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Models Of Adolescent Attachment To Caregivers (Study On Orphanage Adolescents In Kota Pekanbaru)

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Abstract

This study seeks to examine the construct validity of the attachment scale used to assess relationships between caregivers and adolescents living in urban orphanages. It also includes an analysis of differential item functioning (DIF) within the instrument. The attachment measure employed is the Inventory of Parent and Peer Attachment–Revised (IPPA-R), originally developed by Gay Armsden and Mark T. Greenberg in 2004 and later revised by Gullone and Robinson (2005). The IPPA-R assesses multiple dimensions of children's relationships with parents (mother, father, or guardians occupying this role) and peers. These relationship qualities are reflected in aspects such as trust, communication effectiveness, and feelings of anger or alienation. Each version of the questionnaire (mother, father, peer—adapted in this study for caregivers and peers) comprises three subscales: the trust subscale includes 10 items, the communication subscale contains 9 items, and the alienation subscale consists of 6 items.

Keywords: *Attachment, Youth, Construct Validity Test, MIMIC Model.*

Introduction

Adolescence represents a transitional stage marked by shifts from childhood toward adulthood. During this phase, individuals are expected to navigate various developmental tasks. These tasks emerge at specific stages of life, and successfully completing them contributes to personal well-being and prepares individuals for future challenges. Conversely, failure to accomplish these tasks can result in distress and create difficulties when facing subsequent developmental demands (Havigurst in Yusuf, 2011). Based on this view, developmental tasks are challenges that emerge at particular stages of an individual's life. Successfully accomplishing these tasks fosters personal satisfaction and supports the completion of later developmental demands. Conversely, failing to meet them can lead to personal distress, social rejection, and greater difficulty managing future tasks. Therefore, the developmental tasks of adolescence center on reducing immature attitudes and behaviors while striving to develop the capacity to think, act, and respond in a more mature, adult-like manner.

Adolescence is often described as a period of "storm and stress," marked by emotional turbulence, rapid physical changes, and diverse psychological developments. To navigate this challenging stage, adolescents require support, guidance, and affection from their families to help them fulfill their developmental tasks. Papalia (2001) emphasizes that the family plays a crucial role in shaping a child's future development. However, in reality, not all adolescents have the opportunity to grow up in a complete family due to circumstances such as losing one or both parents, economic hardship, and other difficulties, which may lead them to reside in orphanages.

The separation from primary attachment figures (parents) experienced by adolescents in orphanages can lead to a sense of loss and heightened feelings of loneliness (Weiss, in Peplau & Perlman, 2010). Such separation influences an individual's personality development. Erozkan (2011) found that life experiences and personality traits significantly shape a person's attachment patterns. Similarly, Marusic's et al. (2010) reported that personality domains and characteristics have direct implications for attachment relationships between caregivers and adolescents. In practice, many youths are unable to navigate adolescence with parental support because they must reside in institutional care. Orphanages serve as institutions that provide substitute parental or family care and are responsible for fulfilling the physical, emotional, and social needs of the children they support (Ministry of Social Affairs, 2020).

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Vansteenkiste, Maarten et, all (2013) emphasized that attachment between caregivers and adolescents is a critical topic that must be examined carefully, especially in relation to identity development. Attachment is viewed as a foundation for becoming a well-adjusted adult, helping individuals form appropriate attitudes, make sound decisions, and remain consistent in upholding principles of truth (Fleming, 2005) and goodness (Johnston, L.M. 2016). Research on developmental issues concerning caregiver–adolescent attachment arises from societal phenomena, particularly in Eastern cultures such as Indonesia, where attachment is often misunderstood. For instance, attachment may be mistaken for excessive control, as adolescents who begin forming strong attachments sometimes exhibit behaviors that conflict with family expectations (Steinberg, 2002). At the same time, parents generally wish for their adolescents to develop independence and hope that, as they mature, they will no longer rely on their parents emotionally.

As research progresses, attachment scales continue to evolve. However, tools specifically designed to measure attachment between caregivers and adolescents in orphanage settings remain limited. For this reason, the present study seeks to examine the construct validity of a caregiver–adolescent attachment scale within the orphanage context. Many psychological and educational constructs are latent variables—concepts that cannot be directly observed or measured. Assessing such variables requires clear operational definitions, which involve identifying the construct's dimensions, indicators, and item structure (Fox, 2010). Since the 1960s, an additional criterion for high-quality test instruments has been introduced: fairness. A test is considered fair when it contains no biased items (Cheng, Shao & Lathrop, 2016). An item is considered biased if its content or wording systematically advantages or disadvantages particular subgroups. When test items differentially benefit or harm certain subgroups, the instrument is said to exhibit item bias, often referred to as differential item functioning (DIF). DIF occurs when individuals of equal ability have different probabilities of responding correctly due to factors such as ethnicity, culture, language, religion, or gender (Tutz & Schaunberger, 2013). Testing for DIF is essential whenever there are concerns that two groups may not be treated equitably despite receiving the same stimuli in the form of identical test items. Conducting a thorough methodological examination of the caregiver attachment scale in the orphanage context is therefore crucial for developing a valid and fair measurement tool.

Attachments

The concept of attachment was first introduced in 1958 by British psychologist John Bowlby (1907–1990). Bowlby, a psychiatrist, argued that "maternal deprivation," or the lack of a mother's affection, can lead to anxiety, anger, delinquent behavior, and depression. A more comprehensive explanation of attachment was later provided by Mary Ainsworth in 1969 (Mc Cartney and Dearing, 2002). Attachment refers to the deep emotional bond children form through interactions with significant individuals in their lives, typically their parents (Mc Cartney and Dearing, 2002).

Bowlby (Haditono et al, 1994) explains that attachment relationships persist across much of the human life span, beginning with a child's bond with the mother or a maternal substitute. This view aligns with Ainsworth's perspective on attachment. Ainsworth (Hetherington and Parke, 2001) describes attachment as a specific emotional connection formed between an individual and another person, one that endures over time and is maintained through attachment behaviors designed to preserve the relationship (Durkin, 1995).

Internalization processes within the individual develop through emotional experiences with attachment figures, creating subjective feelings of connectedness and eliciting psychological responses. Bowlby argued that early attachment-related behaviors are biologically programmed. Infant behaviors such as crying, smiling, and suckling naturally elicit caregiving and protective responses from the mother, strengthening their bond. At the same time, infants are biologically prepared to respond to the mother's cues, sounds, and attention. This reciprocal biological programming fosters a mutually beneficial attachment relationship. Ethological theory also refers to this as "psychological bonding," a long-lasting emotional connection between mother and child that plays a significant role in social life (Bowlby, 1981).

John Bowlby, the early pioneer of attachment theory in the 1940s, described attachment as the warmth, closeness, and continuous bond between a mother and her child—a relationship that brings comfort and happiness (Centre for Parenting & Research, 2006; Malekpour, 2007). In this context, parents or caregivers hold a central role in supporting adolescent development. According to (Bowlby, 1981). caregivers serve as a "secure base" from which adolescents can explore their surroundings. This exploration becomes stronger when caregivers are available and responsive, as it activates the

attachment system. Conversely, when caregivers are unresponsive or emotionally distant, attachment tends to weaken or even diminish, potentially leading to emotional and psychological difficulties. If these emotional problems remain unresolved, they may negatively affect adolescents' future development, including their character formation and emotional well-being, and may contribute to mental–emotional disorders (Santrock, 2007). Figure 1 illustrates the attachment concept applied in this study.

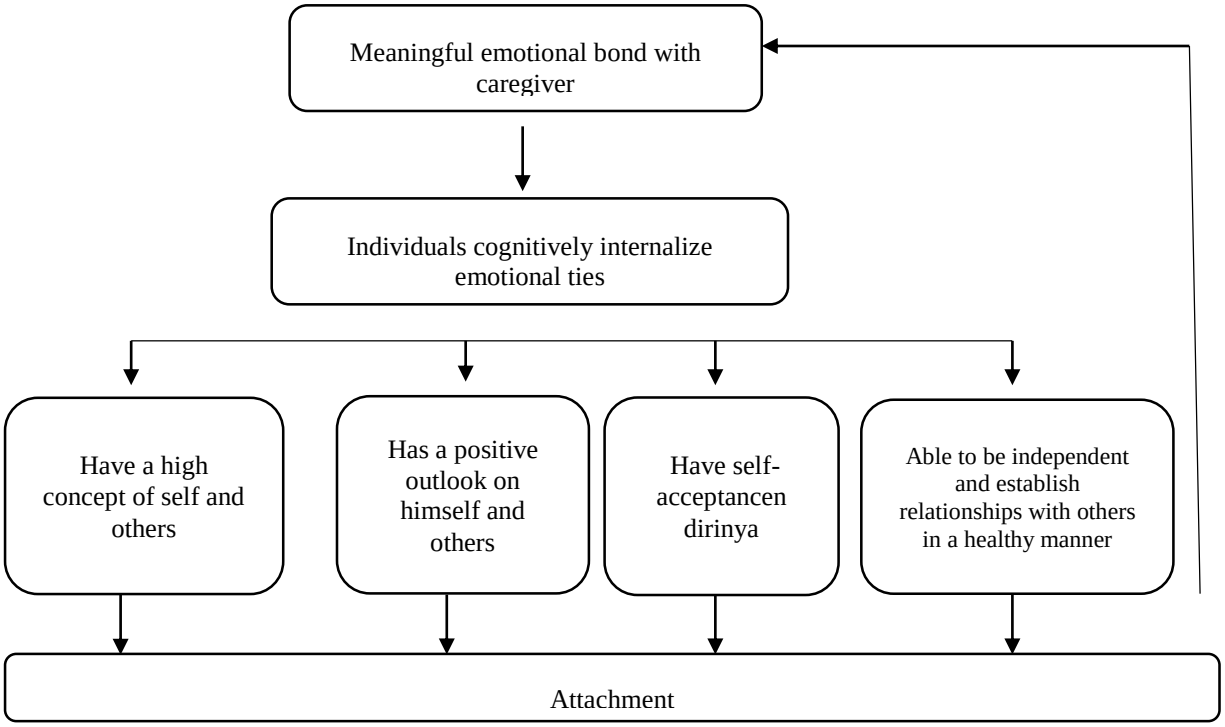

Figure 1. Attachments concept

(Bowlby, 1981); (Hazan & Shaver, 1987)

Attachment Aspects

An affective bond directed toward specific individuals—often referred to as attachment figures develops continuously over time. All children form attachments to their parents or to substitute caregivers. This attachment begins to develop during the first year of life and continues to unfold through ongoing parent–child interactions (Appleyard & Berlin, 2007).

Attachment to parents is assessed using the attachment dimensions in the Parent and Peer Attachment Inventory (IPPA), as applied in studies such as those by Guarnieri, Ponti, and Tani (2010). The indicators evaluated in the Inventory of Parent and Peer Attachment–Revised (IPPA-R) (Armsden and Greenberg, 2009), namely:

1. Trust, refers to the adolescent's belief in their parents, characterized by mutual understanding and acknowledgment of the child's needs and desires.

2. Communication, referring to the quality of verbal interaction and the child's level of engagement with their parents.

3. Alienation, which captures the child's sense of distance from their parents, including feelings of isolation, anger, and emotional disconnection.

Construct Validity Test with Confirmatory Factor Analysis (CFA)

Because CFA has a confirmatory character, it is suitable for evaluating the construct validity of psychological or educational measurement instruments. Through CFA, researchers can verify the extent to which all items in a test truly measure a single intended construct. For example, consider a verbal ability test consisting of 20 items. The underlying assumption is that all 20 items tap into one

factor—verbal ability. If this assumption is correct, then a one-factor model should show a good fit with the data. This one-factor model, also known as a unidimensional model, is a principle that all measurement tools should satisfy. In psychological assessment, every item should measure only one construct; if one or more items measure something else, those items are considered invalid.

Differential Item Functioning (DIF)

Beginning in the 1960s, another criterion was added for determining whether a test item is of good quality namely, that the item must be fair. The process of evaluating whether an item functions fairly is known as differential item functioning (DIF) analysis. Conceptually, an item is said to show DIF when individuals from different groups who possess the same level of the underlying trait have unequal chances of answering the item correctly (Hulin, Drasgow & Parson, 1993; Woods, Oltmanns & Turkheimer 2009; and Tutz & Schaunberger, 2013). DIF is typically classified into two types (Scott et al., 2010). First, Uniform DIF, which occurs when the difference in item functioning between groups remains consistent across all levels of ability (θ). Second, Non-uniform DIF, which occurs when the magnitude of the DIF varies at different levels of ability. Ideally, DIF detection methods should assess both, although in practice not all analytical techniques are capable of identifying non-uniform DIF (Scott et al., 2010).

MIMIC Model

Before detecting DIF in IPPA-R, this study first examined construct validity using confirmatory factor analysis (CFA). A first-order, one-factor CFA model was applied to assess the unidimensionality of the measurement instrument. After identifying valid items through this CFA-based construct validity test, DIF analysis was then conducted using the MIMIC model on the set of validated items. In the MIMIC approach, covariates are included to examine their influence on the items that have been confirmed to measure the IPPA-R construct. In this study, the covariate tested was gender, coded as 0 for males and 1 for females. If gender shows a significant direct effect on an item, it indicates the presence of DIF, meaning that responses differ systematically between male and female groups even when they have the same underlying ability level.

Methods

Research Design

This study is a non-experimental investigation using a quantitative approach. The research does not involve manipulating or controlling variables, nor does it provide any treatment to participants. Consequently, the data collected represent conditions that already existed beforehand, making this study ex post facto in nature (Simon & Goes, 2013).

Population and Method of Sampling

The population in this study consisted of all adolescents living in orphanages in Pekanbaru City, totaling 1,211 individuals (based on data from the Riau Province Social Service). Sampling was conducted using a non-probability approach with a convenience sampling technique, selected according to the study's aims and objectives. The final sample included 203 adolescents drawn from 12 different orphanages.

Instrumentation

The instrument used in this study was IPPA-R, originally developed by Gay Armsden and Mark T. Greenberg in 2004, then translated into Indonesian and adapted to suit the context of this research. The instrument comprises three sections—trust, communication, and alienation. Responses are collected using a Likert-type scale, offering five answer choices for each item: Never, Rarely, Sometimes, Often, and Always.

Results and Discussion

Results

The researcher examined whether the 25 items were unidimensional, meaning they measured only the attachment construct. The initial CFA using a one-factor model did not show a good fit, yielding Chi-square = 500.255, df = 252, p = 0.0000, and RMSEA = 0.055. The model was then modified by allowing correlations among the error terms of several items. After this modification, the model achieved a good fit with Chi-square = 413.186, df = 247, p = 0.0000, and RMSEA = 0.046. Since the RMSEA value was below 0.05, the one-factor model was deemed acceptable, indicating that all items measure

a single factor—attachment. The next step was to determine whether each item significantly measured the intended factor and whether any items needed to be removed. This was assessed by examining the z-values of the factor loading coefficients.

The z-values of the factor loading coefficients for 22 items were significant because they exceeded 1.96. However, two items consist of item 4 and item 24 were found to be invalid as they did not meet the required criteria. Further examination of the factor loadings also revealed that item 24 had a negative loading. Therefore, these items were excluded from subsequent model testing due to their invalidity. After confirming the 22 valid items through the first-order CFA, the researcher proceeded to conduct DIF detection using the MIMIC model on this set of valid items. The analysis was carried out by evaluating the relevant coefficients, which will be described in the following section.

Table 2. Model Kelekatan berdasarkan jenis kelamin

Based on the simultaneous analysis, there are key distinctions in the MIMIC model compared to the two previous models. In this model, covariates are included to examine their influence on items that have been confirmed to measure adolescent attachment. The covariate used is gender, consisting of two categories: males coded as 0 and females coded as 1. A significant direct effect of gender indicates the presence of DIF in the tested items, meaning that the items function differently for males and females.

The MIMIC model employs the robust maximum likelihood (MLR) estimation method, which generates parameter estimates along with robust model fit indices. The term robust indicates that this method remains reliable even when certain underlying assumptions are violated, thereby producing improved and corrected fit indices. After confirming this through the previously described first-order model, the attachment variance is fixed at 1 to examine whether gender is the sole source of variation in the items. This step is intended to assess DIF, and the results of the test are presented in the table below.

Table 3. DIF Testing with the MIMIC Model on the Attachment

Item	Estimate	Standard Error	Z-Value	P-Value
Attachment ON Gender R2 = 0.019, p=0.000				
Attachment ON Gender	0.454	0.061	7,463	0.000
Item 5 ON Gender	0.138	0.053	3.624	0.000
Item 23 ON Gender	0.310	0.042	7.44	0.000

Based on Table 3, two items consist of items 5 and 23 were identified as containing DIF. The testing criterion involves examining the estimation results obtained by specifying a model in which gender has a direct effect on each item. Significant estimates indicate that an item performs differently for males and females, meaning that the item exhibits DIF. Furthermore, the direct effect of gender on the latent attachment variable is also significant, with an R^2 value of 0.019 and a regression coefficient of 0.454, both statistically significant and positive. This suggests that there is a mean difference between males and females in how they respond to the attachment items.

The evaluation of items containing DIF does not end at this point; each DIF item must be reviewed individually to understand how its content leads to different functioning across genders. As shown in Table 3, gender has a significant positive effect on item 5 (0.138, p = 0.000), meaning that female respondents generally score higher than males. Likewise, gender significantly influences item 23 (0.310, p = 0.000), with girls again obtaining higher scores. These findings indicate that female adolescents tend to express stronger attachment to their caregivers compared to male adolescents.

Discussion

This study demonstrates the use of the MIMIC model in identifying DIF within an attachment assessment instrument, namely IPPA-R. The findings indicate that female adolescents show higher levels of attachment to their caregivers than male adolescents. Variations in attachment between girls and boys may stem from emotional and cognitive differences across genders. Moreover, cultural norms in Indonesia, which emphasize that women are expected to be loving, nurturing, and responsible for the family, lead parents to impose stricter boundaries on young girls (Monks, Knoers & Hadinoto, 2014).

This study also revealed that attachment to parents does not differ between early and middle adolescence. This may be because, upon entering adolescence, individuals have accumulated various

experiences and progressed through several developmental stages. During this period, adolescents undergo numerous changes, particularly in the socio-emotional domain, such as increasing demands for independence, heightened conflict with parents, and a greater tendency to spend time with peers (Santrock, 2007).

The findings of this study also demonstrate that the MIMIC model is both efficient and practical for detecting DIF, as parameter estimation in the measurement model does not need to be conducted separately for each group. Instead, covariates are incorporated directly into the CFA model, where in this study, the covariate is a nominal variable representing group membership (e.g., gender: 0 = male, 1 = female). This aligns with earlier studies by Gallo, Anthony and Muthen (2004), who noted that the MIMIC model is a practical approach for identifying item-level DIF. Additionally, research by Finch (2005) and Woods (2009) reinforces this conclusion, showing that the MIMIC model is an effective method for detecting DIF at the item level.

Conclusion

Based on the study's findings, it can be concluded that the first-order CFA conducted on the attachment measurement instrument identified 23 items as valid indicators of the attachment construct. Furthermore, DIF analysis using MIMIC approach revealed that two items consist of item 5 and item 23 exhibited differential functioning. These results are supported by the observed differences in attachment levels between male and female adolescents. Gender was shown to significantly influence how adolescents responded to the attachment items, indicating that attachment to caregivers varies according to gender.

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