, Port Harcourt, who had just concluded their clinical attachments during the 2018/2019 academic session. The sample size for

the study consisted of 270 students who had just concluded their clinical posting. To arrive at this, Taro Yamane sample size determination formula was used. The study adopted simple random sampling technique in order to give equal opportunity of selection to each member of the population. The instrument for data collection is a self-structured and validated questionnaire with a reliability index of 0.78 which is within the acceptable limits set by the study. Copies of the instrument were administered on and retrieved from 193 respondents using the interviewer-administration method. Descriptive statistics of percentage and mean were used to analyze the demographic details and research questions.

Results

Table 1: Analysis of demographic data of respondents

Age	No. of respondents	Percentage (%)
Less than 20 years	146	54.1
20-29 years	70	25.9
30-39 years	50	18.6
40 years and above	4	1.4
Total	270	100
Gender	No. of respondents	Percentage (%)
Male	80	29.6
Female	190	70.4
Total	270	100
Marital Status	No. of respondents	Percentage (%)
Single	110	40.7
Married	150	55.5
Divorced	5	1.9
Widow/widower	5	1.9
Total	270	100
Educational Level	No. of respondents	Percentage (%)
CHEW year 1	44	16.2
CHEW year 2	104	38.5
CHEW year 3	60	22.3
JCHEW year 1	32	11.9
JCHEW year 2	30	11.1
Total	270	100
Religion	No. of respondents	Percentage (%)
Christianity	221	81.8
Islamic	40	14.8
Traditional	1	0.2
Others	8	2.9
Total	270	100

Findings from the study in table 1 above showed that 146 (54.1%) of the respondents were less than 20 years of age, 70 (25.9%) were between ages of 20-29 years, 50 (18.6%) were between ages of 30-39 years while 4 (1.4%) were 40 years and above. Again, 80 (29.6%) of respondents were of the male gender while 190 (70.4%) were of the female gender. On marital status of respondents, the table revealed that 110 (40.7%) were single, 150 (55.5%) of the respondents were married, 5 (1.9%) were divorced while 5 (1.9%) were widowed. Under the year of study, findings showed that CHEW year1 was 44 (16.2%), CHEW year 2 104 (38.5%), CHEW year 3, 60 (22.3%), JCHEW year1 32 (11.9%) and JCHEW year 2 30 (11.1%). Table 1 above also showed that a vast majority of respondents 221 (81.8%) were Christians, while 8 and 2.9% were Muslims and traditional worshippers respectively.

Table 2: Level of Awareness about Hospital Acquired Infections

Options	Yes	(%)	No	(%)	Total	
Are you aware of infection associated with health care facilities?	248	91.9	22	8.1	270	100%
Is it necessary for staff working in health care facilities to receive regular training to improve their knowledge and practice regarding hospital related infection?	233	86.3	36	13.7	270	100%
Is poor prevention practices still seen among doctors and nurses in healthcare facilities?	221	81.9	49	18.1	270	100%
Is a healthcare facility source of infection to man?	245	90.7	25	9.3	270	100%

Table 2 showed that a vast majority of 91.9% of the respondents said they were aware that infections are associated with health care facilities while 8.1% said they were not aware. Also, 86.3% of the respondents said that it is necessary for staff working in health care to receive regular training to improve their knowledge and practice regarding hospital related infection while 13.7% said it was not necessary. Again, a total majority of 81.9% of the respondents agree that poor prevention practices were still seen among doctors and nurses in healthcare facilities while 18.1% answered no to the item. Lastly, the table also revealed that a vast majority of 90.7% of the respondents answered on the affirmative that healthcare facility was a source of infection to man while 9.3% said no to this item, opining that a healthcare facility is not a source of infection to man. This showed that the level of awareness of the causes and prevention of hospital related infections among community health students during clinical posting is very high.

Table 3: Showing Perceived Causes of Hospital Acquired Infections.

Options	Yes	(%)	No	(%)	Total
Viruses	219	81.1	51	18.9	270
Fungi	245	90.7	25	9.3	270
Bacteria	237	87.7	33	12.3	270
Parasites	219	81.1	51	18.9	270

Table 3 above revealed that 81.1% of respondents affirmed that viruses are the possible causes of hospital related infections among community health students during clinical posting while 18.9% answered on the negative. Meanwhile, 90.7% of the respondents agree that fungi are the possible causes of hospital related infections among community health students during clinical posting while 9.3% disregarded this opinion. In same vein, 87.7% of the respondents were of the opinion that bacteria are the possible causes of hospital related infections among community health students during clinical posting while 12.3% of the respondents objected to that. Finally, 81.1% of the respondents said that parasites are the possible causes of hospital related infections among community health students during clinical posting but 18.9% said No, disregarding this opinion as well. Sequel to the above, the possible causes of hospital related infections among community health students during clinical posting includes Viruses, Fungi, Bacteria and Parasites.

Table 4: showing the extent to which hospital related infections affect the health.

Options	Yes	(%)	No	(%)	Total
Do you know that Hepatitis B, can cause lifelong infection, cirrhosis, liver cancer, liver failure and death?	234	86.6	36	13.4	270
Does <i>Clostridium difficile</i> which is a hospital infection, causes inflammation of the colon, and symptoms can range from diarrhoea to life-threatening colitis?	219	81.1	51	18.9	270
Are you aware that <i>Clostridium sordellii</i> can cause pneumonia, endocarditis, peritonitis and myonecrosis, and severe cases can lead to sepsis?	245	90.7	25	9.3	270
Do you know that Hepatitis B, can cause lifelong infection, cirrhosis, liver cancer, liver failure and death?	239	88.5	31	11.5	270

Table 4 above showed that, 86.6% of the respondents know that Hepatitis B can cause lifelong infection, cirrhosis, liver cancer, liver failure and death while 13.4% of the respondents do not know. Also, 81.1% of the respondents said that *Clostridium difficile* which is a hospital related infections cause inflammation of the colon, and symptoms can range from diarrhoea to life-threatening colitis but 18.9% said no in disagreement. Meanwhile, 90.7% of the respondents opined that *Clostridium sordellii* can cause pneumonia, endocarditis, peritonitis and myonecrosis, and

severe cases can lead to sepsis but 9.3% of the respondents disagreed. Finally, 88.5% of the respondents were of the opinion that Hepatitis B which is a hospital related infections can cause lifelong infection, cirrhosis, liver cancer, liver failure and death while 11.5% of the respondents objected to that. From the above, hospital related infections often affect the health status of community health students during clinical posting to a large extent as the infections if contracted, can actually result to death if they are left untreated.

Table 5: showing the preventive measures of hospital related infections

Options	Yes	(%)	No	(%)	Total	
Hand washing	237	87.8	33	12.2	270	100%
Sterilization of equipment	219	81.1	51	18.9	270	100%
The use of personal protective equipment	245	90.7	25	9.3	270	100%
Isolation of patients	234	86.6	36	13.4	270	100%
Surface Sanitation	235	87.0	35	13	270	100%

Table 5 showed that 87.8% of the respondents were of the opinion that hand washing is a preventive measure against hospital related infections, among community health students during clinical posting while 12.2% of the respondents objected to that. Also, 81.1% of the respondents said that Sterilization of equipment is a preventive measure against hospital related infections, among community health students during clinical posting but 18.9% said No in disagreement. Meanwhile, 90.7% of the respondents opined that the use of personal protective equipment is a preventive measure against hospital related infections, among community health students during clinical posting but 9.3% of the respondents disagreed. However, 86.6% of the respondents said that isolation of patients is a preventive measure against hospital related infections, among community health students during clinical posting while 13.4% of the respondents disregarded to this opinion. Finally, 87.0% of the respondents opined that surface sanitation is a preventive measure against hospital related infections, among community health students during clinical posting but 13% of the respondents disagreed.

Discussion of Findings

Findings from this study revealed that majority of the respondents had high level of awareness about the causes and prevention of hospital acquired infections among community health students during clinical posting. This is in line with Lyasenga (2010) who stated that it is still necessary for all staff working in health care to receive regular training to improve their knowledge and practice regarding causes and prevention of hospital related infections to minimize the risks associated with hospital related infections, from time to time. It is also in line with Anicetus (2016), who stated that during professionals training, health care trainees are often feed with adequate knowledge, as well as practical training, in the areas of hospital related infections. The implication of this to health is that respondents will be in better position to adopt recommended safety measures

On the possible causes of hospital acquired infections among community health students during clinical posting, it was revealed that viruses, fungi, bacteria and parasites were the likely causes. This is in agreement with the findings of Lautenbach (2011), who stated Hospital acquired infections are disease caused by micro-organisms such as viruses, fungi, bacteria or parasites. The implication of this to practice is that pathogens are always present in clinical settings and anyone without basic precautions is at great risk of exposure to them and the diseases they can cause.

Again, findings from the study revealed that hospital acquired infections affect the health status of community health students during clinical posting to a large extent as the infection can actually lead to death if they are left untreated. This is in line with World Health Organization-WHO (2016) who reported that effects of hospital infections on the health of human is that it Can causes inflammation of the colon, and symptoms can range from diarrhoea to life-threatening colitis. This also correlates with the findings of Bethany (2017) who stated that hospital related infections can lead to sepsis, though rarely which affects women and is often linked to end of pregnancy, whether the pregnancy resulted in childbirth, abortion or spontaneous abortion. This also support the findings of Lautenbach (2011), who stated that patients may be infected via urinary catheters, in which case removing the catheter often is all that is required to eliminate the infection. Findings from the study also revealed that the preventive measures of hospital related infections among community health students during clinical posting include; hand washing, sterilization of equipment, the use of personal protective equipment, isolation of patients and surface sanitation. This is in line with the findings of Hugonnet and Perneger (2012); Jain and Persuad (2015) and Haverstick (2017) that sterilization of equipment kills all microorganisms on equipment and surfaces through exposure to chemicals, ionizing radiation, dry heat, or steam under pressure.

It also tallies with the findings of Andersen (2012) who submitted that Personal protective equipment plays an important role in reducing the risks of transmission of microorganisms. It also concurs to the findings of Akbari and Kjellerup (2015) who collectively stated that sanitizing surfaces is part of *nosocomial* infection in health care environments. It is also agrees with the findings of Becker (2014) who stated that washing of hands as promptly and thoroughly as possible between patient contacts and after contact with blood, body fluids, secretions, excretions, and equipment or articles contaminated by them is an important component of infection control and isolation precautions. This conforms to the findings of other similar studies (Wenzel, 2016; Silva, 2017 & Plowman, 2017).

Recommendations

Following the findings from this study, the recommendations below were made.

1. The medical personnel should always ensure high personal hygiene during clinical postings.
2. Medical personnel should always ensure safe injection practices.
3. Disposal of medical waste in the appropriate receptacles should be practiced in Hospitals
4. Community health students should be given proper orientation on the causes, consequences and prevention of hospital related infections before they are sent on clinical posting.
5. Adequate protective equipment should be provided for health care workers to prevent them from contracting hospital infections.

References

Akbari, F. & Kjellerup, B. (2015). Elimination of bloodstream infections associated with *candida albicans* biofilm in intravascular catheters. *Pathogen*, 4 (3), 457–469. doi:10.3390/pathogens4030457. ISSN 2076-0817.

- Andersen, L. L. (2012). A prospective cohort study on musculoskeletal risk factors for long-term sickness absence among healthcare workers in eldercare. *International Archives of Occupational and Environmental Health*, 85 (6), 615–622,
- Anicetus, V. (2016). Management of medical waste in Tanzanian hospitals. *Tanzania Health Res. Bull*, 8(3), 177-182.
- Arrowsmith, V. & Taylor, R. (2014). Removal of nail polish and finger rings to prevent surgical infection. *The Cochrane Database of Systematic Reviews*, 8: CD003325. doi:10.1002/14651858.CD003325.pub3. PMID 25089848
- Becker, H. (2014). Most common healthcare-associated infections: 25 bacteria, viruses causing HAIs. *Clinical Leadership & Infection Control. CFO Dental Review*
- Benenson, A. S. (2015) *Control of communicable diseases manual (16th ed.)*. Washington, American Public Health Association.
- Bethany, N. (2017). *Hospital hazards: Top 3 health risks for staff nurses*. Retrieved from: <https://www.gebauer.com/blog/hospital-hazards-health-risks-for-staff-nurses>
- Code, A. & J .Christen, (2017) *How are we managing our healthcare wastes?* St. Gallen, Switzerland: SKAT.
- Goniewicz, M. (2012). Injuries caused by sharp instruments among healthcare workers—international and Polish perspectives. *Annals of Agricultural and Environmental Medicine*, 19 (3), 523–527.
- Graham, R. (2016). *What are nosocomial infections?* Healthline: Heaven Stubblefield.
- Haverstick, S. (2017). Patients' hand washing and reducing hospital-acquired infection. *Critical Care Nurse*, 37 (3). Retrieved from: <http://ccn.aacnjournals.org/content/37/3/e1.abstract>
- Hugonnet, S, & Perneger, K. (2012). Alcohol based hand rub improves compliance with hand hygiene in intensive care units. *Arch Intern med* ; 162, 1037-1043.
- Jain, S, & Persaud, D. (2015). Nosocomial malaria and saline flush. *Emerging Infect. Dis.* 11 (7): 1097–9. doi:10.3201/eid1107.050092.PMC 3371795.
- Kolár, M. & Látal, T. (2011). Antibiotic selective pressure and development of bacterial resistance. *International Journal of Antimicrobial Agents.* 17(5), 357–363. I S S N 0 9 2 4 - 8579.PMID 11337221.
- Lautenbach, E. (2011). Impact of changes in antibiotic use practices on nosocomial infections and antimicrobial resistance—clostridium difficile and vancomycin-resistant enterococcus (VRE). In A.J. Markowitz, *Making health care safer: A critical analysis of patient safety practices*. Agency for Healthcare Research and Quality.
- Leung, M., & Chan, A. H. (2016). Control and management of hospital indoor air quality. *Med. Sci. Monit*, 12(3), SR17–23. PMID 16501436.

- Lyasenga, T. J. (2010). Factors affecting medical waste management in low level health facilities in Tanzania. *African Journal of Environmental Science and Technology*, 4(5), 304-318.
- Manyele, S. V. (2018). The status of occupational safety among health service providers in hospitals in Tanzania. *Tanzania Journal of Health Research*, vol. 10 (3) 159–165.
- McBryde, E. & Bradley, L. (2014). An investigation of contact transmission of methicillin-resistant *Staphylococcus aureus*. *J. Hosp. Infect.*, 58 (2), 104–8.
- Moore, R. M. (2012). Occupational hazards to health care workers: diverse, ill-defined, and not fully appreciated. *American Journal of Infection Control*, 18 (5), 316–327.
- Nsubuga, F. M. (2015). Needle stick injuries among nurses in sub-Saharan Africa. *Tropical Medicine and International Health*, 10 (8), 773–781.
- Otter, J. & French, G. (2013). Survival of nosocomial bacteria and spores on surfaces and inactivation by hydrogen peroxide vapor. *J. Clin. Microbiol.* 47 (1), 205–7. Retrieved from doi:10.1128/JCM.02014-08. PMC 2620839. PMID 18971364.
- Plowman, R. (2017). The socioeconomic burden of hospital acquired infection. London Public health laboratory service and the London school of hygiene and tropical Medicine.
- Silva, C. G. (2017). Occurrence of clinically relevant bacteria in health service waste in a Brazilian sanitary landfill and antimicrobial susceptibility profile. *Rev. Soc. Bras. Med. Trop.*, 42(4), 60-79.
- Wenzel, R. P. (2016). The Lowbury Lecture. The economics of nosocomial infections. *J Hosp. Infect.*, 31, 79–87.
- World Health Organization (2016). *The world health report working together for health*. World Health Organization, Geneva, Switzerland.
- Wilks, S. & Michels, H. (2015), The survival of *Escherichia coli* O157 on a range of metal surfaces. *International Journal of Food Microbiology*, 105, 445–454.