Effect of Educational Intervention on Knowledge and Attitude Toward Consanguineous Marriage among Secondary Level Students

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Abstract

Introduction: Consanguineous marriage (CM) is an allowed and preferred practice among some ethnic groups in Nepal. Such a union puts couples at higher risk of having offspring with genetic disorders, including autosomal recessive diseases and congenital malformations. The objective of this study was to assess the effect of educational intervention on knowledge and attitude towards CM among secondary-level Mongolian students.

Methods: A quasi-experimental pretest-posttest non-equivalent group study was conducted among students in grades 9 - 12 of two schools in Dhading, with one school as the experimental group (N = 69) and another as the control group (N = 45). Educational intervention on CM was provided to the experimental group through an interactive lecture method. Pretest and posttest data were collected in both groups by using a validated and pretested self-administered questionnaire. Data were analyzed using descriptive statistics.

Results: In the experimental group, most (87.0%) participants had an inadequate level of knowledge in the pretest, whereas in the posttest, most (85.5%) had adequate knowledge. In the control group, both during pretest and posttest, most (i.e. 82.2% and 78.6%, respectively) had inadequate level of knowledge. In the experimental and control groups during the pretest most of the participants (87.0% and 88.9%, respectively) had a negative attitude. In contrast, in the posttest, the negative attitude decreased to 46.4% in the experimental group, and in the control group the attitude level decreased only slightly to 84.4%. Unpaired t-test computed on pretest knowledge of the experimental group and control group showed no significant difference (t = 0.968, p > 0.05), whereas the posttest knowledge between the two groups revealed a statistically significant difference (t = 23.643, p < 0.05).

Conclusions: The educational intervention package effectively increases knowledge and changes attitudes towards consanguineous marriage among secondary-level students.

INTRODUCTION

Marriage between male and female cousins who have at least one common ancestor or who have common blood is said to be a consanguineous marriage (CM).[1] The most common form of consanguineous union practised is between first cousins, and it is linked more with cultural and historical factors than with religious ones.[2] The offspring of consanguineous unions are at increased risk of genetic disorders because autosomal recessive gene mutations are inherited from a common ancestor. The closer the biological relationship between parents, the greater the probability that their offspring will inherit identical copies of one or more detrimental recessive genes. First cousins are predicted to share 12.5% of their genes and on average 6.25% of their progeny will be autozygous; that is, they will receive identical gene copies from each parent in their genome.[3]

Consanguineous marriages have been linked to genetic diseases like sickle cell anaemia, thalassemia, and congenital heart diseases.[4-5] Children born to such couples face 5% risk of abnormalities or early childhood death, compared to 2 - 2.5% for non-consanguineous couples.[6] Miscarriage and stillbirth rates are also higher.[7] Consanguinity can increase the occurrence of blinding disorders.[8] In Nepal, various ethnic groups practice cousin marriages, with Muslim women showing a 36.7% consanguinity rate. A study in Eastern Nepal found that all offspring of 12 Muslim women in cousin marriages had congenital defects, primarily affecting the central nervous system, with anencephaly being common.[9]

Since marriage decisions can be made as early as teenage years, providing teenagers with formal educational programs about CM would be most effective. So, the aim of this study was to assess the effectiveness of the educational intervention on the knowledge and attitude of secondary-level students towards consanguineous marriage.

METHODS

This was a quasi-experimental study conducted among secondary level students of two schools where students of one school (experimental group) were exposed to educational intervention on CM and students of another school (control group) were not exposed to it, and both groups received pretest and posttest at same periods. The study population included secondary-level students belonging to the Mongolian tribe (Gurung, Ghale, Magar and Tamang) of grades 9, 10, 11 and 12 studying at in Tamang Kharka Secondary School (TKSS), (experimental group) and Shree Niranjana secondary school (SNSS), (control group) in Dhading district. Schools were located about four kilometres apart from each other. There were 69 students in TKSS and 45 students in SNSS meeting the set criteria. The required sample size was determined by using the formula, $n = (Z_a{}^2 + Z_\beta{}^2) PQ / d^2$ where n was the required sample size, Za = derivative corresponding to desired reliability level=95%=1.96, Z_β = power of the test (80%), p = proportion or percentage or prevalence of an attribute.[10] Taking the prevalence rate as 0.5, q = (1-p) = 1-0.5 = 0.5, d = allowable error 10% = 10% (0.1), the required sample size came to be 114. A total enumerative sampling technique was used to include all students meeting the criteria and who were present during pretest and willing to participate in the study. An educational intervention of around 40 minutes was prepared regarding CM. The educational package consisted of the meaning and prevalence of CM, classification of CM, Ill consequences of CM, and preventive measures for the ill effects of CM. The

content validity of the educational package was ensured by the women's health and child health nursing experts. A self-administered questionnaire was developed for the study through an extensive literature review. The content validity of the questionnaire was established by taking the opinion of the experts in the area of women's health and child health nursing. The questionnaire consisted of three parts that is part I included questions on socio-demographic variables, Part II had 20 questions related to knowledge regarding CM and Part III included 12 statements revealing attitude towards CM in the form of a five-point Likert scale. The questionnaire was translated from English to Nepali and back translation was done by two independent bilingual colleagues to make sure that the exact meaning of the words was retained. Pretesting of the instrument was done on 12 students of the Mongolian tribe of Paropakar Adarsha High School, Kalimati, Kathmandu to check for clarity, sequence and feasibility. The research proposal was approved by the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (NAIHS), and permission was taken from the principals of the selected schools to implement the study through a request letter from NAIHS, College of Nursing. Informed consent was taken from the respective principals of the schools as guardians for the participation of the students in the study, along with the agreement from the students before the pretest data collection. The confidentiality of the participants was maintained by using code numbers without mentioning their names. Pretest data was collected from both experimental and control groups through a self-administered questionnaire filled in the researcher's presence. It took about 20 minutes to fill out the questionnaire. After the pretest, an educational intervention of around 40 minutes was provided to the experimental group. After nine days of educational intervention, the posttest was conducted to the experimental and control groups. The pretest and posttest data were collected during the period of four weeks from January 16 to February 11, 2022. The control group also received educational intervention on CM following the posttest to make them aware of CM and its ill consequences. The filled questionnaires were organized according to code numbers, and then editing, classification and coding were done. The coded data were entered in Statistical Package for Social Science (SPSS) Version 16 and cleaned before data analysis. The findings were organized on the basis of objectives and presented in tables. Pretest and posttest knowledge score were graded as adequate if the score was ≥ 75%, moderately adequate if it was between 50 - 75% and inadequate if it was < 50%. Likewise, the attitude score was graded as positive if it was ≥ 60% and negative if it was < 60%. Pretest and posttest knowledge

and attitude scores were compared by using paired and unpaired t-tests to identify the difference in mean scores of the pretest and posttest of the same group and as well as that of another group. A p-value of < 0.05 was considered to be statistically significant.

RESULTS

The mean age of the experimental group was 16.57 years ± 1.4 years, and that of the control group was 15.69 years ± 1.67 years. In the experimental and control group, more than half (58% and 53.3%, respectively) were female. The majority (69.6%) of participants' fathers could read and write in the experimental group, while almost all (91.1%) could read and write in the control group. More than half (53.6%) of the participants could read and write in

the experimental group compared to the control group, where the majority (62.2%) of them could read and write. In regards to the family history of CM, 31.9% and 44.4% of the participants in the experimental and control group, respectively had CM in family.

Table 1 depicts the knowledge and attitude of the participants in regards to CM. Tables 2 and 3 shows the mean knowledge increase and attitude difference in the both groups following the intervention. Table 4 represents the mean difference in knowledge between the two groups following the intervention. Table 5 shows the difference in between the two groups with unpaired t test. Table 6 illustrates the difference in attitude using paired t test.

Table 1: Pre-test and post-test knowledge and attitude level regarding CM in experimental and control groups

Variables	Pretest (%)		Post-test (%)	
	Exp.Group	Control Group	Exp. Group	Control Group
Knowledge level				
Inadequate (< 50%)	87.0	82.2		78.6
Moderately adequate (50 - 75%)	13.0	17.8	14.5	21.4
Adequate (> 75%)			85.5	
Attitude level				
Negative (≤ 60)	87.0	46.4	88.9	84.4
Positive (> 60)	13.0	53.6	11.1	15.6

Table 2: Pre-test and post-test mean, SD, and SE of knowledge score among experimental and control group

Study Group	Test	n	Mean	SD	SE
Experimental	Pre-test	69	40.0	7.058	0.849
	Post-test	69	82.95	8.664	1.043
Control	Pre-test	45	41.40	8.196	1.221
	Post-test	45	43.56	8.737	1.302

Table 3: Pre-test and post-test mean, SD, and SE of attitude score regarding CM among experimental and control group

Study groups	Test	n	Mean	SD	SE
Experimental	Pre-test	69	31.27	8.89	1.07
	Post-test	69	59.08	7.17	0.86
Control	Pre-test	45	43.37	16.52	2.46
	Post-test	45	48.33	11.20	1.67

Table 4: Comparison of pre-test and post-test mean of knowledge related to CM in experimental and control group

Pre-test and post-test Knowledge Scores	Paired samples tests						
						95% CI	
	Mean %	SD	df	t-value	p-value	Lower	Upper
Experimental group	42.94	10.845	68	32.89	0.001	40.33	45.54
Control group	2.16	12.359	44	1.17	0.247	-1.54	5.87

Table 5: Comparison of experimental and control groups in pre-test and post-test knowledge scores

Experimental and control group difference	Unpaired samples tests					
					95% CI	
	Mean Difference	df	t-value	P value	Lower	Upper
Pretest knowledge scores	1.3959	112	0.968	0.335	-1.46	4.25
Posttest knowledge scores	-39.3847	112	-23.643	0.000	-42.69	-36.08

Table 6: Comparison of pre-test and post-test means of attitude related to CM in experimental and control groups

Pre-test and post-test attitude scores	Paired samples tests						
						95% CI	
	Mean %	SD	df	t-value	p-value	Lower	Upper
Experimental group	27.81	10.730	68	21.53	0.000	30.39	25.23
Control group	4.95	9.937	44	3.34	0.002	1.96	7.94

DISCUSSION

The present study showed a considerable increase in the level of knowledge in the experimental group following educational intervention. The mean knowledge regarding CM in the experimental group increased from 40.0 ±7.058 in the pre-test to 82.95 ± 8.664 in the post-test, whereas in control group there was only a slight increase from 41.40 ± 8.196 in the pre-test to 43.56 ± 8.737 in the post-test and the paired t-test revealed a significance difference in mean scores of knowledge in the experimental group but no significant difference the control group. These results are consistent with the results of the study conducted among school-going adolescents (N = 100) in Amritsar, Punjab, India which also revealed an increase in knowledge following the educational intervention. Likewise, the posttest mean score was higher than the pretest mean score, and the paired t-test showed the mean difference between pretest and posttest knowledge scores to be statistically significant (p < 0.05).[11] The results of the present study is also in concordance with the study conducted among 18 to 25 years college students in Delhi, India which revealed an increase in knowledge score from pre-test to post-test following educational intervention. The study also showed that the mean knowledge score of the participants in pre-test was 8.88 ± 2.58 and in post-test mean score significantly increased to 13.64 ± 1.78 (p = 0.0001).[12]

In the present study, a comparison of the pretest knowledge between the experimental and control group showed no significant difference (t = 0.368, p > 0.05), whereas the post-test knowledge comparison between the experimental and control groups revealed a statistically significant difference among the two groups (t = 23.643, p < 0.05). This result is in concordance with the result of the study conducted among high school students (n=84) in Turkey, in which no statistically significant difference (p > 0.05) was revealed in the knowledge about CM in the experiment and control group in the pretest but in the post-test a significantly higher knowledge about CM was revealed in

the experimental group than in the control group.[13]

The present study showed that both in the experimental and control groups during the pre-test most of the participants (87.0% and 88.9%, respectively) had negative attitudes, whereas in the post-test, the negative attitude decreased to 46.4% in the experimental group and in the control group the level decreased only slightly to 84.4%. This is similar to the result of the study conducted among college students of 18 - 25 years age group in Delhi, India.[14]

In this study, the pre-test and post-test attitude scores of both the experimental and control groups differed statistically. The obtained paired t-test values computed between the pretest and posttest attitude scores in experimental and control groups were t = 21.53, and t = 3.34 respectively with p < 0.05. However, the mean gain score was much higher (27.81) in the experimental group than in the control group (4.95). The study done in Delhi revealed that the mean attitude score of students regarding consanguinity leading to congenital heart defect was significantly improved from the pretest (17.44 ± 3.64) to posttest (23.42 ± 3.28) with a p-value of 0.0001.[12] Similarly, a study conducted in selected pre-university college students in Bagalkot also found a significant difference between pre-test and post-test attitude scores (t = 19.144).[14]

CONCLUSIONS

The study concludes that educational intervention regarding consanguineous marriage tends to be effective in increasing knowledge and changing attitudes about consanguineous marriage and its ill effects among secondary-level school students.

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