ORIGINAL ARTICLE

THE TRANSLATION AND FACTOR STRUCTURE OF THE INVENTORY FOR PARENT AND PEER ATTACHMENT- REVISED (IPPA-R)

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ABSTRACT

OBJECTIVE
To translate the inventory in Urdu language and to test the construct validity of the latest version of IPPA-R by using confirmatory factor analysis in order to evaluate the psychometric properties of resulting factors.

STUDY DESIGN
Exploratory

PLACE AND DURATION OF STUDY
The study was conducted in different private and govt. collages in duration of three months.

SUBJECTS AND METHODS
Participants of the study were 706 Pakistani adolescents. Three models were compared which are debated in the literature: the uni-factor model (attachment security), the two-factor model (trust–communication, and alienation) and the three-factor model (trust, communication, and alienation).

RESULTS
Our results suggested good reliability of the latest version of IPPA-R. Factor analysis showed that the two-factor model has the best fit. Two factor models across gender also presented an excellent fit suggesting generalizability of the inventory for both boys and girls.

CONCLUSION
The availability of indigenously validated inventory for parent and peer attachment in Urdu language is expected to facilitate the assessment of adolescents' parent and peer attachment in Pakistani population.

KEY WORDS
Factor Structure, Multi-model analysis, Generalizability, Confirmatory factor analysis

INTRODUCTION

From its beginning, Bowlby's attachment theory has been focused predominantly on the attachment bonds in the era of early childhood[1]. But lately, it has been re-conceptualized that other significant relationships are also related to attachment bounds, such as those with peers. Now in the recent trend, this area of study has witnessed an increase in interest which possibly has accelerated investigation regarding attachment from early childhood to adolescence[2].

According to perspectives related to attachment, the era of adolescence is known as a very important transition period because of changes in emotional, cognitive, and behavioral systems. Adolescence is an age in which adolescents grow with their own attitudes and opinions that may be different from their caregivers and parents[1]. Adolescence brings about remarkable transitions in the family balance system related to independence and connectivity. Indeed, adolescents in this developmental change demand independent and autonomous life style which includes minimum interference of their caregivers.

Adolescents establish their autonomy keeping in view the perspectives which are safe and secure, which may make them more close to their parents for more enduring and long lasting relationships[3]. Adolescents are aware of the fact that whenever there is a need for support and help, they can rely on their parents[4]. This is the reason why adolescents get themselves engage in autonomous behaviors.

In addition, theories related to attachment also demonstrate that early interaction between parent and child tends to serve as prototype which later provides foundation for relationship building in adolescent[5]. In specific terms, the theory of attachment suggests that experiences in early age between children and their caregivers produce mental schemas and models regarding the self of the children and their caregivers. These mental representations formed through early interactions between child and parent determines the ways and avenues regarding social interactions both in present and future[6]. There is a substantial amount of evidences to demonstrate that attachment of children with peers and parents are related[7].

The above discussion concludes that during adolescence, the traditional connectedness between the child and the parent is reorganized and non-care giver stakeholders like friends, peers, and neighbors also became the important attachment figures[8]. Keeping in view, from the theoretical perspectives and significance related to attachment in adolescence, it is essential to explore the similarities as well as differences in traditional interactions of the child. With methodical perspectives, it is necessary to investigate the relationship of adolescents with parents as well as peers by using reliable measures. In order to measure attachment, a variety of methods have been developed, adopted and on the basis of mode of assessment such as interviews

and self-report measures. As far as adolescents are concerned, the utility of self-report measures are significantly appropriate because the experiences and other related aspects which are entirely subjective in nature can be better assessed through self-report measures[2]. Among the scales specifically designed for the measurement of attachment of adolescents, IPPA stands out it simultaneously measures attachment of adolescents with parents and peers[9].

Greenberg and Colleagues[10] developed the very first version of the instrument using a two dimensional format (i.e., cognitive and behavioral) based on the theory of Bowlby[1]. But due to the high correlation of these dimensions of attachment with self-esteem and life satisfaction, this two dimensional instrument did not appeared to be a suitable measure of the construct. Keeping in view this phenomenal problem, the revision of the scale was done by Armsden and Greenberg[9] and they converted it into a multidimensional measure with two parallel versions. One version to measure attachment of peers and the other measure attachment of parents.

The parent version included 28 items and the peer version included 25 items. The items included in the revised version are combined to produce a total score depicting attachment and scores based on three dimensions of attachment as well. Armsden and Greenberg described these sub scales/dimensions of IPPA as 1) Trust, which is primarily concerned with the needs and desires of adolescents to be recognized and respected by their parents and peers. 2) Communication, stating the adolescents' perception for their parents and peers in terms of emotional support and sensitive response. It is also concerned with quality and extent of communication between parents and adolescents. 3) Alienation, is mainly concerned with the adolescents' feelings of separation, unacceptability, annoyance, and isolation with parents and peers[9].

The IPPA demonstrated sound psychometrics and good reliability indices. The Cronbach's alpha reliability for the subscales ranged from 0.72 to 0.92. Test re-test reliability was reported as 0.93 for parent version and 0.86 for the peer version. But the inter correlations among latent dimensions (Trust, Communication, and Alienation) was high, having the r value ranging from .73 to .78 for parent version and .45 to .78 for the peer version. After the development of the first version, another version of (IPPA) was also introduced. Armsden and Greenberg split the parental version into two forms i.e., father and mother[11]. They revised the inventory as the researches on attachment were consistently arguing about the different pattern of attachment toward father and mother[12]. The three final versions were modified using 25 items only. Responses were presented as choices on a 5- point Likert-type scale. In addition, Armsden and Greenberg introduced classification regarding scores on (IPPA) in terms of secure and insecure attachment[11].

In 2005 Gullone and Robinson revised the IPPA again[13]. They revised the instrument with the objective to validate IPPA for youth age ranging from 9 years to 15 years by simplifying some items. This revision was applied to the original version of IPPA with two forms. Authors named that revised inventory as the inventory for Parent and Peer Attachment-Revised for children (IPPA-R). A number of strengths have been recognized in scholarly literature regarding the IPPA. IPPA is known for its good reliabilities on all three subscales[14]. Further the strengths such as strong conceptual background; psychometric properties, quickness, and self-scored procedure proved it a particularly handy, convenient and a useful tool for adolescents' attachment research.

In recent years, the factorial structure of IPPA is criticized and a number of studies have been conducted to validate the factor structure of IPPA-R. These studies reported different number of factors for IPPA. Some studies reported a three factor model as the best presentation of the attachment construct in both parents and peers while others categorized it into a two factor model combining the items of trust and communication.[15-18]

With aim to validate IPPA-R in Pakistani context; present study was designed with two main objectives. First, to translate the latest version of IPPA-R into Urdu, and second to validate the dimensional structure of IPPA-R by comparing three models suggested in the literature using confirmatory factor analyses: the one-factor model (overall global score on attachment), the two-factor model, and the three-factor model (alienation, communication, and trust) of revised and simplified version of IPPA-R on adolescents. The present study was extended to assess the psychometric evaluation of best fitted model to data to present the validated measure of the construct.

SUBJECTS AND METHODS

Participants

Total number of 706 volunteers participated in the study. Among the participants, 396 were females and 303 were males. Most of these adolescents belong to intermediate level of education and were recruited from different private and government colleges.

Instruments

This study used the latest revised version of the instrument i.e., IPPA-R[13]. The IPPA-R was revised to simplify the wording of some items (e.g., item14 of Parent form and item 25 of the peer form). There was no change in the subscales and numbering of items. Scoring was adopted from the original IPPA-R. All items were scored as 1 = Never True, 2 = Sometimes True, 3 = Always True.

Procedure

The first step of the study was to translate the above described instrument into Urdu. In this regard, formal permission was taken from the authors of IPPA-R. By adopting the forward and back translation method, the inventory was translated into national language of Pakistan (Urdu)[19]. The forward translation of the inventory was done by three bilingual experts. Bilinguals were selected on the base of their higher education in the resource language (English) and target language (Urdu) as their first language. So it is expected that they will be able to understand items correctly and translate them keeping their meaning and context intact. Next step was to select the best translated items, and for that purpose, a committee consisting of three experts was approached. Same selection criterion was adopted again for the selection of members of the committee (as higher education in English and Urdu as their first language). The objective of the committee was to choose the best

translated items and match them with original items with reference to their meaning, contextual equivalence, and language suitability. The next step was back translation. The best translations of the items identified by the committee were again given to three bilingual experts for translation in to English. The back translation of instruments was again reviewed to compare with the original English version.

Inform consent and confidentiality are very important ethics of researches involving human subject. To fulfill these ethics of research, first of all, inform consent was taken from students' institutional heads/principles, parents of students under the age of 18 years, and from the students. Inform consent consisted of several statements which clearly presented the objectives of the present research and stated that provided information will be confidential. Further, it stated that all the information will be used only for research purposes. After taking inform consent, next step was to approach students for data collection. The translated inventory was distributed in students' lecture halls in their leisure time either before or after their classes.

RESULTS

Demographic characteristics of the subjects are presented in Table 1. In the sample, 45% were male and 55% were female students. Their age range was from 15 years to 20 years with a mean age of 17.01 (SD = 0.94) years.

The factor structure of the inventory for parents and peer attachment was tested using confirmatory factor analysis. The results for the parental version are described in Table 4. Analysis conducted on the three models of parent attachment of the IPPA-R showed unsatisfactory fit indices. A common problem identified in all three models was the low loadings for items number 15 of Alienation, and item 13 of Trust dimension. To refine the instrument, these items were discarded and errors were allowed to covary. In uni-factor model, all of the items were allowed to load on a single factor (overall security/ Attachment). The items loading ranged from .18 to .77 (see Table 2).

Table 1
Descriptive of the study Variables

	Female				Male			
Measures	**Mean**	**S.D**	**Skew**	**Kurt**	**Mean**	**S.D**	**Skew**	**Kurt**
Parent Attachment								
Alienation	13.15	3.01	0.43	-0.10	13.23	3.77	0.99	0.42
Communication	22.81	3.21	-0.77	0.59	23.33	2.94	0.98	1.08
Trust	24.96	2.54	-1.86	2.87	25.33	2.35	0.97	1.95
Att.Security	34.64	7.47	0.87	1.11	35.42	7.33	0.95	0.44
Peer Attachment								
Alienation	8.10	2.41	0.64	-0.42	7.99	2.70	0.95	0.06
Communication	19.00	3.58	-0.40	-0.55	20.28	3.42	-0.88	0.27
Trust	22.88	3.37	-0.75	0.10	23.87	3.37	-1.47	1.19
Att.Security	33.83	8.02	-0.57	0.32	36.17	7.31	-1.02	1.10

Table 2
Item loading for one, two and three factor IPPA−R

Dimensions and items	**One−factor**	**Two−factor**	**Three factor**
Alienation			
Item 3	0.31	0.47	0.47
Item 5	0.27	0.34	0.34
Item 7	0.39	0.41	0.41
item 9	0.18	0.25	0.24
Item 10	0.34	0.44	0.44
Item 11	0.38	0.47	0.47
Item12	0.19	0.27	0.27
Item 18	0.37	0.41	0.42
Item 19	0.44	0.58	0.58
Item 22	0.18	0.31	0.31
Item 25	0.47	0.68	0.68
Item 27	0.51	0.67	0.67
Communication			
Item 6	0.55	0.56	0.60
Item 8	0.50	0.50	0.52
Item 16	0.63	0.65	0.67
Item 17	0.60	0.60	0.61
Item 20	0.51	0.51	0.51
Item 26	0.44	0.45	0.45
Item 28	0.50	0.49	0.51
Trust			
Item 1	0.40	0.40	0.41
Item 2	0.34	0.35	0.34
Item 4	0.41	0.43	0.42
Item 14	0.58	0.58	0.58
Item 21	0.77	0.76	0.77
Item 23	0.56	0.56	0.56
Item 24	0.38	0.38	0.38

Chi-square goodness of fit test, was found to be statistically significant (χ^2 = 372; df = 204) yet the chi-square ratio was within recommended ranges i.e., χ^2/df < 3. We found other fit measures as follows: RMSEA = .034; IFI = .95, CFI = .96 and TLI = .91 and AIC = 564, indicating a good fit. In the two factor model (Communication + Trust, and Alienation), items of Communication and Trust were incorporated into a single factor. Item loading on two factors were ranging from .24 to .76 (see Table 2). Following improvement in the values of fit indices were observed χ^2 = 329; df = 206, RMSEA = 0.029; IFI = 0.96, CFI = 0.97, TLI = 0.97, AIC = 517. Finally, for the three factor model (Alienation, Communication, and Trust) all the items were allowed to load on their respective factors. Their factor loading ranged from .24 to .77 (see Table 2).Values of fit indices χ^2 = 340; df = 207, RMSEA = .030; IFI = .96, CFI = .97 and TLI = .97, and AIC = 574 showed a better model than one factor solution but a poor model than two factor solution for the parent attachment.

The results for the peer form were in the line with parent form. Due to the low loadings of item number 9, and 22 of Alienation dimension, they were excluded from all proposed models and error covariance were allowed. . In the uni-factor model all of the items were allowed to load on a single factor (overall security/ Attachment). The items loading ranged from .24 to .72 (see Table 3).

Table 3
Item loading of IPPA-R (Peer Form)

Dimensions and items	One-factor	Two-factor	Three factor
Alienation			
Item 4	0.24	0.43	0.42
Item 5	0.37	0.52	0.52
Item 10	0.35	0.69	0.67
Item 11	0.34	0.67	0.67
Item 18	0.28	0.47	0.50
Item 23	0.34	0.52	0.54
Communication			
Item 1	0.44	0.45	0.50
Item 2	0.52	0.53	0.59
Item 3	0.53	0.54	0.62
Item 7	0.63	0.64	0.66
Item 16	0.72	0.72	0.69
Item 17	0.55	0.56	0.52
Item 24	0.56	0.55	0.63
Item 25	0.64	0.64	0.68
Trust			
Item 6	0.61	0.62	0.61
Item 8	0.59	0.59	0.58
Item 12	0.62	0.62	0.63
Item 13	0.53	0.53	0.52
Item 14	0.53	0.51	0.51
Item 15	0.65	0.66	0.64
Item 19	0.41	0.42	0.43
Item 20	0.64	0.62	0.66
Item 21	0.60	0.68	0.64

We found fit measures as follows: $\chi^2 = 350$; df = 163, RMSEA = .040; IFI = .96, CFI = .96, TLI = .95, AIC = 530 suggesting a good fit of the model. In the two factor model (Communication + Trust, Alienation), items of Communication and Trust were included in a single factor. Item loading on two factors were ranging from .42 to .72 (see Table 3). An improvement in the values on fit indices were observed as $\chi^2 = 301$; df= 162, RMSEA = .035; CFI = .97, TLI = .96, IFI = .97, and AIC = 438. Finally for the three factor model (Alienation, Communication, and Trust) all the items were allowed to load on their respective factors. Their factor loadings ranged from .42 to .69 (see Table 3). Values of fit indices $\chi^2 = 269$; df= 160, RMSEA = .031; IFI = .97, CFI =.97, TLI = .96, and AIC = 455 (Table 4) showed a better model than one factor solution but a poor model than two factor solution for peer attachment.

Table 4
CFA of Parent and Peer forms of IPPA-R

Model	Model in CFA	□²	d.f	CFI	IFI	TLI	RMSEA	AIC	Δ□²(df)
Parent Form									
One-factor	M1	1269	350	0.68	0.63	0.68	0.074	1872	
	M2	1108	252	0.76	0.72	0.77	0.069	1252	
	M3	372	204	0.96	0.95	0.96	0.034	564	
	M4	777	408	0.90	0.87	0.91	0.036	1161	
	M5	821	431	0.90	0.88	0.91	0.036	1159	(23)44
Two-factor	M1	1464	349	0.73	0.69	0.74	0.067	1634	
	M2	875	251	0.83	0.79	0.83	0.059	1021	
	M3	329	206	0.97	0.96	0.97	0.029	517	
	M4	720	412	0.93	0.9	0.93	0.033	1096	
	M5	761	434	0.92	0.9	0.92	0.033	1093	(22)41

Table 4
Continue

Model	Model in CFA	□²	d.f	CFI	IFI	TLI	RMSEA	AIC	Δ□²(df)
Three -factor	M1	1438	347	0.74	0.7	0.74	0.067	1612	
	M2	857	249	0.83	0.801	0.83	0.059	1007	
	M3	340	207	0.97	0.96	0.97	0.030	574	
	M4	723	414	0.92	0.9	0.92	0.033	1191	
	M5	767	435	0.92	0.90	0.92	0.033	1193	(21)44
Peer Form									
One-factor	M1	1775	275	0.71	0.66	0.71	0.088	1925	
	M2	1354	209	0.76	0.71	0.77	0.088	1486	
	M3	350	163	0.96	0.96	0.95	0.040	530	
	M4	593	326	0.95	0.93	0.95	0.034	953	
	M5	638	347	0.94	0.92	0.94	0.035	956	(21)45
Two-factor	M1	1434	274	0.78	0.74	0.78	0.780	1586	
	M2	990	208	0.84	0.8	0.84	0.073	1124	
	M3	301	162	0.97	0.97	0.96	0.035	438	
	M4	533	324	0.96	0.94	0.96	0.030	897	
	M5	564	344	0.96	0.94	0.96	0.030	888	(20)31
Three -factor	M1	1359	272	0.79	0.75	0.8	0.075	1515	
	M2	926	206	0.85	0.82	0.85	0.070	1064	
	M3	269	160	0.97	0.97	0.96	0.031	455	
	M4	518	320	0.96	0.94	0.96	0.030	890	
	M5	546	339	0.96	0.95	0.96	0.0301	880	(19)28

Note; M1= Default Model, M2= After removing items, M3= After adding error covariance, M4= Gender groups comparison, M5= Gender groups, constrained to be equal.

All the latent dimensions of the three-factor model of parent version are highly correlated: Communication and Trust, r = .97; Alienation and Communication, r = .61; Alienation and Trust, r = .72. The correlation between two-factor model was observed as Trust + Communication vs. Alienation r = .72 (Table 5). All the latent dimensions of the three-factor model of peer version are also highly correlated: Communication and Trust, r = .94; Alienation and Communication, r = .41; Alienation and Trust, r = .61. The correlation between two-factor model was observed as Trust + Communication and Alienation, r = .52.

Table 5
Correlation among study variables

	Measures	Subscales	1	2	3	4	5	6
1	Parent Attachment	Alienation	-	-.52**	-.80**	.48**	-.25**	-.36**
2		Comm+Trust		-	.93**	-.29**	.45**	.47**
3		2-factor attachment			-	-.41**	.42**	.48**
4	Peer Attachment	Alienation				-	-.37**	-.63**
5		Comm+Trust					-	.95**
6		2-factor attachment						
	Mean		11.20	45.29	34.12	8.05	42.82	-34.81
	SD		3.00	4.97	7.03	2.53	6.52	7.79

**p<0.05, **p<0.01*

To further examine applicability of the IPPA-R across gender, the two factor CFA model of both (parent and peer) versions were tested across both (male and female) samples. Good fit indices of the

models (Table 4) were observed for male and female, suggesting generalizability of the factor structure for both genders. Further, stability of the model across gender groups was established by applying equality constraints for all items on both groups. The results presented in Table 4 showed that fit indices improved for the models of parent and peer with equality constraints across gender suggesting a stable factor structure for both gender. Item loading for parent ranged from .20 to .74 for male and .22 to .78 for female with improved fit indices values of constrained model $\chi^2 = 761$; df = 434, RMSEA = .033; IFI = .92, CFI = .92, and TLI = .90. Item loading for peer form ranged from .39 to .72 for male and .41 to .72 for female with improved fit values of constrained model $\chi^2 = 564$; df= 344, RMSEA = .030; IFI = .96, CFI = .96, and TLI = .94.

The alpha reliability coefficients of IPPA–R are reported in Table 6. Cronbach alpha for overall parent attachment security appeared as $\alpha = .85$ with 26 items, Communication + Trust factor (14 items, $\alpha = .84$), Alienation factor (12 items, $\alpha = .67$), Communication (7 items, $\alpha = .72$), and Trust (7 items, $\alpha = .74$). Cronbach's alpha reliability for IPPA-R were observed as overall peer attachment security ($\alpha = .90$ with 23 items), Communication + Trust (17 items, $\alpha = .89$), Alienation (6 items, $\alpha = .72$), Communication (8 items, $\alpha = .83$), and Trust (9 items, $\alpha = .83$). IPPA-R showed moderate to high reliability expect for the subscale Alienation for parent attachment which is relatively weak but nevertheless in an acceptable range.

Table 6
Reliability estimates

	Parent Attachment		Peer Attachment	
Scales	**No of items**	**Alpha**	**No of items**	**Alpha**
Alienation	12	0.67	6	0.72
Communication	7	0.72	8	0.83
Trust	7	0.74	9	0.83
Trust + Communication	14	0.84	17	0.89
Attachment total	26	0.85	23	0.90

DISCUSSION

The significance of parent and peer attachment during adolescence is evidenced in literature and a number of studies explored the impact of parent and peer attachment on the social and cognitive development of adolescents. This study was designed to contribute in the existing literature on attachment with the objective to translate and validate the a widely used and reliable tool for measuring attachment security for parent and peer (IPPA-R)[20] in Pakistani culture.

The instrument was translated following the Brislin (1970) backward translation method[19]. Three models suggested in the literature: the uni-factor model presenting an overall attachment security, a two-factor model wherein trust and communication are merged into one factor along with alienation as second factor, and in the three-factor model consisting trust, communication, and alienation as independent factors were tested using CFA to validate factor structure of the instrument.

In the parent and peer form of IPPA-R, some items were removed from the proposed models due to their low loading on their respective factors. In the earlier literature, it has been evidenced that content validity of IPPA indicators was also questioned. As indicated by Pace, Martini and Zavattini[17] that in the study of Armsden and Greenberg's[9] content wise some items are not clearly located to their sub-scales. For example, an item in the parent version: "When we discuss things, my father/my mother cares about my point of view" is counted in the trust dimension, but could also be taken as an aspect of communication. Similarly, in the peer form of IPPA-R, the item 12"my friend listens to what I have to say" is though rightfully placed in the trust dimension, it may also be reflected as an indicator of communication dimension. Item number 9 is also reported as a poor item in earlier validation literature[15]. For future research, it may be beneficial to improve the inventory by identifying double meaning items and revise them to to make the indicators more specific to their respective dimensions or by adding some more items to each dimension of the inventory.

All three proposed models were analyzed using CFA. Results showed that there was no noticeable difference in item loadings on the two as and the three factor models. CFA's model fit indices (IFI, CFI, TLI and RMEAS) were also in the acceptable ranges. RMSEA value equal or less than 0.05 suggest good fitness and the IFI, CFI and TLI values greater than 0.90 are supported goodness of fit of the models[21]. However, a noticeable difference in the value of AIC among all three models is evidenced. The AIC is a fit index used for the comparison of two or more nested models with smaller values of AIC demonstrating a better fit of the hypothesized model. The Two factor model appeared to have the smallest value of AIC. Hence, the two factor model is presented as a best description of the IPPA-R factor structure.

The IPPA was originally developed as a multi-dimensional measure of attachment but the literature indicated the problem of highly correlated dimensions of IPPA. The problem raised question on the poor discriminatory value of dimensions leading to uncertainty on their practical usefulness. In the present study, we confirmed that correlations were lower in two factor model as compare to the highly correlated dimensions of the three factor model. Hence, considering all these evidences, the two factor model of parent and peer form is recommended as the suitable factor structure.

Finally, the multi-group comparison of the final two factor model showed that the structure of final 26-item of parent form and 23 item peer form is applicable for both male and female populations

CONCLUSION

In conclusion, the results from this study contributed in further support to the reliability and to the factorial validity of the questionnaire. Two dimensional structure of questionnaire is proposed as the best description of the attachment security in parent and peer forms of IPPA-R. A suggestion for further improvement of IPPA-R is to develop items more specifically and clearly related to the concepts. In its present form, the two factor structure of the IPPA-R appeared as a reliable and valid measure of the parents and peers attachment in Urdu language and hence the two dimensional scoring of the construct is recommended to be used.

REFERENCES

1. Bowlby, J. (1969/1982). Attachment and loss: Vol. 1. Attachment. New York: Basic Books.
2. San Martini, P., G.C. Zavattini, and S. Ronconi, The Inventory of Parent and Peer Attachment (IPPA): A psychometric investigation of an Italian sample of adolescents. Giornale italiano di psicologia, 2009. 36(1): p. 199-228.
3. Fraley, R.C. and K.E. Davis, Attachment formation and transfer in young adults' close friendships and romantic relationships. Personal relationships, 1997. 4(2): p. 131-144.
4. Allen, J.P., et al., Autonomy and relatedness in family interactions as predictors of expressions of negative adolescent affect. Journal of Research on adolescence, 1994. 4(4): p. 535-552.
5. Malekpour, M., Effects of attachment on early and later development. The British Journal of Development Disabilities, 2007. 53(105): p. 81-95.
6. Bowlby, J., Attachment and loss: Volume II: Separation, anxiety and anger, in Attachment and Loss: Volume II: Separation, Anxiety and Anger. 1973, London: The Hogarth Press and the Institute of Psycho-Analysis. p. 1-429.
7. Furman, W., et al., Adolescents' working models and styles for relationships with parents, friends, and romantic partners. Child development, 2002. 73(1): p. 241-255.
8. Kerns, K.A., P.L. Tomich, and P. Kim, Normative trends in children's perceptions of availability and utilization of attachment figures in middle childhood. Social Development, 2006. 15(1): p. 1-22.
9. Armsden, G.C. and M.T. Greenberg, The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. Journal of youth and adolescence, 1987. 16(5): p. 427-454.
10. Greenberg, M.T., J.M. Siegel, and C.J. Leitch, The nature and importance of attachment relationships to parents and peers during adolescence. Journal of youth and adolescence, 1983. 12(5): p. 373-386.
11. Armsden, G.C. and M.T. Greenberg, Inventory of parent and peer attachment (IPPA). 1989: University of Washington Seattle, WA.
12. Mazzeschi, C., et al., The role of both parents' attachment pattern in understanding childhood obesity. Frontiers in psychology, 2014. 5: p. 791.
13. Gullone, E. and K. Robinson, The inventory of parent and peer attachment—Revised (IPPA - R) for children: a psychometric investigation. Clinical Psychology & Psychotherapy, 2005. 12(1): p. 67-79.
14. Ying, Y.W., P.A. Lee, and J.L. Tsai, Predictors of depressive symptoms in Chinese American college students: Parent and peer attachment, college challenges and sense of coherence. American Journal of Orthopsychiatry, 2007. 77(2): p. 316-323.
15. Guarnieri, S., L. Ponti, and F. Tani, The Inventory of Parent and Peer Attachment (IPPA): A study on the validity of styles of adolescent attachment to parents and peers in an Italian sample. TPM-Testing, Psychometrics, Methodology in Applied Psychology, 2010. 17(3): p. 103-130.
16. Johnson, L.N., S.A. Ketring, and C. Abshire, The revised inventory of parent attachment: Measuring attachment in families. Contemporary Family Therapy, 2003. 25(3): p. 333-349.
17. Pace, C.S., P. San Martini, and G.C. Zavattini, The factor structure of the Inventory of Parent and Peer Attachment (IPPA): A survey of Italian adolescents. Personality and Individual Differences, 2011. 51(2): p. 83-88.
18. Vignoli, E. and P. Mallet, Validation of a brief measure of adolescents' parent attachment based on Armsden and Greenberg's three-dimension model. Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology, 2004. 54(4): p. 251-260.
19. Brislin, R.W., Back-translation for cross-cultural research. Journal of cross-cultural psychology, 1970. 1(3): p. 185-216.
20. Gullone, E. and K. Robinson, The inventory of parent and peer attachment—Revised (IPPA - R) for children: a psychometric investigation. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 2005. 12(1): p. 67-79.
21. Williams, B., A. Onsman, and T. Brown, Exploratory factor analysis: A five-step guide for novices. Australasian Journal of Paramedicine, 2010. 8(3).

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