

Title: Adolescent attachment in Nepal: Testing the factorial validity of two scales

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Abstract

Attachment theory is an important framework in the psychology of human development and has direct relevance to the study of adolescence. The cross-cultural validity of attachment constructs and measures has been the subject of lively debate among experts. Using confirmatory factor analysis, the present study tested the factor structure of the *Adolescent Attachment Questionnaire* and the *Adolescent Unresolved Attachment Questionnaire* in a sample of 279 Nepali adolescents. The hypothesised models had a good fit and further tests established the measurement invariance of the two instruments. The cross-cultural validity of the measures was supported but areas of cultural variation were also highlighted.

Attachment theory is a dominant framework in the study of psychological development. Recent meta-analytic studies have confirmed Bowlby's long-standing contention that security in the bond between child and caregiver impacts significantly on interpersonal relationships and individual mental health across the life span (Madigan, Atkinson, Laurin, & Benoit, 2013; Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2014). Attachment is of particular relevance to adolescence as the latter is marked by a shift from primary family bonds to close relationships outside the family (e.g. with group leaders, peers). Research utilising the Inventory of Parent and Peer Attachment, perhaps the most widely used measure of adolescent attachment, suggests that the quality of attachment to parents, but also to peers, is strongly related to adolescent self-esteem and perceptions of oneself as a valued group member (Armsden & Greenberg, 1987). Attachment security is critical in understanding the difficulties adolescents often experience in establishing new relationships, sustaining supportive family bonds, and attaining good mental health.

An important debate in attachment research refers to the cross-cultural validity of the attachment construct and its methods of assessment. Classical attachment theorists argue that although insecure attachment patterns may have adaptive advantages within particular cultural and physical environments, such advantages are only relative (Bowlby, 1980; Main, 1990). Regardless of whether environmental pressures favour it in a particular context, secure attachment is by design the most adaptive strategy in human bonding and self-regulation as it maximises effectiveness of communication, cooperation between individuals, and mastery of the human mind, ultimately increasing the chances of offspring and species survival. According to these theorists secure

attachment is the *primary* attachment strategy in humans, while the insecure attachment strategies are *secondary*, leading only to suboptimal adaptation. In line with this view, assessment methodologies do need to attend to cultural determinants and establish cross-cultural validity, but validity should involve the unbiased identification of universal markers of attachment security.

Some authors have challenged the above approach suggesting that human relatedness is intrinsically linked with culture (Keller, 2013; Quinn & Mageo, 2013). They claim that the diverse patterns of parent-child relationship, self-regulation, individual competence, and adult bonding cannot be either understood or empirically assessed outside their cultural contexts. According to this view, attachment security cannot be defined or assessed in the same way across cultures; the methods devised largely by white middle class westerners to assess largely white middle class mother-child dyads sometimes seem to treat culture- and class-specific behavioural codes as universal markers of security. In addition to being a developmental phase defined by attachment transitions, adolescence is also closely interwoven with culture and cultural identity (Arnett, 1999).

The *Adolescent Attachment Questionnaire* (West, Rose, Spreng, Sheldon-Keller, & Adam, 1998) and the *Adolescent Unresolved Attachment Questionnaire* (West, Rose, Spreng, & Adam, 2000) are two important scales assessing quality of attachment in adolescence. These scales have been validated against the Adult Attachment Interview (AAI), a measure considered by many to be the gold standard in assessing adult and adolescent attachment (Hesse, 2008). As the AAI is time-consuming and costly, the development of well-validated self-report alternatives is crucial. Only one study so far

has investigated the cross-cultural validity of the AAQ (Ribeiro & Sousa, 2002). Utilising a Portuguese sample and employing exploratory factor analysis, the authors reported a factor structure similar to that obtained from English-speaking samples. To the best of our knowledge, no published information on the cross-cultural validity of AUAQ exists. The aim of the present study was to fill that gap in the literature and test the cross-cultural validity of these two scales in an adolescent sample from Nepal. No other attachment study utilising a Nepali sample is known to us.

Having suffered years of a civil war that included the recruitment of child soldiers and a series of recent natural disasters, the coping resources of Nepali youth require attention. Nepali adolescents are raised in extended families and close-knit community networks in which kin and peer relationships are strong but emotional communication between young people and their parents may be restricted (Vikan, da Graça, Dias, & Roazzi, 2009; Yabiku, 2004). We intended to collect information and understand adolescent attachment in this strained and under-researched developing country. In particular, we hypothesised that, in the Nepali sample, AAQ and AUAQ would have factor structures similar to those obtained from English-speaking samples.

Method

Participants

The present sample consisted of 279 high school students from Kathmandu, Nepal (153 males and 123 females). The age of students ranged from 13 to 16 years ($M=14.4$, $SD=.8$). Fifty-five per cent were of Indo-Aryan origin and 48% were indigenous Janajati; 32% were recruited from high socio-economic status (SES) schools, 31.5% from medium

SES schools and 35.8% from low SES schools. Although the available SES information did not refer to each pupil individually but to each school overall, as society and education in Nepal are highly stratified it would be very unlikely that a child's SES was not very similar to that of his/her fellow students. Our population of interest was Nepali adolescents but this was a convenience sample. Schools and classes were selected on the basis of accessibility through local contacts and about equal numbers of participants were recruited across ethnicity and SES groups so that group comparisons would be easier to interpret.

Measures

The following questionnaires were used, utilising a five-point scale (1= strongly disagree to 5= strongly disagree):

a. *Adolescent Attachment Questionnaire* (AAQ; West et al., 1998). This consists of 3 subscales: *Angry Distress* (amount of anger in the caregiving relationship), *Availability* (confidence in caregiver's emotional availability), and *Goal-Directed Partnership* (adolescent's reciprocity and empathy towards the caregiver). The questionnaire has 9 items in total, 3 in each subscale; scores range from 9 to 45.

b. *Adolescent Unresolved Attachment Questionnaire* (AUAQ; West et al., 2000). This measures 3 dimensions of unresolved attachment (Solomon & George, 2011) using 10 items: *Failed Protection/ Aloneness* (perceived quality of care; 4 items), *Fear* (fear due to perceived failed care; 3 items), and *Anger/Dysregulation* (negative affective response to perceived failed care; 3 items). Scores range from 10 to 50.

According to the authors' reports, both questionnaires have demonstrated high convergent validity with the AAI and attained good internal and test-retest reliability (see online supplementary document). In the present study, both scales were translated into Nepali utilising the method of backward translation by CL and a bilingual colleague (Brislin, 1970).

Procedure

Questionnaires were delivered to the participants in class by CL and the class teacher, after information had been provided and consent had been obtained from both adolescents and parents. It was made very clear that participation was voluntary and those who initially agreed to take part could change their mind at any point with no negative impact on their marks. Questionnaires were completed by all pupils who were present in the class at the time – that is, the vast majority of the class. Ethical approval for the study was obtained from the Psychology Department, University of Bedfordshire and the participating schools.

Results

There were very few missing data, with item percentages varying from 0 to 3.2%; those had been replaced using linear interpolation before all analyses were conducted. Two factorial models were hypothesised and tested using structural equation modelling with AMOS 21 (Arbuckle, 2012). Each model tested the factor structure of each of the above scales. The fit of the AAQ model was excellent, requiring no modification (CFI=1; IFI=1; NFI=.97; RMSEA =.00; AIC= 82.48; χ^2 (24, $N = 279$) = 22.48, $p=.550$). On the other

hand, the initial AUAQ model did not attain acceptable fit (CFI=.68, IFI=.68; NFI=.65; RMSEA =.15; χ^2 (31, $N = 279$) = 237.12, $p < .001$) so we utilised modification indices suggesting that Q10 best loaded into the Failed Protection factor. We also removed Q4 as its loading to Failed Protection was non-significant ($p = .813$) and Q5, as it presented a large negative standardised residual covariance with Q10. The final model achieved a very good fit (CFI=.97; IFI=.97; NFI=.95; RMSEA =.06, AIC= 92.45; χ^2 (15, $N = 279$) = 34.45, $p = .003$). The intraclass correlation coefficients (ICC) calculated for the two scales suggested that significant nesting effects were unlikely (ICC for AAQ = .20, ICC for AUAQ = .24).

Although Cronbach's alpha was satisfactory in the overall scales, in some subscales it was low (see Table 1). As the accuracy of alpha is often questionable we also estimated scale reliability using structural equation modelling. We tested the tau-equivalent model in AMOS as described by Graham (2006); the models of both scales and all subscales except two attained an excellent fit. The models testing the reliability of Anger-Dysregulation and Fear could not be identified because they only had two indicators for each latent variable. Due to the uncertainty regarding the reliability of these two scales, we run alternative models with two factors. The factors in the alternative AUAQ model included Failed Protection as above, but we now merged Anger/Dysregulation and Fear into a single factor containing items 6, 7, 8, and 9. The model had a very good fit (CFI=.98; IFI=.98; NFI=.95; RMSEA = .05; AIC= 85.12; χ^2 (15, $N = 279$) = 27.12, $p = .028$). Alpha for the new Anger/Dysregulation/Fear scale was still low (.58) but the fit indices of the tau-equivalent model were excellent (CFI=.1; TLI=1; IFI=1; RMSEA =.00; χ^2 (1, $N = 279$) = .02, $p = .881$). As the AIC index of the alternative model was lower than that of the

three-factor model, the two-factor model appeared to fit the data slightly better. We also tested an alternative two-factor model for AAQ including the Goal-Corrected Partnership factor as above and merged Angry Distress and Availability into a single factor that contained items 1-6. That model also had very good fit (CFI=.99; IFI=.99; NFI=.96; RMSEA = .02; AIC= 84.62; $\chi^2(25, N = 279) = 26.62, p = .375$), but not as good as the three factor model, as the lower AIC index suggested.

Since the aim of the current study was to investigate the validity of the original three-factor structures of adolescent attachment, we only included those models in further analyses. Scale invariance tests in AMOS established the configural invariance of both scales in relation to gender, ethnicity, and socioeconomic status and their metric and scalar invariance in relation to gender and ethnicity (see Table 3). Neither scale seemed to present metric invariance in relation to socioeconomic status so we did not include this variable in further analyses. Neither scale was associated with gender, Wilks = .99, $F(2,273) = .61, p = .542$, or ethnicity Wilks = .99, $F(2,276) = 1.17, p = .311$, while they correlated negatively and strongly with each other, $r(277) = -.76, p < .001$. Additional information on missing data, outliers, and testing for measurement invariance across groups can be found in an online supplementary document; the relevant AMOS files are also available online.

Discussion

The current findings present evidence for the cross-cultural validity of the attachment construct as conceptualised and measured by AAQ and AUAQ. The findings also identify potential culture-specific aspects of attachment disorganisation, lending further support to the view that the attachment phenomenon involves both

universal and contextual determinants (van Ijzendoorn & Sagi-Schwartz, 2008). On the one hand, eternal parental love as captured by AUAQ item 10 seems to have been understood by Nepali adolescents as a gesture of parental protection, not a surprising occurrence given the collectivist nature of Nepali culture. Previous research has pointed out that in Nepal, and other collectivist agricultural societies, young adults are expected to remain close to their parents and extended families for life, being part of an extensive network of kinship relationships (Yabiku, 2004). The ultimate aim of such network would be to protect the group from the harshness and uncertainty of farming life, eventually increasing its chances for survival (Triandis & Gelfand, 2012). It is reasonable therefore to assume that in the context of such a strong emotional connection between parent and offspring the longevity of the bond is understood by the adolescents as protective and that its disruption may have a disorganising effect on the individual.

The collectivist nature of Nepali culture may also be relevant to the finding that AUAQ items 4 and 5 did not appear to relate to attachment disorganisation. This seems consistent with previous research suggesting that young people in collectivist cultures confide to family members less than western youth (Vikan et al., 2009). Moreover, as in collectivist cultures adolescent autonomy is limited and the needs of the self cannot be perceived as being at odds with those of the group (Kağıtçıbaşı, 1996), it is not surprising that an item implying premature independence failed to fit into a measure of individual differences. Moreover, difficulties in establishing the reliability of the Fear and Anger-Dysregulation subscales call for caution, while the lack of metric invariance in both scales regarding SES suggests that individuals from different SES groups respond to the items in different ways. Previous studies suggest that SES is linked with aspects of attachment,

for example parental sensitivity (Bakermans-Kranenburg, van IJzendoorn, & Kroonenberg, 2004), so future research needs to explore such links in developing societies like Nepal.

To the best of our knowledge, the present study is the first to use an attachment measure in a Nepali sample, filling therefore an important gap in the literature. Future research needs to take these initial findings further and attempt the additional validation of attachment measures in the Nepali population, including tests for convergent, divergent, and predictive validity. Such studies should also include measures of actual behaviour. The present findings may inform development and mental health experts working with distressed adolescents in Nepal, as they can offer an insight into how attachment needs are to be understood in that specific cultural context.

References

- Arbuckle, J. L. (2012). Amos (Version 21.0) [Computer Program]. Chicago: IBM SPSS.
- Armsden, G.C., & Greenberg, M.T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, *16*, 427–454.
doi:10.1007/BF02202939
- Arnett, J. J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist*, *54*, 317-326. doi:10.1037/0003-066X.54.5.317
- Bakermans-Kranenburg, M., van IJzendoorn, M., & Kroonenberg, P. (2004). Differences in attachment security between African-American and white children: Ethnicity or socio-economic status? *Infant Behavior & Development*, *27*, 417-433.
doi:10.1016/j.infbeh.2004.02.002
- Bowlby, J. (1980). *Attachment and loss: V.1*. New York, NY, US: Basic Books.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, *1*, 185-216. doi:10.1177/135910457000100301
- Hesse, E. (2008). The Adult Attachment Interview: Protocol, method of analysis, and empirical studies. In J. Cassidy, P. R. Shaver, J. Cassidy, P. R. Shaver (Eds.), *Handbook*

of attachment: Theory, research, and clinical applications (2nd ed.) (pp. 552-598).

New York, NY, US: Guilford Press.

Kağıtçıbaşı, Ç. (1996). *Family and human development across cultures: A view from the other side*. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

Keller, H. (2013). Attachment and culture. *Journal of Cross-Cultural Psychology, 44*, 175-194.

doi:10.1177/0022022112472253

Madigan, S., Atkinson, L., Laurin, K., & Benoit, D. (2013). Attachment and internalizing behavior in early childhood: A meta-analysis. *Developmental Psychology, 49*, 672-689. doi:10.1037/a0028793

Main, M. (1990). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development, 33*, 48-61. doi:10.1159/000276502

Pallini, S., Baiocco, R., Schneider, B. H., Madigan, S., & Atkinson, L. (2014). Early child–parent attachment and peer relations: A meta-analysis of recent research. *Journal of Family Psychology, 28*, 118-123. doi:10.1037/a0035736

Quinn, N., & Mageo, J. M. (2013). Attachment reconsidered: Cultural perspectives on a Western theory. New York, NY: Palgrave Macmillan. doi:10.1057/9781137386724

Ribeiro, J. L., & Sousa, M. (2002). Vinculação e comportamentos de saúde: Estudo exploratório de uma escala de avaliação da vinculação em adolescentes.[Attachment and health behaviors: Exploratory study of the Adolescent Attachment Questionnaire]. *Análise Psicológica*, 20, 67-75.

Solomon, J., & George, C. (2011). *Disorganized attachment and caregiving*. New York, NY, US: Guilford Press.

Triandis, H. & Gelfand, M. (2012). A theory of individualism and collectivism. In P. Van Lange, A. Kruglanski, E. Higgins, P. Van Lange, A. Kruglanski, E. Higgins (Eds.), *Handbook of theories of social psychology (Vol 2)* (pp. 498-520). Thousand Oaks, CA, USA: Sage.

van Ijzendoorn, M. & Sagi-Schwartz, A. (2008). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)* (pp. 880-905). New York, NY, US: Guilford Press.

Vikan, A., da Graça, B., Dias, M., & Roazzi, A. (2009). Rating emotion communication: Display and concealment as effects of culture, gender, emotion type, and relationship. *Revista Interamericana De Psicología*, 43, 77-83.

West, M., Rose, M. S., Spreng, S., Sheldon-Keller, A., & Adam, K. (1998). Adolescent Attachment Questionnaire: A brief assessment of attachment in

adolescence. *Journal of Youth and Adolescence*, 27, 661-673. doi:10.1023/A:1022891225542

West, M., Rose, S., Spreng, S., & Adam, K. (2000). The Adolescent Unresolved Attachment Questionnaire: The assessment of perceptions of parental abdication of caregiving behavior. *The Journal of Genetic Psychology*, 161, 493-503. doi:10.1080/00221320009596727

Yabiku S. (2004). Marriage timing in Nepal: organizational effects and individual mechanisms. *Social Forces*, 83, 559–586. doi:10.1353/sof.2005.0023

Scale	Cronbach's α	Fit indices for tau-equivalent model				
		CFI	IFI	TLI	RMSEA	χ^2
AAQ – Total	.80	.96	.96	.95	.06	57.23 ($p=.001$, $df=27$)
AAQ- Availability	.53	.99	.99	.97	.06	1.88 ($p=.170$, $df=1$)
AAQ-Angry Distress	.49	.99	.96	.88	.08	2.90 ($p=.088$, $df=1$)
AAQ-G-C Partnership	.86	1	1	1	.00	.05 ($p=.820$, $df=1$)
AUAQ-Total	.75	.99	.99	.99	.02	19.38 ($p=.249$, $df=16$)
AUAQ-Failed Protection	.68	1	1	1	.00	02 ($p=.888$, $df=1$)
AUAQ-Fear	.68					
AUAQ-Anger/Dysregulation	.57					

Table 1: Indices of scale reliability (N=279).

ITEMS	SUBSCALES
The Adolescent Attachment Questionnaire (AAQ)	
1. My parent only seems to notice me when I am angry. (R)	Angry Distress
2. I often feel angry with my parent without knowing why. (R)	Angry Distress
3. I get annoyed at my parent because it seems that I have to demand his/her caring and support. (R)	Angry Distress
4. I am confident that my parent will listen to me.	Availability
5. I am confident that my parent will try to understand of feelings.	Availability
6. I talk things over with my parent.	Availability
7. I enjoy helping my parent whenever I can.	Goal-Corrected Partnership
8. I feel for my parent when he/she is upset.	Goal-Corrected Partnership
9. It makes me feel good to be able to do things for my parent.	Goal-Corrected Partnership
The Adolescent Unresolved Attachment Questionnaire (AUAQ)	
1. When I'm upset, I am sure that my parent will be there to listen to me. (R)	Failed Protection
2. I can count on my parent to be there for me when I need him/her. (R)	Failed Protection
3. My parent is always disappointing me	Failed Protection
4. I never expect my parent to take my worries seriously.	Failed Protection
5. I think it is unfair to always have to handle problems by myself.	Anger/Dysregulation
6. I get really angry because I never get enough help from my parent.	Anger/Dysregulation
7. I get really angry at my parent because I think s/he could make more time for me.	Anger/Dysregulation
8. I'm afraid that I will lose my parent's love.	Fear
9. I have a terrible fear that my relationship with my parent will end.	Fear
10. I'm certain that my parent will always love me. (R)	Fear

Table 2: Subscales and items of the two attachment scales (R = reversed item).

Scale/Demographic Variable	Model	χ^2 (df) (p)	$\Delta\chi^2$ (p)	RMSEA	NFI	CFI	IFI	AIC
AAQ/Gender	Model 1: Configural invariance	42.68 (48) (.690)	-	.00	.95	1	1	162.68
	Model 2: Metric invariance (comparisons with Model 1)	57.76 (57) (.447)	15.3 (.080)	.01	.93	1	1	159.75
	Model 3: Scalar invariance (comparisons with Model 2)	62.67 (66) (.593)	4.91 (.930)	.00	.93	1	1	146.67
AAQ/Ethnicity	Model 1: Configural invariance	51.51 (48) (.338)	-	.01	.94	.99	.99	171.51
	Model 2: Metric invariance (comparisons with Model 1)	60.14 (57) (.363)	8.63 (.450)	.01	.93	.99	.99	162.14
	Model 3: Scalar invariance (comparisons with Model 2)	73.99 (66) (.231)	13.85 (.200)	.02	.91	.99	.99	158.09
AAQ/Socio-economic Status	Model 1: Configural invariance	96.31 (72) (.029)	-	.03	.89	.97	.97	276.31
	Model 2: Metric invariance (comparisons with Model 1)	189.15 (90) ($<.001$)	92.84 ($<.01$)	.06	.79	.87	.88	333.15
AUAQ/Gender	Model 1: Configural invariance	66.48 (34) ($<.001$)	-	.05	.90	.95	.95	175.01
	Model 2: Metric invariance (comparisons with Model 1)	66.67 (38) (.003)	.19 (.980)	.05	.90	.96	.96	166.67
	Model 3: Scalar invariance (comparisons with Model 2)	82.88 (46) (.001)	16.21 (.040)	.05	.88	.94	.94	166.88
AUAQ/Ethnicity	Model 1: Configural invariance	53.41 (30) (.005)	-	.05	.92	.96	.96	169.35

	Model 2: Metric invariance (comparisons with Model 1)	75.01 (38) ($<.001$)	21.6 ($<.01$)	.05	.89	.94	.94	175.01
	Model 3: Scalar invariance (comparisons with Model 2)	80.85 (46) (.001)	5.84 (.630)	.05	.88	.94	.94	164.85
AUAQ/Socio-economic Status	Model 1: Configural invariance	71.61 (39) (.001)	-	.05	.90	.95	.95	257.61
	Model 2: Metric invariance (comparisons with Model 1)	208.75 (58) ($<.001$)	137.14 ($<.01$)	.09	.71	.76	.77	356.72

Table 3: Fit indices for invariance tests