

Prevalence of Different Attachment Styles in 9 to 12 years old School Children: A Cross-sectional Study

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ABSTRACT

Introduction: Bowlby suggests that children develop internal working models in earlier stages depending on their attachment relationships with parents. In paediatric dental clinics, children tend to display various behaviours depending on their attachment style, which can affect the communication and treatment outcomes with the child dentist.

Aim: To determine the prevalence of attachment styles in 9 to 12 years old school children and to assess the association of attachment styles with the age and gender of the children.

Materials and Methods: A descriptive cross-sectional study was conducted on a total of 384 school children aged 9 to 12 years, in the Nellore district using the cluster sampling method. Attachment styles were measured using a 15-item questionnaire developed from the Attachment Questionnaire for Children (AQ-C). The children were instructed and then asked to read and rate the extent to which each questionnaire item

described themselves. Data were analysed statistically using the chi-square test for prevalence of attachment styles, Pearson correlation, and multiple regression analysis for age and gender associations. The level of significance was set at p \leq 0.05.

Results: The study found that 64.10% (n=246) of all participants exhibited a secure attachment style, while 7% (n=27) and 28.9% (n=111) displayed avoidant and ambivalent attachment styles, respectively. Age showed a significant association with secure (p=0.006) and ambivalent (p=0.026) attachment styles. However, gender did not show any association with attachment styles.

Conclusion: The study concluded that the secure attachment style was the most prevalent, followed by ambivalent and avoidant attachment styles, regardless of gender. Age was found to be significantly associated with secure and ambivalent attachment styles.

Keywords: Age, Attachment questionnaire for children, Behaviour, Gender, Insecure attachment, Secure attachment

INTRODUCTION

As humans, everyone is forming new relationships and connections with people throughout our lives. How each person attach to and respond to these relationships often correlates with the mannerisms of attachment to our parents and other early relationships. The attachment theory describes the entire caregiving relationship between the mother, father, and child. It begins during pregnancy, intensifies after the baby is born, and continues to develop as the child grows. In 1969, Bowlby defined attachment as a long-term psychological bond between human beings. Infants and young children tend to seek comfort and support from a parent figure when they are frightened, stressed, or ill [1]. Secure attachment relationships are beneficial because they provide a secure home base from which the child can explore the social environment and form interpersonal relationships [2]. The internal working models or intrapsychic object representations developed in childhood influence cognitive development and the formation and understanding of other relationships in life [3].

Attachment theory is a concept that emphasises the importance of attachment in personal development. This theory originated from the work of English psychiatrist John Bowlby, who observed that children with emotional problems often had disrupted or absent caregiving [4]. Ainsworth MDS et al., expanded on Bowlby's work with the Strange Situation experiment, which assessed how one-year-old infants responded to a series of separations and reunions with their parents and a friendly stranger [5,6]. Based on the behaviour of the infants, Ainsworth MDS et al., identified three types of attachment styles: secure, avoidant, and ambivalent. The avoidant and ambivalent styles are categorised as insecure attachment styles. In secure attachment, children view their caregiver as a secure base in stressful situations, providing comfort and helping to regulate anxiety and distress [7]. In

avoidant attachment, children tend to avoid or ignore the caregiver, as they do not see them as a source of comfort for regulating negative emotions [7]. In ambivalent attachment, children display angry and rejecting behaviours while also excessively clinging to the caregiver. These children make inconsistent attempts to seek comfort from their caregiver when in distress [7].

Adolescence is a stage of development during which physical, intellectual, and emotional changes occur simultaneously. During this period, teenagers strive for independence, but they also face various challenges along the way. Dentists should be aware of these concerns when dealing with adolescents, as they can impact treatment and oral health [8]. As adolescence is the transitional phase between puberty and maturity, there are physical and hormonal changes taking place, as well as shifts in interpersonal relationships and social interests [9]. During this age, there is a transition from parental influence to peer influence, and peers become a source of support and a sense of belonging [10].

However, this transition may pose difficulties for some individuals. Since adolescents' developmental tasks are influenced by attachment and family relationships, it is important to assess the type of attachment style in adolescents in order to understand and provide them with appropriate support, as well as educate them about oral health. Numerous studies have examined the relationship between attachment styles and co-morbidities such as self-image [11], parental rearing [12], help-seeking attitudes [13], academic performance [14], sleep disorders [15], pain perceptions [16], pain threshold, and behavioural characteristics such as anxiety, depression, aggressiveness, worry, bullying, and victimisation [17-20]. However, no study has specifically assessed the influence of age and gender on attachment styles in adolescents. Therefore, the aim of this study is to determine the prevalence of attachment styles

in 9 to 12 years age school children and to examine the association of attachment styles with the age and gender of the children.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted to determine the prevalence of attachment styles and to assess the association of these attachment styles with the age and gender of the children. The study was carried out in a classroom environment among government and private school children aged 9 to 12 years age in the Nellore district from July 2021 to December 2021. The study protocol was approved by the Institutional Ethical Committee of Narayana Dental College and Hospital (NDC/IEC/PEDO/P-42).

Inclusion criteria: Children with good physical and mental health and those available at the time of the study were included in the study.

Exclusion criteria: Children with syndromes or major health problems such as Down syndrome or Attention Deficit Hyperactivity Disorder(ADHD) and those who cannot understand the questionnaire were excluded from the study.

Sample size: Based on previous studies [21], a minimum sample size of 384 was calculated using the formula [22]:

$$N=Z(1-\alpha/2)^2 * p(1-p)/d^2$$

where:

 $Z(1-\alpha/2)$ =Standard normal size=1.96

p=Expected proportion in the population=51%

d=Absolute error or precision=5%

In the Nellore district, Andhra Pradesh, there are 184 government schools and 463 privately recognised schools. For this study, schools were considered as clusters, and eight schools were purposively selected to ensure representation from different municipal wards (eight wards) of the district. Permission was obtained from the headmasters of the selected schools, and then students who provided informed consent were enrolled in the study. Participants from both government and private schools were included to overcome bias arising from differences in socio-economic status. The participants were selected using the Stratified Cluster Sampling Method.

Procedure

Recruitment of study participants and assessment of study parameters: After obtaining informed consent, a total of 384 children aged 9-12 years were recruited from selected schools, in accordance with the eligibility criteria. The questionnaire consisted of 15 items adapted from the AQ-C descriptions, rated on a 5-point Likert scale [Annexure 1] [21]. This questionnaire is an adaptation for children and adolescents, based on the Hazen and Shaver questionnaire, to assess attachment styles with their friends [23,24]. The validity and reliability of the questionnaire have been found to be good. The questionnaire was explained to the participants in groups, with a minimum of 30 children in each group, based on the number of available participants in each school. The proforma was then distributed to the children. They were instructed to read each item in the questionnaire and rate the degree to which each item described themselves, within a time limit of 20 minutes.

Any doubts or questions regarding the language of the questionnaire were clarified by the investigator and the assistant. The three attachment styles (secure, anxious, avoidant) were calculated by averaging the items that represented each of the attachment prototypes. Scoring was done separately for all three attachment styles for each participant, by averaging the ratings given for each attachment style. Participants were then assigned to one of the attachment styles based on their highest average score. Following the assessment, oral health education was provided to the children, focusing on oral hygiene maintenance, brushing techniques, and dietary habits.

STATISTICAL ANALYSIS

The data were entered into a Microsoft Excel spreadsheet from 2019, and statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 20.0 software (Chicago, IL, USA). Descriptive statistics were conducted to calculate the prevalence of attachment styles. The Chi-square test was used to determine significant differences in prevalence based on age and gender. Pearson correlation analysis and multiple linear regression analysis were conducted to assess the association of attachment styles with age and gender. The significance level was set at p≤0.05.

RESULTS

The study included 384 school children, both male and female, ranging in age from 9 to 12 years. The children were equally distributed across age ranges, with N=128 (33.3%) in each range, and gender, with N=192 (50%).

Among the 384 participants, 246 children (64.1%) exhibited a secure attachment style, 111 (28.1%) had an anxious or ambivalent attachment style, and 27 (7%) displayed an avoidant attachment style [Table/Fig-1]. The secure attachment style was the most prevalent, while the avoidant attachment style was the least prevalent in the study population.

| Attachment style | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| Secure | 246 | 64.10% |
| Anxious/Ambivalent | 111 | 28.90% |
| Avoidant | 27 | 7.00% |
| Total | 384 | 100% |

[Table/Fig-1]: Prevalence of attachment styles. Secure attachment style showed a higher prevalence among participants

The secure attachment style (73.4%, n=94) was more common in children aged 9-10 years, while the avoidant (8.60%, n=11) and anxious/ambivalent (33.60%, n=43) attachment styles were more common in children aged 10-11 years and 11-12 years, respectively. However, there was no statistically significant difference (p=0.107) in the prevalence of attachment styles among the different age groups [Table/Fig-2].

| | At | tachment sty | | | | |
|----------------|--------------|--|--------------|----------------|-------------|-------|
| Age (years) | Secure | Secure Avoidant Anxious/ Ambivalent Total | | Chi- square | p- value | |
| 9-10 | 94 (73.4%) | 6 (4.70%) | 28 (21.90%) | 128 (100%) | | 0.107 |
| >10-11 | 77 (60.2%) | 11 (8.60%) | 40 (31.20%) | 128 (100%) | 7.010 | |
| >11-12 | 75 (58.6%) | 10 (7.80%) | 43 (33.60%) | 128 (100%) | 7.619 | |
| Total | 246 (64.10%) | 27 (7.00%) | 111 (28.90%) | 384 (100%) | | |

[Table/Fig-2]: Age-wise prevalence of attachment styles. Chi-square test, Significance p<0.05*

The secure attachment style (66.70%, n=128) was highly prevalent in males, while avoidant (7.30%, n=14) and anxious/ambivalent attachment styles (31.2%, n=60) were more common in females. However, there was no statistically significant difference (p=0.556) in the prevalence of attachment styles based on gender [Table/Fig-3].

| | At | | | | | |
|--------|-----------------|------------|------------------------|------------|----------------|-------------|
| Gender | Secure Avoidant | | Anxious/ Ambivalent | Total | Chi- square | p- value |
| Male | 128 (66.70%) | 13 (6.80%) | 51 (26.60%) | 192 (100%) | | |
| Female | 118 (61.50%) | 14 (7.30%) | 60 (31.20%) | 192 (100%) | 1.173 | 0.556 |
| Total | 246 (64.10%) | 27 (7.00%) | 111 (28.90%) | 384 (100%) | | |

[Table/Fig-3]: Gender-wise prevalence of attachment styles. Chi-square test, Significance p<0.05*

Pearson's correlation analysis revealed a significant correlation between the anxious/ambivalent attachment style and age (p=0.026, r=0.13). There was also a significant inverse correlation between

the secure attachment style and age (p=0.006, r=-0.141). However, gender did not correlate significantly with any of the attachment styles [Table/Fig-4].

| Attachment style | | Age | Gender | |
|--------------------|---------------------------|---------|--------|--|
| | Pearson correlation | -0.141 | -0.051 | |
| Secure | Sig. (two-tailed) | 0.006** | 0.316 | |
| Avoidant | Pearson correlation | -0.055 | 0.064 | |
| | Significance (two-tailed) | 0.282 | 0.213 | |
| Anxious/Ambivalent | Pearson correlation | 0.113 | -0.048 | |
| | Sig. (two-tailed) | 0.026* | 0.351 | |

[Table/Fig-4]: Correlation of attachment styles with age and gender of the children. Pearson correlation, *=Significance p< 0.05, **=Significance p<0.01

Multiple linear regression analysis: The model summary [Table/Fig-5] depicts the results of the multiple linear regression analysis. In these models, attachment styles were considered dependent variables, while age and gender were considered independent variables. The analysis revealed that age had a significant influence on the secure attachment style (p=0.006) and the anxious/ambivalent attachment style (p=0.026). Specifically, a one-year increase in age increased the anxious/ambivalent attachment style by 2.2 times but decreased the secure attachment style by 2.7 times. The analysis also showed that gender did not significantly influence the attachment styles of the children [Table/Fig-6].

| Model | R | R Square | Adjusted R Square | Std. Estimate of error | |
|---------------------------|--------|----------|----------------------|------------------------|--|
| 1 (Secure) | 0.150a | 0.022 | 0.017 | 3.58 | |
| 2 (Avoidant) | 0.084a | 0.007 | 0.002 | 3.766 | |
| 3 (Anxious/Ambivalent) | 0.123a | 0.015 | 0.01 | 3.533 | |

[Table/Fig-5]: Model summary. a=Independent variable (Age, Gender)

attachment style, and 5.7% had an avoidant attachment style [27]. Nishikawa S et al., found that among 268 adolescents, 63.3% had a secure attachment style, 20.8% had an anxious or ambivalent attachment style, and 15.8% had an avoidant attachment style [28]. However, some studies have reported different prevalence rates for attachment styles. Kokkinos CM reported 73.4% for secure attachment, 18.8% for anxious/ambivalent attachment, and 7.3% for avoidant attachment styles [20].

According to Muris P et al., [29], 81.8% of people have secure attachment styles, 13.2% have anxious/ambivalent attachment styles, and 5% have avoidant attachment styles. This disparity is believed to be influenced by values, beliefs, and cultural contexts that shape emotional bonds [30,31]. Individual attachment styles may also be influenced by the level of care, age of separation from mothers, and family dynamics.

To the best of our knowledge, no previous studies have assessed the age-wise prevalence of attachment styles. In the present study, the authors found that 9-10 years old children had a higher prevalence of the secure attachment style, while 10-11 years old and 11-12 years old children had a higher prevalence of avoidant and anxious/ambivalent attachment styles, respectively. This may be attributed to the emotional warmth experienced earlier in life, which is carried into later stages of socialisation. Younger children tend to have lower parental rejection and perceive more emotional warmth from their parents compared to older children [20,32].

Regarding the gender wise prevalence of attachment styles, the authors did not find a significant difference in the occurrence of attachment styles. However, males tended to have a higher prevalence of the secure attachment style compared to avoidant and anxious/ambivalent attachment styles. This could be due to the expressed preference for boys over girls in Indian culture, which may result in differences in parental emotional warmth and rejection based on gender [33] and birth order [34]. Negative affect and effortful control are two possible factors that may explain the relationship between gender and attachment styles [35]. In

| | Secure | | Avoidant | | | Anxious/Ambivalent | | | |
|-----------|--------|--------|----------|--------|--------|--------------------|--------|--------|---------|
| Variables | В | t | p-value | В | t | p-value | В | t | p-value |
| Age | -0.621 | -2.776 | 0.006** | -0.254 | -1.079 | 0.281 | 0.492 | 2.229 | 0.026* |
| Gender | -0.37 | -1.012 | 0.312 | 0.479 | 1.247 | 0.213 | -0.339 | -0.939 | 0.348 |

[Table/Fig-6]: Multiple linear regression analysis regarding each variable. *=Significance p<0.05, **=Significance p<0.01

DISCUSSION

According to John Bowlby (1969), children develop an emotional connection or attachment system with their primary caregiver, typically their mother. These attachment mechanisms form during infancy and continue to manifest throughout life. These processes, influenced by the caregiver-child dyad, provide a foundation for the child's coping skills and contribute to their overall well-being [25,26]. Understanding the factors that contribute to individual variations in social engagement is crucial.

The aim of the current study was to examine the prevalence of different attachment styles in adolescents aged 9-12 years and investigate whether gender and age are associated with attachment types. The study found that secure attachment was more prevalent than other attachment styles, and there was no significant association with gender. However, age showed a significant association with secure and anxious/ambivalent attachment styles.

The overall prevalence of attachment styles in the present study was as follows: 64.10% for secure attachment, 28.9% for anxious or ambivalent attachment, and 7% for avoidant attachment styles.

This pattern of attachment is largely consistent with previous studies. For example, Finzi R et al., reported that 68.6% of children had a secure attachment style, 35.7% had an anxious or ambivalent

contrast to secure attachment in males, mothers tend to be more authoritative towards female adolescents, which is associated with a secure attachment style [36,37].

In the present study, the authors observed a significant correlation between age and attachment style. Specifically, there was a negative relationship with secure attachment and a positive correlation with anxious or ambivalent attachment. In other words, as age increased by one year, anxious or ambivalent attachment increased by 2.2 times, and secure attachment decreased by 2.7 times. One possible explanation for this finding is that early patterns of interaction with attachment figures become organised into generalised patterns by late adolescence, leading to different perspectives on socialisation [38]. However, Richaud MC et al., stated that attachment styles in the latency period (9-12 years) remain stable with age [21]. Additionally, Shahrabi Salehi M et al., found that secure attachment increases with age. The discrepancies in results can be attributed to methodological differences, such as the number of siblings, variations in parenting styles, and the ethnicity of participants [39].

In the current study, no significant association between gender and attachment style was observed, which is consistent with the findings reported by Richaud MC et al., and Nishikawa S et al., [28]. These studies also did not find a significant association between

gender and AQ-C [21,28]. However, according to Finzi R et al., boys tend to exhibit more security factors than girls [27]. In contrast, Muris P et al., reported that girls classify themselves as ambivalently attached more frequently than boys [29]. The conflicting findings may be attributed to the potential influence of puberty and socioeconomic status [40]. Individual psychological capabilities and traits might also contribute to the differences in attachment and gender [35]. As children grow, their attachment behaviour evolves from more fixed patterns, such as signaling and approach behaviour, to more complex behaviour, such as seeking assistance, comfort, or help. It is possible that children who can anticipate their caregivers' reactions may be more successful in adapting their attachment behaviour to receive relief from distress. Women have an advantage in reading emotions in others, known as emotion comprehension [41].

The results of this study have practical implications for supporting young people at both the school and dental clinic levels. Since children have more interactions with friends and teachers at school, they may prefer seeking help from them in stressful situations to alleviate mental health problems such as anxiety, depression, and worry. Training teachers on these issues through curriculum activities or special programs can help change individuals' perceptions and attitudes towards mental health problems, as well as provide appropriate care for children in need. Educated children about inductive discipline techniques that focus on understanding others' feelings using age-appropriate comics or CD-ROMs can help them develop empathy, positive peer interactions, and engage in prosocial behaviours. It is crucial to provide appropriate support for vulnerable young people, especially those who are insecurely attached.

In paediatric dental clinics, dentists should create a supportive environment, particularly for children with inappropriate behaviour. Using age-appropriate behaviour modification techniques (child psychotherapy) can help these children express their conduct changes constructively rather than destructively. Positive support experiences can help children shift their internal working models towards secure attachment, enabling the child and dentist to establish a positive dental attitude and provide and receive good dental treatment. This study is the first of its kind conducted on Indian adolescents regarding attachment styles. The equal number of samples from different age groups and genders enhances the reliability of the results. Moreover, the sample was stratified between government and private schools to ensure data representation.

Limitation(s)

The present study focused solely on attachment in adolescents and did not analyse the significance of their parent/caregiver attachment style. Additionally, the study results were based solely on normal, healthy adolescents, making it impossible to generalise the findings to disabled or hospitalised children.

CONCLUSION(S)

Based on the aforementioned results, it can be concluded that the most prevalent attachment style among the study participants is secure attachment, followed by ambivalent and avoidant attachment styles. A higher prevalence of secure attachment is observed in 9 to 10 years old children, while anxious/ambivalent and avoidant attachment styles are more prevalent in 11 to 12 years old and 10 to 11 years old children, respectively. There is a significant association between secure and ambivalent attachment styles and the age of the children. However, none of the individual attachment styles showed any association with gender. Further studies are needed to assess the relationship between attachment styles, oral health status, dental pain, and dental behaviour in order to gain a better understanding. Additionally, considering attachment style in the planning and promotion of oral health education programs would be beneficial.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Apr 15, 2023
- Manual Googling: Jul 08, 2023iThenticate Software: Jul 28, 2023 (6%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

AUTHOR DECLARATION:

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- Was Ethics Committee Approval obtained for this study? Yes
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- For any images presented appropriate consent has been obtained from the subjects. Yes

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ANNEXURE 1

Questionnaire describing each attachment style

Secure attachment style:

- 1. I make friends with other children easily;
- 2. It is easy for me to depend on others, if they are good friends of mine;
- 3. It's alright with me if good friends trust and depend on me;
- 4. I usually believe that others who are close to me will not leave me;
- 5. Usually, when anyone tries to get too close to me it does not bother me.

Avoidant attachment style:

- 1. I don't feel comfortable trying to make friends;
- 2. It's hard for me to trust others completely;
- 3. I find it uncomfortable and get annoyed when someone tries to get too close to me;
- 4. Sometimes I'm afraid that other kids won't want to be with me;
- 5. It's hard for me to really trust others, even if they're good friends of mine.

Anxious/Ambivalent attachment style:

- 1. Sometimes others get too friendly and too close to me;
- 2. I sometimes feel that others don't want to be good friends with me as much as I do with them;
- 3. I'm sometimes afraid that no one really loves me;
- 4. Children sometimes avoid me when I want to get close and be a good friend of theirs;
- 5. I'd like to be really closed to some children and always be with them.