

The preliminary study for the process from attachment anxiety to physical aggression:

The escalation theory of domestic violence

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This study aims to provide preliminary evidence of the process by which high attachment anxiety leads to physical attacks from the perspective of the escalation theory of domestic violence (DV). A scenario of a romantic conflict was presented to survey respondents, and the respondents' jealousy and their coping behaviors were measured. Structural equation modeling (SEM) revealed that not only did a pattern emerge of relationships in which a high degree of attachment anxiety enhanced physical aggression through high psychological aggression toward partners, but also that the relationship between attachment anxiety and psychological aggression was mediated by the intensity of the emotional and cognitive aspects of jealousy and by coping behaviors with conflict in a romantic relationship. The results suggest the need to elaborate on the process by which high attachment anxiety leads to physical attacks from the lens of the escalation theory of DV.

Key Words: attachment anxiety, aggression, coping behavior with conflict, escalation theory, jealousy

Introduction

Violence in romantic relationships (domestic violence or dating violence; DV) is a serious violation of human rights and a social problem that cannot be ignored. With the COVID-19 pandemic, increased health anxiety and stress contributed to the escalated worldwide warnings of DV occurrences and exacerbations (Gender Equality Bureau Cabinet Office, 2020). Against the background of this social crisis, researchers are actively studying DV not only in psychology and social welfare but also from the more recent perspective of the Sustainable Development Goals (Mahapatro & Kumar, 2021).

Many factors are involved in DV, one of which is attachment anxiety (Babcock, Jacobson,

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Gottman, & Yerington, 2000). Attachment anxiety is a negative belief or expectation of self that is manifested as a strong desire for intimacy and fear of rejection (Suzuki, Yoshida, & Igarashi, 2015). For example, Kanemasa, Komura, Asano, and Arai (2021) used a cross-lagged model to examine the causal relationship between attachment anxiety and violence in romantic relationships and found that attachment anxiety predicted later escalations in indirect violence. Indeed, there has been ample evidence demonstrating that high attachment anxiety leads to DV (e.g., Lafontaine & Lussier, 2005; Péloquin, Lafontaine, & Brassard, 2011), and its study is expected to contribute to the development of DV prevention programs (Velotti, Zobel, Rogier, & Tambelli, 2018), which currently do not exist. Thus, research on the subject is both warranted and necessary at present.

Given that understanding how aggressive behavior and violence are perpetrated is necessary as a prerequisite to developing preventive programs against them (Arai, 2018), accumulating evidence for clarifying the process is important. The escalation theory of DV suggests the causal relationship between DV and attachment anxiety. The escalation theory of DV was defined as abusive relationships that gradually escalate throughout daily communication (Souma, 2018); in other words, violence does not occur at the beginning of the relationship but moves in stages, from nonviolence to psychological violence to physical violence. In fact, in a longitudinal survey of newly married couples by Schumacher and Leonard (2005), early verbal attacks predicted physical attacks one year later. Following the escalation theory of DV and the research findings on the relationship between attachment anxiety and physical aggression (c.f., Spencer, Keiholtz, & Stith, 2021), in this study, we hypothesized that the relationship between attachment anxiety and physical aggression is mediated by psychological aggression.

In addition, Fournier, Brassard, and Shaver (2011) determined that the relationship between attachment anxiety and psychological aggression was mediated by inappropriate communication patterns (e.g., one partner tries to discuss problems and the other avoids it). In addition, people with high attachment anxiety are more likely to exhibit behaviors that impair relationships, including expressing their distress or injury to make their partners feel guilty, which decreases the perceived value of their relationship over time (Overall, Girme, Lemay, & Hammond, 2014). According to Bartholomew and Allison (2006), people with high attachment anxiety use violence against their partners when their attachment anxiety is temporarily activated by conflict in a romantic relationship and when they have exhausted their nonviolent coping behaviors (e.g., asking for attention, trying to communicate, and showing jealousy). Based on these findings, we hypothesized that the relationship between attachment anxiety and psychological aggression in a romantic relationship is mediated by conflict-based coping behaviors.

This study aims to propose a process or a model to explain the pathway from attachment anxiety to physical aggression by exploring how high attachment anxiety affects communications with partners, and how it leads to physical aggression. We used vignettes in which a romantic relationship

was threatened using two self-report scales: the Anticipated Behavior Scale for Imaginary Infidelity (ABSII; Kanno, 2017) and the Japanese version of the Conflict Tactics Scale (CTS; Morinaga, Frieze, Aono, Kasai, & Li, 2011). Using these scales together allowed us to capture the survey respondents' communication styles, psychological aggression and physical aggression for coping with conflicts. Specifically, we considered five behavioral orientations regarding conflict in a romantic relationship: 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 I want to break up"), silence orientation (e.g., "treat my partner as usual unless he/she says anything"), and conversation orientation (e.g., "ask my partner calmly")².

In the following, we will describe how we constructed the hypothetical model of the process by focusing on these five behavioral orientations toward conflict in romantic relationships. Other variables, namely jealousy and self-efficacy, were also considered when building this model. We hypothesized that these would mediate the relationship between attachment anxiety and the style of communication or psychological aggression.

Jealousy is defined as the feeling that occurs when a romantic relationship is perceived as being threatened by a third-party (White & Mullen, 1989). People with high attachment anxiety value their bonds with their partners but always worry that their partners will one day abandon them because they persistently doubt that their partners love them (Hazan & Shaver, 1987). As a result, they are more likely to perceive various events as threats to their relationship and feel jealous, and the higher the attachment anxiety, the greater the likelihood of feeling jealousy in daily life.

Kanno (2016) developed a multidimensional scale of jealousy in romantic relationships to assess the concept in three components: suspicious cognition, which is the cognitive sensitivity to a third-party's interference in the partner relationship; exclusive emotion, which indicates the intensity of negative feelings (anger, sadness, etc.) toward the interference of a third-party in a relationship; and cautious behavior, vigilance, and scrutiny regarding the existence of any third-party behind the relationship³. Suspicious cognition is a pathological manifestation of jealousy toward a partner (Pfeiffer & Wong, 1989); and the more suspicious the partner, the more likely they will show extreme sensitivity to signs of threatening to intimacy or engage in aggressive behavior toward their partner and the less satisfied the suspicious partner is in the relationship (Bevan, 2013; Deans & Bhogal, 2019). Considering that DV follows the escalation theory and that a breakup orientation

² This study focuses on communication with one's partner. Therefore, the sixth behavioral aspect, namely, "rival-oriented (e.g., trying to make an opportunity to meet the rival)" was used only to examine the factor structure of the scale and not for subsequent model validation.

³ One of the objectives of this study was to examine the effect of attachment anxiety on coping behavior in a concrete situation when a romantic relationship is threatened, which is mediated by the cognitive and emotional aspects of jealousy. The items related to cautious behavior were not used because they refer to behaviors during nonspecific situations with a partner (e.g., often asking where partner is going and where he/she is).

entails actively thinking about breaking up with one’s partner (Kanno, 2017), we consider that breakup-oriented behavior and psychological aggression can correspond to the hypersensitivity and extreme reactions identified by Bevan (2013) and Deans and Bhogal (2019). For this study, we expected suspicious cognition to have a positive association with both breakup and psychological aggression orientations.

Next, exclusive emotion is reflected in the intensity of negative feelings (anger, sadness, etc.) toward a potential third-party’s disruption of a relationship. Individuals with strong exclusive emotion feel discomfort in situations that suggest such interference in their relationships and show aggressive behavior to resolve the discomfort. However, exclusive emotion is also strongly associated with the willingness to maintain a relationship and the depth of affection (Pfeiffer & Wong, 1989).

Conversation orientation is reflected as a sincere desire for healthy communication with one’s partner. Kanno (2017) showed that exclusive emotion had a positive relationship with aggression toward partners and conversation-oriented behavior and a negative association with silence orientation, which is reflected as not addressing problems, such as threats to a romantic relationship. Therefore, we expected that exclusive emotion would have positive associations with conversation and psychological aggression orientations and a negative association with a tendency toward silence.

Meanwhile, self-efficacy refers to an individual’s belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977), and it has a negative association with attachment anxiety (Mikulincer & Shaver, 2007, p.153). Researchers on interpersonal relationships have determined that the higher the sense of self-efficacy, the stronger the tendency to deal with problems in conflict situations (Matsushima & Shiomi, 2003) and the greater the likelihood of showing relationship maintenance behavior (e.g., showing affection to a partner; Weisera & Weigelb, 2016). These results suggest that self-efficacy has a positive association with conversation orientation and a negative association with silence orientation.

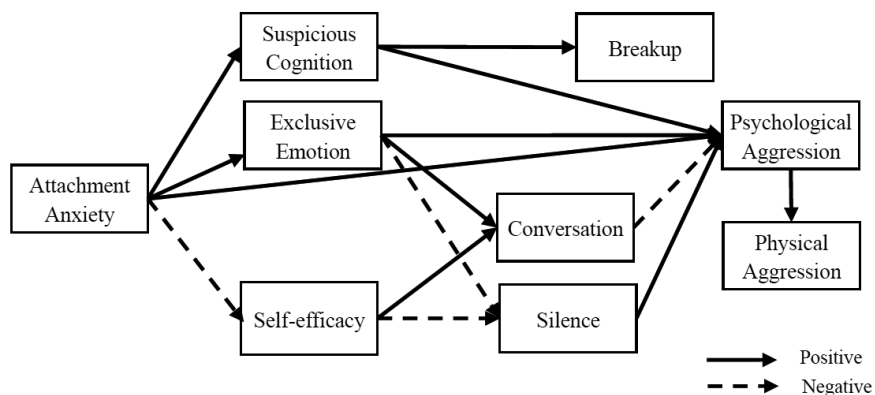


Figure 1. Hypothetical model

Putting together the observations above, we constructed a hypothetical model shown in Figure 1, in which a series of processes lead from attachment anxiety to physical violence, one form of DV. This model is based on findings from previous studies. However, no research has directly examined the patterns of associations between variables in the model we designed here. In other words, no one has yet examined the process by which attachment anxiety leads to physical aggression, and this study can address that research gap by contributing initial evidence for this process.

Method

Procedure

The participants in this study were 523 adults in dating relationships (308 men, 212 women, and 3 unknown genders) who were recruited through crowdsourcing. Their average age was 38.67 years ($SD = 9.00$).

Before data collection, we determined the adequate sample size ($N = 435$) based on the rule of thumb for structural equation modeling (SEM) or confirmatory factor analysis (CFA), that is, five times the number of parameters (cf. Kyriazos, 2018). The questionnaire was created in Google Forms and presented a hypothetical scenario in which romantic relationships were threatened (c.f., Kanno, 2017; e.g., “You witnessed your partner appearing to be dating a stranger of the opposite sex”). We measured participants’ attachment orientations, self-efficacy, jealousy, and coping behaviors in romantic relationship conflicts. This study was approved by the faculty ethics committee at the authors’ university.

Measures

In addition to age and gender, we also measured the following variables using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree):

Attachment orientation. We measured attachment orientation using the Japanese version of the Experiences in Close Relationship Scale for Generalized Other developed by Nakao and Kato (2004). This scale consists of two subfactors, namely, anxiety and avoidance. Based on a pilot study, we eliminated two items for the anxiety subfactor that were difficult for participants to understand; thus, there were a total of 16 items (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 with five items (e.g., “I am worried that someone is trying to seduce my partner”) and exclusive emotion with 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. We measured participants’ behaviors using a 33-item composite scale of the ABSII (Kanno, 2017) and the Japanese version of the CTS (Morinaga et al., 2011). According to Kanno (2017), the ABSII consists of five subfactors, namely, aggression-oriented (e.g., “hit my partner with something”), breakup-oriented (e.g., “break up with my partner”), silence-oriented (e.g., “treat my partner as usual unless he/she says anything”), conversation-oriented (e.g., “calmly questioned my partner”), and rival-oriented (e.g., “try to make an opportunity to meet the rival.”). The CTS consists of three subscales for conflict resolution styles: (physical) violence (e.g., “Slap my partner”), verbal aggression (e.g., “Say something to spite my partner”), and reasoning (e.g., “Discuss the issue calmly”). The analysis plan of this study indicates the assumption of scale composition and factor structure⁴.

Satisfice. Satisfice is a behavior in which participants do not devote appropriate attentional resources when answering questions. It can significantly reduce the quality of data and impair the validity of inferences based on that data (Miura & Kobayashi, 2016). Therefore, we used an instructional manipulation check (IMC) to measure the degree of satisfice by instructing participants not to answer these questions (e.g., “It is interesting to listen to and discuss various opinions”).

Results

Among the 523 participants, 199 (38%) violated the IMC instruction, which was higher than that reported in a previous study (19.5%; Miura & Kobayashi, 2016). Because we could not ensure the sample size required for the analysis according to the analysis plan, we performed our analyses including these data.

Analysis

Factor analysis. For the factor structure of our scale for measuring conflict-based coping behaviors in romantic relationships, we performed maximum likelihood CFA using Mplus 8.3 for the six- and seven-factor structures. We found that the six-factor structure did not meet the standards for fit (CFI = .799, RMSEA = .092, SRMR = .101), and the fit of the seven-factor structure was also not adequate (CFI = .865, RMSEA = .076, SRMR = .084). Because neither factor structure hypothesis was supported, we performed exploratory factor analysis (maximum likelihood, promax rotation) using HAD17.202 and extracted six factors for minimum average partial and eight factors for diagonal squared multiple correlation parallel analysis. However, because the analysis results

⁴ The analysis plan is available on OSF with the preregistration materials for the study (<https://osf.io/c9r8q/>).

Table 1.

Factor Structure of Coping Behaviors During Conflicts in Romantic Relationships

Item	Factor						Communality
	F1	F2	F3	F4	F5	F6	
1. Hit Mr./Ms. X with an object	.957	-.030	-.049	.008	.020	-.083	.844
2. Hit Mr./Ms. X hard	.950	-.139	-.002	.006	-.026	.029	.799
3. Kick, bite, or strike Mr./Ms. X with fist	.945	-.107	.015	-.040	-.039	.036	.830
4. Pick, grasp, or push Mr./Ms. X	.882	.064	-.103	-.009	-.021	-.051	.789
5. Hit or throw an object to frighten Mr./Ms. X	.824	.076	-.032	-.027	-.075	.002	.763
6. Slap Mr./Ms. X	.741	.017	.115	.029	.089	.029	.610
7. Threaten Mr./Ms. X with a knife or other weapon	.665	-.105	.113	.145	.017	.075	.457
8. Be rude to Mr./Ms. X	.490	.441	-.050	-.034	-.018	-.019	.632
9. Throw, break, hit, or kick an object	.481	.231	-.045	.013	.021	.013	.376
10. Have sex with Mr./Ms. X against his/her will	.292	.179	-.033	.217	.020	.004	.191
11. Make hurtful or mean comments to Mr./Ms. X	-.063	.889	.009	.035	-.031	.034	.746
12. Say something to hurt Mr./Ms. X	.035	.776	.153	-.002	.030	-.055	.763
13. Insult or curse Mr./Ms. X	.246	.615	.086	-.031	-.044	-.029	.687
14. Hit Mr./Ms. X with the pain I suffered	.200	.500	-.017	-.143	.116	.114	.466
15. Be upset and refuse to talk with Mr./Ms. X	-.071	.388	.327	.094	-.200	-.001	.421
16. Tell Mr./Ms. X that I want to break up	.064	-.031	.923	-.026	.066	-.092	.860
17. Break up with Mr./Ms. X	.078	-.087	.834	-.116	-.090	.019	.765
18. Think about how to break up with Mr./Ms. X	-.038	.084	.795	-.020	.007	.044	.687
19. Suggest Mr./Ms. X to stay away for a while	-.122	.190	.568	.168	.086	.049	.364
20. Treat Mr./Ms. X as per the usual unless he/she says anything	.001	-.061	.028	.852	-.031	-.015	.752
21. Just keep it in mind	.065	-.101	.084	.828	-.028	.028	.719
22. Make it my misunderstanding	.104	.058	.033	.759	.153	-.108	.484
23. Act as if nothing had happened	-.034	-.073	.028	.711	-.117	.079	.605
24. Wait for time to resolve it	.010	.160	-.144	.707	.024	.015	.523
25. Calmly question Mr./Ms. X	-.016	-.116	-.011	.123	.801	-.050	.620
26. Take more time to talk to Mr./Ms. X than usual	-.078	.066	.028	.002	.683	.082	.518
27. Discuss with Mr./Ms. X how to overcome this matter	.019	.033	-.049	.008	.673	.061	.490
28. Tell Mr./Ms. X your honest thoughts and feelings	.054	-.005	.079	-.215	.622	-.041	.488
29. Try to make an opportunity to meet Mr./Ms. Y	.088	-.114	.074	-.042	-.014	.713	.499
30. Tell Mr./Ms. Y that you are Mr./Ms. X's partner on your next meeting	.042	.022	-.139	.003	.009	.559	.348
31. Discover as much as possible about Mr./Ms. Y	.003	.009	.047	.010	.079	.545	.331
32. Ask Mr./Ms. Y what he/she thinks of Mr./Ms. X when the opportunity arises	-.094	.148	.020	.010	-.008	.537	.308
		2	3	4	5	6	
Factor Correlation	F1	.520	.314	-.008	-.212	.103	
	F2		.489	-.184	-.092	.094	
	F3			-.223	-.263	-.050	
	F4				-.325	.148	
	F5					.316	

Note. Factor loadings are shown in bold. F1 = Physical Aggression Orientation; F2 = Psychological Aggression Orientation; F3 = Breakup Orientation; F4 = Silence Orientation; F5 = Conversation Orientation; F6 = Rival Orientation. Mr./Ms. X = Partner, Mr./Ms. Y = Stranger.

did not converge in the seven- or eight-factor structures, we used six factors to interpret the factor structure. When we adopted this six-factor structure, the meaning content of one item (“Blaming partner for the issue”) did not match with the other items that loaded on the same factor (e.g., “tell my partner that I want to break up with him/her”); therefore, we again conducted factor analysis with the six-factor structure after removing this item. From the meaning contents of the item group that loaded on each factor, this model reproduced the anticipated factor structure of the behavior scale for imaginary infidelity (Kanno, 2017), with the following factors: 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”) (Table 1).

Table S2.
Correlation Analysis

	1	2	3	4	5	6	7	8	9	10	<i>M</i> (<i>SD</i>)	α
1.Attachment avoidance ^a		-.025	.174**	.015	-.426**	-.052	-.008	-.024	.127**	-.122	4.542 (1.094)	.893
2.Attachment anxiety			.512**	.337**	-.502**	.369**	.393**	.199**	.121**	-.100*	3.463 (1.121)	.922
3.Suspicious cognition				.460**	-.346**	.276**	.285**	.126**	.127**	-.141**	3.869 (1.482)	.907
4.Exclusive emotion					-.159**	.218**	.320**	.144**	-.191**	.086	4.849 (1.216)	.832
5.Self-efficacy						-.204**	-.136**	-.070	-.173**	.125**	3.821 (1.075)	.927
6.Physical Aggression ^b							.613**	.312**	.083	-.156**	1.544 (0.874)	.923
7.Psychological aggression								.571**	-.149**	-.129**	3.047 (1.352)	.844
8.Breakup									-.188**	-.184**	3.438 (1.474)	.866
9.Silence										-.305**	2.830 (1.334)	.879
10.Conversation											5.113 (1.207)	.792

^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.

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

Correlation analysis. We performed correlation analysis to examine the associations between the scale scores (Table 2), and the physical aggression orientation had a floor effect in the histogram; therefore, we calculated rank correlation coefficients.

Model validation. We used SEM with maximum likelihood in Mplus 8.3 to examine the model of the hypothesis that attachment anxiety leads to physical aggression. Because that orientation had floor effects, we used robust standard error estimation, and our SEM results showed that the model fit did not meet the standards (CFI = .705, RMSEA = .172, SRMR = .107).

Ex-post model exploration. Because the hypothetical model did not meet the standards according to the analysis plan, we explored an ex-post model. Referring to standardized residuals, we added paths from attachment anxiety to breakup, to silence, to physical aggression orientations; from suspicious cognition to silence orientation; from exclusive emotion to breakup orientation; from breakup orientation to psychological and physical aggression orientations; and from silence to physical aggression orientations. We then added covariance between suspicious cognition and exclusive emotion. We again calculated the model fit, but it still did not meet the standards (CFI = .919, RMSEA = .117, SRMR = .059). We removed paths that we judged to be nonsignificant based on the Benjamin–Hochberg (BH) procedure⁵, but the model fit was still not adequate (CFI = .899, RMSEA = .103, SRMR = .067).

The exploratory reconstructed model according to the analysis plan did not meet the standards of fitness, and we could not adopt it. Therefore, we explored the model from a different perspective than that of the analysis plan, as noted below; specifically, based on the correlation analysis, we set the paths from attachment anxiety to conversation, to breakup, to silence, to physical aggression orientations; from suspicious cognition to conversation, to silence, to physical aggression orientations; from exclusive emotion to breakup, to physical aggression orientations; and from self-efficacy to psychological and physical aggression orientations. We then added covariance between exclusive emotion and suspicious cognition, a path from conversation to psychological aggression orientations, and a path from breakup orientations to psychological and physical aggression orientations. Although the model fit still did not meet the standards (CFI = .938, RMSEA = .139, SRMR = .046), the fit was adequate when we removed the paths that were nonsignificant in the BH procedure. We ultimately adopted this model following the exploratory work (CFI = .916, RMSEA = .094, SRMR = .057).

In the adopted model (Figure 2), high attachment anxiety increased physical aggression (indirect effect = .126, $p < .001$) through high psychological aggression toward partners. High attachment anxiety also increased psychological (indirect effect = .056, $p < .001$) and physical aggression

⁵ When examining an exploratory model, a significant result could be produced accidentally by repeating an exploratory test (Mizumoto, 2009). One of the methods to rectify the false discovery rate is the Benjamin–Hochberg method.

toward the partner. Self-efficacy had a negative association with attachment anxiety, but not with other variables.

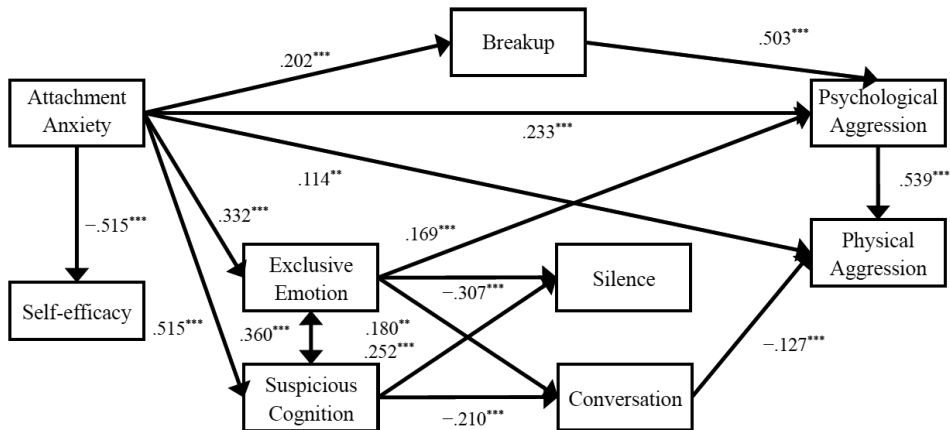


Figure 2. Process from attachment anxiety to physical aggression.

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

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

Exploratory examination of 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 = $-.108$, $p < .001$) and increased physical aggression (indirect effect = $.027$, $p < .01$). High attachment anxiety also increased the tendency to talk with partners through the intensity of exclusive emotion (indirect effect = $.060$, $p < .01$) and decreased physical aggression (indirect effect = $-.023$, $p < .05$). We also found that high attachment anxiety enhanced psychological (indirect effect = $.102$, $p < .001$) and physical (indirect effect = $.271$, $p < .001$) aggression through a high tendency to break up with one’s partner.

Discussion

Research on preventing DV is positively promoted in many fields, including psychology and social welfare, and the topic is academically important and is a crucial social problem that needs to be addressed (Souma, 2018). In this study, we examined physical aggression associated with high attachment anxiety and the influence of the related variables. To begin with, the hypothesized six- and seven-factor structure models were not supported on the factor structure for the scale on coping with conflict in romantic relationships. However, the exploratory factor analysis revealed six factors, and among them, we confirmed that all factor structures, except for those for the physical and psychological aggression orientations, corresponded to the ABSII factor structure (c.f., Kanno, 2017).

Regarding the SEM results, the hypothetical model based on the six-factor structure did not meet the fitness standard and was not supported. In contrast, when we studied the patterns of relationships among variables in the exploratory adopted model (Figure 2), the relationship between attachment anxiety and physical aggression was mediated by psychological aggression, and the relationship between attachment anxiety and psychological aggression was mediated by the emotional and aspect of jealousy. Thus, although the hypothetical model was not supported, the basic structure of the process from attachment anxiety to physical aggression mediated by coping behaviors was supported.

Three mediation patterns were found in the exploratory model examination. First, it was shown that breakup-oriented behavior mediated the relationship between attachment anxiety and psychological aggression and that psychological aggression mediated the relationship between breakup-oriented behavior and physical aggression. Breakup behavior aims at ending a relationship because of dissatisfaction with the relationship or with conflict itself, and actions such as talking about breaking up are in fact acts of aggression against a partner (Kanno, 2017). On the spectrum of actions to address conflicts in intimate relationships, Rusbult, Yovetich, and Verette (1996) shows that breakup behavior is as equally aggressive as “attacking the partner mentally or physically.” In addition, when a partner shows interest in another person, blaming the partner and making them feel guilty triggers to keep the partner in the relationship (Buss, 2000). However, such behavior may decrease a partner’s appreciation of the relationship over time (Overall et al., 2014), which could lead to extreme coping strategies such as psychological or even physical aggression to maintain the relationship. These results suggest that suppressing inappropriate communication, such as breaking up behavior as a means of coping with conflict in intimate relationships, is important to suppress psychological and physical aggression and prevent DV perpetration.

Next, conversation-oriented behavior and psychological aggression mediated the relationship between exclusive emotion and physical aggression. The intensity of exclusive emotion decreases the physical aggression through a high degree of conversation-oriented behavior. Conversely, the intensity of exclusive emotion increases physical aggression through high psychological aggression. Previous studies have shown that exclusion emotion is positively associated with active attempts at resolution through conversation with the partner or contact with the rival and associated with aggressive behavior toward the partner (cf. Kanno, 2017). Since the intensity of exclusive emotion means the unpleasant feeling to the conflictive situation, and it is also related to the intensity of affection, it is considered that the individual with strong exclusive emotion feels discomforted by the situation and engages in behaviors that resolve stress and conflict. Therefore, the results of this study are consistent with Kanno (2017). Additionally, the importance of the behavior which solves the problem by contacting with the partner positively for the conflict in a romantic relationship to suppress the physical aggression is indicated from this mediation pattern.

Finally, it was shown that exclusive emotion and suspicious cognition mediated the association between attachment anxiety and conversation-oriented behavior. The high level of attachment anxiety increases the conversation-oriented behavior through the intensity of the exclusive emotion. Alternatively, high attachment anxiety decreases conversation-oriented behavior through the intensity of suspicious cognition. Exclusive emotion and suspicious cognition are the emotional and cognitive aspects of jealousy that are strongly related to each other (Kanno, 2017). As mentioned above, the intensity of exclusive emotion is positively associated with a desire to communicate with a partner, while suspicious cognition is a pathological manifestation of jealousy toward them (Pfeiffer & Wong, 1989), and the more suspicious the partner, the more likely they will show extreme sensitivity to signs of threatening to intimacy or engage in aggressive behavior toward their partner and the less satisfied in the relationship (Bevan, 2013; Deans & Bhogal, 2019). In short, reducing suspicion in a romantic relationship is vital, and building a trusting relationship helps to avoid conflicts with a partner and reduce physical aggression.

For the effect of self-efficacy, we found no relationship between self-efficacy and any communication patterns. One of the reasons might be that we measured self-efficacy across general daily circumstances rather than specific tasks or situations. Vignettes and a focus on coping tendencies in conflict situations in romantic relationships might have highlighted the influence of self-efficacy relevant to the maintenance of romantic relationship (e.g., relational efficacy⁶). Better understanding will require examining it.

In this study, we used IMC items to clarify satisfaction in an online survey. However, the IMC violation rates were 38%, which were higher than the rates reported in a previous study (19.5%; Miura & Kobayashi, 2016). This might have been because there were as many as 92 items for respondents to answer, and the IMC items were presented last; the participants might have been fatigued. In addition, considering securing a sample size that allows for comparative examination focusing on violators and compliance is necessary.

Researchers have recently begun to examine attachment anxiety as a precedent factor of DV and date DV in Japan. Kanemasa et al. (2021) found that attachment anxiety predicted an increase in indirect attacks in a cross-lagged panel design; however, in the context of DV prevention, the authors did not establish how attachment anxiety connected to aggressive behavior or any mediating factors in the relationships (Kanemasa et al., 2021). In this study, we were able to establish a possible process of directionality from high attachment anxiety to DV perpetration. The importance of communication in romantic relationships suggests a direction for developing DV prevention programs, for example, a training focused on controlling jealousy and inappropriate conflict-coping behaviors in romantic relationships. We believe that this point is the significance of our study.

⁶ 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).

Additionally, the study indicated potential directions for DV prevention programs from the viewpoint of the escalation theory. However, elaborating on the process from attachment anxiety to physical aggression will require examining the following three points in the future. First, we only studied individuals who were in a dating relationship irrespective of their ages in this study. However, romantic relationships vary in their stability versus volatility; thus, additional studies with a different sample (e.g., marital relationship) are needed to build on the generalizability of the path from attachment anxiety to physical aggression and the evidence of factor structure of the scale for coping with conflict in romantic relationships.

The second point is to examine changes in behavior over time. The escalation theory of DV indicates that abusive relationships will gradually escalate throughout daily communication. Although we showed with this study relationships between communication and aggressive behavior, for example, escalation from psychological to physical aggression, we did not establish a clear pattern for communication. Time series data would provide more robust evidence on the process of escalation from daily communication to aggressive behaviors and the function of communication for suppressing aggression.

The third point to examine is cognitive bias toward a partner's response to conflict in a romantic relationship. The higher the attachment anxiety, the more likely people are to take actions that can damage their relationship, even when they have a higher need to approach their partner (Overall et al., 2016). Thus, some researchers have proposed a tendency to negatively perceive a partner's attitude as a precursor to inappropriate behavior toward a partner against the desire for intimacy due to attachment anxiety (Rodriguez et al., 2019). However, we measured only individual characteristics and behavioral tendencies in response to the conflict in romantic relationships; we did not focus on how they perceived partners' responses to their behaviors. Based on the definition of communication, that is, the repeated loop of a partner's action, the other partner's reaction, and the next responding action (Katori & Sugimoto, 2004), it is important how people perceive their partners' responses as the feedback influences their subsequent actions. Future research should examine recognition bias in a partner reaction.

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