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RESEARCH ARTICLE

Parental Attachment (IPPA) among Indonesian Adolescents

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ABSTRACT

The attachment between parents and children is an important basis for the emotional and social behaviour of children. Children need feelings of safety, comfort, and protection to grow and develop into adulthood. Children who are secure with their parents develop feelings of love and competency such that they have the capacity for emotional regulation and good self-efficacy. For this reason, measuring instruments are needed to identify the extent to which children feel attached to their mothers and fathers. In Indonesia, an inventory has been adapted into Indonesian, but there is no descriptive explanation regarding this inventory for adolescents. The aim of the current research was to determine the attachment of middle adolescents to their parents, and, at the same time, to retest the inventory, which has been adapted in the Indonesian language, so that it can contribute to the validation of the Inventory of Parent and Peer Attachment (IPPA). The research involved 813 respondents ranging in age from 14 to 19 years. The psychometric test results showed that 18 and 20 items were suitable in the IPPA-Maternal and IPPA-Paternal models, respectively, with composite reliabilities (CR) of > 0.8. The results of the IPPA-Maternal and IPPA-Paternal models indicated that they were reliable as well as suitable in the Indonesian context. The findings showed that male and female adolescents are more attached to their mothers than their fathers, and also that they trust both parents. They also have good communication with their parents and do not feel alienated from them. However, they feel more alienation from their fathers than their mothers.

INTRODUCTION

Secure attachment relationships play an important role for children in dealing with various social and psychological experiences. Their first experiences with their parents or caregivers form the basis for their socioemotional development and the process of forming social relationships throughout life. The form of their social relationships during adolescence is also related to the form of their attachment to their parents. The importance of reporting on the attachment styles of parents and adolescents to identify the extent to which adolescents are still attached to their parents is important for understanding the attachment theory. Attachment is one specific aspect of the relationship between a child and a parent, the goal of which is to make the child feel safe, secure, and protected (Benoit, 2004).

The relationship between family ties and a person's personality and well-being has long been a question of interest in developmental psychology. Armsden and Greenberg (1987) further conveyed that attachment is generally defined as a long-lasting bond of affection that has great intensity. A primary concern of attachment theory is the implications of optimal and non-optimal social attachments for psychological health. Bowlby (1980) stated that the formation of attachments in infancy can explain the emotional and psychological disorders, both actual and threatened, that can occur at any age. Organised patterns of behaviour that develop and maintain bonds of affection appear to persist throughout life and are activated to maintain or regulate closeness to others. There

is something interesting about understanding a lifelong approach to the study of attachment theory. Investigations into infancy have shown that individual differences in attachment to parents can be reliably assessed and indicate substantial stability during the second year of life (Greenberg et al., 1983).

The quality of attachment with parents is significantly stronger than with peers in predicting the psychological well-being of adolescents (Greenberg et al., 1983). A review of previous studies also suggests that the existence and perceived quality of intimate relationships during adulthood influence outcomes such as mental health, physical health, and reactions to traumatic life events. In addition to demonstrating a direct link between attachment and health, a growing body of literature suggests that attachment may also buffer the relationship between stress and illness. Attachment after childhood is reflected in the continued organisation of an individual's "perceptual-emotional system" or "internal working model" (Weiss, 1982; Bretherton, 1985). Research has shown that having an 'affectionate' primary caregiver and developing an 'organised and secure' attachment with the primary caregiver can act as protective factors against social and emotional maladaptation in infants and children (Benoit, 2004). Adolescents belonging to the highly secure attachment group have greater satisfaction with themselves, a higher likelihood of seeking social support, and fewer symptomatic responses to stressful life events (Armsden & Greenberg, 1987).

The closeness of adolescents to their parents has a major impact on their cognitive, social and emotional functions. Secure attachment is associated with reduced engagement in high-risk behaviours, fewer mental health problems, and improved social skills and coping strategies (Moretti & Peled, 2004). Previous studies have shown that the attachment of adolescents to parents has an impact on depression and self-harm in children (Clery et al., 2021; Spruit et al., 2020). A secure attachment predicts and encourages the creation of affective relationships with peers based on communication, support, intimacy, trust, and quality (Mortazavizadeh et al., 2022). It also affects social skills and good emotional adjustment in adolescents (Engels et al., 2001), adolescent life satisfaction (Jiang et al., 2013), level of procrastination in adolescents (Chen, 2017), the fear of becoming a victim of crime (May et al., 2002), post-traumatic stress disorder (PTSD) (Tian et al., 2020), protective factors against drug use in adolescents (Iglesias et al., 2014), and Internet addiction (Ballarotto, 2018).

Several studies have shown that the IPPA model is a good fit, and a confirmatory factor analysis (CFA) supports the three-factor structure in the Italian version of the IPPA. The internal consistency coefficients (ρ) of the three IPPA subscales, namely, IU, father, and peer, are satisfactory (Guarnieri et al., 2010). Andretta et al. (2017) showed that the IPPA scale of parents, but not peers, is a valid index of parental security perceptions in adolescents. A factor analysis has shown that the three-factor model had the best fit, although the three dimensions are closely related. Sixteen-year-olds feel less secure with their fathers than other adolescent age groups. Men have lower alienation scores than women in terms of paternal attachment (Pace et al., 2011).

Research significance

Previous studies on psychometric tests of tools for measuring parental attachment in early adulthood have shown that a sample of 902 student respondents is a suitable size for a good theoretical model (Idriyani, 2018), based on an adaptation of the inventory developed by Armsden and Greenberg (1989). Basically, this inventory is for teenagers aged 12 to 19 years. The IPPA was developed to assess adolescents' perceptions of positive and negative affective and cognitive dimensions in their relationships with their parents. The IPPA consists of 25 items across three dimensions, namely, trust, communication, and alienation. The dimension of trust in parents measures the level of perception of adolescents towards their parents in relation to trust, the extent to which parents are willing to pay attention, listen, and serve, as well as how children perceive their parents in terms of respect such as parental respect for children, and always having to remind the child. The second dimension is parent-child communication. This dimension measures the intensity and quality of communication in terms of how the child expresses feelings, daily problems, difficulties experienced by the child, and how parents respond to help the child. The third dimension is the child's alienation from his parents. This dimension measures the child's feelings concerning anger, lack of parental attention, and parents' lack of understanding of the child's condition.

A psychometric analysis of the IPPA, which was carried out by Idriyani (2018) on 902 students in the early adulthood category, showed that the model was suitable for the 25 child and parent inventory items, with a chi-square value of 47.09, df = 37, p > 0.05, and RMSEA = 0.017. An analysis using the Lisrel 8.7 software showed that the model was suitable, but it was not equipped with the CFI, GFI, TLI, composite reliability (CR) and AVE values in the sub-dimensional analysis of trust, communication, and alienation. The previous analysis (Idriyani 2020) also did not mention the value of the CR on the three factors in the adapted IPPA. The results of the CFA found that X^2 = 22.28, DF = 24, P > 0.05, and RMSEA = 0.000 for the trust factor; X^2 = 0.85, DF = 5, P > 0.05, and RMSEA = 0.000 for the communication factor; and X^2 = 0.00, DF = 1, P > 0.05, and RMSEA = 0.000 for the alienation factor.

Table 1: The factors in the parental attachment inventory.

Factor	Items
Trust	1, 2, 3*, 4, 9*, 12, 13, 20, 21, 22
Communication	5, 6*, 7, 14*, 15, 16, 19, 24, 25
Alienation	8, 10, 11, 17, 18, 23
Note: * Reverse code	

The current study attempted to summarise the inventories since the main reason why researchers need fast and reliable measurement tools is to reduce the pressure on respondents when filling out inventories. This was in line with the finding of Koğar (2020) that in clinical studies, a short version of measuring instruments is needed for reliability and to reduce the pressure on respondents, while still maintaining the integrity of the reliability and validity of the measuring instruments used (Snogren et al., 2022). The purpose of the current research was to re-identify the internal validity and reliability based on the CR and AVE values for a total of 813 high school students aged 14 to 19 years, thereby producing a more concise maternal and paternal attachment inventory. MacCallum et al. (1999) suggested that to get a good CR, the factor value should ideally be > 0.6 to obtain a high communality on the factor being tested. For this reason, a CFA was used to re-estimate the loading factor value and determine the CR value for a suitable and more concise measuring instrument. A CFA differs from an exploratory factor analysis because the researcher can apply a structure or model to the data and test how well the model fits the hypothesis about (a) the number of factors, (b) whether the factors are correlated or not, and (c) how the items are associated with the factors (Santor, 2011).

2. RESEARCH METHODS

2.1 Participants

The study involved 813 participants, comprised of 448 females (55.1%) and 365 males (44.9%). The participants were high school students in Indonesia, aged 14 to 19 years (mean (M)=1.55, standard deviation (SD)=0.498). All the participants were living with their parents, had a smartphone, and had Internet access on their smartphone.

2.2 Procedures

The data was collected online, where the participants were required to fill in the IPPA-Maternal and IPPA-Paternal forms provided on Google® Drive, with the approval of the school institution and the assistance of the class teacher. An explanation about the research was given to the students before they were requested to complete the form, and the researchers guaranteed the confidentiality of the data provided by the participants. They were allowed to use anonymous names, so they would feel free to answer the questions. The participants gave their consent and were told they could withdraw their consent at any time. Data were collected anonymously at school during class hours. All the participants simultaneously reported their relationships with their mothers and fathers.

A CFA analysis was carried out using JASP software based on statistical applications developed by Love et al. (2015). The criteria for the cut-off value were based on suggestions by Hu and Bentler (1999), and Dash and Paul (2021) on the suitability of the index model, with the TLI, RNI, and CFI values moving from 0 to 1 at a cut-off value of 0.90, where the closer it is to the value of 1, the more suitable the model. The SRMR and RMSEA values moved from 0.08 to 0, and the cut-off value was 0.08, which could be said to meet the criteria for an appropriate model. The descriptive analysis used IBM®SPSS® version 27 to support the exploration of the descriptive data for the research.

2.3 Instrument

The IPPA, which was adapted by Idriyani (2018), is based on the original inventory by Armsden and Greenberg (1987) and consists of 25 items for the IPPA-Maternal and 25 items for the IPPA-Paternal models. The response options for the items were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The inventory consists of three important factors, namely, trust, communication, and alienation. The trust factor can be interpreted as the parents' understanding and respect as well as mutual trust, the communication factor as the quality of verbal communication with parents, and the alienation factor as feelings of alienation and isolation from parents (Pace et al., 2011). Before conducting the CFA, a conditional test was carried out by examining the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (MSA) of the IPPA-Maternal model. The MSA was > 0.5 (0.957), $\chi 2$ = 10686.4, and $p < 0.001$. The KMO MSA of the IPPA-Paternal model was > 0.5 (MSA=0.965), $\chi 2$ = 13345.639, and $p < 0.001$. Therefore, the CFA could be conducted for both models since a KMO of 0.841 was strong enough for a factor structure analysis of > 0.6, and Bartlett's sphericity test was significant ($p < 0.01$), thereby indicating a significant correlation between the items. Comrey and Lee (2013) suggested the following item value loading limits: 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good), and 0.71 (very good). The aim of a CFA is to further test hypotheses about the internal structure of a measure.

3. RESULTS

3.1 The fit of the inventory of parent and peer attachment-maternal (IPPA-Maternal) model

This present study used a 25-item inventory that had been adapted to Indonesian by Idriyani (2020). The initial factor loading of the IPPA-Maternal before modification moved from 0.128 (CI lower = 0.064, CI upper = 0.229) to 0.809 (CI lower = 0.782, CI upper = 0.903), while the fit indices were GFI = 0.985, TLI = 0.825, and RMSEA = 0.087.

Table 2: The fit index of the IPPA-Maternal pre-modification.

X^2	df	p	GFI	SRMR	CFI	RFI	TLI	RMSEA
1944.784	272	< 0.001	0.985	0.061	0.841	0.802	0.825	0.087

The first suitability test of the IPPA-Maternal model indicated that it was not suitable, according to the cut-off suggestion of Hu and Bentler (1999). It was then modified to exclude items IP 3, 4, 6, 8, 9, 11, 14, and 17 as their factor loadings were < 0.6, according to the suggestion by Hair et al. (2010). As can be seen in Table 3, the modified model had a good fit (GFI = 0.994, CFI = 0.931, TLI = 0.919, RMSEA = 0.075 (< 0.08), and SRMR = 0.036).

Table 3: The fit index of the IPPA-Maternal post-modification.

X^2	df	p	GFI	SRMR	CFI	RFI	TLI	RMSEA
643.562	116	< 0.001	0.994	0.036	0.931	0.902	0.919	0.075

The maximum likelihood estimation analysis indicated that the new 18-item IPPA-Maternal model was suitable, with the following CR and AVE: trust (CR = 0.896, AVE = 0.554), communication (CR = 0.878, AVE = 0.509), and alienation (CR= 0.713, AVE= 0.454). A lower chi-square ($\chi 2$) indicated a better fit. The CR cut-off was based on the suggestions of Fornell and Larcker (1981), where the AVE was > 0.5 and the CR was > 0.6.

Table 4: The CR and AVE of the IPPA-Maternal pre- and post-modification.

		Pre			Post	
		CR	AVE		CR	AVE
Trust	10 items	0.897	0.471	7 items	0.896	0.554
Communication	9 items	0.864	0.435	7 items	0.878	0.509
Alienation	6 items	0.797	0.398	4 items	0.763	0.446

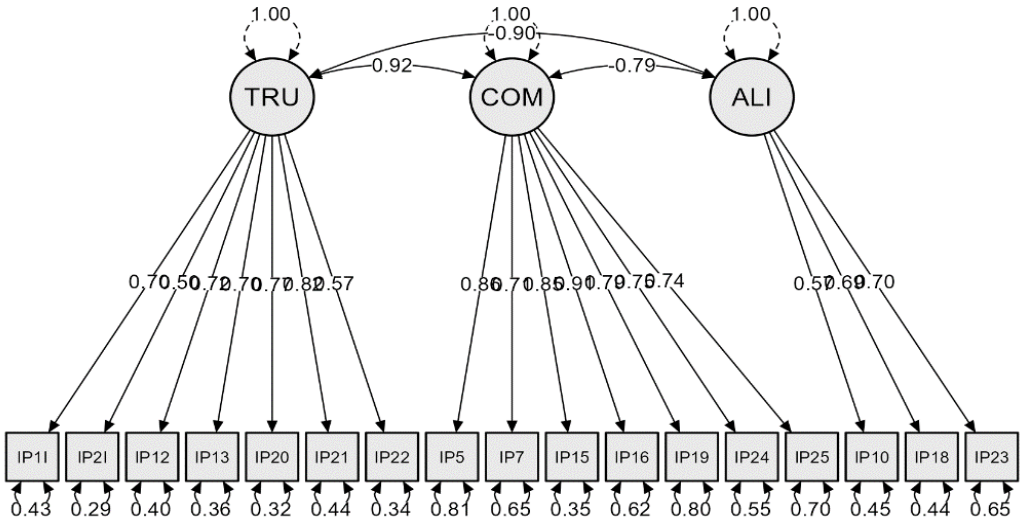

Figure 1: A plot of the IPPA-Maternal model.

As seen in Table 5, the trust factor had the highest positive correlation with 8 items; namely IP1, 2, 4, 12, 13, 20, 21, and 22; with factor loadings > 0.6. As the factor loadings for items IP 3 and 9 were < 0.6, they were removed. The communication factor had the highest positive correlation with 8 items; namely; IP 5, 6, 7, 15, 16, 19, 24, and 25; with factor loadings > 0.6. As the factor loading for item IP 14 was < 0.6, it was removed. The alienation factor had the highest positive correlation with 4 items; namely, IP 10, 17, 18, and 23; with factor loadings > 0.6.

Table 5: The factor loadings of the IPPA-maternal.

						95% Confidence Interval		
Factor	**Indicator**	**Estimate**	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**	**Std. Est. (all)**
Trust	IP1I	0.718	0.029	24.564	0.000	0.661	0.775	0.749
	IP2I	0.517	0.023	22.315	0.000	0.472	0.563	0.699
	IP3I	0.449	0.035	12.982	0.000	0.382	0.517	0.447
	IP4I	0.571	0.030	19.138	0.000	0.513	0.630	0.621
	IP9I	0.621	0.039	15.837	0.000	0.544	0.697	0.532
	IP12I	0.711	0.029	24.359	0.000	0.654	0.768	0.745
	IP13I	0.691	0.028	24.385	0.000	0.635	0.746	0.746
	IP20I	0.750	0.028	26.373	0.000	0.694	0.806	0.787
	IP21I	0.795	0.032	24.653	0.000	0.732	0.858	0.752
	IP22I	0.573	0.026	22.332	0.000	0.523	0.624	0.699
Communication	IP5I	0.889	0.039	22.810	0.000	0.813	0.966	0.715
	IP6I	0.740	0.041	18.154	0.000	0.660	0.820	0.600
	IP7I	0.702	0.035	20.193	0.000	0.634	0.770	0.651
	IP14I	0.147	0.042	3.496	4.715×10^{-4}	0.064	0.229	0.128
	IP15I	0.843	0.031	27.297	0.000	0.782	0.903	0.809
	IP16I	0.919	0.037	25.094	0.000	0.847	0.991	0.766
	IP19I	0.786	0.039	20.416	0.000	0.711	0.862	0.657
	IP24I	0.750	0.033	22.514	0.000	0.684	0.815	0.707
	IP25I	0.732	0.036	20.300	0.000	0.661	0.803	0.654
Alienation	IP8I	0.625	0.045	13.919	0.000	0.537	0.713	0.495
	IP10I	0.620	0.029	21.675	0.000	0.564	0.676	0.707
	IP11I	0.666	0.038	17.358	0.000	0.591	0.742	0.598
	IP17I	0.593	0.033	18.052	0.000	0.529	0.657	0.616
	IP18I	0.664	0.031	21.341	0.000	0.603	0.725	0.696
	IP23I	0.692	0.035	19.526	0.000	0.622	0.761	0.649

The fit of the inventory of parent and peer attachment-paternal (IPPA-Paternal) model

An analysis of the suitability of the IPPA-Paternal model revealed the standardised factor loadings, with maximum likelihood estimations of TLI=0.851, GFI=0.978, CFI=0.865, SRMR=0.065, and RMSEA=0.090.

Table 6: The fit index of the IPPA-Paternal pre-modification.

X^2	df	p	GFI	SRMR	CFI	TLI	RFI	RMSEA
2055.266	272	<0.001	0.978	0.065	0.865	0.851	0.832	0.090

As five items; namely, IP 3, 6, 8, 9, and 14; had factor loadings < 0.6, they were eliminated. The suitability of the modified model was CFI=0.913, GFI=0.985, TLI=0.901, RMSEA=0.086, and SRMR=0.046. The CR and AVE of the new 20-item IPPA-Paternal model were as follows for: trust (CR=0.922, AVE=0.598), communication (CR=0.915, AVE=0.607), and alienation (CR=0.858 AVE=0.548).

Table 7: The fit index of the IPPA-Paternal post-modification.

X^2	df	p	GFI	SRMR	CFI	RFI	TLI	RMSEA
1160.356	167	<0.001	0.985	0.046	0.913	0.886	0.901	0.086

As seen in Table 8, the trust factor had the highest positive correlation with 8 items; namely IP1, 2, 4, 12, 13, 20, 21, and 22; with factor loadings > 0.6. As the factor loadings for items IP 3 and 9 were < 0.6, they were eliminated. The communication factor had the highest positive correlation with 8 items; namely; IP 5, 6, 7, 15, 16, 19, 24, and 25; with factor loadings > 0.6. As the factor loadings for items IP 6 and 14 were < 0.6, they were eliminated. The alienation factor had the highest positive correlation with 5 items; namely, IP 10, 11, 17, 18, and 23; with factor loadings > 0.6. As the factor loadings of items IP 3, 9, 6, and 14 were < 0.6, they were eliminated.

Table 8: The factor loadings of the IPPA-Paternal.

						95% Confidence Interval		
Factor	**Indicator**	**Estimate**	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**	**Std. Est. (all)**
Trust	IP1	0.857	0.030	28.536	0.000	0.798	0.915	0.827
	IP2	0.739	0.029	25.904	0.000	0.683	0.794	0.776
	IP3	0.654	0.037	17.459	0.000	0.580	0.727	0.574
	IP4	0.693	0.030	23.273	0.000	0.634	0.751	0.719
	IP9	0.526	0.038	13.786	0.000	0.451	0.601	0.469
	IP12	0.805	0.032	25.256	0.000	0.743	0.868	0.762
	IP13	0.751	0.029	25.661	0.000	0.693	0.808	0.770
	IP20	0.843	0.031	27.113	0.000	0.782	0.904	0.799
	IP21	0.826	0.033	25.203	0.000	0.762	0.890	0.761
	IP22	0.776	0.031	25.273	0.000	0.716	0.837	0.763
Communication	IP5	0.961	0.036	26.396	0.000	0.890	1.032	0.787
	IP6	0.719	0.041	17.619	0.000	0.639	0.799	0.581
	IP7	0.827	0.034	24.270	0.000	0.760	0.894	0.742
	IP14	0.148	0.042	3.527	4.197×10^{-4}	0.066	0.230	0.127
	P15	0.914	0.033	27.526	0.000	0.849	0.979	0.809
	IP16	0.904	0.035	25.899	0.000	0.836	0.973	0.778
	IP19	0.890	0.033	27.345	0.000	0.826	0.953	0.805
	IP24	0.867	0.035	24.979	0.000	0.799	0.935	0.757
	IP25	0.894	0.035	25.366	0.000	0.825	0.963	0.765
Alienation	IP10	0.871	0.033	26.300	0.000	0.806	0.936	0.799
	IP11	0.872	0.037	23.379	0.000	0.799	0.945	0.736
	IP17	0.837	0.033	25.542	0.000	0.773	0.901	0.785
	IP18	0.790	0.037	21.350	0.000	0.718	0.863	0.690
	IP23	0.757	0.036	21.004	0.000	0.687	0.828	0.681
	IP8	0.655	0.042	15.711	0.000	0.573	0.737	0.539

To calculate CR, a calculation application developed by Colwell (2016), which is based on a formula, with minimum requirements of > 0.6 was used (Fornell & Larcker, 1981; Hair, 1997). As seen in Table 9, the CR and AVE of the modified IPPA-Paternal were > 0.8 and > 0.5, respectively, with 20 items that meet the fit requirements.

Table 9: The CR of the IPPA-Paternal pre- and post-modification.

	Pre			Post		
		CR	AVE		CR	AVE
Trust	10 items	0.918	0.532	8 items	0.922	0.598
Communication	9 items	0.896	0.510	7 items	0.915	0.607
Alienation	6 items	0.858	0.505	5 items	0.858	0.548

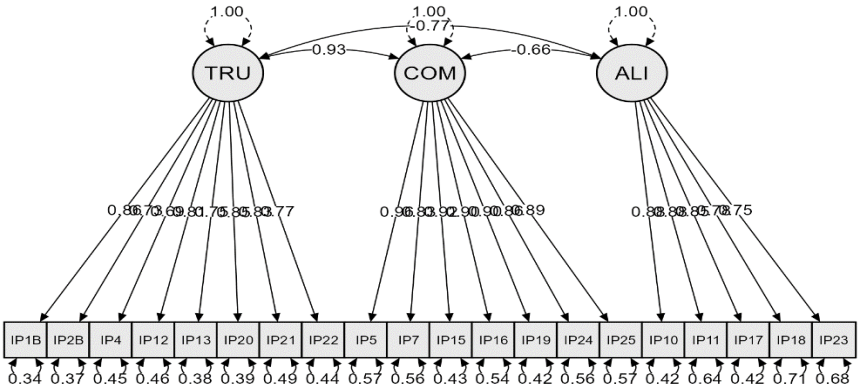

Figure 2: A plot of the IPPA-Paternal model.

Results of the assumption tests

The Kolmogorov-Smirnov normality test result for the IPPA-Maternal was $p < 0.001$, and for the Shapiro-Wilk test, $p < 0.001$ (skewness = -0.455; kurtosis = 0.136),. Therefore, the data were not normally distributed (Table 10). For both the Kolmogorov-Smirnov and Shapiro-Wilk normality tests for the IPPA-Paternal, $p < 0.001$ (skewness = -0.492; kurtosis = 0.532). Since both the inventory data distributions were not normal, the data were categorised using the M values, as used by DeCoster et al. (2011) to describe how psychological traits or abilities are distributed across populations as clinical psychologists usually think in terms or categorisations of normal and abnormal, even when those characteristics are known to continue to vary. A homogeneity test was also carried out to test whether the data in the population had the same variance. The results of the study showed that the research data were not homogeneous for the IPPA-Maternal ($M = 6.560$, $p < 0.05$) and IPPA-Paternal ($M = 8.727$, $p < 0.05$).

Table 10: The results of the normality tests.

	Kolmogorov-Smirnov			Shapiro-Wilk				
	Statistic	df	Sig.	Statistic	df	Sig.	Skewness	Kurtosis
IPPA-Maternal	0.053	813	0.000	0.984	813	0.000	-0.455	0.136
IPPA-Paternal	0.049	813	0.000	0.984	813	0.000	-0.492	0.532

This tendency to think about normal and abnormal impacts the way psychologists analyse data in research studies, where it is common practice to perform a median split to convert continuous variables into categorical variables with high and low groups. Median splitting is a specific example of artificial categorisation, which refers to the more general process of defining a categorical variable based on a numerical variable value. Although median splitting usually simplifies the data analysis and presentation of results, statisticians often criticise the use of artificially categorised variables because simplifying a data analysis distorts the research findings. DeCoster et al. (2011) explained that the standard median division can be used on continuous or ordinal variables to convert them into dichotomous variables, that is, categorical variables with two groups.

3.4 Results of the descriptive analysis

Table 11 presents descriptive statistics for the overall score of the IPPA-Maternal and -Paternal models, based on data categorisation using median splitting scores to classify low and high IPPA categories. The lowest IPPA-Maternal score among adolescent males was 22.14% while the highest was 22.76%. Meanwhile, among adolescent females, the lowest IPPA-Maternal score was 31.49%

while the highest was 23.62%. Therefore, adolescents are more attached to the fathers, with males more attached than females, while females are more attached to their mothers than their fathers.

Table 11: The percentages of the high and low categories in the IPPA-Maternal and -Paternal.

		Gender			
		Male	**%**	**Female**	**%**
Maternal	Low	180	22.14	256	31.49
	High	185	22.76	192	23.62
Paternal	Low	158	19.43	262	32.23
	High	207	25.46	186	22.88

As seen in Table 12, the IPPA-Maternal score (M=84.72, SD=10.09) was higher than the IPPA-Paternal score (M=81.48, SD=11.24). The M of the trust subscale in the IPPA-Maternal was the highest (M=32.44, SD=5.62), followed by communication (M=24.93, SD=6.01) and alienation (M=8.20, SD=2.95). Therefore, teenagers trust and communicate more with their mothers. The low M of the alienation subscale indicates that adolescents do not feel significantly alienated by their mothers. The M of the trust subscale in the IPPA-Paternal was the highest (M=30.50, SD=6.56), followed by communication (M=22.76, SD=6.55) and alienation (M=11.74, SD=4.45). Therefore, most teenagers trust both their parents, but they trust their mothers more than their fathers. They also communicate more with their mothers than their fathers.

Table 12: The M, SD, skewness, and kurtosis scores of the trust, communication, and alienation subscales.

	M	**SD**	**Skewness**	**Kurtosis**
Maternal	84.72	10.09	-0.46	0.14
Trust	32.44	5.62	-0.72	0.30
Communication	24.93	6.01	-0.34	-0.27
Alienation	8.20	2.95	0.54	0.05
Paternal	81.48	11.24	-0.49	0.53
Trust	30.50	6.56	-0.73	0.57
Communication	22.76	6.55	-0.21	-0.24
Alienation	11.74	4.46	0.56	0.07

As seen in Table 13, male adolescents are more attached to their mothers (M=85.60, SD=9.65) than female adolescents (M=83.99, SD=10.39). They also trust their mothers more (M=33.35, SD=5.25) than female adolescents (M=31.69, SD=5.81). Male adolescents also communicate more with their mothers (M=25.15 SD=5.74) than female adolescents (M=24.66 SD=6.22). Furthermore, female adolescents felt more alienated by their mother (M=8.61, SD=3.02) than male adolescents (M=7.70, SD=2.78).

Male adolescents are also more attached to their fathers (M=83.43, SD=10.31) than female adolescents (M=79.89, SD=11.72). However, they trust their mothers (M=31.79, SD=5.25) more than female adolescents trust their fathers (M=29.45, SD=6.95). Male adolescents communicated more with their fathers (M=24.02, SD=6.06) than female adolescents (M=21.73, SD=6.76). Female adolescents felt more alienated by their fathers (M=8.61 SD=3.02) than male adolescents (M=7.70, SD=2.78). Overall, teenagers significantly trust both their parents as well as communicate with them.

Table 13: The M, SD, skewness, and kurtosis scores of the trust, communication, and alienation subscales in relation to gender.

	Male (n=365)				**Female (n=448)**			
	M	**SD**	**Skewness**	**Kurtosis**	**M**	**SD**	**Skewness**	**Kurtosis**
Maternal	85.60	9.65	-0.75	0.96	83.99	10.39	-0.24	0.19
Trust	33.35	5.25	-1.10	1.64	31.69	5.81	-0.46	-0.26
Communication	25.25	5.74	-0.48	0.21	24.66	6.22	-0.23	-0.55
Alienation	7.70	2.78	0.71	0.60	8.61	3.02	0.41	-0.20
Paternal	83.43	10.31	-0.59	1.22	79.89	11.72	-0.49	0.53
Trust	31.79	5.79	-0.92	1.72	29.45	6.95	-0.54	0.03
Communication	24.02	6.06	-0.29	0.01	21.73	6.76	-0.09	-0.36
Alienation	10.80	3.84	0.71	0.60	8.61	3.02	0.41	-0.20

Table 14 provides the total IPPA-Maternal and -Paternal in terms of age. Adolescents aged 17 were most attached to their mothers (M=85.29, SD=10.66), followed by 15 (M=84.93, SD=9.65), 16 (M=84.43, SD=9.96), 18 (M=84.09, SD=9.69), 19 (M=83.50, SD=24.75), and 14 (M=81.97, SD=9.03). Adolescents aged 19 were most attached to their fathers (M=95.00, SD =8.49), followed by 15 (M=81.87, SD=10.99), 16 (M=81.69, SD=11.14), 17 (M=81.00, SD=11.49), 18 (M=80.97, SD=11.06), and 14 (M=80.67, SD=12.11).

Table 14: The M and SD scores of the trust, communication, and alienation subscales in relation to age.

	Maternal		**Paternal**	
Age	**M**	**SD**	**M**	**SD**
14 (n=33)	81.97	9.03	80.67	12.11
15 (n=215)	84.93	9.65	81.87	10.99
16 (n=273)	84.43	9.96	81.69	11.14
17 (n=256)	85.29	10.66	81.00	11.49
18 (n=33)	84.09	9.69	80.97	11.06
19 (n=33)	83.50	24.75	95.00	8.49

Table 15 provides the trust, communication, and alienation sub-scale scores of the IPPA-Maternal and -Paternal models in terms of age. The trust subscale score of the IPPA-Maternal model was highest at age 17 (M=32.69, SD = 5.74), followed by 15 (M=32.55, SD=5.40), 16 (M=32.32, SD=5.68), 18 (M=31.85, SD=6.06), 19 (M=31.50, SD=10.61), and 14 (M=31.45, SD=5.21). However, the difference in the M did not differ significantly between the ages.

Table 15: The trust, communication, and alienation subscale scores of the IPPA-Maternal and -Paternal models in terms of age.

		Maternal			**Paternal**		
		Trust	**Comm**	**Alie**	**Trust**	**Comm**	**Alie**
14	M	31.45	23.06	8.24	30.03	22.52	11.58
	SD	5.21	5.91	2.87	6.72	7.30	4.39
15	M	32.55	25.22	8.12	30.69	23.15	11.60
	SD	5.40	6.12	2.82	6.41	6.39	4.29
16	M	32.32	24.88	8.17	30.75	22.84	11.58
	SD	5.68	5.85	2.98	6.45	6.56	4.42
17	M	32.69	24.99	8.26	30.11	22.47	11.99
	SD	5.74	6.13	2.96	6.67	6.63	4.40
18	M	31.85	24.94	8.24	30.53	21.68	12.09
	SD	6.06	5.45	3.46	7.48	6.19	5.93
19	M	31.50	21.50	12.50	34.50	27.50	13.50
	SD	10.61	13.44	0.71	7.78	10.61	12.02

The communication subscale score of the IPPA-Maternal model was highest at age 15 (M=25.22; SD=8.12), followed by ages 17 (M=24.99, SD=6.13) and 18 (M=24.94, SD=5.45). The alienation subscale score of the IPPA-Maternal was highest at age 19 (M=12.50, SD=0.71), followed by 17 (M=8.26, SD=2.96), 18 (M=8.24, SD=3.46), and 14 (M=8.24, SD=2.87).

The trust subscale of the IPPA-Paternal model was highest at age 19 (M=34.50, SD=7.78), followed by 16 (M=30.75, SD=6.45) and 15 (M=30.69, SD = 6.41). The communication subscale was highest at age 19 (M=27.50, SD=10.61), followed by 15 (M=23.15, SD=6.39), and 16 (M=22.84, SD=6.56). The alienation subscale was highest at age 19 (M=13.50, SD=12.02), followed by 18 (M=12.09, SD=5.93), and 17 (M =11.99, SD=4.40).

Table 15 presents the correlation data on gender, age, maternal attachment, and paternal attachment as well as the trust, communication, and alienation subscales of the IPPA-Maternal and IPPA-Paternal models. The Spearman's rho correlation results showed that gender had a significant correlation with paternal attachment (r = -.159**) and with the alienation subscale of the IPPA-Maternal model (r=.155**). However, it had a negative correlation with the alienation (r = 0.176**), communication (r = -0.179**), and trust (r = -0.172**) subscales. Meanwhile, age did not correlate with maternal

attachment, paternal attachment, and the trust, communication and alienation subscales. Maternal attachment was significantly correlated with paternal attachment (r = 0.551**). However, it had a very significantly negative correlation with the alienation subscale of the IPPA-Maternal model (r = -0.540**). A very significant negative correlation was also found on the alienation subscale of the IPPA-Paternal model (r = -0.533**).

Table 15: The Spearman Rho correlation the trust, communication, and alienation subscale scores of the IPPA-Maternal and -Paternal models in terms of age and gender.

Spearman's rho		Gender	Age	Maternal	Paternal	Maternal			Paternal		
						Trust	Comm	Alie	Alie	Comm	Trust
Gender		1	0.048	-.087*	-.159**	-.147**	-0.052	.155**	.176**	-.179**	-.172**
Age			1	0.03	-0.02	0.024	0.005	0.013	0.027	-0.05	-0.022
Maternal				1	.551**	.894**	0.927**	-.540**	-.294**	.506**	.502**
Paternal					1	.536**	.542**	-.415**	-.533**	.932**	.910**
Maternal	Trust					1	.812**	-.714**	-.381**	.491**	.554**
	Comm						1	-.613**	-.329**	.544**	.486**
	Alie							1	.521**	-.432**	-.476**
Paternal	Alie								1	-.607**	-.710**
	Comm									1	.842**
	Trust										1
* Correlation is significant at the 0.05 level (2-tailed).											
** Correlation is significant at the 0.01 level (2-tailed).											

DISCUSSION

The aim of the current study was to determine the validity and reliability of the IPPA-Maternal and IPPA-Paternal models based on the IPPA developed by Armsden and Greenberg (1987) and adapted to Indonesian by Idriyani (2020). The IPPA is a self-report scale that measures adolescents' perceptions of their attachment to parents and peers (Guarnieri et al., 2010). It consists of 25 items that measure three main factors; namely trust, communication, and alienation. The results of the study revealed that only 18 items in the IPPA-Maternal model met the requirements after a CFA, while in the IPPA-Paternal model, only 20 items met the required fit requirements. The results of the assumption test also found that the data in both the IPPA-Maternal and IPPA-Paternal were not normally distributed, and therefore, the median score was used in the data categorisation to divide the data into two groups; namely, high and low. A homogeneity test was also conducted to determine if the data in the population had the same variance. The results of the study showed that the research data were not homogeneous for the IPPA-Maternal and IPPA-Paternal models.

In general, adolescents are more attached to their mothers than their fathers. Paterson et al. (1994), similarly, found that from the beginning to the end of adolescence, the quality of maternal attachment among male and female adolescents remains stable. The trust score in mothers is known to be higher than the trust score in fathers, and with increasing age, women use their mothers more for support and closeness, while men use their mothers less for support and closeness.

Adolescents with high attachment (secure attachment) significantly prefer mothers to fathers (Freeman & Brown, 2001). Allen et al. (2003) said that a sense of security is closely related to the functioning of the mother-adolescent relationship through the secure base phenomenon, where adolescents can explore independence in thinking and speaking from a secure base in the mother's relationship, which is characterised by the mother's harmony with the adolescent and the support that the mother provides. Kerns and Stevens (1996) also argued that attachment to the mother is related to the quantity and quality of interactions in daily life.

Individuals who have a close relationship with their mother and father, characterised by high trust and communication and low alienation scores, were classified as highly secure individuals (Armsden & Greenberg, 1987; Guarnieri et al., 2010). Meanwhile, adolescents who described their parental relationship as having low levels of trust and communication and a high score of alienation were classified as individuals with a low sense of security (low security). Based on gender, the male

adolescents showed more attachment to their mothers compared to the female adolescents. This finding was in line with the findings of Kerstis and Sonnby (2018), where changes in the average level of attachment quality towards mothers appeared nonlinear for boys, while the average level of attachment of adolescent girls towards their mothers showed a linear decline. Overall, the average trust score for mothers was higher than the trust score for fathers, while the communication score for mothers was also higher than the communication trust for fathers. These findings were in line with that of Devi et al. (2017) that the sense of mutual trust and quality of communication between mothers is higher than that of fathers, and the perception of the quality of adolescents' attachment to their mothers is higher than their attachment to their fathers. The level of alienation from the father was higher than the level of alienation from the mother. This finding was in line with the findings of Schneider and Younger (1996).

There was a difference in the alienation of male adolescents in the M scores of mothers and fathers. The M alienation score for fathers was higher than the alienation score for mothers. This means that the male adolescents were more alienated from their fathers and tended to be more attached to their mothers. Meanwhile, the adolescent girls did not show any differences with regard to their alienation from their mothers and fathers. This finding contradicted the findings of Buist et al. (2002) that attachment to the father is the opposite, with a linear decline in quality in boys, and a nonlinear development in girls. The results generally showed that the female adolescents were closer to their fathers compared to the male adolescents, with the findings refuting the findings of Doyle and Markiewicz (2009), who showed that female adolescents avoided their fathers more than mothers. In general, the girls were closer to their mothers compared to the boys, and this finding was in line with that of Song et al. (2009) that maternal attachment is stronger in female than in male teenagers.

From the communication subscale, it could be seen that the female adolescents were more fulfilled in communicating with their mothers than with their fathers. Meanwhile, for the male adolescents, communication was fulfilled by both their mothers and fathers. Regarding communication, the teenage girls were closer to their mothers than to their fathers, and they also trusted their mothers more than their fathers. The male adolescents were more attached to their mothers than the female adolescents. In general, the teenagers were more communicative with their mothers than with their fathers. There were differences in maternal alienation between the male and female adolescents, where the female adolescents were more alienated from their mothers.

Meanwhile, regarding fathers, the boys were more alienated from their fathers than the girls. The male adolescents scored higher for communication with their fathers than the female adolescents, and similarly, for communication with their mothers, the adolescent boys scored higher than the female adolescents. The male adolescents scored higher than the female adolescents when it came to trust in their mothers. For trust in fathers, the male adolescents also scored higher compared to the female adolescents. The teenage girls avoided their fathers more than their mothers or other people. Avoidance of fathers is negatively associated with the same-sex peer competence experienced by adolescent girls (Doyle & Markiewicz, 2009). Based on age differences, the 17-year-olds were more attached to their mothers than the other ages. Meanwhile, for attachment to fathers, the 19-year-olds were closer to their fathers than the other ages. Based on the trust subscale, no sharp differences were found between the age groups regarding attachment to the mother. However, in terms of trust, the 19-year-olds trusted their fathers more than the other age groups.

For communication, there were also no big differences between the age groups regarding attachment to mothers. However, the 15-year-olds felt more communicative with their mothers, while the 19-year-olds felt more communicative with their fathers. However, the alienation from the father felt at the age of 19 was higher compared to the other ages, as was the alienation from the mother, where the 19-year-olds felt more alienated from the mother. From all the existing scores, the adolescent boys were more attached to their mothers and fathers compared to the adolescent girls. An acceptable reason was the possibility that the adolescent girls had developed relationships with their peers. Miljkovitch et al. (2021) argued that adolescent boys feel more secure with their parents than with their peers, and adolescent girls are more attached to their peers.

In the Indonesian context, those in their late adolescence have a stronger attachment to their parents. This can be justified because Indonesia is culturally a collectivist culture. This finding contradicted the research on Western society and Chinese culture, where in the final phase of adolescence there

is a progressive decline in the perception of the quality of parental relationships from early to middle adolescence, which may be caused by changes in the expectations and demands of the younger generation in families, both in individualistic and communal cultures (Song et al., 2009), and in the final phase of adolescence, attachment to parents actually increases as the feeling of security with parents increases (Ruhl et al., 2015). The correlation results also showed that only gender was significantly correlated with the attachment to the father, mother's trust subscale, alienation subscale to mother, trust to father subscale, communication to father subscale, and trust to father subscale. The attachment of mother and father had a strong and very significant correlation.

4. CONCLUSION

The current research tries to summarize the inventory with the main reason that researchers need a fast and reliable measurement tool, that in clinical studies a short version of the measuring tool is needed for reliability reasons and reduces pressure on respondents, but still maintains the integrity of the reliability and validity of the measuring tool used. The results of the retest on the IPPA Parent showed that in the attachment inventory to the mother there were 18 valid items and 20 valid items in the attachment inventory to the father, this inventory is suitable for use in measuring the level of attachment to parents.

Ethical approval

The study was approved by the Institutional Review Board (IRB) of Universiti Kebangsaan Malaysia [UKM PPI/111/8/JEP-2023-271].

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