

Knowledge and Attitude on Pubertal Changes among Adolescents in a Government School of Biratnagar

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ABSTRACT

Adolescence typically describes the years between ages 10 to 19 and is considered to be critical transitional stage from childhood to adulthood characterized by onset of puberty. Adolescence can be a time of both disorientation and discovery which contributes adolescents to unfavorable attitude and suffer from anxiety, depression, substance use disorder, etc. The main objective of the study is to assess knowledge and attitude on pubertal changes among adolescents.

A descriptive cross sectional study design was used. Non-probability purposive sampling method was used to select setting whereas simple random lottery method was adopted to select 1 section from each grade and total enumeration method was used to select the sample where 139 adolescents studying grade 8,9 and 10. Data was collected by self-administer semi-structure questionnaire method. Analysis of data was done using SPSS16 version and descriptive statistics mean, median, standard deviation, frequency, percentage and chi-square test was used to find the association between dependent and independent variables

The findings of the study revealed that (64.7%) adolescents give correct meaning about puberty, 28.8 % adolescents had knowledge about reason of pubertal change is due to sex hormones and 78.45% of adolescents had knowledge that menstruation is regular monthly bleeding from vagina. Regarding level of knowledge 42.4% of the respondents had below average level of knowledge whereas only (7.2%) had very good knowledge regarding pubertal changes. Similarly, majority of the respondents (96.4%) moderately favorable attitude and only (2.9%) had unfavorable attitude towards pubertal changes.

Keywords: *Adolescents, Attitude, Knowledge, Pubertal changes*

Background of the study

Adolescence is the age group between 10 and 19 years. Nepal shows that about 1.2 billion adolescents today make up 18% of the world's population among them more than half of all adolescents live in Asia whereas, in Nepal adolescents comprise of 24.18% of the total population {World Health Organization (WHO), 2018}. Similarly, adolescence is a period of linkage between childhood and adulthood where rapid physical, cognitive, social and emotional development occurs. During this period the boy prepares for manhood and the girl prepares for womanhood but actual margin of adolescence are difficult to explain. It is usually viewed as beginning of secondary sexual characteristics at about 11 or 12 years of age and ending with cessation of body growth at 18 to 20 years. Puberty refers to the process of physical changes by which a child's body becomes an adult body capable of reproduction (Steinerg, 2016). Puberty in girls can start between the ages of 8-13 years but often the first changes happen around 10 or 11 years and for boys the first changes often happen a bit later than in comparison to girls, somewhere between 10 and 15 years (Rising Children Network, 2018).

Different hormonal changes lead to onset of puberty characterized by rapid physical growth and development of secondary sexual characteristics. The changes are not only physical but also psychological, social, emotional, cognitive and behavioral changes. Regarding physiological changes; breast budding, rapid increase in height and weight, growth of pubic and axillary hair, widening of the hip, onset of menstruation in girls. Similarly, voice changes, increase in width of the shoulders, night time ejaculation, enlargement of penis, growth of axillary hair, facial hair in boys. Regarding psychological changes adolescents are uncertain in their emotional state, they are enthusiastic at one minute and depressed & withdrawn in next minute and social changes are searching for identity, seeking for independence, starting an intimate relationship are prominent in both girls and boys. Unfavorable attitude towards their own bodily changes is due to lack of knowledge on pubertal which leads to different negative outcomes. Therefore, to deal effectively with this transition, adolescents need

to be aware of their bodily changes to make their life easy and productive (Ozdemir,Utkualp, &Pallos,2016)).(This taken from literature Review not my own sentence)

Various study finding revealed that there is a gap in knowledge and unfavorable attitude on pubertal changes among adolescents that is why many adolescents have negative effects towards their bodily changes. Due to lack of knowledge on pubertal changes the adolescents go through various physical, psychological and social stresses and even malpractices. That is why it is very much important for adolescents to be aware about their bodily changes. A study conducted among 205 adolescents of community who were in between the age 13 years and 19 years showed that 16% adolescents had very good level of awareness, 47% had good level of awareness, 28% had average level of awareness and 9% had below average level of awareness regarding pubertal changes. However, only 11% of the adolescents showed moderately favorable attitude, while 89% showed unfavorable attitude towards pubertal changes (Pandit&Panthee, 2017).

Similar study conducted government schools of Mullana and Barara village of Ambala District Haryana, revealed that 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 level of attitude. Majority of pre-adolescent girls and boys (95.19%), (90%) had moderately favorable 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 have below average knowledge and moderately favorable attitude regarding pubertal changes (Rani,Sheoran& Kumar, 2016). The main objective of the study is to assess knowledge and attitude on pubertal changes among adolescents.

Methods

Descriptive Cross sectional study design based on quantitative approach was used. The major reason for choosing this study design at a single point of time and was limited time frame of the study. Non probability purposive sampling technique was adopted in order to select the research setting and simple random lottery method was used to select

1 section from each grade i.e.8, 9 and 10. Thereafter, list of all students of selected section from 8, 9 and 10 was obtained from school administration. In spite of the

Variables	Frequency (f)	Percentage (%)
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desired sample size i.e.117 to avoid the biasness among the students total enumeration method was used to collect the data from .students that is 139 from the selected section. First of all approval from the Research committee of TU, IOM, Biratnagar Nursing Campus was obtained. The approval from concerned authority was taken and permission for data collection was obtained from the school. . The purpose of the study was explained to the adolescent students. Participation of the respondent was voluntary and written consent was obtained.Tool was developed by extensive literature review and consulting with research advisors and subject matter specialist and data was collected by using semi-structured self-administered questionnaire by the researcher herself The time taken was 25 to 30 minutes and collected data was checked daily for its completeness. All the data was kept in order for editing and coding.Analysis of data was done using SPSS16 version, descriptive statistics that is frequency, percentage and mean was used to assess the level of knowledge and attitude of pubertal changes among adolescent.Inferential statistics i.e. chi- square test was used for finding association between level of knowledge and attitude and socio demographic variables. Chi-square test at corresponding 95% confidence interval was used to find out the significance of association.

RESULTS:

Data were organized, analyzed and interpreted according to the objective and nature of the research question by using descriptive and inferential statistics.

Age (In completed years)		
12	10	7.2
13	42	30.2
14	36	25.9
15	31	22.3
16	18	12.9
18	2	1.4
Mean \pm SD = 14.09 \pm 1.250		
Educational level (Grade)		
8	45	32.4
9	48	34.5
10	46	33.1
Sex		
Male	94	67.6
Female	45	32.4
Ethnicity		
Dalit	2	1.4
Janajati	8	5.8
Madhesi	38	27.4
Brahmin/Chhetri	91	65.5
Type of family		
Nuclear	96	69.1
Joint	42	30.2
Father's educational level		
Unable to read and write	7	5.0
Able to read and write	8	5.8

Primary	6	4.3
Secondary	24	17.3
Higher secondary	43	30.9
Bachelor and above*	51	36.7
Mother's educational level		
Unable to read and write	16	11.5
Able to read and write	13	9.4
Primary	8	5.8
Secondary	36	25.9
Higher secondary	42	30.2
Bachelor and above*	24	17.3
Have elderly siblings		
Yes	79	56.8
No	60	43.2
If yes, n=79		
Brother	51	36.7
Sister	41	29.5

TABLE 1
Socio-demographic Characteristics of Respondents

n=139

Above*= *Master and Phd degree*

Table 1 illustrates that among the respondents 30.2% of the adolescent belong to the age of 13 years and only (1.4%)

belong to the age of 18 years \pm (14.09). Similarly more than half (67.6%) were boy and 32.4% were girls. Likewise, 65.5% belonged to Brahmin/ Chhetri caste and least (1.4%) of the adolescents were from Dalit. Likewise, more than half (69.1%) of the respondents belong to nuclear family. The educational level of fathers 36.7% had gained bachelor and above education and only 5.8% had primary level education. More than half (56.8%) of respondents had elder siblings where 36.7% of the respondents had elderly brother whereas only (29.5%) had elderly sisters.

TABLE 2
Knowledge regarding Pubertal Changes

n=139

Variables	Frequency (f)	Percentage (%)
Meaning of Puberty		
Maturation of both physical and secondary sexual characteristics	90	64.7
Maturation of physical characteristics	36	25.9
Maturation of secondary sexual characteristics	13	9.4
Pubertal change is due to		
Increase in all hormones	96	69.1
Increase in sex hormones	40	28.8
Decrease in sex hormone	3	2.2
Two main sex hormones		
Testosterone and estrogen	58	41.7
Thyroid and growth hormone	47	33.8
Estrogen and progesterone	27	19.4
Prolactin and thyroid hormone	7	5.0
Importance of puberty *		
Help our body mature	103	74.1
Prepare us to reproduce	76	54.7
Help us transition into adulthood	56	40.3
Age of puberty begins from		
13-15	120	86.3
10-12	11	7.9
13-14	7	5.0
7-8	1	7
Girls reach puberty earlier than boys		
Yes	127	91.4

No	12	8.6
Common pubertal changes in adolescents*		
Pimple in face	106	76.3
Voice changes	105	75.5
Increase in height and weight	89	64.0
Breast budding	70	50.4
Growth of axillary and pubic hair	67	48.2
Onset of menstruation	49	35.3
Increase in hip size	44	31.7
Wet dream	38	27.3
Common pubertal changes in respondents *		
Voice changes	94	67.6
Rapid increase in height and weight	83	59.7
Growth of axillary and pubic hair	62	44.6
Acne in face	62	44.6
Onset of menstruation	43	31.0
Wet dream	94	67.6

Note: *multiple responses, each response considered as 100%.

Table 2 illustrates that more than half (64.7%) answered correctly about the meaning of puberty, whereas 0% responded puberty as neither maturation of physical nor sexual characteristics. Similarly, the reason for pubertal changes only 28.8% of the respondents answered correctly and 0% responded as decrease in all hormones. Likewise, 41.7% of the respondents answered correctly about the two main sex hormones whose level increases in human body during puberty. Similarly, 74.1% answered that puberty helps to mature our body followed by help us transition into adulthood were answered by (40.3%). Similarly, almost (98.3%) of the respondents were unaware about the starting age of puberty. Majority of respondents (91.4%) answered correctly that girls reach puberty earlier than boys. Regarding common pubertal changes in adolescents most of them (76.3%) responded pimple in face as common changes.

TABLE 3.1

Respondents Attitude regarding Pubertal Changes

n=139

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
shyness and discomfort on menarche/wet dream (n=137)	7 (5.0)	13 (9.4)	48 (34.5)	54 (38.8)	15 (10.8)
was sad and worried during my breast development/penis enlargement.	48 (34.5)	25 (18.0)	28 (20.1)	12 (8.6)	26 (19.7)
my pubertal changes scared during pubic hair and axillary hair growth.	32 (23.0)	19 (13.7)	19 (13.7)	16 (11.5)	13 (9.4)
family and friend interacted with me comfortably while experience pubertal changes.	23 (16.6)	9 (6.5)	9 (6.5)	12 (8.6)	7 (5.0)
happy that I achieved womanhood/discomfort during voice change.	29 (20.9)	40 (28.8)	36 (25.9)	14 (10.1)	23 (16.5)
did not feel discomfort due to odor of my body.	33 (23.7)	38 (27.3)	36 (25.9)	20 (14.4)	12 (8.6)
my skin started to glow after pubertal changes.	24 (17.3)	31 (22.3)	49 (35.3)	29 (20.9)	6 (4.3)
weight gain after pubertal changes made me anxious.	10 (7.2)	27 (19.4)	44 (31.7)	37 (26.6)	21 (15.1)
did not swing and aggressive are common in me after pubertal changes.	39 (28.1)	52 (37.4)	30 (21.6)	13 (9.4)	5 (3.6)
pubertal changes brought a sense of confidence in me.	30 (21.6)	52 (37.4)	33 (23.7)	15 (10.8)	9 (6.5)

Note: SA= Strongly Agree, A=Agree, N=Neutral, D= Disagree, SD= Strongly Disagree

Table 3.1 reveals that most of the respondents (75.8%) felt that pubertal changes brought a sense of self confidence in them while 70.5% felt sad and discomfort due to acne in their face and only (14.4%) felt shy and discomfort on menarche/wet dream.

TABLE 3.2

Respondents Attitude regarding pubertal changes

n=139

ood.	20.9)	28.8)	3.8)	10.1)	(6.5)	
pubertal change I feel am seeking freedom from parents.	15	32	39	25	28	
l I am emotionally strong and can handle my emotions.	10.8)	23.0)	8.1)	18.0)	20.1)	
able to share my feelings, thoughts about bodily changes with my parents and peers.	40	45	25	21	8	
happy comparing my bodily change with my friends.	28.8)	32.4)	8.0)	15.1)	5.8)	
I am attracted towards opposite sex after pubertal changes.	34	39	23	25	18	
n used to conflict with my parents.	24.5)	28.1)	6.5)	18.0)	12.9)	
Level of knowledge(n=139)						
Below average	23	29	48	21	18	
Average	16.5)	20.9)	4.5)	15.1)	12.9)	
I am attracted towards opposite sex after pubertal changes.	30	36	25	16	32	
n used to conflict with my parents.	21.6)	25.9)	8.0)	11.5)	23.0)	
Average awkwardness in interacting with other people.	35	-	21	59	33	42.4
	25.2)		5.1)	23.7)	36.0)	
	20	27	35	35	30	25.2
	14.4)	19.4)	5.2)	21.6)	19.4)	

Note: SA= Strongly Agree, A=Agree, N=Neutral, D= Disagree, SD= Strongly Disagree

Table 3.2 illustrates that 38.1% of the respondents seek for freedom from parents after their pubertal changes while 34.5% felt attracted towards opposite sex and only (16.6%) of the respondents were happy that they achieved womanhood/ manhood.

TABLE 4
Level of knowledge and Attitude regarding Pubertal Changes

Good	35	25.3
Very good	10	7.2

Attitude (n=139)		Knowledge Level of Respondents		
Characteristics	Below Average	Average	Good	P-value
	F (%)	F (%)	F (%)₁	
Unfavorable attitude			4	2.9
Moderately favorable			134	96.4
Favorable				0.7
Age (In years)				

Table 4 illustrates that 42.4% of the respondents had below average level of knowledge whereas only (7.2%) had very good level of knowledge regarding pubertal changes. Similarly, majority of the respondents (96.4%) of respondents had moderately favorable attitude and only (2.9%) had unfavorable attitude towards pubertal changes.

TABLE 5

Association between Level of Knowledge regarding Pubertal Changes with Selected Demographic Variables

n=139

12-14	39(28.1)	22(15.8)	27(19.4)	0.813
15-18	20(14.4%)	13(9.4)	18(12.9)	

Educational level

8 class	21(15.1)	10(7.2)	14(10.1)	0.321
9 class	24(17.3)	12(8.6)	12(8.6)	
10 class	14(10.1)	13(9.4)	19(13.7)	

Sex

Male	38(27.3)	28(20.1)	28(20.1)	0.189
Female	21(15.1)	7(5.0)	17(12.2)	

Type of family

Nuclear	37(26.6)	29(20.9)	30(21.6)	0.171
Joint	22(15.8)	6(4.3)	14(10.1)	

Elderly siblings

Yes	33(23.7)	18(12.9)	28(20.1)	0.616
No	26(18.7)	17(12.2)	17(12.2)	

Table 5 reveals that there was no significant association between respondents level of knowledge with age of respondents, class, sex, type of family along with elderly siblings.

TABLE 6

Association between Level of Attitude regarding Pubertal Changes with selected Demographic Variables

n=139

Characteristics	Level of attitude		P-value
	Unfavorable Attitude F (%)	Moderately Favorable Attitude F (%) (moderately favorable and favorable)	
Age (In completed years)			
12-14	3(2.2)	85(61.2)	0.623
13-18	1(0.7)	50(36.0)	
Educational level			
8 class	2(1.4)	43(30.9)	0.746
9 class	1(0.7)	47(33.8)	
10 class	1(0.7)	45(32.4)	
Sex			
Male	4(2.9)	90(64.7)	0.160
Female	0(0.0)	45(32.4)	
Type of family			
Nuclear	1(0.7)	95(68.3)	0.053
Joint	3(2.2)	40(28.2)	
Elderly siblings			
Yes	2(1.4)	77(55.4)	0.779
No	2(1.4)	58(41.7)	

Table 6 reveals that there was no significant association between respondent level of attitude with age, educational level, sex, type of family along with elderly siblings.

Discussion and conclusion

Present study revealed that more than half of the adolescents (64.7%) had knowledge about the meaning of puberty as all the adolescents were from secondary level where they might have gained knowledge from their textbook which contradicts with the study conducted in both boys and girls in Chitwan where 80% of the adolescents were aware about the meaning of puberty by (Pandit&Panthee, 2017). Likewise, about 28.8 % adolescents had knowledge about reason of pubertal change is due to sex hormones which is supported by the report of (Stoppler, 2016) that secondary sexual characteristics occurred with the progressive rise in sex hormones whereas the study done in India showed that 19.85% and 9.255% of boys and girls had correct knowledge regarding pubertal changes which was similar with this study findings (Dorle,et.al, , 2010).

Regarding the meaning of menstruation, in the present study 78.45% of adolescents had knowledge that it is regular monthly bleeding from vagina whereas 71.9% of adolescents had correct knowledge about meaning of wet dream. This finding is contradictory with the previous study conducted in Nepal which revealed that only 36% of adolescents had awareness about the meaning of menstruation (Sapkota, Sharma, Pokharel, Budhathoki& Khanal, 2013). Similarly, regarding rapid increase in height and weight more than half (64%) of adolescents were aware about the change which is similar to the study conducted in India where 83% were aware about it (Ray,Bhattacharjee, Biswas,&Mukhopadhyay, 2011).

- Regarding the overall knowledge level about pubertal changes it had been revealed that more than half (59%) of the adolescents had below average knowledge whereas 35% of the adolescents had average level of knowledge followed by 35% of adolescents had good knowledge. This findings is contradictory with the study conducted in similar settings where about 9% of adolescents had below average level of knowledge, 28% had average knowledge level and 47% of the adolescents had good knowledge level regarding pubertal changes by (Pandit&Panthee, 2017). Similarly, study conducted showed that

85.8% of the adolescent girls were adequately aware which is contradictory with this study as this study is done in both adolescent boys and girls(Poojary et.al, 2015). These discrepancies might be due to different research design setting and study population.

Regarding seeking help for pubertal changes, most of the adolescents (58.3%) seek help with friends as adolescents usually propound their physical, emotional and psychological problems with their friends. Similar findings were noted in the study of Nepal which illustrated that adolescent boys were more comfortable in seeking help with friends rather than family about reproductive problems(Upadhyay et.al,2012).

Regarding attitude towards pubertal changes almost of adolescents (96.4%) had moderately favorable attitude and only (2.9%) had unfavorable attitude regarding pubertal changes. This finding is similar with the study conducted in India where majority of pre- adolescent boys and girls 90% and 95.15% had moderately favorable attitude towards pubertal changes followed by 10% boys and 3.84% girls had unfavorable attitude (Rani et al., 2016).

Regarding the association between levels of knowledge regarding pubertal changes with selected demographic variables findings of the study showed that there was no association difference in knowledge level according to age which contradicts with the findings which showed that knowledge level increases with increase in age(Alosaimi, 2014). Similarly, the findings revealed that there were no association in knowledge according to educational level, family type and elderly siblings. In contrast with this study the findings showed that level of awareness differs with age, family type and education level of parents(Pandit&Panthee, 2017). Regarding the association of demographic variables towards attitude on pubertal changes the study findings showed that there were no association in level of attitude according to age, educational level,

sex, type of family and elderly siblings. These discrepancies may be due to different research design and sampling technique and population.

Conclusion

Based on the findings it can be concluded that more than half of the adolescents had average level of knowledge regarding pubertal changes. Similarly, almost of the adolescents had moderately favorable attitude towards pubertal changes. Knowledge regarding pubertal changes had no association with age of adolescents, education level of adolescents, sex, type of family and education level of father and mother. The awareness program regarding pubertal changes should be conducted in school among adolescents

References

- Afsari, A., Valizadeh, R., Abbasnezhad, M., Rizehvandi, P. & Fatahi, S. (2017). Predictors of knowledge on puberty health among girl students. *Bioscience Biotechnology Research Communications*, 10(2), 264-269.
- Alosaimi, J.A. (2014), Saudi Intermediate School Girls knowledge, Attitude and Practices of Puberty in Tauf, Saudi Arabia. *International Journal of Medical sciences and Public Health*. 3(2), 196-202. <https://www.scopemed.org/?mno=48282>
- Dorle, A.S., Hiremath, L.D., Mannapur, B.S. & Ghattargi, C.H. (2010). Awareness regarding Puberty Changes in School of Bagalkot. *Journal of Clinical and diagnostic Research*, 4, 3016-3019. https://www.researchgate.net/publication/289816901_Awareness_regarding_pubertychanges_in_secondary_school_children_of_Bagalkot_Karnataka_a_cross_sectional_study
- Ozdemir, A., Utkualp, N. & Pallos, A. (2016). Physical and Psychological Effects of the Changes in Adolescence Period. *International Journal of Caring science*. 9. http://internationaljournalofcaringsciences.org/docs/39_Ozdemir_special_9_2.pdf
- Pandit, S. & Panthee, D. (2017). Awareness and Attitude on Pubertal Changes among Community Adolescents. *International Journal of Caring*

Science, 10(3), 1255-1264. http://www.internationaljournalofcaringsciences.org/docs/16_1-bimala_original_10_3.pdf

- Poojary, C.D., John, D., Babu, C., Dsouza, R.P. & Shetty, A.P. (2015). Pubertal Changes: Knowledge among school aged girls. *American International Journal of Research in humanities, Art and Social Sciences*, 15(726), 51-53. <http://iasir.net/AJRHASSpapers/AJRHASS15-726.pdf>
- Rani, S., Sheoran, P. & Kumar, Y. (2016). Knowledge and Attitude regarding Pubertal Changes among Pre-Adolescent. *International Journal of Current Research*, 8(06), 33697-33702. <https://www.journalcra.com/article/knowledge-and-attitude-regarding-pubertal-changes-among-pre-adolescents-%E2%80%93-descriptive-survey>
- Ray, K., Bhattacharjee, s., Biswas, R. & Mukhopadhyay, D.K. (2011). Awareness regarding pubertal changes and reproductive health in school going adolescent girl of a border area of Darjeeling district. *Indian journal of maternal and child health*, 13(3), 1-8. https://www.researchgate.net/publication/283986779_Awareness_regarding_pubertal_changes_and_reproductive_health_in_school_going_adolescent_girls_of_a_border_area_of_Darjeeling_district_-_A_cross_sectional_study
- Rising children network. (2018). Pubertal changes in girls and boys. Department of Social Services. Australia. <https://raisingchildren.net.au/pre-teens/development/puberty-sexual-development/physical-changes-in-puberty>
- Upadhyay-Dhungel, K., Dhungel, B. A., Das, P. K. L., & Karki, B. M. S. (2012). Perception and knowledge regarding reproductive health among adolescents of Lalitpur. *Asian Journal of Medical Sciences*, 3(3), 27-31.
- WorldHealthOrganizatio(2018) <http://apps.who.int/adolescent/seconddecade/section2/page1/recognizing-adolescence.ht>