



**ANALYZING PEER RELATIONS DURING ADOLESCENCE:  
A COMPREHENSIVE STUDY**

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**Abstract**

This study investigates the multifaceted attributes of peer relations during adolescence, a critical period marked by social and emotional development. Grounded in the survey research design, the study aimed to assess the dynamics of peer interactions among higher secondary students in Kanchipuram district. A stratified random sampling technique was employed to select a representative sample of 1,300 students, ensuring diversity across various demographic segments (Creswell, 2014). The study utilized Walter W. Hudson's Index of Peer Relations Scale, a validated instrument renowned for its reliability in assessing peer-related behaviors and attitudes (Hudson, 1982). Exploratory Factor Analysis (EFA) was conducted to identify latent variables underlying peer relations (Fabrigar & Wegener, 2011). The analysis revealed five core constructs: peer treatment, peer attitude, peer connectivity, peer issues, and peer isolation. These constructs encapsulate the diverse dimensions of peer interactions, ranging from positive engagement to social exclusion. Subsequently, regression analysis was employed to develop a predictive model of peer relations (Field, 2013). The model demonstrated significant correlations between peer attitude and connectivity, highlighting the role of supportive and positive peer environments in fostering adolescent well-being (Wentzel, 2017). Conversely, peer issues and isolation emerged as critical factors contributing to social anxiety and academic disengagement (Rubin et al., 2009). The findings underscore the importance of fostering inclusive and supportive peer environments to enhance adolescent social development. Future research could explore longitudinal data to further validate the model and examine the long-term impact of peer relations on academic achievement and emotional well-being.

**Keywords:** Peer Relations among adolescents, Peer treatment, peer attitude, peer connectivity, peer issues and peer isolation.

**Introduction**

Adolescence is a transformative stage marked by rapid social, emotional, and cognitive development. During this period, peer relations play a crucial role in shaping identity and behavior, often influenced by family dynamics and environmental factors (Steinberg & Morris, 2001). It is a stage where new relationships are formed or changed rapidly by putting the peer and family relationship in perspective. Peer relationships keep on changing depending upon the need and environment as the adolescent grows and level of attachment within the family undergoes considerable modifications. In the Indian context, particularly at the higher secondary level, the intense focus on academic performance adds to the stress experienced by students (Deb et al., 2015). This stress underscores the importance of the affective domain, emphasized by humanistic



psychology and social scientists, which highlights the positive influence of peer relationships on emotional well-being and academic success (Rogers, 1961). So affective domain factors which humanistic psychology and social scientist emphasis peer relations bring in lot of positivity to the life of higher secondary students. When nature, level and type of relationship change often it is accompanied by a series of emotional and psychological stress resulting in challenging situations especially for students at the higher secondary level.

As adolescents seek greater autonomy, their interactions with peers become more frequent and influential, often surpassing parental influence in shaping attitudes and behavior (Brown & Larson, 2009). However, this shift can also lead to emotional and psychological stress, especially when the nature and quality of peer relationships fluctuate (Bukowski et al., 2018).

Peer influence is significant at virtually all ages, from early childhood through old age and may influence us differently at different places. Each person has a specific group of people who are important to him or her. Peer group provides guidelines for one's behaviour, social contacts which keeps life interesting, and rewards that help one feel good about one self. As adolescence spends most of his time with peer this study analyses the impact of peer relations and the factors that contribute to peer relations among higher secondary students of Kanchipuram district.

### **Literature review on Peer Relations**

Related Literature on Peer Relations Peer relationships begin to grow rapidly during early adolescence. According to social psychologists, this is a period when the young child prefers the company of peers to that of their parents. This transition is seen as a positive and beneficial improvement because it will lead to the development of independence, which is a necessary life skill for young adults and adults. Furthermore, as peer influence becomes stronger, students' behaviour changes dramatically, affecting every aspect of their lives, including family relationships and academic achievement. Children form peer groups as they start getting exposed to social systems like educational institutions, religious institutions, neighbours (friends), and in recent years, new peer groups get evolved through social networking sites such as Face book, Instagram, and Whatsapp. As a result, it is critical to foster healthy peer relationships, especially during adolescence. The following is a summary of how peer relationships affect adolescence in their daily lives, based on a critical study of the literature. Peer relationships among adolescents predicted their current happiness level [Sharon Suganthi Caroline. S (2018)] moreover peer connectivity, and peer attitude are directly proportional to the better peer relations. Parents continue to be the most influential persons in adolescents' lives [Anisha Khan et al (2015)] and subsequently peer relations. Teen peer relationship can result in improvement in academic performance [Hogan, K. A., et al (2010)] skill and personality development [Anisha Khan et al (2015)]. Karen D.Könings et al., (2019) suggest peer-assessment scaffolding increases accuracy and mental effort during learning [Veenstra, R., & Dijkstra, J. K. (2011).][Tillfors, M., Persson (2012)], protective against depression & peer victimization [Karen P.Kochel, et al (2017)], self-esteem [Xinyuan Fu et al (2017)], interpersonal relations among peers [Tatiana Sadovnikova (2016)]. Bean, et al., [Christopher G.Bean (2019)], inferred that poor peer relations in adolescence were associated with poorer social support and it is influenced by peer treatment [Schäfer, M., et al (2002)] [Nolan Stringfield MS (2010) ] [Eric S. Buhs, (2005)], peer isolation [Woodhouse, S. S., et al (2012)], peer loneliness [Sletta, Olav et al (1997)], negative attitude towards peer [Watt, S. E., & Larkin, C. (2010).] [Stevens, V., Van Oost, P., & De Bourdeaudhuij, I. (2000)] within the group. Caroline et al., (2018) describe peer relations is affected by social withdrawal and emotional distress, and lack healthy peer attachments. Parinda Khatri, Janis B. Kupersmidt (2003) states aggressors and victims were more likely to be rejected



than their non-aggressive non-victimised peers and victims and aggressors report lack of social support leading to depression (Melanie J. Zimmer-Gembeck, et al (2010) and Glen J. Veed, Meredith McGinley, Lisa J. Crockett, (2019) highlights the importance and complex role the friendship network plays across adolescence. Peter Noack, Christine Krettek, Sabine Walper (2001) believes central aspect of friendship quality, namely admiration by friends, clearly suffered from conflict between mothers and fathers. Ami Flam Kuttler and Annette M La Greca (2004) found that peer connectivity or peer network during adolescence is more stable than romantic relationships. Anisha Khan, Manisha Jain, Chhaya Budhwani (2015) found that adolescents preferred long term friendships (52%), with opposite gender (66%) and similar socioeconomic status (43%) while making friendships. According to C. A. Rohrbeck & L. S. Gray. In T. P. Gullotta & M. Bloom (2014) states peer relations can also serve as risk or protective factors in the relationships, especially between stressors (e.g., victimization) and hence efforts should be made to strengthen positive peer relations during adolescence. Poor of peer relations is due to bullying and victimization and significantly correlated with depression [Rupika Chopra et al (2016)]. Xinjie Chen, et al., (2018) suggest that parent are not encouraging peer relations during adolescence, hence parents and peer attachments do not always go together. Bakker, et al., (2010) found that peer issues lead to mental health. So negative peer experiences and parental coaching may need to be targeted to reduce social anxiety during adolescence [Shu Su et al (2016)]. In order to strengthen peer relations, Pfister, et al., (2019), regular exposure to education outside the classroom was positively associated to enhance new peer affiliations [Shu Su et al (2016)], generalises empathy and lower aggression level in children and these are more liked in peer group. According to Thiele, et al., (2018) peer relations are driven by social similarity in terms of individual members status, family income. Purchasing power [Shruti Gulati (2017)] has significant influence on 'recognition' among peer group and money is mostly spent on same sex peer groups as they have greater consensus [Melanie J et al (2010)] unity, loyalty which requires both high pro-sociality and low aggression were important requisites for peer acceptance. Moreover, mostly males were more likely to be aggressors or victims than females [Parinda Khatri, Janis B. Kupersmidt (2003)] as they are prone to bullying, and peer victimization has a negative impact on quality of life [Türkan Kadiroğlu, et al (2018)].

## **Research Attributes of Peer Relations**

### **a. Peer Treatment**

Peer treatment is the way individual in being treated by the members of their peer group. Higher secondary adolescents between the ages of 16 to 18 years will find the company of peers interesting and satisfying. Social psychologist emphasises the importance of healthy peer relations. But due individuals' personality attributes and poor recognition by peers has negative influence on adolescents' life. If the child finds it difficult to come to terms with the peer group, he/she will avoid social gathering of peers and start finding joy in being isolated. This affects the personality and behavioural aspects of adolescent child and can have an impact on life. On the other hand, if the treatment is positive and the individual enjoys it, there would be greater cohesion, loyalty, trust, recognition among the group and will have a positive impact psychologically and socially.

### **b. Peer Attitude**

Attitude is a settled way of thinking, reasoning and valuing. Attitude towards peers is positive, the adolescent will have better chance to be trained and exposed to maintaining positive social relations. Adolescent youth will try to spend more time with the company of peers. It also helps in developing positive perspective about society and life in general. If the attitude is negative,



individual might tend to develop negative perspective about society and will find difficulty in establishing and developing interpersonal relations. Hence, positive attitude strengthens young adolescents and prepare them for developing healthy interpersonal relations. In schools we have extra and co-curricular activities which strengthens friendship and gives personal recognition and status in the group. So, it is important to strengthen these activities in school.

#### **c. Peer Connectivity**

Researchers have highlighted the importance of maintaining peer relations but if one probes little deep, it could be found that many in the peer group even though they are part of a peer group are struggling to adapt. Their personality attributes are not in-phase with the group orientation and in the process try to cling to the peer group. It is a state where though they are physically part of the group mentally, they are not well connected or recognised among the group members. This creates pressure in young adolescent as there is no visible space for the individual. Hence often the individual feels disconnected from the rest of the group. Another important aspect here is the individual may not be in a position to express his/her discomfort clearly to other members of the group. Hence poor or lack of connectivity attributes can negative influence on overall peer relations of the individual.

#### **d. Peer Issues**

Peer issues are issues and challenges that arise in the peer group. issues in terms of peer recognition and identity, peer group hierarchy, group integrity and cohesion, issues related to individual and group, group dynamics, and group interaction with society. Social psychologist accepts to the fact that peer issues are part of any peer group but the endurance and maintenance level of peer group decides the effectiveness of a group. Moreover, there is a certain degree of realignment of peer members to another group. Though peer issues at the individual as well as the group level props up, it is the ability to adjust and adapt to changes will synthesis in making the peer group as group. Trust, loyalty and mutual respect are some of the core binding factors which helps to overcome peer issues effectively.

#### **e. Peer Isolation**

Negative peer treatment will lead to developing poor attitude towards peers, and if peer issues are not resolved quickly peer connectivity will be weakened and result in peer isolation. Another factor might be as discussed earlier, the individual's personality characteristics acts as obstacle to form and maintain peer relations owing to peer isolation. In both cases it is the ability to adjust and to what extent other peer group member are willing to accommodate will explain whether the individual will feel isolated or not. Many a times issues which crop up will create temporary isolation but in the long run, individual and group is more accommodative. But if peer issues are consistent and individual feels exploited or not recognised, peer isolations happen. This will have a huge bearing on continuing his/her loyalty to the group and ends in conflict and or disassociation. Peer isolation will also have an impact on family relations if the individual does not have positive family support. So, parents and teachers should provide support for fostering healthy peer relations during adolescents.

#### **Research Objective**

The main objective of this study is to explore the key attributes of peer relations among higher secondary students in Kanchipuram district.



### Research Methods

A stratified random sampling technique was employed to select a representative sample of 1,300 students, ensuring diversity across various demographic segments (Creswell, 2014). The study utilized Walter W. Hudson’s Index of Peer Relations Scale, a validated instrument renowned for its reliability in assessing peer-related behaviors and attitudes (Hudson, 1982). Exploratory Factor Analysis (EFA) was conducted to identify latent variables underlying peer relations (Fabrigar & Wegener, 2011). The analysis revealed five core constructs: peer treatment, peer attitude, peer connectivity, peer issues, and peer isolation. These constructs encapsulate the diverse dimensions of peer interactions, ranging from positive engagement to social exclusion. Subsequently, regression analysis was employed to develop a predictive model of peer relations (Field, 2013). The model demonstrated significant correlations between peer attitude and connectivity, highlighting the role of supportive and positive peer environments in fostering adolescent well-being (Wentzel, 2017). Conversely, peer issues and isolation emerged as critical factors contributing to social anxiety and academic disengagement (Rubin et al., 2009). The findings underscore the importance of fostering inclusive and supportive peer environments to enhance adolescent social development. Future research could explore longitudinal data to further validate the model and examine the long-term impact of peer relations on academic achievement and emotional well-being.

### Instrument

Index of peer relations by Walter W Hudson was validated in the present context. This measurement consists of 25 items including minimum of 3-items in each subscale: peer treatment (7 items), peer attitude (7 items), peer connectivity (4 items), peer issues (3 items), and peer isolation (3 items). The response scale is a five-point Likert scale, ranging from strongly agree (=5) to strongly disagree (=1).

### Data Analysis

Basis data were descriptively analyzed. Content validity and reliability of the model were tested using SPSS 16.

**Table 1**  
*Mean, Standard Deviation, Skewness, Kurtosis of All the Variables*

Variable	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
PT1	1300	4.2485	1.0182	-2.081	0.068	4.288	0.136
PT2	1300	4.1600	0.9828	-1.772	0.068	3.464	0.136
PT3	1300	4.0408	0.9828	-1.616	0.068	2.898	0.136
PIS1	1300	4.4608	0.6008	-1.011	0.068	1.913	0.136
PC1	1300	4.0585	0.6816	-1.256	0.068	3.643	0.136
PC2	1300	4.0785	0.5631	-0.965	0.068	4.150	0.136
PA1	1300	4.2377	1.0260	-2.055	0.068	4.138	0.136
PA2	1300	3.9569	1.0737	-1.349	0.068	1.451	0.136



PA3	1300	4.2000	0.9715	-1.867	0.068	3.774	0.136
PA4	1300	4.1600	0.9828	-1.777	0.068	3.477	0.136
PA5	1300	4.0292	0.9836	-1.599	0.068	2.827	0.136
PI1	1300	4.4423	0.6006	-0.951	0.068	1.818	0.136
PT4	1300	2.0323	1.0669	1.353	0.068	1.488	0.136
PT5	1300	1.7869	0.9635	1.885	0.068	3.896	0.136
PT6	1300	1.8931	0.9563	1.711	0.068	3.357	0.136
PT7	1300	2.0331	1.0025	1.504	0.068	2.455	0.136
PIS2	1300	1.3131	0.4639	0.807	0.068	-1.351	0.136
PIS3	1300	1.3731	0.5507	1.137	0.068	0.295	0.136
PC3	1300	1.8315	0.5191	.0431	0.068	3.456	0.136
PC4	1300	1.8708	0.4371	-0.636	0.068	1.420	0.136
PA6	1300	1.9100	0.9677	1.656	0.068	3.054	0.136
PA7	1300	2.0431	1.0033	1.489	0.068	2.396	0.136
PI2	1300	1.3269	0.4692	0.739	0.068	-1.456	0.136
PI3	1300	1.3931	0.5619	1.080	0.068	0.168	0.136
Valid N (List wise)	1300						

*PT - peer treatment; PIS - peer isolation; PC – peer connectivity; PA – peer attitude; PI – peer interaction*

The above table shows mean and standard deviation values of variables related to peer relation. It is observed that variables related to peer issues and isolation are obtaining low mean value and whereas variables related to peer treatment and peer attitude are having more mean value. From the table it is also understood that the skewness and kurtosis values of the variables under peer relation are within the range of  $\pm 3$  at 5 % level of significance [279]. The obtained range within  $\pm 3$  shows non normality of the variables. Since more than 50 % of the 25 items in peer relations scale are reverse coded, split half method was employed to establish reliability statistics.

### Reliability Statistics (PR)

Table 2

*Reliability through Split-half Method*

Cronbach's Alpha	Number of Items
0.834	12



**Table 3**  
*Cronbach's Alpha Test of Peer Relations – I*

Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PR1	45.8246	33.078	0.547	0.817
PR4	45.9131	33.348	0.547	0.817
PR7	46.0323	33.508	0.532	0.818
PR8	45.6123	39.896	0.035	0.846
PR11	46.0146	39.342	0.084	0.846
PR12	45.9946	39.470	0.104	0.843
PR15	45.8354	31.109	0.731	0.799
PR16	46.1162	30.842	0.715	0.800
PR17	45.8731	31.383	0.753	0.798
PR18	45.9131	31.113	0.770	0.796
PR21	46.0438	31.489	0.731	0.800
PR22	45.6308	40.230	-0.009	0.849

**Table 4**  
*Reliability Statistics through Split-half Method*

Cronbach's Alpha	Number of Items
0.747	12

As a second part of data purification the variables related to peer relations were tested for its reliability. The internal consistency of 12 variables which are positively scored obtained a Cronbach Alpha value of 0.834 and which is more than 0.7 shows the required internal consistency was obtained through the reliability correlation matrix. Further to that it is also learnt from item total statistics that all the positive coded 12 items are obtained item correlation above 0.7 and permitted to consider for necessary factor analysis.

**Table 5**  
*Cronbach's Alpha Test of Peer Relations – II*

Item-Total Statistics				
Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PR2	20.7254	18.395	0.648	0.689
PR3	20.9708	19.063	0.651	0.691
PR5	20.8646	18.867	0.684	0.686



PR6	20.7246	18.617	0.676	0.686
PR9	21.4446	24.778	0.102	0.752
PR10	21.3846	24.579	0.107	0.753
PR13	20.9262	24.583	0.119	0.752
PR14	20.8869	24.773	0.115	0.751
PR19	20.8477	20.468	0.464	0.719
PR20	20.7146	20.304	0.460	0.720
PR23	21.4308	24.627	0.133	0.750
PR24	21.3646	24.410	0.133	0.751

The table shows the reliability outcome of 12 variables which are reverse coded related to peer relationship. The obtained Cronbach Alpha value is 0.747 which is more than 0.7 shows the existence of reliability of 12 items. In addition to that it is also understood from the item total statistics that there are 8 items obtained the Cronbach Alpha reliability value of 0,7 and remaining 4 items obtained the Cronbach Alpha value of above 0.6 permitted to consider all 12 reverse coded items for further factor analysis.

**Table 6**  
**Exploratory Factor Analysis for Peer Relation**

<b>KMO and Bartlett's Test</b>			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.855
Bartlett's Test of Sphericity	Approx. Chi-Square		2.895E4
	df		276
	Sig.		.000

The first step in conducting the factor analysis is to produce a correlation matrix to determine the study variables are related and if they are, to what extent. The correlation matrix shows the relationship of 25 variables in this study. The correlation matrix yielded substantial number of large correlation indicating that factor analysis is an appropriate statistical tool. The KMO value obtained is 0.855 and which is more 0.7 reveals that the necessary sampling adequacy was obtained and which permits the factor analysis. The Bartlett's Test of Sphericity shows a significant value 0.000 and which is less than 0.05 indicates the correlation matrix is significant.

**Table 7**  
**Communalities**

Variable	Initial	Extraction
PT1	1.000	.760
PT2	1.000	.868





PT3	1.000	.795
PIS1	1.000	.609
PC1	1.000	.586
PC2	1.000	.672
PA1	1.000	.749
PA2	1.000	.806
PA3	1.000	.825
PA4	1.000	.862
PA5	1.000	.788
PI1	1.000	.575
PT4	1.000	.810
PT5	1.000	.833
PT6	1.000	.860
PT7	1.000	.791
PIS2	1.000	.844
PIS3	1.000	.805
PC3	1.000	.816
PC4	1.000	.598
PA6	1.000	.846
PA7	1.000	.792
PI2	1.000	.852
PI3	1.000	.818
Extraction Method: Principal Component Analysis.		



Principal Component Analysis was employed to extract the communalities which is shown in the table. The communality for a variable is the variance accounted by all the extracted factors. The higher the communality, the more reliable it is an indicator. It is preferable for the mean level of communality to be at least 0.7 and for communalities not to vary over a wide range. The mean communality for 25 variables is 0.773.

**Table 8**  
**Total Variance**

<b>Total Variance Explained</b>									
<b>Comp onent</b>	<b>Initial Eigenvalues</b>			<b>Extraction Sums of Squared Loadings</b>			<b>Rotation Sums of Squared Loadings</b>		
	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>
1	8.054	33.556	33.556	8.054	33.556	33.556	5.709	23.789	23.789
2	3.568	14.866	48.422	3.568	14.866	48.422	5.665	23.603	47.391
3	3.214	13.392	61.815	3.214	13.392	61.815	2.680	11.166	58.557
4	2.514	10.476	72.290	2.514	10.476	72.290	2.257	9.404	67.961
5	1.208	5.034	77.324	1.208	5.034	77.324	2.247	9.363	77.324
6	.790	3.291	80.615						
7	.637	2.655	83.270						
8	.544	2.265	85.535						
9	.464	1.932	87.468						
10	.422	1.757	89.224						
11	.329	1.372	90.596						
12	.291	1.211	91.806						
13	.272	1.134	92.941						
14	.240	1.000	93.941						
15	.226	.940	94.881						
16	.211	.877	95.758						
17	.204	.849	96.607						
18	.179	.745	97.352						
19	.162	.674	98.026						
20	.122	.508	98.534						
21	.101	.419	98.953						
22	.096	.400	99.353						
23	.092	.382	99.735						
24	.064	.265	100.000						

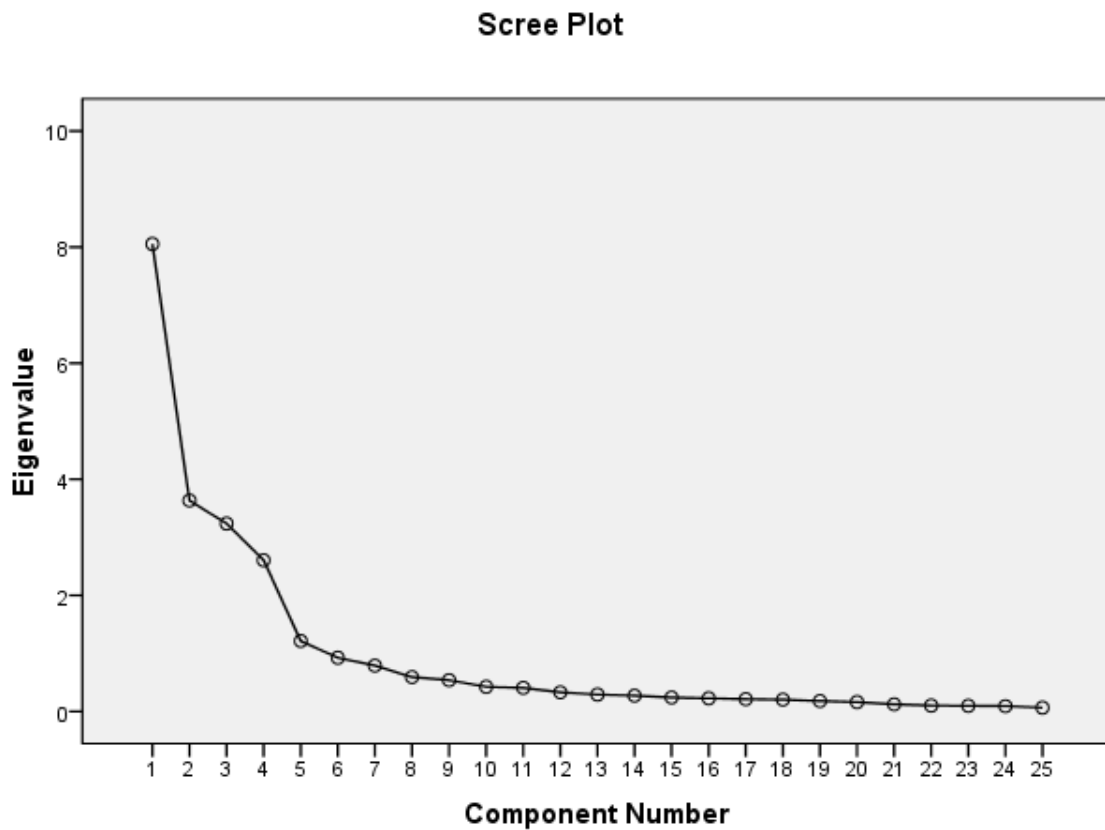


Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.054	33.556	33.556	8.054	33.556	33.556	5.709	23.789	23.789
2	3.568	14.866	48.422	3.568	14.866	48.422	5.665	23.603	47.391
3	3.214	13.392	61.815	3.214	13.392	61.815	2.680	11.166	58.557
4	2.514	10.476	72.290	2.514	10.476	72.290	2.257	9.404	67.961
5	1.208	5.034	77.324	1.208	5.034	77.324	2.247	9.363	77.324
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17	.204	.849	96.607						
18	.179	.745	97.352						
19	.162	.674	98.026						
20	.122	.508	98.534						
21	.101	.419	98.953						
22	.096	.400	99.353						
23	.092	.382	99.735						
Extraction Method: Principal Component Analysis.									

Table explains the total variance explained by each of the extracted components. Each variable is standardised with maximum variance for each as 1.0. An Eigen value reflects the proportion of variance explained by the component. From the above table it is understood that there are five factors identified with more than one Eigen value explain the total variance of 77.324%. It shows that the more variance explained above 70% with 1.0 above Eigen value indicates strong relationship among the variables under the study.



**Figure 1**  
Scree Plot of Peer Relations



**Table 9**  
Rotated Component Matrix

Rotated Component Matrix <sup>a</sup>					
	Component				
Item	Factor Loading	Factor Labeling	Convergent Validity	AVE	Discriminate Validity
PT2	.909	Peer Treatment	0.882	0.77833686	0.886
PT6	.907				
PT5	.891				
PT4	.881				
PT7	.869				
PT3	.868				
PT1	.849				
PA4	.907	Peer Attitude			0.881



PA6	.897		0.878714	0.772503	
PA3	.889				
PA2	.878				
PA7	.868				
PA5	.865				
PA1	.847				
PC3	.902				
PC2	.816	Peer Connectivity	0.81175	0.6621313	0.753
PC4	.773				
PC1	.756				
PI2	.897	Peer Issues	0.835667	0.704172	0.807
PI3	.882				
PI1	.728				
PIS2	.888	Peer Isolation	0.834333	0.699532	0.807
PIS3	.862				
PIS1	.753				
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 6 iterations.					

The five components with Eigen value greater than 1.0 were rotated using varimax rotation in order to execute orthogonal solution which is shown in the table. Varimax rotation is the most highly utilised method to produce an orthogonally rotated matrix. It is generally accepted that loadings should be 0.50 or greater to provide any interpretive value. A loading is simply the Pearson correlation between the variable and the extracted component. The greater the loading, the more and the more variable is a pure measure of the component.

Component 1 contains seven variables or 23.789% of the total variables included in the study. Seven variables load in the factor one shows an excellent range of variable representation in the factor. The seven variable loaded in factor one represents peer treatment. The convergent validity of seven measured items on underlined factor of peer treatment is 0.882 and which shows good convergence. The average variance is extracted is more than 0.5 (0.778) explains the better variance. The obtained discriminant validity is 0.886 and which is more than the maximum shared value of total item correlation. There are seven variables which are converged with the correlation value of more than 0.7 constitute a factor peer attitude with 23.063% of variance explained. The required convergent validity, average variance extracted and discriminant validity are more than 0.5 shows that the seven variables are effectively loaded under factor two.

Factor three is labeled as peer connectivity which comprises of four variables with the loading of more than 0.7. The four variables under peer connectivity explain 11.166% of variance about the construct. The convergent validity of four variables under peer connectivity is more than 0.7



(0.811). The average variance explained is 0.66 and which is more than 0.5. The discriminant validity obtained is 0.753.

The factor four comprised three variables with reverse coding of loading more than 0.7 represent a factor named as peer issue. The two items are reverse coded and which describes peer issues on the relationship of peer. It represents 9.404% of variance of the factor with the convergent validity of 0.835, average variance extraction of 0.704 and discriminant validity of 0.807. The factor five is labeled as peer isolation comprises three variables with reverse coding with the factor loading of more than 0.7. The three variables explains 9.363% of variance about the factor peer isolation. The required convergent validity, average variance and discriminant validity were obtained for the factor through the loaded variables (0.834, 0.699 and 0.807).

By the application of factor analysis in order to extract the latent factors related to peer relation are identified as five major factors namely peer treatment, peer attitude, peer connectivity, peer issues and peer isolation.

### **Conclusion**

The study has successfully identified five core attributes of peer relations: peer treatment, peer attitude, peer connectivity, peer issues, and peer isolation. These dimensions underscore the profound influence that peer interactions have on adolescent well-being. Maintaining healthy peer relations is pivotal for the holistic development of adolescents, as it fosters emotional stability and social competence (Brown & Larson, 2009). As Erikson's psychosocial theory posits, adolescents actively seek identity, and disruptions in peer relationships can lead to identity crises and emotional distress (Erikson, 1968). While academic achievements are prioritized by both parents and students, the negative impact of poor peer relations can have devastating psychological and social consequences (Rubin et al., 2009). Therefore, fostering mutual trust, respect, and understanding within peer groups is essential to prevent peer isolation and help adolescents navigate everyday peer-related challenges with confidence. Positive peer recognition and supportive group dynamics enhance self-esteem and foster better peer connectivity, ultimately contributing to identity development and positive attitudes towards friends (Wentzel, 2017). Moreover, a robust peer network plays a critical role in strengthening mental health and overall well-being (Bukowski et al., 2018). Hence, it is imperative for parents and teachers to actively encourage and support the formation of strong, respectful, and mutually beneficial peer relationships.

### **Limitations and Suggestions for Further Studies**

- The current research was limited to students from Government, Government-Aided, and Private Matriculation Higher Secondary Schools. Future research could expand to include other educational institutions to provide a more comprehensive understanding.
- Peer relations in this study were assessed based on students' self-perceptions. To enhance research credibility, incorporating perspectives from parents, friends, and teachers would provide a more holistic view of these relationships.
- Future studies should explore the impact of socio-psychological factors on adolescents' peer relations to gain deeper insights into their social dynamics.
- Given the significance of peer relations, examining the influence of technological factors on enhancing or limiting these interactions would offer valuable insights in the contemporary context.



- An extensive study conducted by national educational agencies such as NCERT, NCTE, or NUEPA could help in developing models and strategies to strengthen the affective experiences of learners, alongside cognitive development, on a periodic basis.

#### **Competing interest statement**

The authors declare no conflict of interest.

#### **Additional information**

No additional information is available for this paper.

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