



(RESEARCH ARTICLE)



## Knowledge and attitude regarding pubertal changes among adolescents of Eastern Nepal

Ganga Prajapati <sup>1</sup>, Binusha Tamang <sup>1</sup>, Pabina KC <sup>1</sup>, Nisha Maharjan <sup>2</sup> and Rabindra Kumar Rokaya <sup>3,\*</sup>

<sup>1</sup> Department of Nursing, Nagarik College of Health Science, Purbanchal University, Lalitpur, Bagmati Province, Nepal.

<sup>2</sup> Department of Nursing, B&B Medical Institute, Lalitpur, Bagmati Province, Nepal.

<sup>3</sup> Department of Pharmacy, Karnali Academy of Health Sciences, Jumla, Karnali Province, Nepal.

Magna Scientia Advanced Research and Reviews, 2023, 08(01), 038–045

Publication history: Received on 30 March 2023; revised on 08 May 2023; accepted on 11 May 2023

Article DOI: <https://doi.org/10.30574/msarr.2023.8.1.0066>

### Abstract

Adolescence is one of the most charming and convoluted period in life span which brings childhood to adulthood. It is a period of biological, cognitive, and social transition of high magnitude and rapidity and is also associated with the onset or exacerbation of several health-related problems. A descriptive cross-sectional study was carried out in three different schools in Jhapa districts, Nepal in which 146 adolescents were included through a random sampling method. A structured questionnaire was used to collect data regarding attitudes toward Pubertal Changes which was analyzed and interpreted using SPSS version 16. The study along with the sociodemographic profile also enumerated the results of 37% strongly agreeing that pubertal changes are normal and more than half agreed that sex education is essential. Half of the participants agreed adolescents suffer from anxiety during this period and 59.6% agreed that adolescents should not be ashamed of the changes. The study revealed that 60.3% of the respondents had a favorable attitude and 39.7% had a moderately favorable attitude toward pubertal changes. Although a majority of the students had a good attitude, it can be further improved by conducting classes, and programs about menstruation, and pubertal changes, and encouraging the involvement of students in it. Parents, as well as students, can also be educated about pubertal changes through teachings and awareness programs in communities to increase positive attitudes.

**Keywords:** Adolescents; Attitude; Puberty; Nepal

### 1. Introduction

Adolescence is one of the most charming and convoluted periods in the life span which brings childhood to adulthood [1]. It is a period of biological, cognitive, and social transition of high magnitude and rapidity and is also associated with the onset or exacerbation of several health-related problems [2]. Adolescence consists of the period between puberty and adulthood. Puberty is a normal part of life and indicates the time in life when a boy or girl becomes sexually mature. It is a process that usually happens between ages 10 and 14 for girls and ages 12 and 16 for boys. Girls and boys experience different hormonal changes in their bodies during puberty. Hormonal changes lead to the onset of puberty characterized by rapid physical growth and development of secondary sexual characteristics [1,3].

The changes during puberty are not only physical, but also, physiological, psychological, social, emotional, cognitive, and behavioral [4]. Physiological changes include breast budding, rapid increase in height and weight, growth of pubic and axillary hair, widening of the hip, and the onset of menstruation in girls. Similarly, for boys, change in voice, increase in the width of the shoulders, nighttime ejaculation, enlargement of the penis, growth of axillary hair, and facial hair is seen [5]. Psychological changes in adolescents are uncertain in their emotional state and social changes include searching for identity and seeking for independence [6].

\* Corresponding author: Rokaya Rabindra Kumar

United Nations estimates more than 1.2 billion adolescents worldwide from the age group 10-19 years which indicates that roughly one in every six persons is an adolescent [7]. About 21% (6 million) of Nepal's 29.91 million population are adolescents aged 10–19 years [8]. India has the largest population of adolescents in the world being home to 253 million individuals aged 10-19 years [9]. Research from the past suggests due to rapid physical changes coupled with an inability to adapt can cause sudden changes in behavior and reactions toward other people and the environment. Physical and psychological changes during puberty contribute adolescents to suffering from anxiety, depression, substance use disorders, etc. Various studies done to assess awareness and attitude on pubertal changes among adolescents have shown average awareness and many adolescents in the study had unfavorable attitudes towards pubertal changes [10]. This shows that there is a need for attitude-promoting awareness programs regarding pubertal changes to help them prevent stress, anxiety, frustration, and depression associated with it.

To grow and develop in good health, adolescents need information, including age-appropriate comprehensive sexuality education; opportunities to develop life skills; health services that are acceptable, equitable, appropriate, and effective; and safe and supportive environments [7]. They also need opportunities to meaningfully participate in the design and delivery of interventions to improve and maintain their health. Expanding such opportunities is key to responding to adolescents' specific needs and rights. There are very few studies being conducted to assess the attitude of pubertal changes in Nepal and till time there is no recorded research in eastern Nepal on this subject. So, this study was designed to assess the attitude towards Pubertal changes among adolescents of Eastern Nepal. The findings of this study will provide baseline data on attitudes toward pubertal changes in adolescents and other related variables and also can suggest the regulatory bodies to organize and implement formal and informal programs regarding pubertal changes.

## 2. Material and methods

A descriptive cross-sectional study design was conducted on three different schools from eastern Nepal. The study was conducted among adolescents of age group (10-16) year studying in 6-10 grade. Students of grades 6-10 who were available at the time of data collection and willing to participate were included. The tools of data collection were structured questionnaires according to the objective of the study. The tool was divided into two parts: PART 1: Sociodemographic questionnaire and Part II: Attitude towards pubertal changes. These questionnaires were developed by reviewing related works of literature thoroughly and were validated before conducting the study. The sample size was calculated using the relation:  $n = (z)^2 p (1 - p) / d^2$  where  $n$  = sample size;  $z$  = level of confidence according to the standard normal distribution;  $p$  = estimated proportion of the population that presents the characteristic and  $d$  = tolerated margin of error [11,12]. The study was conducted only after approval from the Institutional Review Committee of Nagarik College of Health Science. (IRC/78-79/026) Formal permission was also taken from schools where the study was to be conducted. Confidentiality was maintained by securing all the information provided by the respondents and ensuring that the information of respondents was not disclosed to anyone outside the research team. The anonymity of the respondents was maintained by using code numbering in the questionnaire and not including identifier data like names that would link responses to specific individuals. The collected data were collected, coded, classified, and tabulated. The data was entered in SPSS v16 for analysis. The data analysis was done using descriptive statistics in terms of mean, percentage, frequency, and standard deviation.

## 3. Results

### 3.1. Socio-Demographic Characteristics

**Table 1** Socio-demographic Characteristics

Characteristics	Frequency	Percentage
<b>Age</b>		
10-16	146	100
Mean, SD: 14± 1.4		
<b>Gender</b>		
Male	71	48.6
Female	75	51.4

<b>Ethnicity</b>		
Brahmin	31	21.2
Chhetri	37	25.3
Janajati	23	15.8
Dalit	51	37
Others	1	0.7
<b>Types of Family</b>		
Nuclear Family	88	60.3
Joint Family	57	39
Others	1	0.7
<b>Religion</b>		
Hinduism	93	63.7
Buddhism	40	27.4
Christianity	12	8.2
Others	1	0.7
<b>Curriculum</b>		
Class 6	26	17.8
Class 7	28	19.2
Class 8	32	21.9
Class 9	31	21.2
Class 10	29	19.9
<b>Source of information</b>		
TV	39	26.7
Newspaper	3	2.1
Social media	99	67.8
Others	5	3.4

Out of 146 respondents, 51% were female and 49% were male with the mean age of respondents being 14 years. The majority followed the Hindu religion and were from a nuclear family. Regarding the source of information on every prospect, 67.8% of the respondents gathered information from social media as given in table 1.

### 3.2. Respondents Maturation History

The mean age for menarche and realization of secondary sexual characteristics of females was 12 years. Similarly, the mean age for the realization of secondary sexual characteristics of males was 12 years as given in table 2.

**Table 2** Respondents Maturity (n=146)

Characteristics	Frequency	Percentage
<b>Age of Menarche of female</b>		
10	2	1.4
11	38	26
12	27	18.5
13	6	4.1
14	2	1.4
Mean age: 12 years		
<b>Realization on Development of Male Secondary Sexual Character</b>		
11	11	7.5
12	38	24
13	16	11
14	9	6.2
Mean age: 12 years		
<b>Realization on Development of Female Secondary Sexual Character</b>		
11	10	6.8
12	44	30.1
13	21	14.4
Mean age: 12 years		

### 3.3. Knowledge Regarding Pubertal Changes

**Table 3** Knowledge Regarding pubertal changes (n=146)

Particulars	Strongly Agree	Agree	Disagree	Strongly Disagree
Puberty means when adolescents reach sexual maturity.	86(58.9)	54(37)	6(4.1)	-
Puberty begins at the age of 10-14 years.	80(58.9)	60(41.1)	6(4.1)	-
Adolescence is a critical transition period of life.	65(44.5)	57(39)	13(8.9)	11(7.5)
Changes occurring in the reproductive part are known as primary sexual characteristics.	50(34.2)	56(38.4)	24(16.4)	16 (11)
Secondary sexual characteristics refer to the visible changes in the body.	46(31.5)	72(49.3)	20(13.7)	8 (5.5)
Primary and secondary sexual characteristics develop during puberty.	50(34.2)	71(48.6)	16(11)	9(6.2)
Pubertal changes tend to occur earlier in females.	76(52.1)	22(15.1)	48(32.9)	-
Behavioral problems can be seen in adolescents.	38(26)	83(56.8)	14(9.6)	11(7.5)

More than half strongly agreed that puberty means the period during which adolescents reached sexual maturity. Similarly, 58.9% of respondents strongly agreed that puberty begins at the age of 10-14. 44.5% of respondents strongly agreed that adolescents are in the transition period of life. 38.4% agreed change in the reproductive part is a primary sexual characteristic. Almost half of them agreed that visible changes in the body are secondary characteristics.

Similarly, 48.6% agreed primary and secondary characteristics develop during puberty. More than half (52.1) of respondents strongly agreed that pubertal changes occur earlier in females whereas 56.8% agreed that behavioral problem is seen during puberty as given in table 3.

### 3.4. Attitude towards Pubertal Changes

While 37% strongly agreed that pubertal changes are normal. More than half agreed that sex education is essential. 59.6% of respondents agreed menstruation is normal and 58.2% agreed that it is appropriate to talk about it. Similarly, 42.5% agreed on open discussion related to pubertal changes. Half of them agreed adolescents suffer from anxiety during this period. While 59.6% agreed that adolescents should not be ashamed of the changes. Meanwhile (67.1%) disagreed that changes during puberty are more than physical ag given in table 4.

**Table 4** Attitude towards the pubertal changes (n=146)

Items	Strongly Agree	Agree	Disagree	Strongly Disagree
Pubertal changes are normal.	54(37)	47(32.2)	37(25.3)	8(5.5)
Sex education is essential for adolescents.	22(15.1)	102(69.9)	22(15.1)	-
Menstruation is normal for girls.	52(35.6)	87(59.6)	7(4.8)	-
Girls talking about their menstruation.	31(21.2)	85(58.2)	30(20.5)	-
Discussion on pubertal changes should not be made taboo.	42(28.8)	62 (42.5)	42(28.8)	-
Lack of knowledge makes adolescents suffer from anxiety.	56(38.4)	73 (50)	17(11.6)	-
Should not be ashamed of pubertal changes.	24(16.4)	87 (59.6)	11 (7.5)	24(16.4)
Changes during puberty are also psychological, social, and emotional.				

### 3.5. Support System Regarding Pubertal Changes

Here, 63.7% agreed that it is appropriate to talk about pubertal changes to parents. While 56.2% agreed that educated parents provide information about pubertal changes whereas 67.1% agreed that peer influence helps deal with pubertal changes. However, 37% disagreed that schools should provide education, program related to pubertal changes as given in table 5. Half of the respondents agreed that elders should provide information regarding pubertal changes. Almost one-fourth strongly disagreed that sociological factors also affect the coping mechanism.

**Table 5** Support System regarding Pubertal Changes (n=146)

Items	Strongly Agreed	Agreed	Disagree	Strongly Disagree
Talk about pubertal changes with parents.	29(19.9)	93(63.7)	18(12.3)	6 (4.1)
Educated parents help their children to learn about Pubertal changes.	45(30.8)	82(56.2)	19 (13)	-
Peer influence helps to deal with pubertal change.	32(21.9)	98(67.1)	-	16 (11)
Schools providing programs related to pubertal changes.	42(28.8)	50(34.2)	54 (37)	-
Elders should provide information.	59(40.4)	73(50)	14(9.6)	-
Sociological factors also affect the coping mechanism.	26(17.8)	49(33.6)	25(17.1)	46(31.5)

### 3.6. Level of Attitude

Here, the level of attitude towards pubertal changes among adolescents is shown below. 60.3% of the respondents had favorable attitudes and 39.7% had moderately favorable attitudes toward pubertal changes as given in table 6.

**Table 6** Level of Attitude towards Pubertal Changes among Adolescence (n=146)

Categories	Frequency	Percentage
Unfavorable (Under44)	-	-
Moderately favorable (44 -66)	58	39.7
Favorable (Above 66)	88	60.3
Mean± SD	67± 1.8	

#### 4. Discussion

The sociodemographic characteristics in the study represented the gross knowledge of the social prospectus where the respondents are living. The result characterized that the majority population was Hindu and came from a nuclear family. The result also suggested that the majority of adolescents, (67.8%) gathered information from social media. Research has indicated both advantages and detriments of social media to the health of an adolescent. Besides several risks, healthy social media use can provide increased opportunities for collaboration, communication, self-esteem enhancement, health promotion, and access to vital health information [13]. So regulation of what an adolescent is perceiving from social media is now important for their self-wellbeing. Adolescents must be aware and educated about pubertal changes and empowering them to talk comfortably about such changes by more direct methods might be helpful to perceive knowledge so they don't have to rely on social media for the information.

The mean age for menarche and realization of secondary sexual characteristics of male and female respondents in this study was 12 years. More than half strongly agreed that puberty means the period during which adolescents reached sexual maturity. More than half agreed that sex education is essential. 59.6% of respondents agreed menstruation is normal and 58.2% agreed that it is appropriate to talk about it. A study conducted in the Indo – Bangladesh border of Darjeeling district, West Bengal, India to assess the knowledge regarding pubertal changes showed that out of 138 students, only 28.6% knew growth of pubic hair and 54.3% student faced difficulties related to the adolescent period [14]. However, in this study, the respondents were found to be knowledgeable on this aspect.

In this study, 63.7% agreed that it is appropriate to talk about pubertal changes to parents. 60.3% of the respondents had favorable attitudes and 39.7% had moderately favorable attitudes toward pubertal changes. 60.3 % of adolescents have shown favorable and 39.7 % of the adolescent have shown moderately favorable attitudes towards the pubertal changes which suggested a relatively better perception of adolescence. Similarly, a study conducted in Dhulikhel, Nepal also showed that 56.4% of respondents had positive attitudes toward pubertal changes [15]. A study conducted in Iran in 2019 has shown that the participants had a similar result of respondents having a good attitude towards the pubertal changes [16].

However, in a similar study conducted among adolescents in Bharatpur, Chitwan, 89% had an unfavorable attitude toward pubertal changes [5]. In another study, adolescents showed that 52% had a negative attitude toward it [11]. A descriptive study of the Ambala district showed a majority of pre-adolescent girls and boys (75%) had below-average knowledge regarding pubertal changes. The finding of the study revealed that pre-adolescent girls and boy's knowledge and attitude regarding pubertal changes were not adequate and favorable respectively [17]. This study suggested the regulatory to conduct an awareness regarding the changes and attitudes in adolescents via different means. Several studies conclude that there is a moderate level of knowledge and attitude towards pubertal changes and continuous training in secondary school is necessary to improve the knowledge and attitude [18]. A Quasi-experimental study was done to assess the effectiveness of a structured teaching program on knowledge and attitude regarding pubertal changes also showed that if the knowledge increased the attitude also improved [19].

Thus, educating adolescents via different means might help increase their knowledge regarding the changes in puberty and make them aware of the adventures and risks of the period. Studies have shown that there are still many misconceptions and misbeliefs regarding issues related to sexuality and adolescence, which should be tackled carefully by imparting formal puberty and sex education at the proper age.

#### 5. Conclusion

The study concluded that the majority of the adolescents had favorable attitudes toward pubertal changes. Educated parents and relations with elders helped to develop a positive attitude towards pubertal changes. The majority

disagreed that changes during puberty are more than physical and strongly disagreed that sociological factors also affect the coping mechanism. The result of this study can be used as baseline data for future researchers. It is recommended that large-scale research can be conducted including different grades, schools, and states in the country so that the findings can be generalized. Attitudes regarding pubertal changes can be improved by teachers through teaching, conducting programs, and encouraging student's involvement in it. Parents as well as students can also be educated about pubertal changes through teachings and awareness programs in communities to increase positive attitudes.

---

## Compliance with ethical standards

### *Acknowledgments*

Authors would like to thank all the faculty members of Nagarik College of Health Science, Lalitpur and School of Health Science, Purbanchal University, Morang for their constant support and unreserved guidance during the study period.

### *Disclosure of conflict of interest*

No conflict of interest.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

---

## References

- [1] National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Division of Behavioral and Social Sciences and Education; Board on Children, Youth, and Families; Committee on the Neurobiological and Socio-behavioral Science of Adolescent Development and Its Applications; Backes EP, Bonnie RJ. *The Promise of Adolescence: Realizing Opportunity for All Youth*. Washington (DC): National Academies Press (US); 2019.
- [2] Jain RB, Kumar A, Khanna P. Assessment of self-awareness among rural adolescents: A cross-sectional study. *Indian J Endocrinol Metab*. 2013; 17(1): 367-72.
- [3] Cote JE. *Arrested Adulthood: The changing nature of adulthood and identity*. New York: New York University Press (US); 2000.
- [4] Choudhary R, Suvidha D. Attitudes towards puberty among adolescents' girls. *International journal of applied research*. 2017; 3(8): 238-239.
- [5] Pandit S, Panthee B. Awareness and attitude on pubertal changes among community adolescents. *International journal of caring sciences*. 2017; 10(3): 1255-64.
- [6] Pfeifer JH, Berkman ET. The Development of Self and Identity in Adolescence: Neural Evidence and Implications for a Value-Based Choice Perspective on Motivated Behavior. *Child Dev Perspect*. 2018; 12(3): 158-164.
- [7] World Health Organization reports on Adolescent Health. Available in [https://www.who.int/health-topics/adolescent-health#tab=tab\\_1](https://www.who.int/health-topics/adolescent-health#tab=tab_1) (Assessed on 6th may, 2023)
- [8] National population and housing census 2021. National Statistics Office. Government of Nepal. Available in <https://censusnepal.cbs.gov.np/results> (Assessed on 6th may, 2023)
- [9] National health mission. Ministry of Health and Family Welfare, Government of India. Available in <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=818&lid=221#:~:text=Back,their%20development%20into%20healthy%20adults>. (Assessed on 6th may, 2023)
- [10] Casey BJ, Duhoux S, Malter Cohen M. Adolescence: what do transmission, transition and translation have to do with it? *Neuron*. 2010; 67(5): 749-60.
- [11] Dhakal B. Knowledge and Attitude Regarding Pubertal Health among Adolescent Girls. *Journal of Nepal Health Research Council*. 2020; 17(4): 437-42.
- [12] Upadhyay-Dhungel K, Dhungel B, Das P, Karki B. Perception and Knowledge Regarding Reproductive Health Among Adolescent Males of Lalitpur. *Asian Journal of Medical Sciences*. 2012; 3(3): 27-31.
- [13] Guinta MR, John RM. Social media and adolescent health. *Pediatric Nursing*. 2018; 44(4): 196-201.

- [14] Ray K, Bhattacharjee S, Biswas R, Mukhopadhyay DK, Sarkar TK. Awareness regarding pubertal changes and reproductive health in school going adolescent girls of a border area of Darjeeling district: a cross sectional study, *Indiana Journal of Maternal and Child Health*. 2011; 13(3): 8.
- [15] Shrestha S, Shrestha B. Knowledge and Attitude Regarding Pubertal Changes among Secondary Level Students of Selected Schools of Dhulikhel Municipality. *Kathmandu Univ Med J (KUMJ)*. 2020; 18(72): 386-90.
- [16] Mohammadi MR, Mohammad K. Reproductive knowledge, attitudes and behavior among adolescent males in Tehran, Iran. *International Family Planning Perspectives*. 2015; 32: 35-44.
- [17] Rani M, Sheoran P, Kumar Y, Singh N. Evaluating the Effectiveness of Pubertal Preparedness Program in Terms of Knowledge and Attitude Regarding Pubertal Changes Among Pre-Adolescent Girls. *J Family Reprod Health*. 2016; 10(3): 122-8.
- [18] Farid M, Barandouzi ZA, Valipour NS. Knowledge, attitudes, and coping strategies regarding pubertal changes among adolescent girls: Risks and compliances for health promotion in puberty. *J Educ Health Promot*. 2019; 30(8): 176-5.
- [19] Susanto T, Saito R; Syahrul; Kimura R, Tsuda A, Tabuchi N, Sugama J. Immaturity in puberty and negative attitudes toward reproductive health among Indonesian adolescents. *Int J Adolesc Med Health*. 2016; 30(3): 1-9.