

Factors Predisposing Secondary School Teachers to Occupational Health Hazards in Yenagoa Local Government Area

Esther Tamunoiyowuna Bruce-Agbogidi

*Department of Educational Psychology, Guidance and Counselling
Isaac Jasper Boro College of Education, Sagbama, Bayelsa State
estherbruce.eb@gmail.com*

Gienah T. Bruce-Agbogidi

*De-Unique International Academy
Igbogene, Yenagoa, Bayelsa State
gienahbruceebi@gmail.com*

Diepreye Rhoda Bruce-Agbogidi

*Department of Biology
Ignatius Ajuru University of Education
Rumuolumeni, Rivers State
brucerhoda7@gmail.com*



Abstract

The study investigated factors predisposing secondary school teachers to occupational health hazards in Yenagoa Local Government Area of Bayelsa State. Descriptive survey was adopted. 258 secondary school teachers were used. A questionnaire titled "Questionnaire on Occupational Health Problems Prevalent among Teachers" (QOHPPT) was used to gather data. Four research questions and four hypotheses guided the study. Frequencies and mean were used to answer the questions, while the hypotheses were tested at 0.05 alpha level using independent t-test and ANOVA. Results reveal that voice and chest pain were higher among married teachers; however marital status does not significantly influence its prevalence. Teachers with 16-20years' experience suffer a higher prevalence of voice and chest pain, while teachers with over 20years of experience suffer the least. Married teachers recorded higher prevalence of musculoskeletal pains, even though marital status does not significantly influence its prevalence. Musculoskeletal pain is higher among teachers with 11-15years of experience and least among teachers with over 20years' experience; however years of experience do not significantly influence its prevalence. Based on the findings, recommendations were made including that the Ministry of Education should introduce the use of public address systems, build more classrooms, provide comfortable furniture, and employ more teachers.

Keywords: Occupational, health, hazards, teachers, musculoskeletal, pains

Introduction

Teaching is rightfully considered to be one of the noblest professions (Mukherjee, 2017); however the profession is burdened with some work-related illnesses and trauma, which arise as a result of factors such as manner of working, classrooms with minimal spaces and amount of mental pressure endured by teachers. Teachers are the nation builders by virtue of their job as character moulders. Nofer Institute of Occupational Medicine in Acoustic Bulletin (2008) asserts that 70% of teachers suffer different forms of temporary or permanent voice problems during their career period. It has become a regular thing to hear teachers complaining of eye problem, waist pain, shoulder pain, voice problem, and back pain etc. The question then that comes to mind is why are these complaints common among teachers?

The efficient and dedicated teachers impact on children's lives in varied ways. Teachers stand as a source of encouragement to students to ensure that such students progress in life. The great concern that burdens the heart of a dedicated teacher makes him or her to go an extra mile to ensure that all children are carried along; the fast learner is not delayed in his desire to learn, neither is the slow learner left behind. The inestimable importance of the practitioners of this noble profession cannot be underestimated; they educate the youths to become responsible leaders of the society in future, contributing their quota to the development of the society.

It is worthy of note that the intense dedication and passion put into the job of moulding lives lead many teachers to selflessly put in the whole of themselves into the job, and thereby, innocently and to a great level, jeopardize their health. This happens as a result of their ensuring that while teaching, the voice is able to carry the message to all the students in the class, they stand long hours to teach, sit down long hours to write lesson plans and notes, mark scripts, set questions, conduct researches, spend time to listen to students' complaints and fears, so as to find solutions to such etc. All these are the daily duties of the classroom teachers. It is therefore clear why complaints of voice problems, waist pain, back pain, eye problems, shoulder pain etc is prevalent among teachers.

Viewing the enormous work carried out by teachers and examining it side by side with constant health complaints made by them has stirred up the desire in the researchers to embark on this study to ascertain the factors that are associated with the prevalence of voice disorders, chest pain and musculoskeletal pains among teachers in the course of discharging their duties in Yenagoa L.G.A.; the variables will include marital status, years of experience, prevalence of voice disorder, chest pain and prevalence of musculoskeletal pain.

Occupational health is defined in National Institute of Environmental Services (2019) as the process of identifying and controlling risks arising from physical, chemical, and other workplace hazards in order to ensure that a safe and healthy working environment is established and maintained. Many studies have been carried out on the prevalence of

voice problems, with varied results. Aryal, Bhandary, Chhetri, Paudel, Tamarakar and Devkota (2017) found out that out of 307 teachers studied, 190 implying 61.89% had voice disorders. Alva, Machado, Bhojwani and Sreedharan (2017) ascertained that 81% of the population had voice problems at some points in time. On prevalence of musculoskeletal pains among teachers, Ojoawo and Orakwue (2016) revealed that prevalence of work related musculoskeletal pain among teachers was 58%.

On years of experience and voice problems, Akinbode, Lam, Ayres and Sadhra (2014) verified that there was no significant association between voice disorders and years of experience. Aryal, Bhandary, Chhetri, Paudel, Tamarakar and Devkota (2017) recorded weak statistical significance between teaching experience and voice disorder. Teachers with more than 20years' experience had more voice disorder than those with less than 20years' teaching experience. Studies on relationship between marital status and voice problems are scanty. Moy, Hoe, Hairi, Chu, Bulgiba and Koh (2015) ascertained that single and widowed/divorced participants had a higher prevalence rate of voice disorder than married teachers.

On the relationship between years of experience and musculoskeletal pains, Cardoso, Ribeiro, Araújo, Carvalho and Reis (2009) verified that a higher prevalence of musculoskeletal pain (MSP) at statistically significant levels was observed on teachers with fourteen or more years of service. Abbaszadeh, Jahangiri and Hassanipour (2019) found out that teachers with longer teaching experience had a higher prevalence of leg pain, while teachers with 5-9 years teaching experience had a higher prevalence of shoulder pain, but higher prevalence of hand/wrist pain was higher with teachers who had 10-19 years of teaching experience than others. Studies on marital status and musculoskeletal pain are scanty. Musculoskeletal pain (heel pain and hip joint pain) are statistically significantly associated with marital status. More single teachers than married had suffered severe heel and hip joint pain as asserted by Abdulmonem, Hanan, Elaf, Haneen and Jenan (2014).

Research questions

1. To what extent does the prevalence of voice disorder and chest pain differ between married and single secondary school teachers?
2. What is the difference in prevalence of voice problem and chest pain among secondary school teachers with different years of experience?
3. To what extent does the prevalence of musculoskeletal pain differ between married and single secondary school teachers?
4. What is the difference in prevalence of musculoskeletal pain among teachers with different years of experience?

Hypotheses

Ho1: There is no significant difference in the prevalence of vocal problem and chest pain between married and single secondary school teachers in Yenagoa L.G. A.

Ho2: There is no significant difference in the prevalence of vocal problem and chest pain among secondary school teachers with different years of experience in Yenagoa L. G. A.

Ho3: There is no significant difference in the prevalence of musculoskeletal pain between married and single secondary school teachers in Yenagoa L. G. A.

Ho4: There is no significant difference in the prevalence of musculoskeletal pain among secondary school teachers with different years of experience.

Methodology

Descriptive survey design was adopted for the study. This design was deemed appropriate for the study because the focus was to investigate a phenomenon that is already in existence, upon which the researchers have no influence. This agrees with the assertions of Kothari and Gaurav (2016) that the main purpose of descriptive research is to describe the state of affairs as it presently exists and that the researcher has no control over the variables; he can only report what is happening. The target population of this study comprised of teachers in government-owned secondary schools and private schools in Yenagoa Local Government Area of Bayelsa State. The accidental sampling technique was adopted, as only teachers that were readily available were selected; this sampling technique became necessary as a result of unresponsive attitude of some teachers. Akinade and Owolabi (2011) assert that “when population consists of individuals that are readily available at the point of study, it can be referred to as accidental sampling”. Four hundred copies of the questionnaire were distributed but two hundred and fifty-eight copies of workable questionnaire were used for analysis, as copies with incomplete filling were discarded.

An instrument titled “Questionnaire on Occupational Health Problems Prevalent among Teachers” (QOHPPT) was developed by the researchers. It contains two sections; Section A contained demographic variables, while section B comprises of items with likely health problems that are prevalent among teachers. The respondents were required to respond to the items on the QOHPPT on a four-point Likert scale ranging from strongly agree to strongly disagree. In determining the level of prevalence of any health problem, percentages and mean values were used.

The face and content validity of the items was done by two experts in Measurement and Evaluation. The reliability of the instrument was analysed using the split-half method and the reliability coefficient of the instrument was .72. For the purpose of answering the questions and testing the hypotheses, the Statistical Package for Social Sciences (SPSS) version 23 was used for analyses. Descriptive statistics such as frequencies, mean, and percentages were applied to answer the research questions. Hypotheses 1 and 3 were

tested with independent sample t-test, while Analysis of Variance (ANOVA) was adopted to test hypotheses 2 and 4.

Presentation of results

Research Question 1: To what extent does the prevalence of voice disorder and chest pain differ between married and single secondary school teachers?

Table 1: Descriptive statistics showing difference in prevalence of voice problem and chest pain between married and single secondary school teachers

Marital status		N	Mean	Std. Deviation
Voice problem	Married	173	2.50	.89
	Single	85	2.48	.93
Chest pain	Married	173	2.43	.80
	Single	85	2.38	1.02

The table above shows a mean value of 2.50 for married teachers and 2.48 for single teachers for prevalence of vocal problem, and mean value of 2.43 for married teachers and 2.38 for single teachers for prevalence of chest pain; the results indicate that prevalence of voice problem and chest pain is higher among married secondary school teachers. Married secondary school teachers are 173 representing 67.1% of the sample, while single teachers are 85, representing 32.9%

Ho1: There is no significant difference in the prevalence of vocal problem and chest pain between married and single secondary school teachers in Yenagoa L.G. A.

Table 2: t-test analysis of marital status and prevalence of voice problems and chest pain

	Marital status	N	Mean	Df	Mean difference	t-value	Sig (2-tailed)	Remark
Vocal problem	Married	173	2.50	256	0.21	.171	.864	NS
	Single	85	2.48					
Chest pain	Married	173	2.43	256	0.06	.489	.625	NS
	Single	85	2.38					

NS = Not Significant

The t-test statistics reveal that there is no significant difference in the prevalence of vocal problem between married and single teachers. The result shows p-value of .864 for vocal problem which is higher than alpha level of .05, and p-value of .625 for chest pain, also greater than alpha level of .05. Hence, the hypothesis that there is no significant difference in the prevalence of vocal problem and chest pain between married and single secondary school teachers in Yenagoa L. G. A. is retained.

Research Question 2: What is the difference in prevalence of voice problem and chest pain among secondary school teachers with different years of experience?

Table 3: Descriptive statistics showing difference in prevalence of voice problem and chest pain among secondary school teachers with different years of experience

		N	Mean	Std. Deviation
Vocal Problems	0-5years	57	2.37	.98
	6-10years	84	2.55	.84
	11-15years	65	2.48	.90
	16-20years	32	2.72	.96
	21years and above	20	2.35	.88
	Total	258	2.50	.91
Chest Pain	0-5years	57	2.25	1.01
	6-10years	84	2.50	.87
	11-15years	65	2.60	.79
	16-20years	32	2.31	.78
	21years and above	20	2.10	.85
	Total	258	2.41	.88

Table 3 shows that vocal problems are more prevalent among teachers with 16-20 years of experience, and least among teachers with over 20 years of teaching experience. For the prevalence of chest pain among secondary school teachers, those with 11-15 years of experience have a higher prevalence while those with over 20 years' experience suffer the least. Teachers with 0-5 years of experience are 57 (22.1%), those with 6-10 years of experience are 84 (32.6%), those with 11-15 years of experience are 65 (25.2), 16-20 years of experience are 32 (12.4%), while those with over 20 years are 20 (7.8%)

Ho2: There is no significant difference in the prevalence of vocal problem and chest pain among secondary school teachers with different years of experience in Yenagoa L. G.A.

Table 4: ANOVA of prevalence of voice problem and chest pain among teachers with different years of experience

		Sum of Squares	df	Mean Square	F	Sig.
Vocal Problems	Between Groups	3.189	4	.797		
	Within Groups	207.307	253	.819	.973	.423
	Total	210.496	257			
Chest Pain	Between Groups	6.788	4	1.697		
	Within Groups	191.836	253	.758	2.238	.065
	Total	198.624	257			

Table 4 shows that computed F (0.973) for vocal problems is not statistically significant as 0.423 is greater than alpha level of .05, and F (2.238) for chest pain is not statistically significant as .065 is greater than .05 alpha level. Hence the null hypothesis that there is no significant difference in the prevalence of vocal problem and chest pain among secondary school teachers with different years of experience is retained. Years of experience does not significantly affect prevalence of voice problem and chestpain among secondary school teachers.

Research Question 3: To what extent does the prevalence of musculoskeletal disorders differ between married and single secondary school teachers?

Table 5: Descriptive statistics showing marital status and prevalence of musculoskeletal disorders

Marital status	N	Mean	Std. Deviation
Married	173	13.21	3.00
Single	85	12.68	3.73

Table 5 shows a mean value of 13.21 for married teachers and 12.68 for single teachers. It therefore shows that prevalence of musculoskeletal pains is higher among married secondary school teachers. Married secondary school teachers are 173 representing 67.1% of the study sample, while single teachers are 85 representing 32.9%.

Ho3: There is no significant difference in the prevalence of musculoskeletal pain between married and single secondary school teachers in Yenagoa L. G. A.

Table 6: t-test analysis of marital status and prevalence of musculoskeletal pains

Marital status	N	Mean	Df	Mean difference	t-value	Sig (2-tailed)	Remark
Married	173	13.21					NS
Single	85	12.68	256	.53	1.231	.220	

NS = Not Significant

From table 6, the results indicate that the difference in prevalence of musculoskeletal pain is not statistically significant between married and single secondary school teachers, hence null hypothesis of no significant difference in the prevalence of musculoskeletal pain between married and single secondary school teachers in Yenagoa L. G. A is retained at $t(256) = 1.231, p > .05$.

Research Question 4: What is the difference in the prevalence of musculoskeletal pain among teachers with different years of experience?

Table 7: Descriptive statistics showing years of experience and prevalence of musculoskeletal pains

	N	Mean	Std. Deviation
0-5years	57	12.63	3.87
6-10years	84	13.17	3.08
11-15years	65	13.55	3.14
16-20years	32	13.38	2.43
21years and above	20	11.45	3.38
Total	258	13.04	3.26

Table 7 reveals that musculoskeletal pain is more prevalent among secondary school teachers with 11-15 years of experience with a mean of 13.55, while those with the least prevalence are teachers with over 20 years of experience. Teachers with 0-5 years of experience are 57 (22.1%), those with 6-10 years of experience are 84 (32.6%), those with 11-15 years of experience are 65 (25.2%), 16-20 years of experience are 32 (12.4%) while those with over 20 years are 20 (7.8%)

Ho4: There is no significant difference in the prevalence of musculoskeletal pain among secondary school teachers with different years of experience.

Table 8: ANOVA of years of experience and prevalence of musculoskeletal pains

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	82.171	4	20.543	1.957	.102
Within groups	2655.441	253	10.496		
Total	2737.612	257			

The computed F (1.957) is not statistically significant as .102 is greater than .05 alpha level. Hence the null hypothesis that there is no significant difference in the prevalence of musculoskeletal pain among secondary school teachers with different years of experience is retained.

Discussion of the findings

On marital status and prevalence of voice problem and chest pain, the result shows that married teachers have higher prevalence of voice problem and chest pain; however no significant difference in the prevalence of vocal problem and chest pain was found between married and single teachers. This is in contrast with the findings of Moy, Hoe, Hairi, Chu, Bulgiba and Koh (2015).

On years of experience and prevalence of vocal problem and chest pain, it was established that teachers with 16-20years' teaching experience have a higher prevalence of voice problem, while those over 20years' experience had the least; whereas teachers with 11-15years' experience had the highest prevalence of chest pain with a mean of 2.60, those with 16-20years' experience had the least prevalence with a mean of 2.10; but the observed difference was not statistically significant. The finding on prevalence of voice problem disagrees with the findings of Aryal, Bhandary, Chhetri, Paudel, Tamarakar and Devkota (2017), but is in agreement with Akinbode, Lam, Ayres and Sadhra (2014).

Findings on marital status and prevalence of musculoskeletal pain reveal that married teachers experience higher prevalence of musculoskeletal pains, but no statistically significant difference in the prevalence of musculoskeletal pain between married and single teachers in Yenagoa L.G.A. was found. This finding disagrees with the study of Abdulmonem, Hanan, Elaf, Haneen and Jenan (2014). The findings on this study may be as a result of married teachers having extra work at home, serving their families and combining it with work at school.

Findings show teachers with 11-15years' experience suffer higher musculoskeletal pains while those with over 20years' experience suffer the least; however there is no significant difference based on years of experience. This disagrees with Cardoso, Ribeiro, Araújo, Carvalho and Reis (2009).

Conclusion

The study has ascertained that prevalence of voice problem and chest pain is more prevalent among married teachers and among teachers with 16-20years of teaching experience. Musculoskeletal pains are more prevalent among married teachers and teachers with 11-15years of teaching experience.

Recommendations

Based on the findings of the study, the researchers made the following recommendations:

- i. The ministry of education should introduce the use of public address systems in schools.
- ii. More classrooms should be built to depopulate overcrowded classrooms.
- iii. Comfortable furniture should be provided for teachers.
- iv. More teachers should be employed to reduce teachers' excess workload.

References

- Abbaszadeh, S., Jahangiri, M. & Hassanipour, S. (2019). Work-Related Health Problems among Primary and Secondary School Teachers: A Cross-Sectional Study. *Shiraz E-Medical Journal*, 20(6), 1-8. Available at <http://emedicalj.com/en/articles/83771.html>
- Abdulmonem, A., Hanan, A., Elaf, A., Haneen, T. & Jenan, A. (2014). The Prevalence of Musculoskeletal Pain and Its Associated Factors among Female Saudi School Teachers. *Pakistan Journal of Medical Science*, 30(6), 1191–1196. Available at: <http://europepmc.org/articles/pmc4320698>
- Acoustic Bulletin (2008). Voice Disorders among Teachers as an Occupational Disease. Available at <https://www.acousticbulletin.com/voice-disorders-among-teachers-as-an-occupational-disease>
- Akinade, E. A. & Owolabi, T. (2011). *Research Methods (A Pragmatic Approach) for Social Sciences, Behavioural Sciences and Education*. Ibadan: Connel Publications.
- Akinbode, R., Lam, K. B. H., Ayres, J. G. & Sadhra, S. (2014). Voice Disorders in Nigerian Primary School Teachers. *Occupational Medicine*, 64(5), 382–386. Available at <https://academic.oup.com/occmed/article/64/5/382/1437875>
- Alva, A., Machado, M., Bhojwani, K. & Sreedharan, S. (2017). Study of Risk Factors for Development of Voice Disorders and Its Impact on Quality of Life of School Teachers in Mangalore, India. *Journal of Clinical and Diagnostic Research*, 11(1), 1-5. Available at [https://www.jcdr.net/articles/PDF/9234/17313_CE\[Ra1\]_F\(GH\)_PF1\(RB_RK\)_PFA\(DK\)_PF2\(NE_DK\).pdf](https://www.jcdr.net/articles/PDF/9234/17313_CE[Ra1]_F(GH)_PF1(RB_RK)_PFA(DK)_PF2(NE_DK).pdf)
- Aryal, B., Bhandary, S., Chhtri, S. T., Paudel, D., Tamarakar, D. & Devkota, I. R. (2017). Prevalence of voice disorders and risk factors in teachers in eastern Nepal. *International Journal of Scientific and Research Publications*, 7(9), 518-523. Available at <http://www.ijsrp.org/research-paper-0917/ijsrp-p6965.pdf>
- Cardoso, J. P., Ribeiro, I. Q. B., Araújo, T. M., Carvalho, F. M. & Reis, E. J. F. B. (2009). Prevalence of musculoskeletal pain among teachers. *Rev Bras Epidemiol*, 12(4), 1-10. Available at http://www.scielo.br/pdf/rbepid/v12n4/en_10.pdf
- Kothari, C. R. & Gaurav, G. (2016). *Research Methodology: Methods and Techniques*. Mumbai: New Age International (P) Limited Publishers.
- Moy, F. M., Hoe, V. C. W., Hairi, N. N., Chu, A. H. Y., Bulgiba, A. & Koh, D. (2015). Determinants and effects of Voice Disorder, among Secondary School Teachers in Peninsular Malaysia using a Validated Malay Version of VH1-10. *PloS one*, 10(11). doi:10.1371/journal.pone.0141963. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4634998/pdf/pone.0141963.pdf>
- Mukherjee, S. (2017). 5 Health Hazards of Being a Teacher. Available at: <https://logicroots.com/MathBlog/5-health-hazards-of-being-a-teacher/>
- National Institute of Environmental Services (2019). Occupational Health. Available at: <https://www.niehs.nih.gov/health/topics/population/occupational/index.cfm>
- Ojoawo, A. O. & Orakwue, B. C. (2016). Work Related Musculoskeletal Pain among Teachers in Selected Public Secondary Schools in Ile-Ife, Nigeria. *Annals of Biomedical Sciences*, 15(1), 125-133. Available at <https://www.ajol.info/index.php/abs/article/view/1336322>