

Development and Validation of Romantic Relations Scale for Adolescents (RRS-A)

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Abstract

Background. Romantic relations are usually taken as hallmark of adolescence and considered important relational factors in the development and well-being of adolescents. As no instrument was available to measure perception of romantic relations by adolescents living in eastern religious collectivist developing society, therefore, the main objective of this study was to develop an indigenous scale to measure perception of romantic relations by adolescents, both boys and girls.

Method. Three studies were conducted with adolescents' samples, age ranging from 16 to 18 years. Study 1 was conducted to generate item pool. Study 2 was conducted to determine factor structure and psychometric properties of the scale on sample of 506 adolescents. And study 3 was carried out to confirm factor structure through confirmatory factor analysis on another sample of adolescents ($N = 647$).

Results. In first study, a pool of 151 items was generated. In second study, Principal Axis Factoring with Promax rotation was used for 1st order exploratory factor analysis that resulted in generation of 13 factors consisting of 74 items. Cronbach's Alpha for factors ranged from .61 to .88. Second order factor analysis resulted in three dimensions named as Intimacy ($\alpha = .94$), Passion ($\alpha = .83$) and Distrust ($\alpha = .84$). Finally, in third study, results of hierarchical confirmatory factor analysis showed that scale had construct validity.

Conclusion. The results indicate that Romantic Relations Scale for Adolescents (RRS-A) is a comprehensive, valid, and reliable measure to assess the perception of romantic relations in adolescents.

Keywords. *Adolescents, romantic relations, intimacy, passion, distrust*



Introduction

Romantic love, passionate love, romance, and romantic relations are not the new concepts in realm of interpersonal relations. These concepts are as old as the history of humankind. Around 3500 BCE, when writing was invented by Sumerians, passionate love was one of the first topics on which they wrote (Hatfield, Bensman & Rapson, 2012). Since then and now for centuries, poets, philosophers, artists, and writers had described various aspects of romantic love and romantic relations. The perception and acceptance of these concepts can vary from time to time and from culture to culture, but their existence cannot be denied (Karandashev, 2015).

According to Rubin (1970), romantic love consists of three components including affiliative and dependent need, predisposition to help, and exclusiveness and absorption. He proposed that romantic relationships have characteristics of both love and liking. He differentiated between romantic relationships and platonic friendship (Masuda, 2003). While Hatfield and Walster (1978) distinguished between passionate love and companionate love. Sternberg (1986) gave triangular theory of love which not only explained the nature of love but also loves in different kinds of relationships. According to Masuda (2003) and Hatfield et al. (2012) the triangular theory of love is one of the most relevant theoretical models within the realm of romantic relationships. This model has proposed three components of the romantic relationships (i.e., intimacy, passion, and commitment). It also explains eight different kinds of love (i.e., nonlove, liking, infatuated love, empty love, romantic love, companionate love, fatuous love, and consummate love). The classification is based on different combinations of three components of triangular theory of love (De Andrade, Wachelke & Howat-Rodrigues, 2015). By taking Sternberg's triangular model of love (Sternberg, 1986) as a guide, Yela (Garcia, 1998; Yela, 1996) developed tetragonal model of love. According to Yela's tetragonal model, there are four components/ dimensions of love i.e., intimacy, erotic passion, romantic passion, and commitment.

Although romantic relations can develop at any stage of life, but exploration of romantic relationships becomes an exciting challenge in adolescence (Ponti, Guarnieri, Smorti & Tani, 2010). Importance of romantic relations is undeniable during adolescence (Larson, Clore & Wood, 1999) as these relationships have many benefits for adolescents.

These relations provide social support, increase self-esteem, develop intimacy, and even prepare the adolescents for adult relationship (Bouchev & Furman, 2003; Collins, 2003; Connolly & Goldberg, 1999; Shulman, Davila & Shachar-Shapira, 2011; Shulman & Scharf, 2000). These relationships have also been found significant for well-being of the adolescents (Collins, 2003; Collins, Welsh & Furman, 2009; Giordano, Manning, & Longmore, 2006).

In 1940's, social scientists started their efforts to measure romantic love. The pioneers were mostly sociologists. One of those sociologists was Gross (1944) who developed Attitudes Toward Romanticism Scale. After Gross, other sociologists continued efforts to develop instruments including A Romanticism Scale developed by Hobart (1958), Romanticism Scale developed by Dean (1961), The Reiss Romantic Love Scale by Reiss (1964) and Romantic Love Scale by Kephart (1967). Another scale i.e., Hattis Love Scale was developed by Hattis (1965) who was a scholar from the field of medicine and public health.

In field of Psychology, Rubin is considered as a pioneer in the measurement of love. He was the first researcher who used an objective measure to assess love (Masuda, 2003). According to Rubin (1970), romantic relationships have characteristics of both love and liking. Hence, he developed Love Scale and Liking Scale to measure people's romantic love and liking for their partner (Masuda, 2003). His Love Scale measures three components of love including affiliative and dependent need, a predisposition to help, and an orientation of exclusiveness and absorption (Rubin, 1970).

Dion and Dion (1973) developed Romantic Love Questionnaire that measures attitude of the people towards romantic love, subjective emotional experiences of the people when they are in love, and the frequency, duration, and intensity of their romantic experiences. While Aron and Westbay (1996) developed Prototype of Love Scale that measures people's concepts of love and how much intimacy, passion, and commitment they experience in their own relationships.

According to Masuda (2003) and Hatfield et al. (2012), the most popular and the most commonly used scales to measure passionate or romantic love include Love Attitudes Scale, Passionate Love Scale, and Sternberg's Triangular Love Scale.

Hatfield and Sprecher (1986) developed Passionate Love Scale which measures the cognitive, physiological, and behavioural aspects of passionate love. In the same year, Hendrick and Hendrick (1986) also developed Love Attitudes Scale which was based on Lee's color theory of love. Consisting of 42 statements, it measures six love styles (i.e., eros, ludus, storage, mania, agape and pragma). There are seven items for measuring each love style. The scale also has a short version called Love Attitudes Scale: Short Form, consisting of only 24 items (Hendrick, Hendrick, & Dicke, 1998).

Sternberg (1997) developed Sternberg Triangular Love Scale (STLS) that measured three components of love (i.e., intimacy, passion, and commitment). Original Version consists of 72 items including 24 items for each component. Later, a revised version of the scale was presented consisting only 45 items wherein each component is measured by 15 items. Lemieux and Hale (1999, 2002) developed Triangular Love Scale, consisted of 19 items, that also measures intimacy, passion, and commitment.

Other measures used to assess romantic relations include Relationship Rating form (RRF) by Davis (2001) and Romance Qualities Scale by Ponti et al. (2010). Relationship Rating form (RRF) assessed seven global characteristics and 20 facets of romantic relationships and friendships. The global characteristics measured by this scale are viability, intimacy, passion, care, commitment, global satisfaction, and conflict/ambivalence (Davis, 2001). Ponti et al. (2010) developed Romance Qualities Scale and Friendship Qualities Scale to measure the quality of romantic relationships and friendships from adolescence to early adulthood. Romance Qualities Scale measures the five qualitative dimensions of romantic relationships including companionship, conflict, help, closeness, and security.

In Pakistan, Anjum and Batool (2017) has developed Perception of Romantic Love Scale. It consists of seven sub-scales which measure General, Emotional, Spiritual, Cognitive, Sexual, Marital and Behavioural aspects of romantic love.

Although, many scales are available to measure love, romance, and romantic relationships but most of the scales measure romantic love or passionate love, and a very few of them tap romantic relationships.

And even those scales that address romantic relationships, very few are developed for adolescent population. As literature support the developmental significance of romantic relations for adolescents (Bouchey & Furman, 2003; Collins, 2003; Collins et al., 2009; Connolly & Goldberg, 1999; Giordano et al., 2006; Shulman et al., 2011; Shulman & Scharf, 2000) so present study has focused on the romantic relations of the adolescents. The existing available literature indicate the availability of number of instruments to measure romantic relations, but they are western culture based. It is common for adolescents, whether they belong to western culture or non-western culture, to engage in some form in romantic relations that may be in the form of their private fantasies, conversation with friends, through social media or through display of affection by physical gestures (Connolly & McDonald, 2020). Although emotional component of romantic relations is similar in almost all cultures, but expression is different. That may be due to the reason that in western cultures, romantic relations are encouraged and adolescents are free and have autonomy to have these relations while in non-western or collectivists cultures, these relationships are regulated by social norms and rules (Connolly & McDonald, 2020). In religious collectivist culture of Pakistan, although, romantic relations are present but are kept secret or repressed. These relations are not openly expressed as they are not accepted in society. And people are reluctant to talk about these relations. So western culture-based scales are not appropriate to use in religious collectivist culture of Pakistan. Another reason for developing an indigenous scale was that most of the scales/instruments which are available are scenario based and asked respondents to respond according to feelings for their partner as on Relationship Rating Form (Davis, 2001) or to respond according to their current relationship as on Romance Qualities Scale (Ponti et al., 2010). And even some scales have each item with a blank which respondent has to fill with the name of his/her romantic partner in order to respond on the scale as for example on Love Scale (Rubin, 1970), Passionate Love Scale (Hatfield & Sprecher, 1986) and Sternberg Triangular Love Scale (Sternberg, 1997). Therefore, these scales measure actual romantic relations. And it is quite difficult to ask directly about romantic relations in a religious collectivist society where these relations exist but are not accepted at social level and adolescents are usually reluctant to talk about these relations.

Hence, to increase generalizability of scale, we focus on perception of romantic relations instead of real romantic relations. As no scale was available to measure adolescents' perception of romantic relations in the religious collectivist society of Pakistan, so an indigenous scale to measure the adolescent's perception regarding romantic relations was very much needed. Therefore, current study was designed to fill that gap. The present studies were conducted with the aim to develop a comprehensive indigenous scale having potential to measure a holistic perception of romantic relations of a collectivist society.

Three studies were carried out for the development of the scale. Main objective of the first study was to generate an item pool. For this purpose, focus group discussions were held with adolescents. Then content analysis was conducted and a large pool of statements i.e. 209 statements were generated. After evaluation by experts, 151 statements were finalized for the scale. The objective of the second study was to determine factor structure and psychometric properties of the scale. For this purpose, the finalized 151 item scale was administered on 506 adolescents. Finally, third study involving an independent sample of adolescents ($N=647$) addressed confirmation of the factor structure to observe the structural validity of the newly devised instrument.

Method

Study 1

The main objective of this study was to generate items for the scale. This objective was achieved in a multi steps processes including focus group discussions, content analysis, expert opinion, and finalization of items.

Focus group discussions. On the basis of literature review, a focus group guideline was developed. As main objective was to develop an indigenous scale to measure perception of romantic relations by adolescents, therefore, in order to explore that how the adolescents living in religious collectivist culture perceive the romantic relations, three focus group discussions were held.

Sample

For all focus group discussions, participants were 16 to 18 years old ($M =16.43$) and all of them were regular students of 11th and 12th grade in some public or private college of Rawalpindi. First focus group, consisted of seven volunteering girls who were in 11th grade in a private college, second focus group was conducted involving eight volunteering boys who were students of 11th grade in a private college while third focus group consisted of seven volunteering girls who were students of 12th grade in a public sector college.

Procedure

For each focus group discussion, formal permission of directors/ principals of colleges and parents of the students were taken to conduct focus group discussions. After taking informed consent of participants, focus group discussions were held in the premises of the colleges of participants. Moderator (first author of article) briefed the participants of each group about the purpose of the discussion and also requested them for active participation. Focus group guideline was used to facilitate the discussions. Focus group discussions were audio recorded by using two audio devices while assistant moderator (a research assistant) also took notes actively. First focus group discussion lasted for 57 minutes, second for 90 minutes while third discussion lasted for 70 minutes.

Content analysis. Audio recordings were transcribed, and content analysis was conducted on N-vivo version 10.0. Two types of analyses were conducted, an upward analysis to identify themes and a downward analysis to identify indicators. In the upward analysis, a thorough examination of data resulted in generation of twenty-two themes namely Assistance, Attention, Attraction, Benefits, Care, Closeness, Commitment, Companionship, Dating, Disadvantages, Emotions, Emotional Satisfaction, Expectations, Fascinations, Feelings, Motivations, Physical contact, Physical features, Sharing, Sincerity, Trust, and Understanding. Contents of these themes were further evaluated in a downward analysis to find indicators of these constructs. This resulted in a large pool of statements representing the above-mentioned themes. After careful evaluation and modifications, a total of 209 statements were selected.

Expert opinion/evaluation. The statements were given to a committee of four experts. All of them had experience of scale development. They also had experience of working with adolescents' population, therefore, they were familiar with the topic under study. They were requested to judge the statements independently for language appropriateness, face validity and construct relevance. They were also requested to indicate statements that require to be rephrased or discard. The statements which were approved by at least three experts were retained for scale. After making improvements, 151 statements were finalized to be used for scale.

Finalization of items. Items were arranged with six response options that ranged from completely disagree (0) to completely agree (5). In order to see that whether the language of the scale was appropriate for target population, the scale was administered on a small sample of 20 adolescents. The adolescents were 16 to 18 years old and they were students of 11th and 12th grade. They were requested to report if they found some word or statement as difficult to comprehend. On the basis of try out, it was decided to add English equivalents for some Urdu words in parenthesis which were commonly used in English and adolescent generation is less familiar to their Urdu version.

Study 2

The main objective of this study was to determine the factor structure and psychometric properties of the scale.

Sample and Procedure. After taking formal permission from principals/ directors of colleges and parents of students and consent of students, scale was administered. Verbal as well as written instructions were provided. A convenience sample of 506 students (boys = 229, girls = 277) was taken from different public (58.7%) and private (41.3%) colleges. The age range of participants was 16 to 18 years and they were studying in grade 11th (62.1 %) and grade 12th (37.9 %). Adolescents who were 16 years old constituted 30.8% of sample, while 38.3% were 17 years old, and 30.8% were 18 years old. Adolescents from joint family system, a family system where three generations i.e., grandparents, parents and grandchildren were living together (Akhtar, Malik, & Begeer, 2017), represented 32% sample while 67.8% were taken from nuclear family system, a family system where two generations i.e.,

parents and their children were living together (Akhtar et al., 2017). Fathers of 42.7% adolescents were self-employed, 45.5% adolescents' fathers were employed in public sector whereas 11.5% were employed in private sector. Mothers of the majority of sample i.e., 90.5% were housewives, 8.3% adolescents' mothers were employed in public sector whereas mothers' of only 1.2% adolescents were employed in private sector.

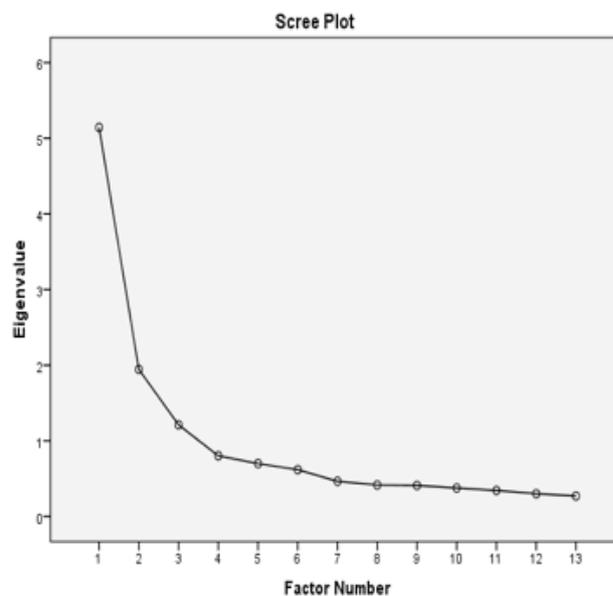
Exploratory Factor Analysis (EFA). Before conducting first order exploratory factor analysis, appropriateness of data was checked by Kaiser-Myer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity. KMO value was found to be .87 which is a good indicator of sampling adequacy as suggested by Hutcheson and Sofroniou (1999) and Bartlett's test of sphericity was also significant ($p < .001$). The values of both tests indicated that data was appropriate for exploratory factor analysis.

For first order EFA, Principal Axis Factoring with Promax rotation was used. Only those items which had the factor loadings of .30 or above were retained (Kline, 2005). And only those factors which had at least three items (Comrey, 1973; Thurnstone, 1947) and had Eigen values greater than 1 (Guttman, 1954; Kaisar, 1960, 1970) were selected. On the basis of above-mentioned criteria and content analysis, 74 items and 13 factors which explained 47.66% of variance were finalized. Factor loadings of the selected items are given in Table 2 for their respective factors that ranged from .30 to .92. The factors were named according to content of the items by a committee of three members.

As contents of the factors were indicating the existence of some common themes, so, second order EFA was conducted to extract dimensions from the 13 factors finalized through first order EFA. Items of the respective factors were added to compute factors and EFA was conducted by using these factors as indicators. Second order EFA was conducted on the same sample that was used in first order EFA. KMO value .88 and significant Bartlett's ($p < .001$) indicated that data was appropriate for exploratory factor analysis.

Similar to first order EFA, Principal Axis Factoring with Promax rotation was used for second order EFA. Thirteen factors loaded on three dimensions explaining 63.84% of item variance. Scree plot (See Figure 1) also shows that there are three factors/dimensions which have Eigen values greater than 1 (Guttman, 1954; Kaiser, 1960, 1970). On the basis of scree plot and content of factors, three dimensions were finalized. Factor loadings of factors for their respective dimensions ranged from .60 to .84 (Table 2). These dimensions were named Intimacy, Passion and Distrust by the review committee. Intimacy dimension consisted of seven factors i.e., Sincerity, Expectations, Sharing, Closeness, Understanding, Pleasure, and Significance. Passion dimension consisted of three factors i.e., Motive to love, Physical Attraction, and Companionship. Distrust dimension also consisted of three factors i.e., Disloyalty, Negative Dating Attitude, and Lack of Commitment.

Figure 1. Showing Scree Plot of second order EFA (N = 506)



To establish the psychometric properties of the scale, the internal consistency, and other descriptive statistics such as Mean, Standard deviation, Range, Skewness and Kurtosis were determined for factors and dimensions reported in the Table 1.

Table 1

Shows descriptive Statistics for factors and dimensions (N = 506)

Factors/ dimensions	No. of items	M	SD	Cronbach's Alpha	Range		Skewness	Kurtosis
					Potential	Actual		
Sharing	11	42.91	9.37	.88	0-55	4-55	-1.18	1.83
Disloyalty	9	30.71	9.50	.84	0-45	0-45	-.58	-.24
Physical Attraction	6	20.11	6.98	.82	0-30	0-30	-.67	-.09
Understanding	8	31.15	6.75	.79	0-40	3-40	-1.39	2.42
Pleasure	4	16.93	3.50	.76	0-20	2.98-20	-1.74	3.29
Closeness	6	23.56	5.10	.74	0-30	3-30	-1.21	1.72
Negative Dating attitude	6	19.64	6.96	.70	0-30	0-30	-.42	-.42
Motive to love	3	8.05	3.97	.65	0-15	0-15	-.20	-.60
Expectations	6	25.49	4.43	.71	0-30	8.96-30	-1.54	2.66
Lack of Commitment	3	8.94	3.84	.66	0-15	0-15	-.51	-.18
Significance	4	14.59	4.17	.65	0-20	0-20	-.88	.56
Companionship	4	15.37	3.68	.61	0-20	0-20	-1.03	1.21
Sincerity	4	16.28	3.55	.70	0-20	0-20	-1.37	2.29
Intimacy	43	170.91	29.49	.94	0-215	21.96-215	-1.40	2.77
Passion	13	43.52	11.66	.83	0-65	1-65	-.50	.04
Distrust	18	59.30	15.84	.84	0-90	0-90	-.51	-.09

Table 1 shows the number of items, reliabilities, skewness, kurtosis, and other descriptive statistics of the factors. Number of items in factors ranged from 3 to 11. The Cronbach's Alpha for factors ranged from .61 to .88 which shows that all factors have a high degree of internal consistency. The values of skewness and kurtosis were in acceptable range. Among three of the dimensions, Intimacy consists of seven factors having 43 items. Passion consists of three factors and have 13 items. Whereas, Distrust has three factors with their 18 items. Cronbach's Alpha for dimensions ranged from .83 to .94 indicating that all dimensions have a high degree of internal consistency. The values of skewness and kurtosis were also in acceptable range.

Study 3

The main objective of this study was to establish the construct validity by conducting confirmatory factor analysis (CFA) on a second independent sample.

Sample and Procedure. After taking formal permission from principals/directors of colleges and parents of students and consent of students, scale was administered on the students. Verbal as well as written instructions were provided. A convenience sample of 647 students (boys = 285, girls = 362) was taken from different public (64.3%) and private (35.7%) colleges. The age range of sample was 16 to 18 years and they were students of 11th (55.8%), and 12th (44.2%) grade. A total of 22.3% adolescents were 16 years old, 36.6% were 17 years old, and remaining 41.1% were 18 years old. Family system distribution showed that 33.7% adolescents were from joint family system, a family system where three generations i.e., grandparents, parents and grandchildren were living together (Akhtar et al., 2017) while 66.3% were from nuclear family system, a family system where two generations i.e., parents and their children were living together (Akhtar et al., 2017). Adolescents whose fathers were self-employed constituted 36.5% of the sample, adolescents having fathers who were employed in public sector composed 35.5% of the sample, fathers of 23.6% adolescents were employed in private sector whereas fathers of remaining 3.4% adolescents had been retired from different organizations. Again, mothers of majority of the adolescents i.e., 93% were housewives and only 4.6% mothers of the adolescents were employees in public sector whereas 1.1% adolescents have mothers employed in private sector. The remaining 1.2% adolescents' mothers were self-employed.

Confirmatory Factor analysis (CFA). Confirmatory factor analysis was conducted on Mplus (V-7). First order CFA of factors was conducted to confirm the factor structure extracted in EFA. Overall results of first order CFA showed that though, chi-square was significant in most of the cases due to large sample size but other model fit indices such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) were in acceptable range for all factors (Table 3). The results evidenced that the CFA models fitted the data well and confirmed the factor structure at the facet level. Factor loadings of all items/ variables for their respective factors are presented in Table 2.

First order CFA of all the factors of Intimacy dimension was conducted separately. Results showed that default model of Sincerity factor had significant chi-square value ($\chi^2 = 27.01, p = .00$) due to large sample size so other indices were considered. CFI and TLI values were good (CFI = .97, TLI = .90) but RMSEA = .14 appeared to be high. In second step of analysis, errors within indicators of sincerity factor were allowed to covary. Error covariance was allowed for items that is "I think, those who love each other, they hide each others' faults and shortcomings" and "Often boys and girls are very sincere to each other after entering in this romantic relationship". Content of these items is same that adolescents who love each other or have romantic relations, they are sincere with each other. Addition of error covariance resulted in improvement of the model to the data with $\Delta \chi^2(df) = 26.90(1)$, RMSEA = .00, CFI = 1.00, TLI = 1.00. The factor loadings of the items ranged from .43 to .88 in final model of Sincerity. Results of CFA of Expectations factor shows that, although, χ^2 is significant ($\chi^2 = 19.44, p = .02$) but all other indices are in acceptable range (RMSEA = .04, CFI = .99, TLI = .99) confirming the factor structure suggested by EFA. Factor loadings of the items ranged from .46 to .81.

Default model of Sharing was satisfactory with ($\chi^2 = 226.28, p = .00$, RMSEA = .08, CFI = .92, TLI = .90) and it further improved when in second step of analysis errors within indicators of Sharing factor were allowed to covary. Error covariances were allowed for items of related content. Addition of these error covariances resulted in improvement of the model to the data with $\Delta \chi^2(df) = 102.08(6)$, RMSEA = .06.

Table 2

Factor structure of Romantic Relations Scale for Adolescents in 1st order and 2nd order Factor Analysis (N=647)

First order Factor Analysis			
Item no.	Statements	Factor loadings	
		EFA	CFA
Sharing			
1	Due to romantic relations, boy and girl find a person with whom they can share their everything.	.79	.60
2	Boy and girl, share their daily routine and everything with each other.	.78	.46
3	Boy and girl talk to each other about every such thing which can be discussed with some very close person or friend.	.74	.55
4	Boy and girl discuss about their liking and disliking with each other.	.73	.55
5	Boy and girl tell each other their personal and family matters.	.73	.41
6	Boy and girl share with each other the things of personal attachment.	.68	.42
7	Boy and girl who romance, they share with each other whatever is in their heart.	.68	.69
8	Boy and girl help each other in solving the problems on basis of their own experiences.	.65	.46
9	Boy and girl talk to each other about their hobbies.	.61	.37
10	Boy and girl find a person due to romantic relation with whom they can share their every problem.	.39	.68
11	Due to romance, girl becomes confident.	.36	.55
DISLOYALTY			
12	Boys have romantic relations to pass time.	.82	.63
13	Mostly boys are not sincere so they have romantic relations with many girls at a time.	.79	.71
14	When boys have breakup with one girl, they start relation with another girl.	.71	.72
15	Boys leave the girls after using them.	.69	.82
16	Boys flirt, they are not sincere in love.	.57	.71
17	Usually boys blackmail girls in romantic relations.	.48	.69
18	In adolescence, romantic relations do not last long.	.47	.54
19	In adolescence, romantic relations are kept to pass time.	.45	.63
20	Boys go on date with different girls.	.34	.56
PHYSICAL ATTRACTION			
21	When adolescent boys and girls go on a date, they hug and kiss each other with love.	.84	.69
22	Those adolescent boys and girls, who have romantic relations with each other, walk by holding each other's hand.	.75	.70
23	When adolescent boys and girls go on a date, they hold each other's hand.	.70	.75
24	Kissing and hugging by adolescent boys and girls is an expression of their love/ romance.	.66	.66
25	Boys and girls, who have romantic relations, go on a date.	.45	.56
26	On a date, boys and girls express their emotions in front of each other.	.33	.46

Cont..

Item no.	Statements	Factor loadings	
		EFA	CFA
UNDERSTANDING			
27	Understanding with each other develops the mutual trust.	.82	.58
28	If there is understanding with each other then romantic relations reach to the point of marriage.	.74	.65
29	When there is understanding with each other then boy and girl help each other in solving the problems.	.74	.64
30	If some problem is faced anytime, boy supports and protects the girl.	.68	.63
31	When adolescent boy and girl talk to each other, then understanding develops between them.	.68	.49
32	If boy and girl understand each other only then romantic relations can go on/ continue.	.57	.56
33	When any adolescent boy and girl spend time together then understanding develops between them.	.41	.55
34	Adolescent boys and girls adapt good habits to attract opposite gender towards them.	.32	.38
PLEASURE			
35	Boy's and girl's mood become very pleasant in presence of each other.	.83	.70
36	If some boy and girl are in love/ romance, they have a smile on their face when they see each other.	.75	.85
37	Boys and girls who have romantic relations they conversate through eyes.	.41	.60
38	Boy and girl feel pleasure by talking to each other.	.39	.80
CLOSENESS			
39	Attraction of opposite gender brings boy and girl close to each other.	.92	.47
40	Adolescent boy's and girl's feelings for each other bring them close together.	.82	.65
41	In romantic relations, adolescent boy and girl trust each other a lot.	.41	.65
42	The emotion of love and affection for each other, bring boy and girl close to one another.	.41	.85
43	I think mutual trust and confidence is essential for success of romantic relations.	.38	.50
44	Boy and girl like to spend time with each other.	.30	.60
NEGATIVE DATING ATTITUDE			
45	Those who go on dating, have no positive thinking.	.89	.31
46	Boy and girl who are sincere with each other, they don't hug or kiss.	.70	.60
47	When go on date, it seems good but there is loss afterward.	.58	.82
48	Adolescent boys and girls should not go on date.	.49	.65
49	Adolescent boys' and girls' kissing or hugging is not appropriate/acceptable behaviour.	.47	.58
50	If I will be in love with someone, I will like to go on a date with him/ her.	.32	.50
MOTIVE TO LOVE			
51	Adolescent boys and girls have romantic relations to show that they are grown up now.	.86	.53
52	Boys and girls who have no romantic relations, start to have inferiority complex so in order to get rid of that they try to have romance with someone.	.69	.67
53	Adolescent boys and girls enter in this relationship by observing their friends as having love/ romance with someone.	.67	.81

Cont..

Item no.	Statements	Factor loadings	
		EFA	CFA
EXPECTATIONS			
54	Girl expects that boy loves her fully.	.82	.78
55	I think when boy and girl understand each other then emotional attachment develops between them.	.49	.65
56	As compared to boys, girls have more trust on them.	.48	.46
57	Girl expects that boy cares about her.	.41	.77
58	Adolescent girl expects love and attention from the boy.	.37	.81
59	If I will love someone, I will expect to remain sincere with each other.	.34	.62
LACK OF COMMITMENT			
60	If there is a problem in continuing the romantic relation, boy and girl break that romantic relation.	.88	.68
61	If parents do not agree then this relationship is breakup/ ended.	.81	.49
62	Adolescent boys and girls breakup this relation on parents' order or due to harshness/ punishment by them.	.64	.32
SIGNIFICANCE			
63	By observing others, adolescent boy and girl has a desire that he or she also has romantic relations.	.91	.55
64	In romantic relations, adolescent boy and girl learn a lot.	.64	.70
65	By having romantic relations, feelings of loneliness disappear.	.36	.73
66	If romantic relation is ended/ finished then a person has a lot of distress.	.32	.64
COMPANIONSHIP			
67	Boy and girl talk to each other in privacy.	.87	.71
68	To spend time together, adolescent boys and girls bunk the college and go somewhere outside.	.57	.56
69	In this age, boys and girls who have romantic relations, go for outing together.	.50	.63
70	Boy expects that girl gives him maximum time.	.39	.62
SINCERITY			
71	Those who are sincere to each other they do not leave each other at any cost.	.86	.72
72	If a boy and a girl are sincere to each other, they understand each others' problems and limitations.	.57	.88
73	I think, those who love each other, they hide each others' faults and shortcomings.	.48	.55
74	Often boys and girls are very sincere to each other after entering in this romantic relationship.	.44	.43

Cont..

Second order Factor Analysis				
S. No.	Factors	Factor loadings		
		EFA	CFA	
INTIMACY				
1	Sincerity	.84	.50	
2	Expectations	.84	.63	
3	Sharing	.81	.68	
4	Closeness	.80	.83	
5	Understanding	.75	.70	
6	Pleasure	.71	.73	
7	Significance	.60	.72	
PASSION				
8	Motive to Love	.80	.44	
9	Physical Attraction	.72	.62	
10	Companionship	.67	.65	
DISTRUST				
11	Disloyalty	.79	.66	
12	Negative Dating Attitude	.78	.56	
13	Lack of Commitment	.65	.35	

Note. Original scale is in Urdu language. It is translated just to convey the content of items; it is not standardized translation.

CFI = .96, TLI = .94. Factor loadings of items ranged from .37 to .69 in the final model. Similarly default model of Closeness had slightly high RMSEA value (RMSEA = .09) though values of CFI and TLI were good (CFI = .97, TLI = .95). The model was improved when in second step of analysis error covariances were allowed for items of related content. Addition of these error covariances resulted in improvement of the model to the data with $\Delta \chi^2(df) = 46.52(2)$, RMSEA = .03, CFI = 1.00 and TLI = .99. Factor loadings in final model were ranging from .47 to .85.

Default model of Understanding had significant χ^2 value ($\chi^2 = 128.06, p = .00$) with a slightly high RMSEA value (RMSEA = .09). The model improved when in second step of analysis errors within indicators of Understanding factor were allowed to covary. Error covariances were allowed for items of related content. Addition of these error covariances resulted in improvement of the model to the data with $\Delta \chi^2(df) = 51.68(2)$, RMSEA = .07, CFI = .96 and TLI = .94. Factor loadings of items ranged from .38 to .65. Confirmatory factor analysis of Pleasure factor showed a good model fit as all indices were in acceptable range ($\chi^2 = 2.68, p = .26$, RMSEA = .02, CFI = 1.00, TLI = 1.00) with factor loadings ranging from .60 to .85. CFA of Significance factor also shows a good model fit of the default model with acceptable model fit indices (RMSEA = .07, CFI = .99, TLI = .98). Factor loadings ranged from .55 to .73.

For first order CFA of the factors of Passion dimension, all three factors including Motive to love, Physical Attraction, and Companionship were tested in single model. Default model had significant χ^2 value ($\chi^2 = 163.46, p = .00$) and acceptable other indices (RMSEA = .05, CFI = .98, TLI = .97) and it substantially improved after adding one error co-variance between items “To spend time together, adolescent boys and girls bunk the college and go somewhere outside” and “In this age, boys and girls who have romantic relations, go for outing together” at second step of analysis. Content if the items is same that adolescents who have romantic relations, they went out together to spend some time together or for companionship. Addition of error covariance resulted in improvement of the model to the data with $\Delta \chi^2(df) = 51.28(1)$, RMSEA = .04, CFI = .99, TLI = .98. Results of finally fitted model showed a good fit of the model to the data with factor loadings of Motive to love ranging from .53 to .81, Physical Attraction loadings ranging from .46 to .75 and Companionship loadings ranging from .56 to .71.

Similarly, CFA of Distrust dimension was conducted using all three factors i.e., Disloyalty, Negative Dating Attitude, and Lack of Commitment in same model. In second step of analysis, error covariance was allowed for items that is “If parents do not agree then this relationship is breakup/ ended” and “Adolescent boys and girls breakup this relation on parents’ order or due to harshness/ punishment by them”. Content of these items is same that there is no long term commitment in adolescents’ romantic relations. They break up or end up these relations if their parents do not accept these relations. Addition of one error covariance resulted in significant improvement of the model with $\Delta \chi^2(df) = 84.31(1)$. The final model showed a good fit of the model to the data with $\chi^2(df) = 247.87(125)$, $p = .00$, RMSEA = .04, CFI = .98 and TLI = .98. In final model, factor loadings of indicators of Disloyalty ranged from .54 to .82, loading of Negative Dating Attitude ranged from .31 to .82 and loadings of Lack of Commitment ranged from .32 to .68.

Then second order CFA was conducted on the same sample used for the first order CFA. The results presented in the Table 3 shows that second order CFA confirmed presence of three valid dimensions extracted in EFA as representative of all 13 factors. Though the default model was a poor fit of the second order model to the data, but addition of error covariances at second step of analysis on the basis of the nature of relationship of factors resulted in significant improvement of the model to the data with $\Delta \chi^2(df) = 212.33(7)$. The final model showed a good fit of the model to the data with $\chi^2(df) = 200.70(55)$, RMSEA = .06, CFI = .95, and TLI = .92.

Factor loadings of factors of Intimacy dimension ranged from .50 to .83, factor loadings of the factors of Passion dimension ranged from .44 to .65 and factor loadings of the factors of Distrust dimension ranged from .35 to .66 (Table 2).

Table 3

Showing results of 1st order and 2nd order Confirmatory Factor Analysis (Indices of Model Fit) (N=647)

Factors/ dimensions	Model in CFA	χ^2	df	P	χ^2/df	RMSEA	CFI	TLI	$\Delta \chi^2(df)$
1 st order CFA									
Sincerity	M1	27.01	2	.00	13.50	.14	.97	.90	
	M2	.11	1	.74	.11	.00	1.00	1.00	26.90(1)
Expectations	M1	19.44	9	.02	2.16	.04	.99	.99	
	M2	226.28	44	.00	5.14	.08	.92	.90	
Sharing	M1	124.20	38	.00	3.27	.06	.96	.94	102.08(6)
	M2	58.06	9	.00	6.45	.09	.97	.95	
Closeness	M1	11.54	7	.12	1.65	.03	1.00	.99	46.52(2)
	M2	128.06	20	.00	6.40	.09	.93	.91	
Understanding	M1	76.38	18	.00	4.24	.07	.96	.94	51.68(2)
	M2	2.68	2	.26	1.34	.02	1.00	1.00	
Pleasure	M1	7.74	2	.02	3.87	.07	.99	.98	
Significance	M1	163.46	60	.00	2.72	.05	.98	.97	
	M2	112.18	59	.00	1.90	.04	.99	.98	51.28(1)
Passion	M1	332.18	126	.00	2.64	.05	.97	.96	
	M2	247.87	125	.00	1.98	.04	.98	.98	84.31(1)
Distrust	M1								
	M2								
2 nd Order CFA									
Intimacy+ Passion+ Distrust	M1	413.03	62	.00	6.66	.09	.87	.84	
	M2	200.70	55	.00	3.65	.06	.95	.92	212.33(7)

M1 = Default model, M2 = Finally fitted model

Reliability analysis for the final scale was conducted on the same sample which was used for CFA by computing Cronbach's Alpha for dimensions and factors separately. The Cronbach's Alpha was ranging from .60 to .86 for factors while it was .80 to .93 for dimensions (Table 4). It shows that all factors and dimensions had good reliability.

Pearson bivariate correlations among factors and dimensions were calculated (Table 4). Results shows that Intimacy dimension is significantly positively correlated with its own factors (r ranging from .60 to .83, $p < .01$) and significantly positively correlated with Passion dimension ($r = .51, p < .01$) and its factors (r ranging from .31 to .41, $p < .01$) whereas significantly negatively correlated with Distrust dimension ($r = -.11, p < .01$) and its two factors i.e., Disloyalty

Table 4

Showing Correlation matrix among factors and dimensions of Romantic Relations Scale for Adolescents and their descriptive Statistics (N = 647)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	-	.49**	.34**	.44**	.50**	.33**	.38**	.10*	.17**	.22**	-.02	.10*	.08*	.60**	.22**	.05
2		-	.46**	.56**	.46**	.46**	.46**	.21**	.23**	.37**	.11**	.04	.04	.71**	.34**	.10*
3			-	.56**	.55**	.51**	.52**	.20**	.32**	.28**	-.14**	-.12**	-.01	.82**	.37**	-.14**
4				-	.67**	.63**	.60**	.28**	.35**	.35**	-.12**	-.12**	-.00	.83**	.43**	-.14**
5					-	.52**	.50**	.21**	.35**	.29**	-.10**	-.06	.04	.80**	.39**	-.08*
6						-	.53**	.22**	.37**	.34**	-.05	-.09**	-.01	.72**	.42**	-.07
7							-	.47**	.35**	.36**	-.10*	-.22**	.01	.75**	.51**	-.16**
8								-	.25**	.36**	.06	-.07	.03	.31**	.64**	.02
9									-	.42**	.14**	-.13**	-.03	.41**	.83**	.03
10										-	.11**	-.03	.04	.41**	.74**	.07
11											-	.34**	.20**	-.10*	.14**	.86**
12												-	.26**	-.11**	-.12**	.72**
13													-	.02	.01	.49**
14														-	.51**	-.11**
15															-	.05
16																-
M	16.78	25.56	38.53	23.31	31.36	16.78	14.05	8.05	21.19	15.35	21.15	30.35	9.07	166.42	44.58	60.56
SD	3.18	4.59	8.98	5.0	5.81	3.45	4.60	3.97	6.30	3.94	6.39	10.02	3.62	27.13	10.73	15.03
S	-1.46	-1.79	-.89	-1.28	-.95	-1.84	-1.04	-.27	-.86	-1.09	-.63	-.69	-.54	-1.18	-.57	-.56
K	2.39	4.24	1.09	2.50	1.03	4.45	.73	-.61	.47	1.12	-.27	-.18	-.16	1.91	.14	-.25
α	.66	.75	.79	.76	.74	.77	.70	.64	.78	.69	.70	.86	.60	.93	.80	.83

Note. 1=Sincerity, 2=Expectations, 3=Sharing, 4=Closeness, 5=Understanding, 6=Pleasure, 7=Significance, 8=Motive to Love, 9=Physical Attraction, 10=Companionship, 11=Disloyalty, 12=Negative Dating Attitude, 13=Lack of Commitment, 14=Intimacy, 15=Passion, 16=Distrust, M=Mean, SD=Standard deviation, S=Skewness, K=Kurtosis, α =Cronbach's Alpha, * $p < .05$, ** $p < .01$

($r = -.10, p < .05$) and Negative Dating Attitude ($r = -.11, p < .01$) but has no significant correlation with its third factor i.e., Lack of Commitment. Passion dimension was significantly positively correlated with its own factors (r ranging from .64 to .83, $p < .01$) and also significantly positively correlated with factors of Intimacy (r ranging from .22 to .51, $p < .01$). Passion dimension had no significant correlation with Distrust dimension and one of its factors i.e., Lack of Commitment whereas it has significant positive correlations with its Disloyalty factor ($r = .14, p < .01$) and significant negative correlation with Negative Dating Attitude factor ($r = -.12, p < .01$). Distrust dimension was significantly positively correlated with its own factors (r ranging from .49 to .86, $p < .01$) and significantly negatively correlated with four factors of intimacy dimension including Sharing, Closeness, Understanding and Significance (r ranging from -.08 to -.16, $p < .05$), significantly positively correlated with its one factor i.e., Expectations ($r = .10, p < .05$) and had no significant correlation with Sincerity and Pleasure factor. Whereas Distrust dimension had no significant correlation with Passion dimension and its factors.

Discussion

The present study was conducted to investigate the perception of romantic relations by adolescents in the collectivist society of Pakistan by using an empirical approach. Although, a lot of work has been done all over the world on the romantic relations of adolescents (Collins et al., 2009; Furman & Collins, 2009; Meier & Allen, 2009) but it is relatively new area in Pakistan that needs to be explored. Given the scarcity of available instruments, this study was aimed to develop a valid, reliable, and comprehensive instrument to measure the perception of romantic relations by adolescents. Considering the cultural norms and taboos of eastern religious collectivistic developing societies, we expected that perception of romantic relations by adolescents in Pakistan will be quite different from perception of adolescents in Europe, America and other developed countries where romantic relations of adolescents are well-accepted interpersonal relations. However, we found that although some factors and dimensions were quite novel and different, but some had similar conceptualization that might be due to globalization, role of social media, and increased use of information technology in everyday life of younger generation.

Some of the factors and dimensions that were similar and have been well-researched using direct or indirect measures include Intimacy, Passion, Companionship, Closeness, Understanding and Sharing. Other factors and dimension including Sincerity, Expectations, Significance, Pleasure, Motive to Love, Physical Attraction, Distrust, Disloyalty, Negative Dating attitude, and Lack of Commitment were different, more culture specific, and rarely reported in available empirical literature. Among the well-established factors, Intimacy and Passion have been measured using different scales including Prototype of Love Scale (Aron & Westbay, 1996), Relationship Rating Form (Davis, 2001), Sternberg Triangular Love Scale (Sternberg, 1997) and Triangular Love Scale (Lemieux & Hale, 1999; Lemieux & Hale, 2002). Other well-researched factors include Companionship and Closeness, have been measured using Romantic Qualities Scale (Ponti et al., 2010), feelings of Closeness and Intimacy by Hattis Love Scale (Hattis, 1965), and Understanding and Sharing by Relationship Rating Form (Davis, 2001).

Among the newly established factors/dimensions and rarely found and studied in empirical literature, Sincerity, Expectations, Significance, and Pleasure factors of Intimacy dimension, Motive to Love and Physical Attraction factors of Passion dimension, and Distrust dimension along its factors i.e., Disloyalty, Negative Dating attitude, and Lack of Commitment seems very culture specific. In focus group discussions, students gave much importance to sincerity in romantic relations and it also emerged as a prominent factor of Intimacy dimension supported by empirical evidences in EFA and CFA.

Commitment is a well-studied factor measured by various instruments including Prototype of Love Scale (Aron & Westbay, 1996), Sternberg Triangular Love Scale (Sternberg, 1997), Triangular Love Scale (Lemieux & Hale, 1999; Lemieux & Hale, 2002), and Relationship Rating Form (Davis, 2001). Our results showed a negative conceptualization of Commitment i.e., Lack of Commitment, suggesting the significance of the negative side of perception of romantic relations.

Our results evidenced that perception of romantic relations has a prominent negative conceptualization in Pakistani adolescents by suggesting a whole new dimension i.e., Distrust along with its factors including Disloyalty, Negative Dating Attitude and Lack of Commitment which are novel concepts in our scale. These results showed that though adolescents in an eastern religious collectivistic developing society have a global perception of romantic relations, and they accept and like these relations, but they also have a negative conceptualization of romantic relations. This might be due to fact that romantic relations are not well-accepted interpersonal relations in their culture and not positively valued.

It is worth to mention that all items of the scale were generated on basis of content analysis of focus group discussions and scale was validated on a large sample that was representative of adolescents of Pakistan. Henceforth, we assume that the scale is a comprehensive measure and truly reflect the perception of romantic relations by adolescents and can be used as a reliable instrument to measure perception of romantic relations by adolescents of Pakistan and other eastern religious collectivistic developing societies.

The unique contribution of the present study is that romantic relations had emerged as a multidimensional concept having both positive and negative dimensions. The scale is a comprehensive measure having three dimensions which further consist of factors. The Intimacy dimension consists of seven factors, both Passion and Distrust dimensions consists of three factors each. Though not well-established in earlier literature, the perceived structure of the romantic relations is aligned with earlier literature suggesting that perception of romantic relations is multidimensional in nature and has both positive and negative aspects (Ponti et al., 2010).

The psychometric properties of the scale including internal consistency and intra-scale correlations further evidenced effectiveness of the instrument for measuring perception of romantic reactions in future studies. The scale was found to have good internal consistency as Cronbach's Alpha ranged from .61 to .88 for factors in study 2 and from .60 to .86 in study 3 and for dimensions Cronbach's Alpha ranged from .83 to .94 in study 2 and .80 to .93 in study 3.

Confirmatory factor analysis of factors and dimensions has validated the factor structure established in EFA. In conclusion, Romantic Relations Scale for Adolescents is a comprehensive reliable instrument with substantial evidences for its content and construct validity.

Implications

The study resulted in development of a valid and reliable instrument to assess the perception of romantic relations by adolescents in eastern religious collectivistic developing societies. It will help the future researchers in exploring the phenomena of romantic relation in more detail and in variant contexts. It will also help the professionals to assess the perception of romantic relations of adolescents in dealing with their problems such as behavioural problems, problems in academics or problems in family relationships.

Limitations and Suggestions

The main limitation is that during all stages of scale development, only the adolescents who were from 16 to 18 years old were taken, that is a very limited age group. The construct shall also be explored in other age groups in future studies. Another limitation of the study is that adolescents living in rural areas were not included in the sample. Future studied should include adolescents from rural areas in order to improve validity and generalizability of the scale.

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Ethical approval obtained

Consent for Publication

Consent Approved by the authors

Availability of data and materials

Contact corresponding author

Competing Interest

None

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Authors' Contribution

Conceptualization, S.T.C. and J.A.M.; Methodology, S.T.C. and J.A.M.; Investigation/data collection, S.T.C.; Analysis and interpretation, J.A.M. and S.T.C.; Supervision, J.A.M.; Writing—original draft, S.T.C.; Writing—review and editing, S.T.C. and J.A.M.; Final approval of the version to be published by J.A.M. and S.T.C., And both authors agreed to be accountable for all aspects of the work.

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