

From attachment anxiety to physical aggression:

A replication study on married couples

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This study aimed to accumulate evidence of the additional verification of a model that shows the relationship between attachment anxiety and physical aggression and those related variables adopted in the study by Xie et al. (2022) in married couples. A romantic conflict scenario was presented to married survey respondents. The respondents' jealousy and coping behaviors were measured. Although structural equation modeling did not reproduce the factor structure of coping behaviors with conflict, it provided evidence for the model's external validity. These results suggest the need to clarify the causal relationship between physical aggression and high levels of attachment anxiety.

Key attachment anxiety, physical aggression, conflict coping behavior, replication study

Introduction

Domestic violence (DV) is violence inflicted by an intimate partner such as a spouse or lover (Akazawa, 2016).² Recently, DV in marital and romantic relationships is drawing attention as a significant social problem. According to a survey conducted by the cabinet office on adult men and women (over 20 years old), the proportion of those who were victimized by a partner's *physical violence, psychological attack, economic pressure, or sexual coercion* increased to 31.3% for women and 19.9% for men. This finding indicates that current levels of victimization are severe (Gender Equality Bureau Cabinet Office, 2020).

Previous studies have investigated various factors involved in DV. Examples of these factors include past experiences with DV (Capaldi et al., 2012; O'Leary et al., 2014), alcohol and drug abuse (El-Bassel et al., 2005; Foran & O'Leary, 2008), socioeconomic status (Khalifeh et al., 2013), and individual characteristics (Muftić & Humphreys, 2015; Vagi et al., 2013) are reported to be related to DV. Several studies have been conducted on these factors, especially individual

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² The concept of intimate partner violence (IPV), a generic term for intentional acts of violent control and control over an intimate partner, is also used (World Health Organization, 2013).

characteristics. For example, studies of domestic violence perpetration have addressed characteristics such as aggression and perceived hostility toward others that are likely associated with violent behavior (Birkley & Eckhardt, 2015; Cui et al., 2013). In addition, beside individual characteristics directly associated with such violent behavior, attachment anxiety—defined as an intense desire for intimacy, negative self-belief and expectation, and fear of not being accepted by the other person—have been identified as potential individual characteristics that increase domestic violence perpetration (e.g., Dutton & White, 2012; Park, 2016; Sandberg et al., 2019).

Although attachment anxiety was associated with the development of DV, the process of the occurrence of DV due to a high level of attachment anxiety remains unclear. Understanding how aggressive behavior and violence are perpetrated is necessary for developing programs to prevent them (Arai, 2018). Examining the mediating factors for severing the link between attachment anxiety and DV is essential. Therefore, Xie et al. (2022) proposed a process from attachment anxiety to physical aggression by conducting a cross-sectional survey of participants in romantic relationships using an assumption method based on conflict scenes involving threats to intimate relationships. First, Xie et al. (2022) composited items related to aggression from the scale of the Anticipated Behavior Scale for Imaginary Infidelity (ABSII; Kanno, 2017) and the Japanese version of the Conflict Tactics Scale (CTS; Morinaga et al., 2011). They adopted a six-factor structure using exploratory factor analysis. The factors (called *orientations*) developed through the analysis were *physical aggression*, *psychological aggression*, *breakup*, *silence*, *conversation*, and *rival*. Next, the relationship between attachment anxiety and physical aggression was modeled with related emotional and cognitive aspects of jealousy and self-efficacy, and the process through which physical aggression develops due to attachment anxiety levels was proposed (Figure 1).^{3,4}

The model showed that high levels of attachment anxiety led to aggressive behavior through coping with conflict in intimate relationships. These results suggest that it is important to avoid breakup behavior and address conflicts in intimate relationships to reduce psychological and physical aggression. In addition, to increase active problem-solving behavior through partner conversation and prevent physical aggression, it is critical to reduce suspicion and build trusting relationships. These results demonstrate the importance of communication in intimate relationships

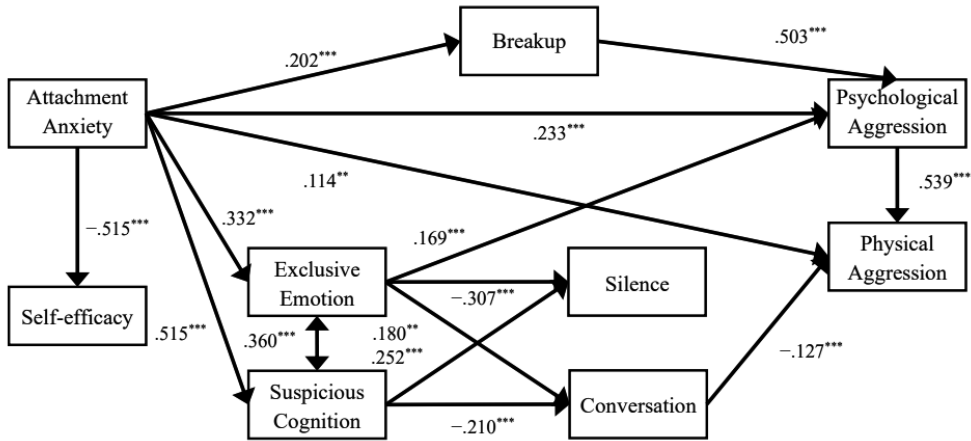
³ Jealousy is defined as the emotion generated when an intimate relationship is perceived to be threatened by a third party (White, & Mullen, 1989). It is a factor mediating the relationship between attachment anxiety and psychological aggression (Wright, 2017). According to Kanno (2016), jealousy is divided into three components: cognitive, emotion, and behavior. Of these, exclusive emotion describes the intensity of negative emotions (such as anger or sadness) in response to a third party's intrusion into the relationship, suspicious cognition describes the cognitive sensitivity to suspect that the partner will be taken from them.

⁴ Self-efficacy is defined as an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977). It has been shown to be negatively associated with attachment anxiety (Mikulincer & Shaver, 2007). Higher self-efficacy has been reported to be associated with relationship maintenance behaviors (Weisera & Weigelb, 2016), so Xie et al. (2022) hypothesized this to be a mediating factor.

and suggest future directions for the development of DV prevention programs.

Figure 1

Process from attachment anxiety to physical aggression adopted in Xie et al. (2022)



Note. The coefficient values were standardized; error variables were omitted; and the effect of attachment avoidance was controlled.

** $p < .01$. *** $p < .001$.

Xie et al. (2022) proposed a process from attachment anxiety to physical aggression. Still, some problems remain to be addressed. First, the coping behavior scale for intimate relationship conflict is composite, adopted from the exploratory factor analysis (EFA). In the EFA, the common factor was extracted only from the correlation between variables in the obtained data. The evidence for structural aspects of validity is lacking.⁵ However, confirmatory factor analysis (CFA) is based on a measurement model between the observed variables and the construct specified beforehand, and whether such a factor structure is established or not is checked using the given data (Nakamura, 2009). Therefore, CFA must be used to superimpose evidence of the factor's structural aspect.

Second, in Xie et al. (2022), the participants were limited to those who were in romantic relationships. Intimate relationships include marital relationships, which are more stable and continuous than other short-term romantic relationships. From the viewpoint of adult attachment theory, romantic and marital relationships are regarded as adult attachments involving an emotional connection between two persons (Mikulincer & Shaver, 2007). However, the stability and continuity of these relationships differ from legal, financial, and environmental perspectives (Kanemasa et al., 2021). In fact, in a longitudinal survey of romantic relationships, about 40% of romantic relationships failed during a 3-month period (Simpson, 1987). Since the process adopted by Xie et

⁵ The evidence for structural aspects of validity is evidence that the internal structure of scores is consistent with theoretical structures such as subdomains and dimensionality of constructs. This evidence includes not only the appropriateness of scoring procedures and correlations between items but also the results of factor analysis and internal consistency (Hirai, 2006).

al. (2022) included a path derived from the exploratory examination, this model was used only as a candidate. Therefore, it is necessary to examine individuals not only in romantic relationships but also in long-term marital relationships, which can provide evidence of the external validity of the process of physical aggression due to high attachment anxiety levels.

Recently, there has been a strong push to address the reproducibility crisis in psychology (Ikeda & Hiraishi, 2016). New research protocols are being introduced, such as open data and pre-registration (Hoshino & Okada, 2018). The crucial importance of the replication study has been reaffirmed (Kato, 2018). Furthermore, Yoshida et al. (2020) stated that, in particular, for research using structural equation modeling (SEM), it is necessary to replicate and verify the external validity of the model to support the robust nature of the findings.

In view of these issues, this study involves a series of analyses using survey data from registrants of survey monitors who are in marital relationships. It aims to provide additional validation of the model adopted by Xie et al. (2022) and add evidence of the factor-structural aspects of their behavioral scales describing intimate relationship threats. In addition, it is expected that the process of physical aggression through the high level of attachment anxiety adopted by Xie et al. (2022) will be reproduced.

Method

Participants

After excluding missing data, 523 survey respondents (334 men, 178 women, and one unknown gender) in marital relationships who lived with their partners were included in this study. Their average age was 47.89 years ($SD = 9.05$).

Procedure

Similar to Xie et al. (2022), we determined the sample size ($N = 395$) based on the rule of thumb for SEM and CFA before the data collection (Kyriazos, 2018). Married participants who were living with their partners were recruited from Cross Marketing. We asked those who gave their consent to take an online survey via Google Forms on their PC or smartphone. After presenting the same hypothetical scenario as in Xie et al. (2022), we measured participants' attachment orientations, self-efficacy, jealousy, and coping behaviors with conflict in romantic relationships with the same scales. After collecting the data, we constructed an analysis plan.⁶ This study was approved by the faculty ethics committee at the authors' university.

Measures

The following variables were measured using a 7-point Likert scale (1 = strongly disagree, 7 =

⁶ Pre-registration materials with the analysis plan can be accessed on OSF (https://osf.io/sp4yb?view_only=ad6965cf63694a9490152ad70e2488cc).

strongly agree) as same as Xie et al. (2022).

Attachment orientation. We measured attachment orientation using the Japanese version of the Experiences in Close Relationship Scale for Generalized Other (ECR-GO) developed by Nakao & Kato (2004).⁷ This scale consists of two subfactors: anxiety and avoidance. We eliminated two anxiety subfactor items that were difficult for participants to understand, based on Xie et al. (2022). Finally, 16 items remained (e.g., “I am very comfortable being intimate with others”). Avoidance, which is related to violence in romantic relationships (cf. Park, 2016), is measured as a control variable with 12 items (e.g., “I try not to get too close to others”).

Self-efficacy. We measured self-efficacy using the Japanese version of the Generalized Self-efficacy (GSE) scale (Narita et al., 1995). The GSE scale measures self-efficacy across general daily circumstances rather than specific tasks or situations. It comprises 17 items (e.g., “When I make a plan, I am certain I can make them work”).

Jealousy. We measured jealousy using two subscales of the Multidimensional Jealousy Scale (Kanno, 2016): suspicious cognition (five items, e.g., “I am worried that someone is trying to seduce my partner”) and exclusive emotion (five items, e.g., “I will be in a bad mood when my partner is flirting with someone”).

Coping behaviors with conflict in a romantic relationship. Thirty-two items from the coping behavior scale for conflict in intimate relationships were used. This scale is a composited scale of the Anticipated Behavior Scale for Imaginary Infidelity (ABSII; Kanno, 2017) and the Japanese version of the Conflict Tactics Scale (CTS; Morinaga et al., 2011) and was adopted as a 6-factor structure by EFA in Xie et al. (2022): physical aggression orientation (e.g., “hit my partner with something”), psychological aggression orientation (e.g., “say mean things to my partner”), breakup orientation (e.g., “tell my partner that I want to break up with him/her”), silence orientation (e.g., “treat my partner as usual unless he/she says anything”), conversation orientation (e.g., “ask my partner calmly”), and rival orientation (e.g., “try to make an opportunity to meet the rival”).⁸

Satisfice. Satisfice is a behavior in which participants do not devote appropriate attentional resources when answering questions. It can reduce data quality and impair the validity of inferences made on their basis (Miura & Kobayashi, 2016). Therefore, we used the same instructional manipulation check (IMC) item as Xie et al. (2022) to measure the degree of satisficing by instructing participants not to answer these questions.⁹

⁷ The structure of ECR-GO was similar to the Experiences in Close Relationship Scale (ECR), which indicated its factorial validity (Nakao & Kato, 2004). In addition, it was shown that both attachment anxiety about romantic relationships and attachment anxiety about relationships with generalized others could be predictors of DV perpetration (Kanemasa, 2021). Therefore, we decided to use this scale.

⁸ In this study, for the purpose of additional verification of the factor structure and the model, the rival orientation factor item was used only in the examination of the factor structure of the scale, referring to Xie et al. (2022). It was not used for the model verification afterward.

⁹ The details of the items of scales and IMC can also be accessed on OSF

Results

Among the 606 participants, 466 (73.6%) violated the IMC instruction, higher than that reported in previous study (38%; Xie et al., 2016). We included these data to ensure the sample size would meet the requirements for the analysis according to the plan. There were 83 surveys with missing data; thus, we analyzed the remaining 523.

Analysis

Factor analysis. For the factor structure of our scale for coping with conflict in romantic relationships, we performed maximum likelihood CFA using Mplus 8.3 for the six-factor structure adopted in Xie et al. (2022). As the fit of the six-factor structure somewhat did not reach the

Table 1

Correlation Analysis in this Study

	1	2	3	4	5	6	7	8	9	10	<i>M</i> (<i>SD</i>)	α
1.Attachment avoidance ^a		-.026	.004	.068	-.444**	.000	.002	-.008	.077	-.145**	4.233 (1.008)	.872
2.Attachment anxiety			.478**	.244**	-.477**	.331**	.321**	.266**	.111*	-.043	3.271 (1.021)	.913
3.Suspicious cognition				.429**	-.258**	.314**	.238**	.252**	.075	-.004	2.834 (1.410)	.933
4.Exclusive emotion					-.271**	.242**	.417**	.221**	-.178**	.276**	4.270 (1.412)	.869
5.Self-efficacy						-.204**	-.213**	-.138**	-.172**	.068	4.136 (0.979)	.918
6.Physical Aggression ^b							.660**	.448**	.061	.018	1.695 (1.001)	.931
7.Psychological aggression								.613**	-.143**	-.151**	3.088 (1.418)	.859
8.Breakup									-.244**	-.139**	3.185 (1.564)	.888
9.Silence										-.209**	3.109 (1.437)	.881
10.Conversation											4.610 (1.478)	.850

^a Attachment avoidance was measured as a control variable. ^b Physical aggression had a floor effect in the histogram; therefore, it was calculated with rank correlation coefficients.

* $p < .05$. ** $p < .01$.

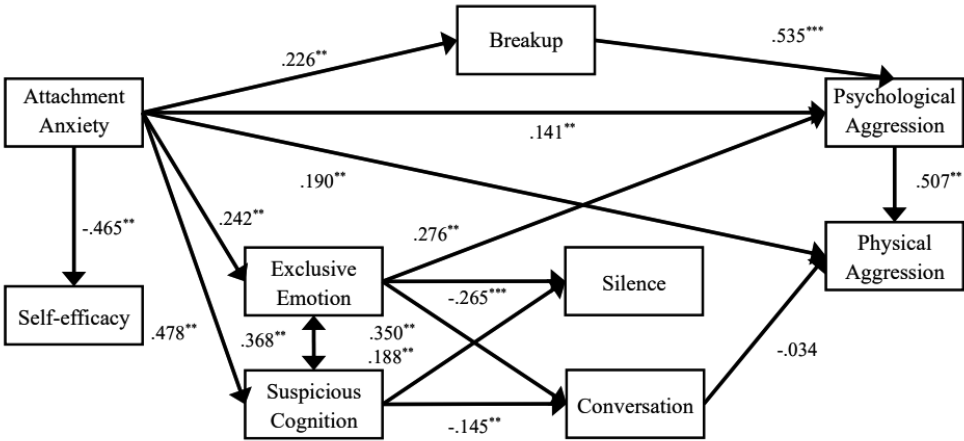
(https://osf.io/vf2g8?view_only=ad6965cf63694a9490152ad70e2488cc).

standards (CFI = .896, RMSEA = .060, SRMR = .077), we performed item analysis for each factor in the six-factor structure. The reliability coefficients (α) were .931 for physical aggression orientation, .859 for psychological aggression, .888 for breakup, .881 for silence, .850 for conversation, and .783 for rival orientation. Because Cronbach’s alpha met the reliability standard, we considered that the six-factor structure had been reproduced and calculated an average item score.

Correlation analysis. We performed correlation analysis to examine the associations between the scale scores (Table 1). We calculated the rank correlation coefficient among the scores because the physical aggression orientation showed a floor effect in the histogram.

Model validation. We used SEM with maximum likelihood in Mplus 8.3 to examine the hypothetical model of attachment anxiety leading to physical aggression, and because physical aggression orientation had floor effects, we performed a robust standard error estimation. The SEM results showed that the model fit met the standards (CFI = .903, RMSEA = .099, SRMR = .061).

Figure 2
The process from attachment anxiety to physical aggression adopted in this Study



Note. The coefficient values were standardized; error variables were omitted; and the effect of attachment avoidance was controlled.

$**p < .01$. $***p < .001$.

The adopted model (Figure 2) reproduced the process by which high attachment anxiety increased physical aggression (indirect effect = .071, $p < .001$) through high psychological aggression toward partners. We also replicated the process of high attachment anxiety increasing psychological aggression toward a partner (indirect effect = .067, $p < .001$) and physical aggression. However, we did not reproduce the relationship between conversation and physical aggression orientations. As in Xie et al. (2022), self-efficacy was negatively associated with attachment anxiety but not with other variables.

Examining the mediating effect for each relationship pattern showed that high attachment anxiety

decreased the tendency to converse with partners through the intensity of suspicious cognition (indirect effect = $-.070$, $p < .01$). On the other hand, high attachment anxiety increased the tendency to talk with partners through the intensity of exclusive emotion (indirect effect = $.085$, $p < .001$). We did not reproduce the effect of conversation on physical aggression. Still, we did reproduce the pathways for high attachment anxiety enhancing psychological aggression (indirect effect = $.121$, $p < .001$) and physical aggression (indirect effect = $.271$, $p < .001$) through a high tendency to break up with a partner.

Discussion

In this study, we examined the external validity of a model of physical aggression stemming from high attachment anxiety and the factor structure of dealing with conflict in romantic relationships based on Xie et al. (2022). First, we did not reproduce the factor structure for the coping with conflict scale in the six-factor structure adopted in Xie et al. (2022). Nonetheless, the item analysis for the six factors showed high-reliability coefficients (α) for each factor. However, the α is just one piece of evidence, which cannot be interpreted as sufficient evidence for structural aspect of validity.¹⁰

Next, although we did not reproduce the relationship between the conversation and physical aggression orientations in the model based on the six-factor structure, the SEM results showed that the fit of the model met the standards. Thus, the pathway from attachment anxiety to physical aggression was approximately reproduced in marital relationships. This result offered evidence for the model's external validity.

This study showed a common process of attachment anxiety leading to physical aggression in marital relationships with romantic relationships. Specifically, (a) the relationship between attachment anxiety and physical aggression was mediated by psychological aggression, and the emotional aspects of jealousy mediated the relationship between attachment anxiety and psychological aggression. (b) The relationship between attachment anxiety and psychological aggression was mediated by breakup-oriented behavior, and the relationship between breakup-oriented behavior and physical aggression was mediated by psychological aggression. These results suggest that high attachment anxiety escalates into aggressive behavior because of jealousy and inappropriate coping with conflict in romantic relationships. To reduce psychological and physical aggression, it is essential to (a) suppress jealousy against conflict in intimate relationships, and (b) avoid breakup behavior as a response to conflict.

¹⁰ According to Hirai (2006), the evidence for structural aspects of validity includes the results of factor analysis and internal consistency. However high α coefficients for fewer items are weak evidence of high internal consistency of the scale. As the α coefficient has been criticized for its use as an indicator of internal consistency (Okada, 2015), it is not be interpreted as sufficient evidence for the structural aspect of validity in this study.

This study demonstrated two of Xie et al.'s (2022) common mediating patterns. In addition, it showed non-common paths between romantic and marital relationships. A negative association between conversation and physical aggression orientations was found in romantic relationships. However, for married couples, the relationship itself was not significant. One possible reason for this is the difference between romantic relationships and marital relationships. Regarding intimate relationship conflicts, extreme coping behaviors such as aggressive behavior can make it easier to control the partner. The breakdown of a marital relationship is more costly in terms of legal, economic, and environmental consequences; therefore, DV tends to persist (Kanemasa et al., 2021). If aggression achieves the goal of maintaining the relationship by controlling the partner, aggressive behavior may be relied on in times of crisis regardless of whether any discussion with the partner has been attempted. These results suggest the importance of applying primary prevention strategies against DV (Souma, 2018).

This study elaborated the process of DV perpetration by conducting additional validation for its occurrence related to high attachment anxiety. Its results demonstrate the importance of emotion and coping behaviors for managing conflict in intimate relationships. In addition, our findings suggest the direction of future intervention to prevent DV perpetration. Providing guidance for controlling jealousy and inappropriate conflict-coping behaviors in intimate relationships, such as skill training focusing on emotional and self-control (e. g., Kobayashi & Watanabe, 2017; Kutsuzawa & Ozaki, 2019), are expected to help develop more effective programs, as is the case with DV intervention programs. These findings highlight significant aspects of our study.

In addition, we found no relationship between self-efficacy and any communication patterns, similar to Xie et al. (2022). It is suggested that individual self-efficacy has a slight effect on the choice of coping behaviors for conflict in intimate relationships. According to Asano & Yoshida (2011), most of the dyadic relationship unfolds as a shared intersubjective process of psychological agreement and empathic understanding between them. Therefore, the focus on coping tendencies in conflict situations in romantic relationships might have highlighted the influence of intersubjective concept shared between the dyad. Specifically, the shared efficacy of the dyad—a shared or intersubjective efficacy expectation of relationship partners—refers to a pair's belief that they can mutually coordinate and integrate their resources to prevent and resolve any problem (Asano, 2011), which effects the attachment functions and well-being of individual in intimate relationships (Asano & Yoshida, 2011; Asano et al., 2018). Future studies should focus on the effect of this shared efficacy on maintenance of romantic relationships.

Kanemasa et al. (2021) conducted a longitudinal survey of romantic relationships and marital relationships to investigate the causal relationship between attachment anxiety and DV. Additionally, they examined whether attachment anxiety is a preceding factor in DV perpetration using a cross-delay model. Their study results clarified that attachment anxiety increased future DV perpetration,

even if victimization is controlled. The findings of this study and Xie et al. (2022) are based on cross-sectional data and have methodological limitations different from those of Kanemasa et al. (2021). However, we explored the process of DV by attachment anxiety level as a different approach to refine the direction of the association between DV and attachment anxiety. Therefore, future research should focus on the causal relationship between attachment anxiety and DV perpetration and clarify the process reproduced in this study using time series data. As mentioned above, the causal relationship between attachment anxiety and DV perpetration was only theoretically assumed in studies using cross-sectional data. Strictly speaking, it is unclear whether causal relationships have been verified. It will be necessary to clarify the causal connection between attachment anxiety and the behaviors of two persons who are in an intimate relationship through a longitudinal study. This design will show that attachment anxiety substantially increases the likelihood of DV perpetration.

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