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RESEARCH ARTICLE

KNOWLEDGE AND ATTITUDE REGARDING PUBERTAL CHANGES AMONG PRE-ADOLESCENTS – A DESCRIPTIVE SURVEY STUDY

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ABSTRACT

To assess the knowledge and attitude regarding pubertal changes among pre – adolescents (girls and boys).

Material and Method: A descriptive study design was adopted with 204 pre-adolescents (104girls and 100 boys) of age group 12-14yrs. selected by purposive sampling technique from two different Government schools of Ambala District. Knowledge and attitude was assessed using structured knowledge questionnaire and 5 point likert scale respectively. The reliability coefficient of structured knowledge questionnaire for girls was found 0.74 and for boys 0.77 by Kudar Richardson-20 formula and for attitude scale it was found 0.79 for girls and 0.766 for boys by Cronbach's alpha.

Results: Majority of pre- adolescent girls and boys (75%), (74%) had below average knowledge regarding pubertal changes followed by 25 % girls and 24%boys had average level of knowledge and in levels of attitude, Majority of pre- adolescent girls and boys (95.19%), (90%) had moderately favourable attitude regarding pubertal changes followed by 3.84% girls and 10%boys had unfavorable level of attitude. This indicates that percentage of pre- adolescent girls and boys having below average knowledge and moderately favorable attitude is maximum

Coefficient of correlation of pre - adolescent girls and boys as evidenced by the computed r value (-0.178) and (-0.025) was found to be not significantly correlated at 0.05 level of significance.

Computed anova /t value of Occupational status of father (F=3.968; p=0.005) was found to be statistically significant with attitude scores of pre-adolescent girls at 0.05 level of significance, it denotes the association of occupational status of father with attitude scores of pre-adolescent girls. In pre-adolescent boys, education status of mother (F=2.525; p=0.046) was found to be statistically significant with knowledge scores and Educational Status of father (F=2.571; p=0.043) was found to be statistically significant with attitude scores at 0.05 level of significance.

Conclusion: The finding of study revealed that pre-adolescent girls and boys knowledge and attitude regarding pubertal changes was not adequate and favourable respectively.

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INTRODUCTION

Adolescence is a period of linkage between childhood and adulthood – a time of rapid physical, cognitive, social, and emotional development because in this the boy prepares for manhood and the girl prepares for womanhood. The precise margins of adolescence are tough to define, but this period is customarily viewed as beginning with the gradual advent of secondary sexual characteristics at about 11 or 12 years of age and ending with cessation of body growth at 18 to 20 years. Adolescence which literally means, "to grow into maturity". It involves three distinct sub phases: early adolescence (pre adolescence) (age 11 to 14 year), middle adolescence (ages 15 to 17 year), and late adolescence (ages 18 to 20 years) (Hockenberry J. Marilyn, 2013). Adolescents – defined by the United Nations as those between the ages of 10 and 19 – number 1.2 billion in 2010, forming 18 per cent of world population (Progress for Children: A report card on adolescents by United Nations Children's Fund (UNICEF) 2012). Adolescent population in India has increased from 85 million

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in 1961 to 253 million in 2011 (in five decades) (Size, Growth and Composition of Adolescent and Youth Population in India, 2015) and in Haryana percentage of adolescent's population is approx. 21% (Release of social and cultural tables – age data highlights census of India 2011). The most intense changes related to adolescence are the physical changes that occur as a part of pubertal process (Chandramouli, 2015). Puberty includes maturational, hormonal, and growth process that occurs when the reproductive organs initiate functioning and the secondary sex characteristics develop (Singh *et al*., 2014). During puberty, growth is disorganized confusing and rapid, compared to the relatively stable earlier period of childhood. When pubescent children are not informed of the changes that take place during puberty, it is distressing to undergo these changes and may develop unfavourable attitudes towards these changes (Sharma Nanditha, 2015). Adolescence is a period of biological, cognitive and social transition of such magnitude and rapidity that it is no surprise to find that it is associated with the onset or exacerbation of a number of health-related problems. It is the level of self-responsiveness among adolescents, which enables them to see where their thoughts and emotions take them.[i] Studies have shown that there are still many misconceptions and misbelieves regarding issues related to sexuality and adolescence, which should be tackled carefully by imparting formal puberty and sex education at proper age (Sharma Nanditha, 2015). Another study shows that twenty eight percentages do not like the changes due to puberty, in their body. Twenty three percentages boys were worried about shape and size of their penis and 60% accept that they feel mood swings sometimes (Jain Ram Bilas *et al*., 2013). Results of a cross-sectional study conducted in 2011 to assess the knowledge regarding pubertal changes among 138 adolescent girls shows that only 28.6% had knowledge of growth of pubic hair, 54.3% student faced difficulties related to adolescent period. 58.7% adolescents found essential solution from their peers and only 39.1% discussed with parents. (Upadhyay Dhungel *et al*., 2012) Various studies concluded that reproductive health is ignored and queries go unanswered (Ray Kuntala and Bhattacherjee Sharmistha, 2011). With this background, the study was directed to assess the knowledge and attitude of pre-adolescents studying in different schools of Ambala District.

Objectives

1. To assess the level of knowledge and attitude regarding pubertal changes among pre adolescents in the selected schools of Haryana.
2. To determine the relationship between knowledge and attitude scores regarding pubertal changes among pre-adolescents in the selected schools of Haryana.
3. To determine the association of knowledge and attitude scores regarding pubertal changes with selected sample characteristics in the selected schools of Haryana.

MATERIALS AND METHODS

Study design

This quantitative study was based on descriptive survey design to test the participants.

Design and settings

The study was conducted in two government schools of Mullana and Barara village of Ambala District Haryana, selected by convenience sampling. Data was collected between December and January 2015 after obtaining clearance from the "institutional ethical committee".

Setting and sample

The study participants selected by purposive sampling technique comprised of 204 pre-adolescents(104 pre-adolescent girls and 100 pre-adolescent boys) of 12 -14 years age group studying in 7^{th}, 8^{th} and 9^{th} class from two government schools (selected by convenience sampling) of Mullana and Barara village of Ambala District Haryana.

Ethical consideration

Ethical consideration was taken from the MM University institutional ethical committee (under the project number 375). Written informed assent was also obtained from all the participants before starting the study.

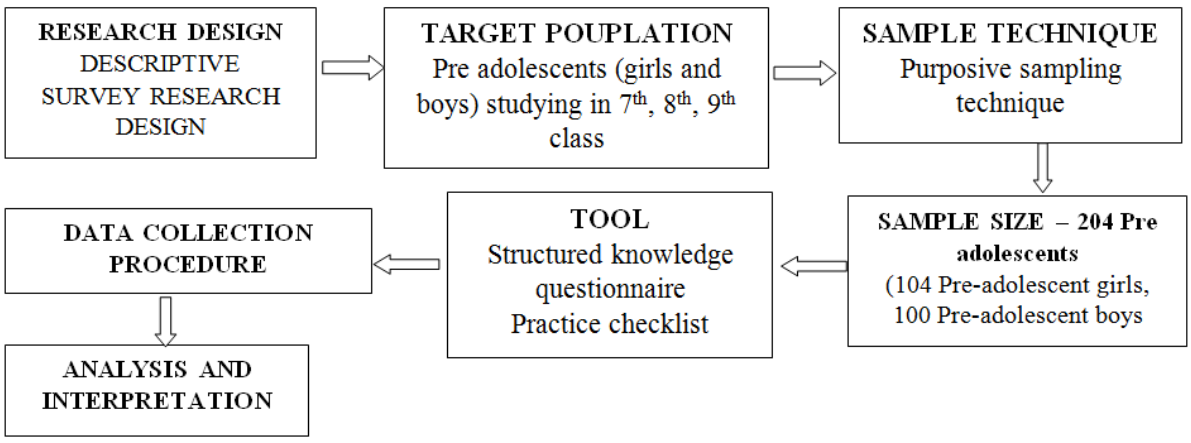

Figure 1. Schematic representation of research methodology

Tools

Knowledge and attitude was assessed using a structured knowledge questionnaire and 5 point likert scale. Both tools were validated by 7 experts in the various nursing fields. Reliability of tools was checked. The reliability coefficient of structured knowledge questionnaire for girls was found 0.74 and for boys 0.77 by Kudar Richardson-20 formula and for attitude scale it was found 0.79 for girls and 0.766 for boys by Cronbach's alpha. Structured knowledge questionnaire containing 36 multiple choice questions was used with Areas like reproductive organs, concept of puberty, secondary sexual characteristics, nocturnal emission of semen and emotional changes. A five point likert scale ranging strongly agree to strongly disagree containing 33 statements was used, out of which 17 were positive statements and 16 were negative. The maximum score was 165 and minimum score was 33. Areas included were concept of puberty, secondary sexual characteristics, nocturnal emission of semen and emotional changes.

Data collection/procedure

After obtaining the formal approval from the principals of Government schools of Mullana and Barara village of Ambala district, Haryana, test of duration 45 minutes was conducted to assess the knowledge and attitude regarding pubertal changes.

Data analysis

Data were entered into Microsoft Excel 2007 and analyzed using SPSS 17.0. Categorical data are presented as mean (SD) or median based on the distribution of data. Statistical analysis was performed by using descriptive and inferential statistics. A p value of 0.05 was considered significant.

RESULTS

Base line characteristics

Frequency and Percentage Distribution of Pre-Adolescents Girls & boys in terms of Sample Characteristics shows that 57.5% of pre-adolescent girls were of 7th class followed by 42.3% were of 8th class and 43% of pre-adolescent boys were of 8th class & 57% were of 9th class. 44.2% girls were of 13 years age followed by 27.9% girls of 12 years of age. 42% boys were of 13 years age and 57% of 14 years of age. More than half of pre-adolescent girls and boys 76% & 68% respectively were Hindu. 52.9% pre-adolescent girls and 52% boys were from joint families and remaining were from nuclear families. 88.5% and 74%girls and boys were residing in semi urban areas and remaining were from rural areas. 30.8% pre-adolescent girl's father and 31% pre-adolescent boys' father had education Up to higher Secondary followed by 23.1% & 15% respectively were non literate. In mother's education status, 34.6% & 27% mothers of pre-adolescent girls and boys were non literate and 27.9% & 32%respectively had education up to primary. 36.5% girls' father & 59% boys' fathers were laborer Majority of mothers of pre - adolescent girls and boys (78% in both) were home maker. Most of Pre - adolescent girls and boys (99%) have information regarding puberty and for pre – adolescents, source of information regarding puberty were friends followed by parents and books.

Frequency and Percentage Distribution of Level of Knowledge of Pre-Adolescent Girls and Boys

Majority of pre- adolescent girls and boys (75%), (74%) had below average knowledge regarding pubertal changes followed by 25 % girls and 24% boys had average level of knowledge. This indicates that percentage of pre- adolescent girls and boys having below average knowledge is maximum. (Fig: 2)

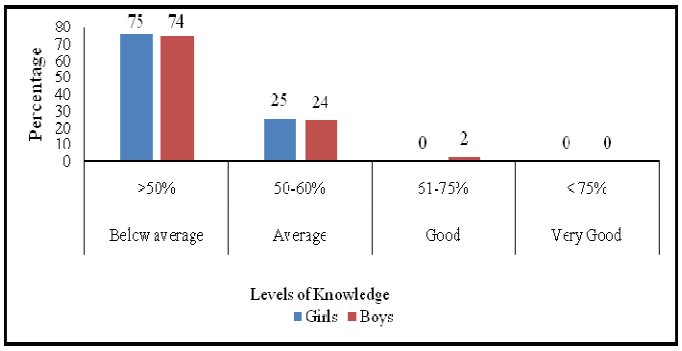

Figure 2. Bar graph showing percentage distribution of pre- adolescent girls' and boys' level of knowledge regarding pubertal changes

Majority of pre-adolescent girls and boys (95.19%), (90%) had moderately favourable attitude regarding pubertal changes followed by 3.84% girls and 10% boys had un favorable level of attitude.

This indicates that percentage of pre- adolescent girls and boys having moderately favorable attitude is maximum (Figure 3)

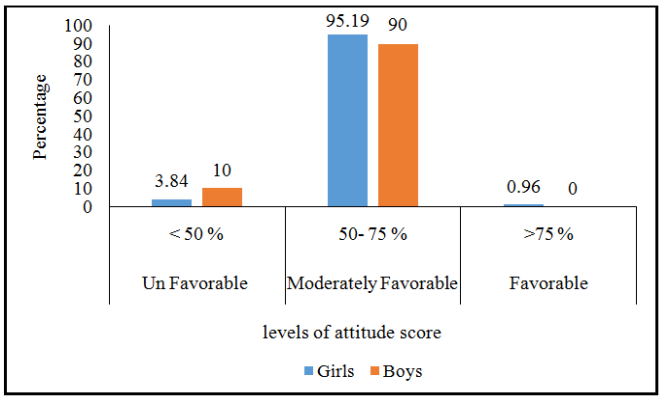

Figure 3. Bar graph showing percentage distribution of pre-adolescent girls' and boys' level of attitude regarding pubertal changes

Range of Score, Mean, Mean percentage, Median and Standard Deviation of Knowledge Score of Pre-Adolescent Girls and Boys Regarding Pubertal Changes

Results depicts that mean knowledge score with standard deviation of pre –adolescent girls was 14.23±3.82, mean percentage was 39.5 median was14 with range of knowledge score between 07-21 and for pre-adolescent boys, mean

knowledge with standard deviation was 14.72 ±3.82, mean percentage was 40.8 median was14.72 with range of knowledge score between 06-22. Mean attitude score of pre – adolescent girls was 96.4±8.09, mean percentage was 58.4 median was 97 with range of attitude score between 74-146 and for pre-adolescent boys, mean attitude was 92.2 ± 7.04, mean percentage was 55.8 median was 93.0 with range of attitude score between 72-111

Area wise mean, mean percentage, standard deviation of knowledge score of pre – adolescent girls and boys regarding pubertal changes (Table 1)

N=204

S.No.	Group	Area of knowledge	Maximum Score	Mean Score	Mean % score	Ranked	Standard deviation
1	Girls	Reproductive organs	4	1.37	34.3%	III	0.91575
	n= 104	Concept of puberty	5	0.9712	19.4%	V	0.817
		Secondary sexual characteristics	5	1.67	33.4%	IV	1.25
		Menstruation	17	7.24	42.5%	II	2.13
		Emotional changes	5	2.29	45.8%	I	1.12
2	Boys	Reproductive organs	6	2.35	39.16%	IV	1.31
	n= 100	Concept of puberty	8	2.96	37%	V	1.63
		Secondary sexual characteristics	8	3.34	41.75	II	1.47
		Nocturnal emission of semen	8	3.65	45.6	I	1.40
		Emotional changes	6	2.42	40.3	III	1.31

Maximum score=36, Minimum score=00

Area wise mean, mean percentage, standard deviation of attitude score of pre – adolescent girls and boys regarding pubertal changes (Table 2)

N=204

S. No.	Group	Area of attitude	Maximum Score	Mean Score	Mean % score	Ranked	Standard deviation
1	Girls	Concept of puberty	75	44.94	59.6%	II	4.85
	(n=104)	Secondary sexual characteristics	15	7.90	52.6%	III	2.65
		Menstruation	45	21.6	48%	IV	6.06
		Emotional changes	35	22.0	62.8%	I	4.17
2	Boys	Concept of puberty	80	45.6	57%	II	4.28
	n=100	Secondary sexual characteristics	25	10.36	41.4%	IV	2.65
		Nocturnal emission of semen	20	13.96	69.8%	I	2.22
		Emotional changes	45	22.2	49.3%	III	3.29

Maximum score=165, Minimum score=33

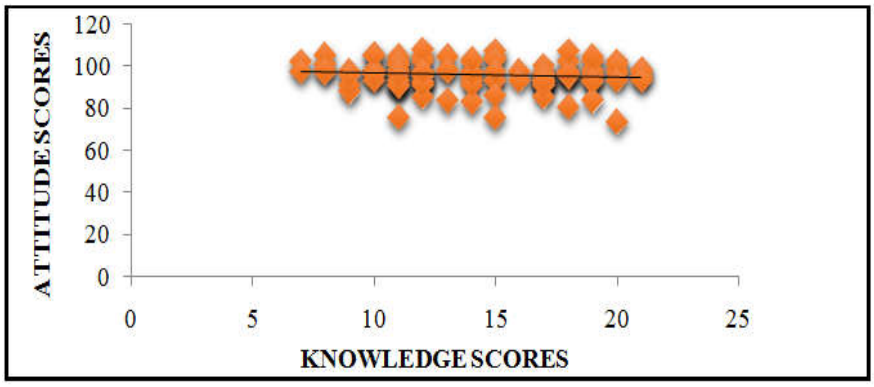

Figure 3. Scatter plot showing the correlation between knowledge and attitude scores obtained by pre-adolescent girls

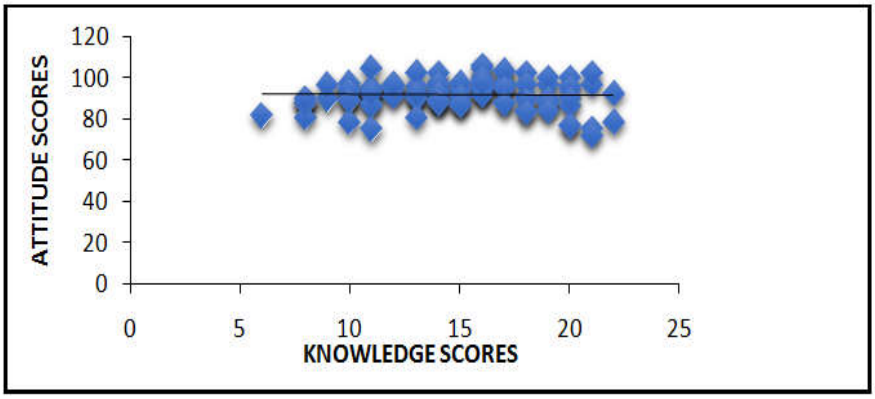

Figure 4. Scatter plot showing the correlation between knowledge and attitude scores obtained by pre-adolescent boys

It revealed that pre - adolescent girls and boys had inadequate knowledge and attitude in all the area of knowledge and attitude regarding pubertal changes.

Correlation between Knowledge and Attitude Scores Obtained by Pre-Adolescent Girls and boys regarding pubertal changes

There was no significant correlation between the knowledge and attitude scores of pre - adolescent girls and boys as evidenced by the computed r value (-0.178) and (-0.025) which is not significantly correlated at 0.05 level of significance (Figure 4 and 5)

It revealed that pre - adolescent girls and boys had inadequate knowledge and attitude in all the area of knowledge and attitude regarding pubertal changes.

Correlation between Knowledge and Attitude Scores Obtained by Pre-Adolescent Girls and boys regarding pubertal changes

There was no significant correlation between the knowledge and attitude scores of pre - adolescent girls and boys as evidenced by the computed r value (-0.178) and (-0.025) which is not significantly correlated at 0.05 level of significance (Figure 4 and 5)

DISCUSSION

The finding of the present study revealed that 19.4% pre-adolescent girls were aware about concepts of puberty, 34.3% girls have knowledge about reproductive organs and their functions, 33.4% girls were aware about secondary sexual characteristics and 45.8% girls were aware about emotional changes and same in pre-adolescent boys 37% were aware about concepts of puberty, 39.16% boys have knowledge about reproductive organs and their functions, 41.75% boys were aware about secondary sexual characteristics and 40.3% boys were aware about emotional changes. The study finding were inconsistent with finding of a cross sectional study conducted in block Beri, District Jhajjar (Haryana) regarding assessment of self-awareness of rural adolescent students regarding adolescent changes. Findings shows that 61.25 % girl were aware about physical changes in their bodies during puberty, 63.75 % girls, have knowledge about sexual development changes and total 23% were aware about emotional changes during puberty and the study finding were also shows that 50% boys were aware about physical changes in their bodies during puberty, 30.6 % boys have knowledge about sexual development changes and total 23% were aware about emotional changes during puberty. Reasons for the inconsistent findings may be due to the difference in the settings (Tondare Devidas *et al*., 2011). The study findings revels that majority of pre- adolescent girls (75%) had below average knowledge regarding pubertal changes followed by 25 % girls had average level of knowledge. None of girls had good and very good knowledge regarding pubertal changes and 3.84 % pre - adolescent girls had unfavourable attitude followed by majority (95.19%) pre- adolescent girls had moderately favorable attitude regarding pubertal changes. Similar findings were reported in a study conducted among intermediate school female students in Taif, Saudi Arabia, to assess knowledge and attitude regarding changes occurring during puberty. Findings shows that less than half of the female students (43.8%) had below average and slightly more than half (56.2%) had an above average level of knowledge and (38.9%) had unfavourable and (61.1%) had moderately favourable attitude towards pubertal changes (Jain *et al*., 2013). In present study for most of girls' source of information were parents (mothers) and friends, and for pre-adolescentboy's source of information were internet and friends. These findings were consistent with study held in Turkey on, matter of reproductive health, shows that girls mostly discuss their puberty symptoms with their mothers (78.1%) and friends (6.4%) and boys were newspaper/ TV/ magazines (77%) and friends (68%) (Jawhara Abdullah Alosaimi, 2014)

Conclusion

The finding of study revealed that pre-adolescent girls and boys knowledge regarding pubertal changes was average. Pre-adolescent girls and boys had moderately favourable attitude regarding pubertal changes.

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