Effectiveness of Educational Intervention on Awareness regarding Maternal Mortality in Adolescent Pregnancy among Adolescent Studying in Selected Institutes of Kamrup Metro Assam: A Cross Sectional Study (A Pilot Study Report)

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Abstract: *Every pregnant women hopes pregnancy to be a smooth process and expect to give birth safely. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth; 20 per cent of these women are from India. (1) Assam has the highest maternal mortality ratio in India . (229 as against 122 at national level) and the 2nd highest infant mortality rate in India (44 infant deaths per 1000 live birth)as against 30 at the national average in 2017 . (2). The objectives of the study were to assess the effectiveness of educational intervention on awareness regarding maternal mortality in adolescent pregnancy among students studying in selected institutes of Kamrup Metro, Assam .A cross-sectional study was done among 79 students who were willing to participate from randomly selected one high school and two higher secondary schools in Kamrup Metro, Assam and the lottery method was used to select the students from the register from one section in each standard which was taken randomly. A predesigned self administered questionnaire was used to collect the data. The students were briefed before the questionnaire. The questionnaire was distributed to the randomly selected students using the attendance register. Educational intervention was administered in the form of film and post test was collected with the same questionnaire after 7-15 day. Data were analysed using the SPSS 22 Chi-square test were used to test the significance. Results: The study findings reveals that out of 79 respondents, in pretest, the awareness score in low, medium and high score category was 29%, 59% and 19% respectively where as in the post test, it is 0%, 11% and 89% respectively. It was also found that there is significant association with the awareness and number of sibling, previous source of information and source of information as the p –value is less than .005 level. Hence the documentary film was effective in improving the awareness regarding maternal mortality in adolescent pregnancy among adolescent.*

1. Introduction

Every pregnant women hopes pregnancy to be a smooth process, and expect to give birth safely. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth; 20 per cent of these women are from India (1). Assam has the highest maternal mortality ratio in India. (328 as against 178 at national level in 2011-12). The 2nd highest infant mortality rate in India (42 infant deaths per 1000 live birth)as against 55 at the national average in 2012. (2) Improving Maternal health (MDG-5) was one of the important MDG of WHO. (3) One target under Sustainable Development Goal 3 is to reduce the global maternal mortality ratio to less than 70 per 1,00,000 births, with no country having a maternal mortality rate of more than twice the global average by 2030. (4) .According to the Annual Health Survey report of 2010-11, the state average of those who were married before they were 18 is as high as 39.4 per cent. But in 2011-12, the state average of those who were married before they were 18 is as high as 35 per cent. (5) Going to the old saying – prevention is better than cure- the first step should be to prevent early marriage of girls. The second step is to ensure that adolescent and guardians are aware of the ill – effects of early pregnancies.

If all these condition are brought about, we can look forward to a nation of healthy women and healthy children.

General Objectives
To determine the effectiveness of educational intervention on improving awareness regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup Metro, Assam.

Specific objectives
1) To assess the pre educational intervention awareness regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup Metro, Assam.
2) To assess the post educational intervention awareness among regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup Metro, Assam.
3) To identify the factors responsible for adolescent marriage.
4) To associate the awareness scores with demographic variables before the educational intervention among regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup Metro, Assam.

5) To evaluate the effectiveness of the educational intervention regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup, Metro, Assam.

Hypothesis

H_1**:** There will be significant association between the pre-test awareness scores and the demographic variables.

H_2**:** There will be significant difference between the pre-test and post-test awareness scores on maternal mortality in pregnancy among the adolescent.

Variables

1) **Independent Variables**: Awareness on maternal mortality on adolescent pregnancy
2) **Dependent variables**: Educational intervention i.e documentary
3) **Demographic Variables** –

In this study, the demographic variables were: age, education, educational status of the parents, occupation of the parents, monthly family income, age at marriage of the mother, number of female siblings and previous source of information

2. Materials and Methods

Cross sectional study was done among the female students studying from class VIII –XII of one government high school and two government higher secondary schools of Kamrup, Metro Assam from May-July 2018. The study was approved by the INS Trust Ethics Committee, GNRC hospital. Permission was taken from the Inspector of Schools, Panbazaar and then from the respective Principal for the conduction of the study. Those students who were willing to participate, and who can read and understand Assamese were included in the study. Adolescents who were pregnant at the time of data collection were excluded in the study. Informed written consent was obtained from the students as well as from the Principal. One high school and two higher secondary schools were selected randomly for the conduction of the study to form the cluster samples. If there is more than one section in each standard, then one section was taken randomly. From each selected class, the lottery method was used to select the students from the register. The students were briefed before the questionnaire. The questionnaire was distributed to the randomly selected students using the attendance register. And education intervention was given in the form of a film. The film was screened and tested in the presence of the eminent members and audience. Post test was done after two weeks. Data were entered in the MS Excel sheet and analysed the SPSS 22 (Statistical Package for the Social Science) software developed by IBM, Chicago, Illinois, USA. Chi-square tests were used to test the significance.

The Tool

The following steps are adopted in the development of the tool:
- Review of literature
- Suggestion from guide and subject experts in the field of nursing, obstetrics and gynaecologist, community medicine
- Development of the blue print.

- Construction of structured questionnaire schedule with the help of review of literature and discussion.
- Content validity and reliability of the tool.

Description of the tool
The tool consisted of three sections –

Section I: Demographic characteristics of the adolescent.
It includes eight items on demographic age, residence, education, occupation of the parents, monthly family income, age at marriage of the mother, number of female siblings.

Section II: Structured questionnaire on awareness
a) Legal age for marriage,
b) Complications which are at the risk for the foetus and baby
c) Complications which are at the risk to the adolescent mother who is pregnant
d) Probable cause of death
e) Preventive measures

Scoring Key
Each question had only one correct answer. For every correct response a score of 1 mark was given and for every incorrect response a score of "0" mark was given. Hence, the maximum score was 55 and the minimum score was '0'. To interpret the level of knowledge, the scores were converted into percentage and were categorized as follows:
- Low awareness- Mean-SD
- Moderate awareness - (Mean-SD) to (Mean +SD)
- Adequate awareness- Mean+SD

Section –I

3. Description of Sample Characteristics

This section presents the demographic characteristics of samples. The samples were categorized according to age in years, education, educational status of the father, educational status of the mother, occupational of the father, occupation of the mother, income, religion, type of family, marital age of the mother, mother's age at the time of first pregnancy and previous source of information.

Table I: Frequency and Percentage Distribution of Respondents according to the Age (in Years), n=79

S. No	Age (In Years)	Frequency	Percentage
1.	13-15	56	71%
2.	16-18	23	29%
	Total	79	100%

Table - I depicts that out of 79 respondents, the majority i.e. 56 (71%) of the respondents were in the age group of 13-15 years and whereas 23 (29%) of the respondents were in the age group of 16-18 years.

Table II: Frequency and Percentage Distribution of Respondents according to their Education

Sl. No	Educational Status	Frequency	Percentage
1.	Class VIII	12	15%
2.	Class IX	28	35%
3.	Class X	21	27%
4.	Class XI	0	0 %
5.	Class XII	18	23%
	Total	**79**	**100%**

Table - II depicts that out of 79 respondents, the majority i.e. 28 (35%) of the respondents were in Class IX, 21 (27%) of the respondents were in class X, 18 (23%) of the respondents were in class XII, 12 (15%) of the respondents were in class XII and none of the respondents were in class XI.

Table III: Frequency and Percentage Distribution of Respondents according to the Educational Status of the Father

S. No	Educational Status of the Father	Frequency	Percentage
1.	Illiterate	15	19.%
2.	Primary	13	17%
3.	Secondary	13	17%
4.	High school	18	23%
5.	Higher secondary	12	15%
6.	Graduates & above	1	1%
7.	Not responded	7	9%
	TOTAL	79	100%

Table - III depicts that out of 79 respondents, the majority i.e. 18 (23%) of the respondent's father were educated up to high school, 15 (19%) of the respondent's father were illiterate, 13 (17%) of the respondent's father were educated up to primary and secondary level, 12 (15%) of the respondent's father were educated up to higher secondary and only one (1%) of the respondent's father was educated up to graduate level. However seven (9%) did not respond to this question

Table IV: Frequency and Percentage Distribution of Respondents according to the Educational Status of the Mother

Sl. No	Educational Status of the Mother	Frequency	Percentage
1.	Illiterate	20	25%
2.	Primary	9	11%
3.	Secondary	10	13%
4.	High school	33	42%
5.	Higher secondary	6	8%
6.	Graduates & above	1	1%
	TOTAL	**79**	**100%**

Table – IV depicts that out of 79 respondents, the majority i.e. 33 (42%) of the respondent's mother were educated up to high school, 20 (25%) of the respondent's mother were illiterate, 10 (13%) of the respondent's mother were educated up to secondary level, nine (11%) of the respondent's mother were educated up to primary level, six (8%) of the respondent's mother were educated up to higher secondary level and only one (1%) of the respondent's mother was educated up to graduate level.

Table V: Frequency and Percentage Distribution of Respondents according to the occupation of the Father

Sl. No	Occupation of the Father	Frequency	Percentage
1.	Unemployed	6	8%
2.	Labourer/daily wages	20	25%
3.	Business	28	35%
4.	Government employee	10	13%
5.	Private sector employee	9	11%
6.	Not responded	6	8%
	Total	79	100%

Table - V depicts that out of 79 respondents, the majority i.e.28 (35%) of the respondent's father were business man 20 (25%) of the respondent's father were labourer, 10 (13%) of the respondent's father were government employee, nine (11%) of the respondent's father were private sector employee and only six (8%) of the respondent's father was unemployed. However six (8%) did not respond to this question.

Table VI: Frequency and Percentage Distribution of Respondents according to the Occupation of the Mother

Sl. No	Occupation of the Mother	Frequency	Percentage
1.	House wife	56	71%
2.	Labourer/daily wages	14	18%
3.	Business	4	5%
4.	Government employee	2	3%
5.	Private sector employee	3	4%
	TOTAL	**79**	**100%**

Table – VI depicts that out of 79 respondents, the majority i.e. 56 (71%) of the respondent's mother were house wife, 14 (18%) of the respondent's mother were labourer, 4 (5%) of the respondent's mother were doing business, two (3%) of the respondent's mother were government employee and only three (4%) of the respondents mother were working in public sector.

Table VII: Frequency and Percentage Distribution of Respondents according to the type of Parenting

Sl. No	Type Of Parenting	Frequency	Percentage
1.	Single parent	9	11%
2.	Both parents	68	86%
3.	No parents	2	3%
	Total	79	100%

Table - VII depicts that out of 79 respondents, majority i.e. 68 (86%) of the respondent have both parents at present, nine (11%) of the respondent were brought up with single parent and only two (3%) of the respondent do not have parents.

Table VIII: Frequency and Percentage Distribution of respondents according to the type of family

S. No	Type of Family	Frequency	Percentage
1.	Nuclear family	71	90%
2.	Joint Family	8	10%
	Total	79	100%

Table – VIII depicts that out of 79 respondents, majority i.e. 71 (90%) of the respondent belong to nuclear family whereas eight (10%) of the respondents belong to the joint family.

Table IX: Frequency and percentage distribution according to the monthly family income

S No	Total monthly family income (in rupees)	Frequency	Percentage
a	NA	17	24%
b	<2091	9	11%
c	2091-6213	11	14%
d	6214-10356	13	17%
e	10357-15535	9	11%
f	15536-20714	10	13%
g	20715-41429	4	5%
h	>41430	6	8%
i	Total	**79**	**100%**

Table X: Frequency and Percentage Distribution of Respondents according to the religion

Sl No	Religion	Frequency	Percentage
1.	Hindu	56	71%
2.	Muslim	22	28%
3.	Christian	1	1%
4.	Others	0	0%
	Total	79	100%

Table – X depicts that out of 79 respondents, majority i.e. 56 (71%) of the respondent were Hindus, 22 (28%) of the respondent were Muslim and only one (1%) of the respondent were Christian. There were none of them who were from other religion.

Table XI: Frequency and Percentage Distribution of Respondents according to the marital age of the mother

Sl. No	Mother's Age at the time of marriage	Frequency	Percentage
1.	< 13 years	6	8%
2.	14-16 years	14	18%
3.	17-19years	17	22%
4.	>19 years	41	52%
5.	Not responded	1	1%
	Total	79	100%

Table – XI depicts that out of 79 respondents, majority i.e. 41 (52%) of the respondents mother married after 19years, 17 (22%) of the respondents mother married in between 17-19 years, 14 (18%) of the respondents mother married in between 14-16 years and only six (8%) of the respondents mother were before 13 years. But 1 (1%) did not respond to t his question.

Table XII: Frequency and Percentage Distribution of Respondents according to their mother's age at the time of first pregnancy

S No	Mother's Age at the time of first pregnancy	Frequency	Percentage
1.	< 14 years	2	3%
2.	14-16 years	4	5%
3.	17-19 years	16	20%
4.	>19 years	55	70%
5.	Not responded	2	3%
	Total	79	100%

Table – XII depicts that out of 79 respondents, majority i.e. 55 (70%) of the respondents mother were pregnant for the first time after 19 years, 16 (20%) of the respondents mother were pregnant for the first time between 17- 19 years, four (4%) of the respondents mother were pregnant for the first time between 14-16 years and only two (3%) of the respondents mother were pregnant for the first time below 14 years. But two (3%) did not respond to t his question.

Table XIII: Frequency and Percentage Distribution of Respondents according to their previous source of information

Sl. No	Previous Source of Information	Frequency	Percentage
1.	Yes	42	53%
2.	No	37	47%
	Total	79	100%

Table – XIII depicts that out of 79 respondents, majority i.e. 42 (53%) of the respondents had got the previous source of information of maternal mortality whereas 37 (47%) of the respondents had got the previous source of information of maternal mortality.

Table XIV: Frequency and Percentage Distribution of respondents according to their source of information

S No	Source of Information	Frequency	Percentage
1.	School	4	5%
2.	Mass media	6	8%
3.	Magazine	19	24%
4.	Health workers	5	6.%
5.	Family members	4	5%
6.	Any others	4	5%
	Total	42	100%

Table – XIV depicts that out of 42 respondents who had got the previous source of information on maternal mortality among the adolescent pregnancy, majority i.e. 19 (24%) of the respondents had got the source of information from magazines, six (8%) of the respondents had got the source of information from mass media, five (6%) of the respondents had got the source of information from health workers. However four (5%) of the respondents had got the source of information from school and family members. This shows that there is a need of awareness in the community.

Table XV: Frequency and percentage distribution of respondents according to the reasons perceived for early pregnancy

Sl No	Reasons Perceived for Early Pregnancy	Frequency	Percentage
1.	Own personal choice	21	27%
2.	Pressure from the parents	1	1%
3.	Pressure from the other family members	1	1%
4.	Pressure from the society	5	6%
5.	Pressure from Husband	11	14%
6.	Pressure from the inlaws	21	27%
7.	Unplanned	7	9%
8.	Not responded	12	15%
	Total	79	100%

Table – XV depicts that out of 79, majority i.e. 21 (27%) of the respondents perceived that the reason for early pregnancy is due to own personal choice and also due to pressure from the in-laws, while 11 (14%) of the respondent perceived that the reasons for early marriage is due to pressure from the husbands, seven (9%) of the respondents perceived that it is due to unplanned. While five (6%) of the respondents perceived that the reasons for early marriage is

due to pressure from the society. But 12 (15%) of the respondents did not respond to the question.

Section 2

Table XVI
Assessment of pre test and post test awareness regarding maternal mortality in adolescent pregnancy among adolescents

Table XVI (A): Frequency and percentage distribution Pre test and post test Awareness level

Awareness Level	Pre test		Post test	
	n	%	n	%
Low (mean-SD)	18	22.8%	0	0
Medium Score (mean-SD) to score $\leq$ mean+ SD)	46	58.2%	9	11.4%
High (mean+SD)	15	19.0%	70	88.6%
Total	79	100.0%	79	100.0%

Table XVI (B): Pre test and post test mean awareness score according to aspect wise

Section	Pre test Mean Scores	Post test Mean Scores
Legal age for marriage	1.84	1.96
Complications during pregnancy to the mother	1.85	7.81
Complications for the foetus and baby	1.99	5.13
Possible causes of death for the mother	4.53	13.30
Preventive measures	6.05	12.44
Total	16.25	40.38

Section II

Table XVII
Factors responsible for early marriage

S.No	Reasons perceived for early marriage	Frequency	Percentage
1	Own personal choice	36	46%
2	Pressure from parents	10	13%
3	Pressure from other family members	7	10%
4	Pressure from the society	4	5%
5	Pressure from the boyfriends	5	6%
6	Security reasons for them	3	4%7
7	NA	14	18%
	Total	79	1000

Association of the pre test awareness scores with demographic variables before the educational intervention awareness among regarding maternal mortality in adolescent pregnancy among adolescents in selected urban areas of Kamrup, Metro, Assam

H_0: There is no association between the pre test awareness scores with demographic variables before the educational intervention awareness among regarding maternal mortality in adolescent pregnancy

Table XVIII

Sl. No	Demographic variables	Calculated Chi-sq	df	p-value and remarks
1.	Age (in years)	0.489	2	0.783[NS]
2.	Education	6.524	6	0.367[NS]
3.	Education of the father	6.703	12	0.877[NS]
4.	Education of the mother	6.159	10	0.802[NS]
5.	Occupation of the father	9.766	8	0.282[NS]
6.	Occupation of the mother	9.591	10	0.477[NS]
7.	Type of parenting	5.946	4	0.203[NS]
8.	Number of female sibling	26.82	8	<0.001[S]
9.	Type of family	2.351	2	.309[NS]
10.	Income	12.638	16	.699[NS]
11	Religion	1.419	4	.841[NS]
12	Previous source of information	9.809	2	.007[S]
13	Source of information	2.11	12	.049[NS]

NS: Non significant, S: significant

Chi –square test was used to identify the association by using SSPS, and was found that there is significant association with the awareness and number of sibling, previous source of information and source of information as the p –value is less than .005 level.

Table XIX

Evaluation of the effectiveness of the educational intervention regarding maternal mortality in adolescent pregnancy among adolescent

The following null hypothesis was formulated to test the effectiveness of the educational intervention regarding maternal mortality in adolescent pregnancy among adolescent.

HO_1 – There is no significant difference between the mean pre test awareness and the post test awareness regarding maternal mortality in adolescent pregnancy among adolescent.

H_1 – There is no significant difference between the mean pre test awareness and the post test awareness regarding maternal mortality in adolescent pregnancy among adolescent.

Awareness	Paired samples		Paired difference		t-test	df	p-value
	Mean	Standard deviation	Mean	Standard deviation			
Pre-test	16.25	11.08	24.13	12.4	17.22	78	<.001 significant
Post test	40.38	10.96					

The improvement was statistically tested by using t-test in SPSS. It was found that the t-test value was significant as the p-value is less than 0.001 level of significance. So $H0_1$ was rejected and H_1 is accepted. It indicates that the mean post test awareness score was significantly higher than the mean pre-test awareness. Hence the documentary film was effective in improving the awareness regarding maternal mortality in adolescent pregnancy among adolescent.

4. Discussion

The present study reveals that majority i.e. 58.2% of the respondents had moderate awareness regarding the maternal mortality in adolescent pregnancy, 22.8% had Low awareness and only 19% have high awareness during pretest. The study is also comparable with another descriptive study done by P.V. Ramanindin study to assess the knowledge on teenage pregnancy and its prevention among the teenage girl residing in selected areas of Dadra and Nagar Haveli where her findings reveals that 37.5 % had

very poor knowledge, poor knowledge (28.125 %) followed by average (18.75 %), and good knowledge (15.625) on teenage pregnancy. (6)

The finding of the present study revealed that in the section awareness about legal age for marriage the range of score was 0-2 and mean was 1.84 in the pre-test. This is comparable with the study conducted by Gupta, N., Mathur, A.K., Singh, M.P. et al. on reproductive health awareness of school-going, unmarried, rural adolescents which revealed that awareness of legal minimum age of marriage was present in more than half of adolescents. (7). A result which is in accord with our study findings as education about legal age for marriage is included in the main stream education in India. (8). The present study showed that in the section awareness on complication during pregnancy to mother (range: 0-10) and complication for the fetus and baby (range:0-7) the mean score was 1.85 and 1.99 respectively. This is in contrast with the study conducted by Sushila Devi Bhandari on awareness on Consequences of teenage Pregnancy among adolescent at Ampipal VDC, Gorkha which revealed that more than half (74%) had adequate knowledge on consequences of teenage pregnancy to mother and baby with mean score 12.34. The difference in the present study could be due to geographical variation. (9)

The study findings of the present study also reveals that the most common reason for early marriage perceived by the respondents (47%) was due to personal choice and 13% of the respondents perceived that it was due to family pressure. This finding is in contrast with another study by Parasumalu B G, Shakila N, Masthi RN. on teenage pregnant mothers attending primary health centers of Kempegowda Institute of Medical Sciences, Bangalore which revealed that the most common reason given for early marriage and early pregnancy was traditional practices ie. 64% and due to family pressure is 57.7% among teenage pregnant mothers. (10)

The data presented in the association table of the present study depicts that there is a statistically significant association of awareness scores with the number of sibling of the respondents, previous source of information and source of information as the p –value is less than .005 level. However similar study done by Shubha D. S with an aim to evaluate the effectiveness of structured teaching programme on knowledge and attitude regarding teenage pregnancy among early adolescent girls in selected school, Bangalore, reveals that variables such as age, educational status, dietary pattern and type of family were significant at 0.05 level. The reason for the difference in the findings may be due to the less number in sample size.

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