

EFFECTS OF PROBLEM SOLVING BASED SAFETY EDUCATION ON KNOWLEDGE, ATTITUDE AND PRACTICE OF DOMESTIC SAFETY AMONG COLLEGES OF EDUCATION STUDENTS IN OYO STATE, NIGERIA

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Abstract

The rate of accident generally in Nigeria, especially road and domestic, is alarming which need to be minimized to enhance both quality and quantity of life. One way of doing such is through safety education. This study focused on the effect of problem solving based safety education on knowledge, attitude and practice of domestic safety among college of education students in Oyo State, Nigeria. Pretest-posttest control group quasi experimental design was adopted, multistage sampling procedure was used. Two selected colleges of education were placed into experimental and control group using simple random sampling technique of fish bowl without replacement. Purposive sampling technique used to pick final year students of the colleges while fifty volunteers were used from each of the selected colleges. Self-developed questionnaire was used as instrument for data collection. Knowledge of domestic safety questionnaire ($r=0.74$), attitude towards domestic safety questionnaire ($r = 0.77$) and practice of domestic safety questionnaire ($r=0.78$), were used. Three hypotheses were tested and data were analyzed using multivariate analysis of covariance at 0.05 level of significance. Participants were males (49.7%) and females (50.3%) with a mean age of 21.81. There were significant main effects of treatment on knowledge ($F_{(1,97)} = 43.1269, \eta^2=317$), attitude ($F_{(1,97)} = 205.10, \eta^2=.688$) and practice ($F_{(1,97)} = 301.438, \eta^2=.766$). All the three hypotheses were rejected. It was concluded that problem solving based safety education had significant effects on knowledge, attitude and practice of domestic safety. It is thus recommended that effort should be made through practice, policy and research to create awareness and safety practices consciousness which will contribute to enhanced health condition of college of education students in Oyo state, Nigeria.

Introduction

There are diverse health-related phenomena that constitute threat to individuals' lives and health. A typical phenomenon of such is accident, which has constituted degrees of burdens to individuals, communities, nations and the

world at large. According to World Health Organization (Accident,2000), accident is the leading cause of injuries and death; with millions of death being recorded annually all over the world. Similarly, Ojedokun (2004) revealed that accidental death and injury rates are on the increase in the world. There

are so many agents of accidental death and injuries such as automobile and domestic fire, boiling fluid, falls, cutting and piercing. While the effect of accident cannot be totally measured, it is important to know that the nature of accident in order to prevent it. Accident is real to life as long as man relates with himself and his immediate environment. Technically speaking, accident lives with man and will not desist until man goes to grave. Thus, accident in any form should be minimized to enhance quality living among people and environment and one way of doing this is through safety education.

Safety education refers to a planned programme that is aimed at providing knowledge skills and attitudes to adopt certain practical measures to enable an individual to live safely and avoid accidents. It was further stated that a good safety education programme should cover the following; the basic principles about schools for instance., classroom, laboratory, playground, swimming pool and around the school premises; Safety in workplaces or vocational safety; pedestrian safety (in road and street crossing); home safety; traffic safety, including driving and powered machines; fire hazards and prevention and emergency care (First Aid) for accident victims. Accident prevention involves fostering a safe physical and social-environment, the promotion of positive emotional (mental) well-being and the provisions of opportunities for pupils to practice safe behaviour (Sorocchan & Bender, (2001); Udeh 2004). Obiyemi and Oyerinde (2001) observed that recently, there is greater interest in security, be it to life, property or environment. The increased

attention on safety in the home, industry or on the highway is a further evidence of man's desire for safety. In the same study, it was revealed that the major keys to safety and survival are thus being prepared to the development of the right attitude and behaviour towards anticipating or forestalling danger in the society. Also, it was further submitted that the function of safety education is to develop public consciousness of the need for accident control and management. It must be emphasized that training and instructional strategies that lead to the development of good attitudes in safety control and safety consciousness, is what is called safety education. Similarly, it was that stated further that for safety education to be effective, good and appropriate method of instruction should be adopted preferably the method of instruction should be such that allows for learners participation.

Some learning process revolves around the teacher, where the students are only passive information receivers, while in students centred learning process teacher is merely facilitator or guide. The latter is the focal point of modern systems of education. In all active learning process, the learners learn according to their own needs and pace (Orhan & Ruhan, 2006). They are given the opportunities to make decisions regarding various dimensions of the learning process and to perform self-regulation. In case of active learning process, learning is not a standard process but a personalized process. Human beings face a multiple dimensional problems in their lives and they try to solve these problems in a particular way in the light of their previously gained knowledge and experiences. In this regard it is essential

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for the students to be prepared for future or near future challenges by facing real life problems in their learning environment, and finding appropriate solution of these problems. Problem solving is how to learn independently. It is the most convenient approach to achieve the aims of teaching learning process. According to Rhem (2008) and Herreid (2003) in present era problem based learning is extensively used nearly in all areas including Mathematics and Health and was first implemented in medical education in 1950s.

Statement of the Problem

There are many agents of accidental death and injuries, automobile, domestic, boiling fluid, falls, cutting, piercing and a host of others. It was also observed by the researchers that in developing countries particularly, Nigeria, people are more sensitive to other forms of accident such as road and industrial accidents but ignore domestic accident which is also a threat of accidental death and injuries. This implies that the general public still tends to be apathetic even when domestic accidents annually take a toll in human resources. This shows in inadequate studies on domestic accident in Nigeria. There is also no question that safe living has now become an important and complicated problem due to lack or inadequate safety knowledge, attitude and skills. This in turn has made living safely a challenge and if people must live safely in this ever-changing society, then there is need for safety education to be intensified.

Several studies have been conducted on effect of safety education among student nurses(Ojedokun, 2007), accident

prevention and safety education(Nwankwo, 2008) but there is paucity of study on domestic accidents as well as problem-solving and value education. It is in the light of the above assertion that the researchers investigated the effect of problem-solving based safety education on knowledge, attitude and practice of domestic safety among college of education students in Oyo State, Nigeria.

Hypotheses

The stated hypothesis guided the study

1. There is no significant main effect of treatment on
 - a. knowledge of safety
 - b. attitude towards safety
 - c. safety practices of students of Colleges of Education in Oyo State, Nigeria

Significance of the Study

The empirical results of the study may provide a basis for the establishment and confirmation of the existence of inadequate safety knowledge among students of colleges of education. Also the data generated in this study may provide empirical basis for evaluating the effect of value education and problem solving intervention on knowledge and attitude towards safety among college of education students

The result of this study may also provide information on the contribution of each of the intervention on knowledge and attitude towards safety among final year colleges of education students. The result obtained may be useful to researchers who may wish to study issues relating to effects of value education intervention and problem

solving intervention on knowledge and attitude. The study may serve as an eye opener to the students on the benefits of value education intervention and problem solving intervention on knowledge and attitude towards safety.

Methodology

The study adopted randomized quasi-experimental design of pretest-posttest control group type. The design is chosen because it enables the researcher to match the respondents in the experimental and control group on similar variables. One hundred male and female participants were selected using multi-stage sampling procedure. In the first stage, the two public colleges of education were purposively selected (Emmanuel Alayande College of Education and Federal College of Education (special) Oyo, Oyo State. The two selected colleges of education were placed into experimental and control group using simple random sampling technique of fish bowl without replacement. Purposive sampling technique was used to pick final year students of the colleges while fifty volunteers were used from each of the selected college. The treatment group was exposed to eight weeks intervention while the control group was given placebo. Self-developed questionnaire was used as instrument for data collection. Knowledge of domestic safety questionnaire ($r=0.74$), Attitude towards domestic safety questionnaire ($r=0.77$) and practice of domestic safety questionnaire ($r=0.78$),

were used. Three hypotheses were tested and data were analyzed using Multivariate analysis of covariance at 0.05 level of significance.

Instrumentation

In developing the items of the questionnaire fifty four items were generated based on exploratory survey discussion with some students of college of Education after which the questionnaire was presented to two professional health educators, a safety professional and an expert in psychometrics. This led to subtraction, addition and modification of the items of the questionnaire, leaving the questionnaire with forty five (45) items. This was then subjected to exploratory factor analysis. A Kaiser-Meyer-Olkin (KMO) of 0.71 was gotten which is above the benchmark of 0.60. This indicated that the sample size is adequate for the conduct of factor analysis. In the final, only thirty one (31) of the items met the retention criterion of 0.6. Other items that did not meet the retention criterion were extracted. The test of sphericity was statistically significant which supported the factorability of the correlation matrix as the p-value stands at 0.000. Also the inspection of the correlation matrix revealed that all the coefficient of the retained items were 0.6 and above. The instrument was then administered on twenty respondents who were not part of the study participant. The data collected was subject to Cronbach Alpha and a reliability coefficient of 0.75 was gotten.

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Table 1

ANCOVA Showing the Main Effect of Treatment on Knowledge, Attitude and Practice of Domestic Safety

Source	Dependent Variable	Type II Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Knowledge	89.115 ^a	3	29.705	1.408	.245	.043
	Attitude	.235 ^b	3	.078	.017	.997	.001
	Practice	.584 ^c	3	.195	.076	.973	.002
Treatment	Knowledge	909.537	1	909.537	43.126	.000	.317
	Attitude	937.517	1	937.517	205.100	.000	.688
	Practice	776.377	1	776.377	304.438	.000	.766
Error	Knowledge	1961.380	93	21.090			
	Attitude	425.105	93	4.571			
	Practice	237.169	93	2.550			
Total	Knowledge	128267.000	97				
	Attitude	164139.000	97				
	Practice	133846.000	97				

a. R Squared = .043 (Adjusted R Squared = .413)

b. R Squared = .001 (Adjusted R Squared = .532)

c. R Squared = .002 (Adjusted R Squared = .630)

- a. The results presented in Table 1 showed that there was a significant main effect of treatment on knowledge of domestic safety ($F_{(1,97)} = 43.126, p < .005, \eta^2 = .317$). This implied that the treatments contributed significantly to the variation in participants' scores on knowledge of domestic safety. The eta value of .317 shows that the treatments had a contribution of about 32% to knowledge of domestic safety of the participants.
- b. The results presented in Table 1 showed that there was a significant

main effect of treatment on attitude towards domestic safety ($F_{(1,97)} = 205.10, p < .005, \eta^2 = .688$). This implied that the treatments contributed significantly to the variation in participants' scores on attitude towards domestic safety. The eta value of .688 shows that the treatments had a contribution of about 69% to attitude towards domestic safety of the participants.

- c. The results presented in Table 1 showed that there was a significant main effect of treatment on practice of domestic safety ($F_{(1,97)} = 304.438,$

$p < .005$, $\eta^2 = .766$). This implied that the treatments contributed significantly to the variation in participants' scores on practice of domestic safety. The eta value of .766 shows that the treatments had a contribution of about 77% to practice of domestic safety of the participants.

Discussion of Findings

This results were in line with the view of Yuzhi (2003) and Mangle (2008) who stated that problem solving strategy enables learners to learn new knowledge by facing the problems to be solved instead of feeling boredom. They stated further that Problem based learning affect positively certain other attributes such as problem solving, information acquisition, and information sharing with others, group works, and communication etc. Again problems solving is a deliberate and serious act, involves the use of some novel method, higher thinking and systematic planned steps for the acquisition of set goals. This was also corroborated by Tick, (2007) who concluded that presenting learners with a problem, give them opportunity to take risks, to adopt new understandings, to apply knowledge, to work in context and to enjoy the thrill of being discoverers. He stated further that in the student-centred learning environment that is desirable for problem based learning, the central figure of the learning-teaching process is the student. The learning objective is not the reproduction, recall and learning of passively received learning material but the active and creative engagement of students in group work and in individual study thus transferring the skills and knowledge.

Willgoose, (2003) in support of the finding of this study stated that problem solving is not just a mental specialty but includes some specific attitudes and values. This specialty, is the main target of the training as it gives the individual to cope with the world and environment, to be creative and to give flexibility to change/control the environment and requires a specific training system to be improved in all manners. Nonye (2004) similarly, stated that for safety education to be effective, good and appropriate method of instruction should be adopted preferably the method of instruction should be such that allows for learners participation.

Conclusion

Based on the findings of the study, the study concluded that problem solving based safety education was very effective on knowledge of domestic safety, attitude towards domestic safety as well as the practice of domestic safety behaviour within the home. The findings also showed that the treatment was more effective on practice of safety behavior followed by attitude towards safety.

Recommendations

Based on the findings of this study, the following recommendations are made:
Lecturers in colleges of education should employ the use of problem solving strategy to teach safety education
Safety education should be included in tertiary institution general study so as to reduce home accidents
Health educators should be armed with adequate training and knowledge of domestic safety for effective dissemination and increased safety consciousness with the

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view to reduced mortality and morbidity as associated with inadequate safety knowledge.

Efforts should be made through practice, policy and research to create awareness and

safety practices consciousness which will enhance health condition of young people.

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