# ATTITUDE AND FACTORS ASSOCIATED TOWARDS PUBERTAL CHANGES AMONG SECONDARY-LEVEL ADOLESCENT STUDENTS IN PUTALIBAZAR MUNICIPALITY, SYANGJA, NEPAL


Abstract

***Background.*** To assess the attitude and factors associated towards pubertal change among secondary-level adolescent students in Putalibazar Municipality, Syangja, Nepal. ***Materials and Methods.*** A quantitative, cross-sectional study design was used to assess their attitudes through an Iconic Likert scale with the administration of a self-administered semi-structured questionnaire. Sampling technique for this research was Probability Proportionate to Size (PPS) followed by simple random sampling with the sample size of 228. The association between the dependent and independent variables was examined by using chi-square test. Furthermore, Bivariate and multivariate logistic regression was carried out to identify the association between gender, grade of respondents and attitude towards pubertal changes.***Results.*** The likelihood of a favorable attitude for male (AOR: 3.957, 95% CI: 2.233-7.010) was 4 times higher compared to female. Similarly, the odds of favorable attitude among grade 10 students (AOR: 1.815, 95% CI: 1.015-3.246) were 2 times higher compared to grade 9 students. ***Conclusions.*** Significant gender and grade-level disparities are found in the research on views regarding pubertal changes among secondary-level adolescent students in Putalibazar Municipality, Syangja, Nepal. These findings emphasize the importance of addressing gender-specific and age-related needs when developing educational programs and support systems for adolescents navigating pubertal changes.


## 1. Introduction

Adolescence is the period of life between 10–19~~10–19~~ years that is characterized by rapid growth and development (physical, mental, psychosocial, etc.) along with the onset of puberty (1).In~~In~~ Nepal, adolescents are categorized into two age groups: 10–14~~10–14~~ years and 15–19~~15–19~~ years (2). Currently, there are 1.3 billion adolescents worldwide, constituting 16 percent of the global population, this generation wields unprecedented influence (3).In~~In~~ the nations of the South-East Asian Region (SEAR), there are around 360 million adolescents population (1). And In Nepal, adolescents constituting around 20% among total population,~~population~~ which highlight the significant portion of adolescents in Nepal's structure (2).

Adolescence, a pivotal phase in human life, holds immense potential to drive Sustainable Development Goals (SDGs). As custodians of the future, adolescents embody creativity, ambition and resilience. Their journey through adolescence intertwines with SDG aspirants, ranging from poverty eradication to gender equality and environmental sustainability. Uniting under a common purpose, adolescents become catalysts for change, shaping a world where dreams manifest into reality.

Puberty, the period of sexual maturation, is an important part of adolescent development in which children achieve fertility and become sexually mature. Onset of the puberty varies from person to person. Several factors influence the onset of puberty; like environmental and genetic factors, nutrition, chronic illness and medication, stress and emotional well-being, body fat percentage, etc. Usually in girls, puberty occurs at the age group of 13 and in boys at the age of 11 which means in girls, puberty occurs earlier as compared to boys (4).

There are several changes occur at the time of adolescence. Physiological changes in girls include breast blossoming, pubic and axillary hair development, a sudden increase in height and weight, widening of the hip and onset of menarche. Similarly in boys, changes like hoarseness of voice, growth of facial and axillary hair, shoulder breadth enlargement, penis enlargement, and nocturnal ejaculation (5). Apart from the physical changes, adolescents also experience psychological changes that can be challenging to navigate. Adolescents are indecisive about their emotional status; they can be enthusiastic within one minute and depressed and withdrawn the next. Furthermore, both adolescent girls and boys experience social changes and are very interested in finding their identities, achieving independence, and beginning intimate relationships (6).

The Convention on the Rights of the Child have protected the children up to the age of 18. However, their needs and vulnerabilities significantly differ from each other and therefore often remain unaddressed (3). According to the study held in Saudi Arabia revealed that around half (43.8%) of the students had below average level of knowledge regarding puberty (7). A Study conducted in Uganda revealed that both girls and boys attempted to address pubertal-related difficulties by seeking advice from school teachers, parents and peers (8). The study implied that menstrual attitudes, previous socio-emotional adjustment, and perceived parental control may attenuate the negative impact of pubertal changes on psychological well-being of girls, while it had a positive effect on their body image in boys(9).the

Adolescent experiences puberty earlier, butbut they marry later. As a result, individual have longer period of sexual maturity before getting marriage which was the major contributing reason to the rise in premarital sexual relation among adolescents (4). In SEAR, Adolescent Fertility Rate was 43 birth per 1,000 girls (10). Majority of the respondents had below average level of knowledge and had moderate level of attitude in Ambala district, India (11). In some Asian countries, several misconceptions regarding puberty and reproductive health were seen in youth men. For sexual expression, adolescent boys used masturbation and pornography as common sexual behavior (4).

Though various academic sessions have been including adolescents' health in the curriculum, still the knowledge and attitude regarding pubertal changes haven't been favorable, adequate and satisfactory. Providing resources and support to adolescents today in various factors such as health, education, behavioral changes activities especially pubertal changes for promoting this physical, mental, social and emotional health and lower the risk of engaging in harmful behaviors that helps to gain the knowledge regarding the coping skills and attitudes that can help them throughout their life. Hence, this investment is cost-effective and have long-term benefits in the future for themselves, their families, societies, nation and the whole world.

This study also helps in modifying the curriculum (need-based) and teaching pattern among teachers and can focus on designing interventions and programs that support adolescents which can also be beneficial in that particular area to address the special needs and concerns regarding pubertal changes.

## 2. Materials and methods

A quantitative, cross-sectional study design with the sample size of 228 was conducted on 11 secondary-level schools out of 28 pools of school in Putalibazar Municipality, Syangja, Nepal. The study population comprised adolescent students aged 13-19 years in selected schools of Putalibazar Municipality. The sampling unit was the 13-19 age group within the selected schools.

The sample size was calculated by using the formula;

$$n_0 = \frac{z^2 pq}{d^2}$$

Z= value of standard normal distribution at 95% C.I.

p= proportion prevalence of attitude regarding pubertal changes among adolescents(p=0.1) (6)

q= 1-p=0.9

d= Allowable error (5%)

now, substituting the value in the above equation,

$$n_0 = \frac{(1.96)^2 \times 0.1 \times 0.9}{(0.05)^2}$$

$n_0$ =138

Adding non-response rate of 10%,

Required sampling size= 138+10% of 138

=151.8= 152

Since the sampling technique in this current study is cluster sampling technique. Design effect 1.5 was used in the study.

Therefore, the calculated final sample size was 228.

Probability Proportionate to Size (PPS) followed by simple random sampling technique was used in this study. Adolescent student of age group 13-19 years who resided in Putalibazar Municipality and willing to participate in the study were included. Ethical approval from the Institutional Review Committee of Star Hospital Research Centre (SHRC-IRC) for conduction of this research was obtained and approval from the Putalibazar Municipality and school for the conduction of research was taken. Informed consent was taken from the selected school's teacher

during the data collection. Written and verbal assent along with parent consent had been taken from each respondent involved in the study.

Data was verified as soon as it is received from the respondents during the data collection process to find out the missing/ incomplete information along with inaccuracies if occurs. The information then obtained had correctly assembled, processed along with coding, and verified to reduce duplication and minimize error beyond acceptable limits before entering into Epi-data version 4.6 software and had been imported into SPSS version 25. The collected data were summarized using appropriate statistical measures such as mean, median, and percentage, depending on the nature of the variables. The association between variables were examined using the chi-square test. Furthermore, Bivariate and multivariate logistic regression analyses were conducted when appropriate. The results were presented in tabular form and interpreted in alignment with the research objectives. Mean was computed for continuous data of knowledge and attitude score and then the variable was further recoded taking the reference of mean for binary categorization.

## 3. Results

The table no. 1 showed the socio-demographic characteristics of respondents. On the basis of analyzed data, out of total (228) respondents, the average age of the individuals surveyed was 15 years old, with a standard deviation of 1.015. More than half (57%) of the respondents identified as male, and a majority belonged to Brahmin/Chhetris ethnic group. Moreover, 92.5% of the respondents followed Hindu religion and more than half of the respondents were from nuclear family. In addition, 60.1% of the respondents attained private school and more majority of them (60.8%) were in Grade 10. Furthermore, 90.4% of the respondents had siblings with 48.1% of them having brother.

**Table 1. Socio-demographic information**

| Characteristics | Number | Percentage |
|---|---|---|
| **Age (in years)** | 14.76±1.015 | |
| 13-15 | 181 | 79.4 |
| 16-19 | 47 | 20.6 |
| **Gender** | | |
| Male | 129 | 56.6 |
| Female | 99 | 43.4 |
| **Ethnicity** | | |
| Dalits | 39 | 17.1 |
| Janajati | 30 | 13.2 |
| Terai caste | 6 | 2.6 |
| Muslim | 10 | 4.4 |
| Bharmin/Chhetris | 122 | 53.5 |
| Newar | 8 | 3.5 |
| Kumar | 8 | 3.5 |
| Gaine | 1 | 0.4 |
| Thakuri | 4 | 1.8 |
| **Religion** | | |
| Hindu | 211 | 92.5 |
| Buddhist | 6 | 2.6 |
| Christian | 1 | 0.4 |
| Muslim | 10 | 4.4 |
| **Family type** | | |
| Nuclear | 132 | 57.9 |
| Joint | 78 | 34.2 |
| Extended | 18 | 7.9 |
| **Type of School** | | |
| Government | 91 | 39.9 |
| Private | 137 | 60.1 |
| **Grade** | | |
| Grade 9 | 87 | 38.2 |
| Grade 10 | 141 | 61.8 |
| **Have siblings** | | |
| Yes | 206 | 90.4 |
| No | 22 | 9.6 |
| **If yes, Relation to Siblings** | | |
| Brother | | |
| Sister | 99 | 48.1 |
| Both | 62 | 30.1 |
| | 45 | 21.8 |

The given table no.2 presented the distribution of respondents according to the interpersonal factors towards Pubertal changes. The prevailing educational background among the respondents' mothers was at the secondary level(grade 9-12), with 44.3% having attained this

level of education. Likewise, among the respondents' fathers, a majority, accounting for 46.5%, also held secondary level education and information about the Pubertal changes was primarily acquired from teachers by 60.1% of the respondents followed by friends (56.1%), while parents played a role in informing 39.9% of the respondents. Moreover, Majority of the respondents seek help for the Pubertal changes occur on them from friends (71.7%) followed by mother (62%) and around 68% of the respondents confessed that their school curriculum was sufficient regarding the information about Pubertal changes. Furthermore, a significant majority of the respondents freely acknowledged that the behavior of their friends had a positive impact on them. According to 60.1% of respondents, this influence was strongest in terms of academic motivation, and it was closely followed by the supportive emotional treatment they received.

**Table 2. Interpersonal factors towards Pubertal changes**

| Characteristics | Number | Percentage |
|---|---|---|
| **Mother's educational level** | | |
| Illiterate | 13 | 5.7 |
| Informal education | 27 | 11.8 |
| Basic level (up to grade 8) | 64 | 28.1 |
| Secondarylevel(grade 9-12) | 101 | 44.3 |
| Bachelor or above | 23 | 10.1 |
| **Father's educational level** | | |
| Illiterate | 6 | 2.6 |
| Informal education | 26 | 11.4 |
| Basic level (up to grade 8) | 55 | 24.1 |
| Secondary-level (grade 9-12) | 106 | 46.5 |
| Bachelor or above | 35 | 15.4 |
| **Source of information*** | | |
| Siblings | 41 | 18.0 |
| Friends | 128 | 56.1 |
| Parents | 91 | 39.9 |
| Family members | 39 | 17.1 |
| Teachers | 137 | 60.1 |
| Health worker | 40 | 17.5 |
| Mass media | 46 | 20.2 |
| From past experience | 41 | 18.0 |
| **Seek help for the Pubertal changes occur on you *** | | |
| No one | 44 | 19.3 |
| Father (n=184) | 44 | 23.9 |
| Mother (n=184) | 114 | 62.0 |
| Elder brother(n=184) | 29 | 15.8 |
| Elder sister (n=184) | 38 | 20.7 |
| Health personnel (n=184) | 32 | 17.4 |

| | | |
|---|---|---|
| Friends (n=184) | 132 | 71.7 |
| **Adequacy of school curriculum regarding the information about Pubertal changes** | | |
| Yes | 155 | 68.0 |
| No | 73 | 32.0 |
| **Behavior of your friends influence you*** | | |
| **Positive Influence on behavior** | | |
| Academic Motivation | 137 | 60.1 |
| Prosocial Behavior | 75 | 32.9 |
| Healthy habits | 107 | 46.9 |
| Emotional Support | 132 | 57.9 |
| **Negative Influence on behavior** | | |
| Risky/harmful behavior (substance abuse, skipping school, etc.) | 69 | 30.3 |
| Forcefully adoption of behavior by peer pressure | 93 | 40.8 |
| Delinquency/Crime | 10 | 4.4 |
| Bullying | 105 | 46.1 |
| Involving in Intimate relationship | 52 | 22.8 |
| Sexual stimulation | 52 | 22.8 |

The table 3 showed the level of knowledge, majority (56.1%) of the respondents had adequate knowledge towards Pubertal changes.

**Table 3. Knowledge level of secondary-level adolescent students towards Pubertal changes**

| Characteristics | Number | Percentage |
|---|---|---|
| **Knowledge level** | | |
| Adequate | 128 | 56.1 |
| Inadequate | 100 | 43.9 |
| **Mean score ± SD= 6.60 ± 1.81** | | |

Table 4 showed the findings in terms of attitude levels, a significant majority (61.8%) of the respondents exhibited a favorable attitude of pubertal changes.

**Table 4. Attitude of secondary-level adolescent students towards Pubertal changes**

| Characteristics | Number | Percentage |
|---|---|---|
| **Attitude** | | |
| Favorable | 141 | 61.8 |
| Unfavorable | 87 | 38.2 |

**Mean score ± SD= 25.4 ± 3.54**

The table 5 showed the association of independent variables with attitude of adolescents towards Pubertal changes. Gender and grade of the respondents were found to be associated with the dependent variable "Attitude" with p-value <0.05.

**Table 5. Association of independent variables with attitude of adolescents towards Pubertal changes**

| Characteristics | Attitude | | Crude odds ratio (95%CI) | P value |
|---|---|---|---|---|
| | Favorable | Unfavorable | | |
| **Age (in years)** | | | 1.409 (0.713-2.786) | 0.323 |
| 13-15 | 109 | 72 | | |
| 16-19 | 32 | 15 | | |
| **Gender** | | | 0.243 (0.138-0.428) | **<0.05** |
| Male | 98 | 31 | | |
| Female | 43 | 56 | | |
| **Ethnicity** | | | 0.689 (0.400-1.185) | 0.177 |
| Bharmin/Chhetris | 73 | 53 | | |
| Other than Bharmin/Chhetris | 68 | 34 | | |
| **Religion** | | | 1.526 (0.518-4.490) | 0.440 |
| Hindu | 129 | 82 | | |
| Other than Hindu | 12 | 5 | | |
| **Family Type** | | | 0.718 (0.418-1.231) | 0.228 |
| Nuclear | 86 | 46 | | |
| Other than Nuclear | 55 | 41 | | |
| **Type of School** | | | 1.104 (0.640-1.903) | 0.722 |
| Government | 55 | 36 | | |
| Private | 86 | 51 | | |
| **Grade** | | | 1.991 (1.149-3.450) | **0.013** |
| Grade 9 | 45 | 42 | | |
| Grade 10 | 96 | 45 | | |
| **Have siblings** | | | 0.585 (0.242-1.413) | 0.229 |
| Yes | 130 | 76 | | |
| No | 11 | 11 | | |
| **If yes, Relation to Siblings(n=206)** | | | | 0.306 |
| Brother | 65 | 34 | 0.98 (0.5-1.91) | |
| Sister | 41 | 21 | Ref | |
| Both | 24 | 21 | 0.59 (0.27-1.29) | |

| | | | | |
|---|---|---|---|---|
| **Father's educational level** | | | 0.968 (0.448-2.094) | 0.934 |
| Illiterate and Informal | 20 | 12 | | |
| Literate | 121 | 75 | | |
| **Mother's educational level** | | | 0.646 (0.309-1.349) | 0.242 |
| Illiterate and Informal | 28 | 12 | | |
| Literate | 113 | 75 | | |
| **Adequacy of Curriculum** | | | 0.907 (0.513-1.605) | 0.738 |
| Yes | 97 | 58 | | |
| No | 44 | 29 | | |
| **Father's educational level** | | | 0.968 (0.448-2.094) | 0.934 |
| Illiterate and Informal | 20 | 12 | | |
| Literate | 121 | 75 | | |
| **Mother's educational level** | | | 0.646 (0.309-1.349) | 0.242 |
| Illiterate and Informal | 28 | 12 | | |
| Literate | 113 | 75 | | |
| **Knowledge level** | | | 1.066 (0.622-1.825) | 0.817 |
| Inadequate | 61 | 39 | | |
| Adequate | 80 | 48 | | |

P value significant at <.05

The table 6 showed that males were 4 times more likely than females to have a positive attitude (AOR: 3.957, 95% CI: 2.233-7.010). Similarly, compared to grade 9 students, grade 10 students had two times higher odds of having a positive attitude (AOR: 1.815, 95% CI: 1.015-3.246).

**Table 6. Bivariate and Multi-variate logistic regression**

| **Variable** | **Attitude** | | **cOR (95% CI)** | **aOR (95% CI)** | **p-value** |
|---|---|---|---|---|---|
| | **Favorable** | **Unfavorable** | | | |
| **Gender** | | | | | |
| Male | 98 | 31 | 4.117 (2.336-7.255)* | 3.957 (2.233-7.010) | **<0.001**** |
| Female | 43 | 56 | Ref. | Ref. | |
| **Grade** | | | | | |
| Grade 9 | 45 | 42 | Ref. | Ref. | |
| Grade 10 | 96 | 45 | 1.991 (1.149-3.450)* | 1.815 (1.015-3.246) | **0.044**** |

*Represents significant from bivariate logistic regression

**Represents significant from multi-variate logistic regression

Cox and snell R square= 0.121

Nagelkerke R square= 0.165sds

## 4. Discussion

This section deals with the discussion of findings of this study with the findings of similar studies done before.

Regarding the knowledge level, this study found that 56.1% of adolescent students had adequate knowledge regarding Pubertal changes with the mean value 6.60 and standard deviation 1.81. Similar study conducted in Bharatpur Sub-Metropolitan City-10, revealed that only 47% had good awareness level regarding Pubertal changes (6). Moreover, study conducted in Dhulikhel Municipality showed that the overall mean score of knowledge regarding Pubertal changes among secondary level adolescents was 26.2±2.9 (12). The education system in Nepal is relatively uniform across different regions, especially at the secondary level. Thus, the curriculum and educational materials may be similar, contributing to consistent levels of knowledge among students. Likewise, another study conducted in Iran found that the Mean ± SD was 53.2 ± 13.7 among adolescent girls of secondary schools (13). In a study conducted among students of Darjeeling school, it was found that 41% of respondents had inadequate knowledge about pubertal changes, while 58% of respondents showed moderate knowledge level and only 1% of respondents showed adequate knowledge of the topic. An additional confirmation of this came from a mean knowledge score of 11.17 (14). In addition, research conducted in various regions of India indicated that the average knowledge score, accompanied by a standard deviation, among pre-adolescent girls was 14.23±3.82. In the case of pre-adolescent boys, the mean knowledge score with its standard deviation stood at 14.72±3.82 (11). Knowledge regarding Pubertal changes may be consistent across these areas due to factors such as the availability of educational resources. However, In a preceding study involving 183 respondents, the findings revealed that 80.3% possessed a moderate level of knowledge about pubertal health, while 18% demonstrated a poor understanding, and a mere 1.7% exhibited a good knowledge regarding Pubertal changes (15). Also, this finding also supported with the findings of article (16) where roughly 85.1% of the respondents exhibited a high knowledge of puberty. Another previous study indicated that 50.3% of students possessed a high level of knowledge regarding Pubertal health (17)

Regarding attitude level, this study found that only 61.8% of adolescent students had favorable attitude regarding the pubertal changes with the Mean ± SD was 25.4 ± 3.54. Also, this finding matched with the findings of article (16) where roughly 66.7% displayed a favorable attitude

towards the pubertal changes. According to the findings of previous study, 54.4% of the students exhibited a favorable or positive attitude regarding puberty health (17). Likewise, another study found that the mean score of attitude was 66.7 with the standard deviation 11.5 towards pubertal changes (13). The similarities in the findings regarding the attitude level of adolescent students towards pubertal changes in the two studies could be influenced by cultural and social norms. However, study conducted in Bharatpur Sub-Metropolitan City-10, the findings indicated that merely 11% of the adolescents held a moderately positive attitude, while none of them exhibited a favorable disposition towards pubertal changes (6). Moreover, the majority of preadolescent girls and boys, specifically 95.19% and 90%, respectively, exhibited a notably moderate degree of favorability in their attitudes towards pubertal changes. In contrast, a smaller proportion of 3.84% of girls and 10% of boys held attitudes that could be classified as unfavorable in nature (11). The differences in the findings might be gender-specific factors at play. Cultural norms, social expectations about pubertal changes can affect how boys and girls perceive these changes differently. However, a prior study involving 183 respondents disclosed that 48.6% of them embraced a positive attitude towards pubertal health, whereas the majority, constituting 51.4%, had a negative attitude concerning the pubertal changes (15).

Regarding mother's and father's education of respondents in section interpersonal factors, this current study found that most (94.3%) and (97.4%) of them were literate respectively. This finding was supported by the research that was done in Bharatpur sub-metropolitan city, Nepal (6).

In this study, teachers were the primary source of information regarding pubertal changes followed by friends and then parents. As per the previous study conducted in Nepal, it was found that adolescent girls primarily relied on their friends as the main source of information about puberty, with mothers being the second most common source. On the other hand, adolescent boys mostly obtained information about puberty from their friends, followed by mass media outlets like TV, the internet, and magazines. These findings align with a previous study conducted in 2012, which also reported that adolescent boys predominantly received information about reproductive health from friends and magazines (18). This study was also supported by the study conducted in India among girl students and that data clearly demonstrated that the primary source of information was the mother, accounting for a significant majority at 60.7%, followed

by older sisters at 15.8% (19). Similar cross-sectional study conducted with the sample size 61 among adolescent girls of same age group also showed the findings that the majority, comprising 39.3% (24 individuals), indicated that they obtained information primarily from their mothers. Following mothers, both sisters and friends were mentioned as sources of information, with each accounting for 18% of the responses (20).

In this study regarding seek help for pubertal changes, majority (71.7%) of them seek help from friends followed by mothers (62%). Similarly, finding was noted in the study had revealed that 51% of boys engage in discussions about their problems with their friends explaining that teenagers naturally want to communicate in their peers about their problems and personal experiences (4).

In this present study revealed that there was an association of gender with attitude of adolescents towards pubertal changes ($\chi^2 = 25.125$, $p < 0.05$). In similar study, it was found that gender differences in attitudes were found to be statistically significant ($\chi^2 = 8.87$, $p < 0.05$), with male adolescents having more positive attitudes than female adolescents (6). This finding is also similar to the cross-sectional study having 1040 students of age 11-16 years conducted in Indonesian adolescents (21).

In this study, researcher also found the association between grade of the student currently studying in and attitude towards Pubertal changes. The result is in contradict with the previous study where grade of the respondent was not associated with attitude towards Pubertal changes (12). Regarding the association of knowledge level with attitude of adolescents towards Pubertal changes, this study found that there was no association ($p=0.817$). This finding was supported by similar kinds of study done in Nepal where they also found the no association between knowledge level and attitude (6)While knowledge can contribute to shaping attitudes, it is not the sole determinant. Attitudes can be influenced by cultural, social, emotional, and personal factors that may not be captured solely by knowledge assessments. This finding was contradictory to the finding of the similar studies (7,13,22).

## 5. Conclusion

This study sheds light on the attitudes and factors associated with pubertal changes among secondary-level adolescent students in Putalibazar Municipality, Syangja, Nepal. This study revealed that more than half of the adolescent students of Putalibazar Municipality demonstrated

an adequate level of awareness regarding pubertal changes. Moreover, it was also evident that approximately 61.8% of the adolescent students had favorable attitude towards it. Additionally, gender and grade level were identified as key influencers of adolescents' attitudes toward pubertal changes (p value<0.05). These findings emphasize the importance of addressing gender-specific and age-related needs when developing educational programs and support systems for adolescents navigating pubertal changes.

## 6. Limitations

Cross-sectional study had limited the ability to draw casual conclusion in the study. The study had conducted in a small scale (only in Putalibazar Municipality, Syangja). So, findings could not be generalizable to the other Municipality.

## Data Availability

The essential datasets for this research will not be publicly accessible. However, individuals interested in obtaining them can do so by reaching out to the corresponding author with a reasonable request.

## Ethical Approval

Approval from the Institutional Review Committee of Star Hospital Research Centre (SHRC-IRC) was secured for the undertaking of this research.

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