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PRINCIPALS' DEMOGRAPHIC VARIABLES AND FECES MANAGEMENT PRACTICES IN SECONDARY SCHOOLS IN CROSS-RIVER STATE, NIGERIA

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Abstract
Safe management of feces and proper sanitation has become very important tissue in public secondary schools in Nigeria as a result of its significant implication in the quality of life and health of both staff and students. This study therefore investigated, 'Principals' demographic variables and feces management practices in secondary schools in Cross River State, Nigeria'. To achieve this purpose of the study, two specific objectives were raised to guide the study, which was converted to two research questions and then transformed into two hypotheses. Literature related to the sub-variables of the study was reviewed. The design used in this study was survey research design. This design was chosen because it provides quantitative information on the features of the whole population through a chosen sample. In addition, it permits inferences to be made and generalizations to be drawn from a representative sample of the population. The research area is Cross River State, Nigeria. The target population of the study was 273 principals of public secondary schools in the three Education Zones of Cross River State (Ministry of Education, Calabar, Cross River State; 2015/2016 academic year). The instrument used for data collection was the questionnaire, which had two sections A and B. Section A dealt with demographic information, whereas section B provided information related to the variables of the study (principals' and their feces management practices).The Cronbach alpha method was used to determine the reliability estimate of the instrument. The reliability coefficient ranged from 0.64 to 0.85. The data were analyzed using one-way analysis of variance and was interpreted accordingly. The findings of the study revealed that principals' age significantly influences their feces management practices in secondary schools. Furthermore, this study also showed that principals' educational qualification level does not significantly influence feces management practices in secondary schools. It was recommended among others that the government should employ principals who are advanced in age and also have higher educational qualification in the running of secondary schools in Cross River State to ensure proper management of feces and toilet facilities in their schools.

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Introduction

Human feces and poor sanitation have been linked to the conveyance of numerous communicable ailments, such as cholera, typhoid, ascariasis, hepatitis, polio, and schistosomiasis, in the community. The World Health Organization reported that approximately 2.2million mortality occurring yearly, are due to diarrheal diseases and that tenth of the population in the third world countries are severely infected with intestinal worms associated with indiscriminate feces and waste disposal (Harhay, Horton & Olliaro, 2010). Juveniles are the most vulnerable to human feces transmitted diseases. Studies conducted in third world countries show that collected fecal waste is released indiscriminately into the ambience causing deleterious health effects on aquatic and air pollution (Gelaw, Anagaw, Nigussie, Silesh & Yirga, 2013). It is therefore momentous to study human feces especially in secondary schools in Nigeria, to find solutions and to pre-empt related environmental health risks in the school environment.

In Nigerian secondary schools, especially in Cross River State, it is not uncommon to see students urinate and defecate in open spaces and bushes around the school environment due to insufficient or sub-standard sanitary facilities with impunity. Such actions contribute to environmental degradation and pollution. Insanitary feces management, as well as deficiencies in other components of environmental sanitation, contributes significantly to the continuing high rate of feces related infections among secondary school students. Principals of secondary schools must ensure proper sanitation and enforcement of school regulations to prevent hazards; health risks and environmental implications associated with feces related diseases in schools, especially boarding schools.

Age may serve as a determinant factor in the management of feces in secondary schools in Nigeria. It is expected that principals that are older may manage toilet facilities in schools more effectively than younger ones based on their level of knowledge and proficiency. It is belief that principals who are older in ages may have enough ideas, skills and knowledge in the running of their schools than those younger ones who may have occupied such positions for the first time. Okorie (2002) noted that principals' personal characteristics such as age, marital status, teaching experience, academic qualifications, and sex cannot be disclosed from the way and manner in which the school is managed.

In a study conducted to assess the knowledge and practice of secondary school students toward feces management practices in Nigeria, it was discovered that educational status, age, and gender were factors influencing feces management practices in secondary schools (Adeolu, Enesi & Adeolu, 2014). It was also observed that feces quality issues competed with the socioeconomic status of people and that the issues were more recognized by better educated and well-off residents. Gender and age were found to be poor predictors of feces management (Chanda, 1999). The effectiveness of feces management initiatives could be improved through the incorporation of an understanding of age differences and inequalities.

Demographic features such as age and education level of students had an insignificant impact on the choice of alternative feces management practices in secondary schools in Cross River State. Inadequate provision of toilet facilities and longer distances to these facilities increased the probability of defecation in open areas and bushes (Tadesse, Ruijs &Hagos, 2008).

Educational qualification of principals of public secondary schools in Nigeria may play a significant role on their feces management. This may be because some principals with higher educational qualifications in terms of certificates can influence their knowledge of feces management in their schools. Facilities for academic and non-academic activities need to be properly put in place to provide an optimal sanitary environment that is safe and conducive for physical, mental, and emotional health of the students in order to achieve maximum benefits from educational programmes (Joshua, 2004; Vernon, 2003).Human feces which form an important cause of environmental pollution, need to be properly disposed of through modern feces management methods that are

socially and culturally acceptable to the people (UNICEF, 2009; Dworsky, 2007). Principals with higher educational qualifications may also influence the Ministry of Education to provide most of these sanitary facilities in their schools. They may also encourage them to employ more workers who can assist in cleaning these facilities, especially toilets. Apart from its availability, the facilities should proportionately meet the demands of the population of both students and members of staff in such schools.

It has been observed that the combination of adequate facilities, correct behavioral practices and education is meant to have a positive impact on the health and hygiene conditions of schools. The success of a school feces management programme is therefore determined not only by the number of latrines constructed and the number of hand pumps installed, but also by the knowledge of better feces management practices adopted in schools by school principals (International Water & Sanitation Center, 2004). Ogbalu (2003) emphasized the need for health education regarding the proper management of feces in Nigeria. He observed that many health hazards in Nigeria, such as dysentery, typhoid, and cholera, have been associated with poor feces management practices.

Regular education for women and students is a prerequisite for change in sanitation behavior in secondary schools. If women are effectively educated on how to manage their feces sanitarily through the creation of awareness in their various schools, the feces generated can be successfully used for their own benefits as organic fertilizers in their farms (Pacey, 2002). The researcher therefore sought to investigate principals' demographic variables and feces management practices in secondary schools in Cross River State, Nigeria.

Objectives of the study

1. To determine the extent to which the age of school principal's influence their feces management practices in secondary schools in Cross River State.
2. To determine the extent to which principals' educational qualification level influences feces management practices in the study area.

Research Questions

1. To what extent does the age of school principals influence feces management practices in secondary schools in Cross River State?
2. To what extent does principals' level of educational qualification influence their feces management practices in secondary schools in Cross River State?

Research Hypotheses

1. The age of school principals did not significantly influence their feces management practices in secondary schools in Cross River State.
2. Principals' level of educational qualification does not significantly influence their feces management practices in secondary schools in Cross River State.

Methods

The design used in this study was survey research design. This design was chosen because it provides quantitative information on the features of the whole population through a chosen sample. In addition, it permits inferences to be made and generalizations to be drawn from a representative sample of the population. The research area is Cross River State, Nigeria.

The target population of the study was 273 principals of public secondary schools in the three Education Zones of Cross River State (Ministry of Education, Calabar, Cross River State; 2015/2016 academic year). The instrument used for data collection was the questionnaire, which had two sections: A and B. Section A dealt with demographic information while section B provided information on the variables of the study (principals' and their feces management practices).The Cronbach alpha method was used to determine the reliability

estimate of the instrument. The reliability coefficient ranged from 0.64 to 0.85. The data were analyzed using one-way analysis of variance and was interpreted accordingly.

Results

Hypothesis one: The age of school principals does not significantly influence their feces management practices in secondary schools in Cross River State.

TABLE 1

Summary of one-way analysis of variance of the influence of principals' age on their feces management practices in secondary schools in Cross River State

Age range	N	$\overline{X}$	SD
Below 40 years	5	14.40	1.95
Between 41 and 45	42	14.26	2.54
Between 46-50	141	14.61	2.30
Above 51	82	15.52	2.64

Source of variation	SS	df	MS	F	Sig.
Between groups	60.411	3	20.137	3.371	.019*
Within groups	1589.089	266	5.974		
Total: 1649.500	269				

*Significant at P < .05, F = 3.371.

TABLE 2

LSD comparison of principals' age and feces management practices in secondary schools in Cross River State

Principals' ages (i)	Principals' ages (j)	MD	sig.
Below 40 years	between 41 and 45 years	.138	.905
	between 46-50 years	-.217	.845
	above 51 years	-1.124	.319
Between 41-45	below 40	-.138	.905
	between 46-50	-.355	.409
	above 51	-1.262*	.007
Between 46 and 50	below 40	.217	.845
	between 41-45	.355	.409
	above 51	-.907*	.008
Above 51	40	1.124	.319
	between 41-45	1.262*	.007
	between 46-50	.907*	.008

*= mean difference is significant at 0.05 level

The independent variable was principals' age categorized into 4 dimensions. The dependent variable was feces management practices. One-Way Analysis of Variance was employed to test the hypothesis; the results are presented in table 1. The results from the data analysis in table 1 revealed that the age of the school principals significantly influence their feces management practices in their schools (F = 3.371, P < .05). Meanwhile, comparing the mean ages of the principals for source of significance using the least square difference of the post-hoc comparison in table 2, it was revealed that there was a significant difference when principals of ages between 41-45 was compared with those of above 51 (mean difference = -1.26; P < .05). There was also a significant difference when principals of ages between 46 and 50 years were compared with those ages 51 and above (mean difference = -.907, P < .05). For principals aged below 40 years, there was no significant influence of the group. Therefore, the findings of the study revealed that the age of principals aged 40 and above significantly influence their feces management practices in their schools in Cross River State. With older

principals (above 51) maintaining appropriate feces management practices ($\bar{X}$ = 15.52), followed by those of ages between 46 and -50 years ($\bar{X}$ = 14.61).

Hypothesis two: Principals' level of educational qualification does not significantly influence their feces management practices in secondary schools in Cross River State.

TABLE 3

Summary of one-way analysis of variance of the influence of principals' level of educational qualification on their feces management practices in secondary schools in Cross River State

Level of educational qualification	N	$\bar{X}$	SD
B.Ed/B.Sc	194	14.80	2.504
M.Ed/M.Sc	68,	14.76	2.363
Ph. D	8	16.13	2.696
Total	270	14.83	2.476

Source of Variation	SS	df	MS	F	Sig.
Between groups,	13.833	2	6.917	1.129	.325
Within groups:	1635	.667	267	6.126	
Total: 1649	.500	269			

Not significant at P > .05, F = 1.129

The independent variable was principals' educational qualification levels categorized into three distinct groups (B.Ed/B.Sc, M.Ed/M.Sc and Ph. D). The dependent variable was feces management practices. One-Way Analysis of Variance was employed to test the hypothesis; the results are presented in table 3.The results from the data analysis in table 3 revealed that principals' educational qualification level does not significantly influence their feces management practices in secondary schools in Cross River State. From table 3, it revealed that the higher the qualification in terms of certificate, the lower the number of the principals in their feces management practices in secondary schools ((B.Ed/B.Sc-194; M.Ed/M.Sc-68; Ph. D-8). Again, the result showed that the higher the qualification, the better the mean of the principals' feces management practices (B.Ed/B.Sc-14.80; M.Ed/M.Sc-14.76; Ph. D-16.13). This implies that principals with higher qualification in terms of certificates are better in their feces management practices. However, the mean difference in their practices of feces management as examined on their qualifications was not statistically significant (F = 1.129, P > .05). This therefore implies that the principals' level of educational qualification does not significantly influence their feces management practices in secondary schools; hence, the stated null hypothesis was accepted.

Discussions

Age of school principals and feces management practices in secondary schools.

The findings of this hypothesis revealed that there was a positive significant influenced of age of school principals and their feces management practices in secondary schools in Cross River State. The findings revealed in this study indicated that the age of secondary school principals significantly influenced their feces management practices in their schools (F = 3.371, P < .05). This finding was supported by the study carried out by Tedesse, Ruijs and Hagos (2008), who stated that demographic features such as age, education and household size had an insignificant impact on the choice of alternative feces management methods, whereas poor, provision of toilets in schools significantly affected feces management choice.

Also, Okorie (2002) notes that principal's personal characteristics such as age; sex and teaching experience have positive influence in feces management practices in schools. Chanda (1999) asserted a contrary opinion.

The study opines that the age of principals did not significantly influence their notions toward feces management practices in schools. Some authors expressed the opinion that age may serve as a determinant factor in the management of feces in secondary schools in Nigeria. They added that administrators who were older to age usually used their experience accumulated over a long period of time to manage feces in their schools. This view was supported by Sommer (2009), who stated that principals who are older in age acquired, accumulated knowledge and skills that enabled them to select the types of feces management methods to be adopted in their schools based on environmental conditions.

The researcher also agreed with this finding of the study. He opines that the more principals advance in age, the more they acquired experiences, ideas, skills, and techniques of doing things. This may be positively transferred in the management of feces in their schools. He also stated that those principals who are younger in age may not have acquired lot of experiences to run the school system effectively as compared to the older ones. This has a significant impact on the management of feces in their schools.

Principals' level of educational qualification and feces management practices in secondary schools

The findings of this hypothesis revealed that principals' educational qualification level did not significantly influence their feces management practices in secondary schools. This assertion is a result of findings discovered in this study in that the higher the principals' qualification in terms of certificate, the lower the number of the principals in their feces management practices (B.Ed/B.Sc-194; M.Ed/M.Sc-68; Ph. D-8). Again, the result showed that the higher the qualification, the better the principals' in their feces management practices in the study area (B.Ed/B.Sc-14.80; M.Ed/M.Sc-14.76; Ph. D-16.13). However, the mean difference in their feces management practices as examined on their qualification was not statistically significant ($F = 1.129$, $P > .05$).

Pacey (2002) held a contrary opinion in relation to the finding of the study. She opines that the more principals' education level increases, the higher their awareness of the management of feces in schools. Jatan (2013) opines that principals with holders of higher educational qualifications exhibit a positive attitude toward feces management through their level of exposure and awareness obtained.

Joshua (2004) reiterated that the educational qualifications of principals in public secondary schools in Nigeria play a significant role in the management of feces in schools. Principals with higher educational qualifications, especially in health-related fields, may be more knowledgeable in feces management. Authors have supported the notion that principals with higher educational qualifications are appointed to control schools, and with this, they use their knowledge and experience to manage feces in their schools properly (Ogbalu, 2003). Principals with knowledge of environmental health and education have been observed to have a greater impact on the sustainable management of feces in their schools. This approach has helped principals to make the school environment have a good befitting outlook.

The researcher disagrees with this finding of the study. He thought that the higher the qualification, the better the principals' in their feces management practices in the study area (B.Ed/B.Sc-14.80; M.Ed/M.Sc-14.76; Ph. D-16.13). This means that principals with higher academic qualifications perform better in the area of school administration and management of feces in their schools.

Conclusion

Based on the findings of the study, the researcher observed and discovered that principals' age significantly influences their feces management practices in secondary schools. Furthermore, this study showed that principals' educational qualification level does not significantly influence feces management practices in secondary schools.

He thought that the more principals advanced in age, the more they acquired experiences, ideas, skills, and administration techniques. This may be positively transferred in the management of feces in their schools. The higher the qualification, the better the principals' in their feces management practices in secondary schools in the study area. This means that principals with higher academic qualifications perform better in the area of school administration and management of feces in their schools. The findings indicate that there was a significant influence of principals' demographic variables and feces management practices in secondary schools in Cross River State.

Recommendations

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

1. The government should appoint principals who are advanced in age in the running of secondary schools in Cross River State to ensure proper management of feces and toilet facilities in their schools.
2. Staff with higher educational qualifications should be recruited as school principals to ensure better feces management practices and proper sanitation in secondary schools.
3. Principals should ensure that more toilet facilities are provided in schools for both sexes to prevent health risks among students and environmental implications arising from unsanitary practices.
4. Principals should perform regular inspections and supervision of sanitary facilities in their schools for proper maintenance and to ensure that they are kept clean always to prevent feces related infections in schools.

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