

## A Study on Moderating Effect of Anger in the Relationship Between Jealousy and Relational Aggression

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**Abstract:** The aim of this study is to examine the moderating effect of anger in the relationship between jealousy and relational aggression among old women and based on this examination to suggest methods to moderate relational aggression increasingly visible among old women and help them have mental stability. To create data, this study did survey on 385 old women residing in Seoul and Chungnam Province in June 2017. Excepting for the one copy which has many questions which were not answered and two copies women of 50's answered on 382 copies of the questionnaire were used for analysis. To examine the moderating effect of anger on the relationship between jealousy and relational aggression, this study conducted hierarchical multiple regression analysis. Main results were first, interaction of jealousy and situational anger increases responsive aggression. Second, interaction of jealousy and attribute anger increases responsive aggression. Third, interaction of jealousy and situational anger increases leading aggression. But the moderating effect of attribute anger was not significant.

**Key words:** Moderating effect, jealousy, relational aggression, responsive aggression, leading aggression, anger

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### INTRODUCTION

The elderly population, especially female elderly population has increased. As of 2017, in the proportions among age groups of the total population those in the 40's and 50's were the largest, over 16% for both males and females followed by those of 30's. Up to 50's, ratio of males is larger than that of females but from 60's such a ratio is reversed and female populations get larger than male populations. Compared with the corresponding statistics of the year 1990, populations of those of 40- 60's in Korea have increased two-fold and those of 80's and over about five-fold showing that the population increase has become larger among older age groups (Wang *et al.*, 2014). While the male-female population ratio is 100.4 where the proportion of males is a little larger than that of females, the ratio is reversed in older age groups due to high longevity of females and high death rates of males in middle ages. Thus, the problem of the elderly is that of female elderly.

The compared with male elderly, more female elderly live without spouses. While 86.3% of male elderly have spouses, only 34.5% of female elderly do. Therefore, important persons to the life of female elderly are likely to be their offspring or friends rather than husbands. In the

family structure of old people, the ratio of the elderly who live separately from their offspring has risen sharply. It implies that the family-centered elderly-supporting system no longer performs its social functions. Accordingly, it is necessary to pay attention to human relations of the female elderly with their friends. Thus, this study intends to focus on aggressiveness in their human relations.

Relational aggression is generally defined as intentional behavior inflicting injury or damage to others (Berkowitz, 1983; Brehm and Kassin, 1990; Gormly and Brodzinsky, 1993). Relational aggression seems to be caused by the characteristics of lives of the female elderly. They feel loneliness and sense of loss caused by death of spouses and they are detached by their offspring because of generation gap. They feel that their lives are separated and dismissed from real lives and that they are useless. They have difficulty in relations with others. Fearful of making relationships they cut them and they unconsciously become aggressive to protect themselves. However, there has been little attention on relational aggression. Then, the accident of agricultural chemicals triggered people to pay attention to relational aggression. But there is not enough research on it.

According to previous researches, relational aggression is related with emotional problems like envy or

jealousy (Jeong, 2015). Jealousy belongs to three-person relations and it occurs after one perceives the object as the total object. It is the emotion raised to possess the object one loves and eradicate its competitor. Philosopher Francis Bacon (1561-1626) said, "There is no holiday for jealousy." As such jealousy is the strongest and most common in close relations and is considered as one of exhausting emotions (Aune and Comstock, 1991) and is general emotion found in all age groups. Volling *et al.* (2002) defined complex social emotion unlike basic emotions like anger, fear, sadness and happiness. Anger is hostile and negative emotional experience against person or thing causing obnoxious accident (Novaco, 1977). It appears depending on personality attributes or situation (when one feels that one's identity is invaded or one feels that one's desire is obstructed or one's value is threatened) (Dakyum, 2013). It is the emotion accompanying aggressive tendency toward object (Berkowitz, 1983) and it affects relational aggression. Dodge and Coie (1987) classified aggression into responsive aggression and leading aggression. The former is the response to perceived threat or provocative situation and is related with aggressive emotional type (anger). The latter is the behavior for specific compensation like dominance over others and uses methods to affect or force others and so is goal-oriented (Han, 2008).

In the effect of jealousy on relational aggression, anger is regarded as functioning moderating effect. Up to now, the relationship between jealousy and relational aggression was studied using female adolescents. Children and adolescents who are not accepted or refused in friend relations tend to become aggressive (Coie *et al.*, 1995). As they are aware of and fear social criticism, they tend to express their jealousy with relational aggression which is indirect and not revealed instead of obvious aggression. Envy is related with inferiority complex, yearning, anger and negation of emotional experience and can cause antipathy toward the object of social comparison. Because of such effects, if one envies the other person, one can be cornered if one expresses it with obvious aggression. So, one resorts to substitute aggression using relationship as medium (Jeong, 2015).

Considering that jealousy causes anger and such anger affects relational aggression, it is expected that in the effect of jealousy on relational aggression, anger will have moderating effects. That is jealous situation is threatening to self-respect and individual with low self-respect is vulnerable to jealousy (Salovey and Rodin, 1986). Jealousy causes anger which obstructs maintenance of self-respect (Mathes *et al.*, 1985) and by comparing oneself and the third person, one can feel that one is inferior to the third person (Roth and Parker, 2001).

And if one feels angry, one rarely express it with violence and intentionally suppressing violent impulse, one expresses it with relational aggression toward the person who caused one to get angry or damaged one's feeling such as refusing to talk with the person (Cole, 1986). In particular, the person who adopts anger expression method tend to have high aggression, impulse and argument. Anger expression is made toward the other person or thing nearby and one tends to try to keep one's value, desire or belief sacrificing others (Dakyum, 2013). Accordingly, in the effect of jealousy and envy on relational aggression, anger will have moderating effect.

Previous studies on jealousy and relational envy have not paid attention to the moderating effect of anger. The findings of Kang (2004) shows that only emotion moderating capacity has significant effect on responsive aggression, revealing that emotion moderating capacity serves as moderating element on the effects of envy, jealousy and anger emotions and relational aggression (Kang, 2004). In the relationship between envy and relational aggression, self-respect stability was found to have moderating effect (Jeong, 2015). And there is a study on mediating effect of intentional and peer conformity. Accordingly, there have been moderating effects of self-moderating capacity, self-respect and peer conformity. Envy is not only negative emotions such as pain, hatred, anger but also a conscious cognitive appraisal of the luck and accomplishment of others.

The aim of this study is to examine the moderating effect of anger in the relationship between jealousy and relational aggression among old women and based on this examination to suggest methods to moderate relational aggression increasingly visible among old women and help them have mental stability. Concretely, does anger have moderating effect on the relationship between jealousy and relational aggression among old women:

- $H_{2,1}$ : Anger will have moderating effect on the relationship between jealousy and relational aggression

## **MATERIALS AND METHODS**

**Research object and procedures of data collection:** The objects of this study is old women of 60 years old or over. To create data, this study did survey on 385 old women residing in Seoul and Chungnam Province in June 2017. Excepting for the one copy which has many questions which were not answered and two copies women of 50's answered on 382 copies of the questionnaire were used for analysis.

Average age of respondents is 73.34 years old. The proportion of those in their 70's is 42.4%, the largest age group, that of those in 60's is 34.2% and that of those in 80s or over is remaining 23.4%. In educational levels, those who graduated middle school or over comprise 39.0% and those who graduated from elementary school take up 48.7% and those who did not have any education take up as much as 22.3%. In couple status, those who have spouses take up 51.3% while those who do not have them are 48.7%, similar percentages. In religiosity, 50.5% of them are Protestants or Catholics. Buddhists are 22.8% and 26.7% of them do not have any religion.

**Measurement tools:** The scale of relational aggression is the translated version by Han (2008) of self-reporting peer conflict scale made by Marsee and Frick (2007). Peer conflict scale made by Marsee and Frick (2007) consists of 40 questions on four dimensions (responsive relational, responsive expressive, leading relational and leading expressive). This study used 20 questions on the dimensions of responsive aggression and leading relational aggression. The original 4-point Likert scale from 1 point ("Not at all") to 4 points ("Definitely yes") was changed in this study to 5-point scale from 1 point ("Not at all") to 4 points ("Definitely yes"). The higher the score is, the higher relational aggression is. Cronbach's alpha value of responsive aggression is 0.866 and that of leading aggression is 0.916.

To measure jealousy of old women, this study used 11 questions which are revised from what Bae and Choi (2006) translated of the Friendship Jealousy Questionnaire (FJQ) developed by Parker and Low to be used for adolescents. It is made of 5-point Likert scale and the higher the score is the higher jealousy is. Cronbach's alpha value, scale reliability is 0.913, very high. All the works makes pioneering steps in wireless rechargeable sensor network. The recharge to the sensor nodes is done by using single sensor.

In order to measure the jealousy of female elderly, Line and Franfoys reconstructed and used them based on the scale made by Salovey and Rodin (1986).

To measure anger of old women, this study used STAXI-K scale used by Chon *et al.* (1997). It is reconstructed as 5-point Likert scale and the higher the score is the higher anger is. Cronbach's alpha value of reliability of situational anger is 0.946 and Cronbach's alpha value of reliability of attribute anger is 0.887.

**Statistics:** Using SPSS 21.0, this study did Moderated Multiple Regression (MMR) to examine whether anger moderates in the relationship between jealousy and relational aggression among old women.

**RESULTS AND DISCUSSION**

To examine the moderating effect of anger on the relationship between jealousy and relational aggression, this study conducted hierarchical multiple regression analysis. If the moderating effect of anger is proven by significant interaction between jealousy and anger, this study acquired the slope of simple regression line and suggested interaction effects with a figure. As shown from Table 1-4 and from Fig. 1-3, 3 out of 4 moderating effects are significant.

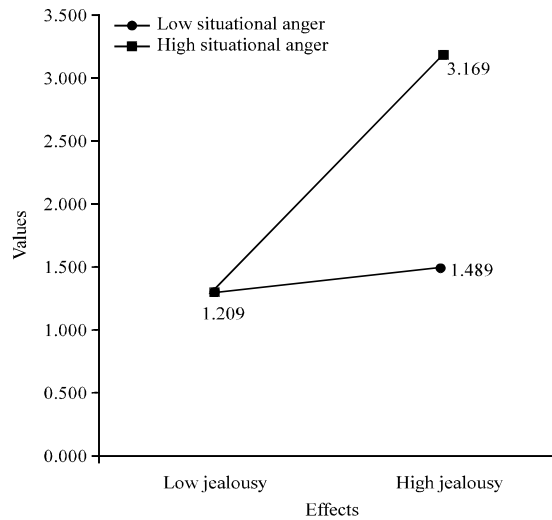


Fig. 1: Moderating effect of situational anger on the relationship between jealousy and responsive aggression

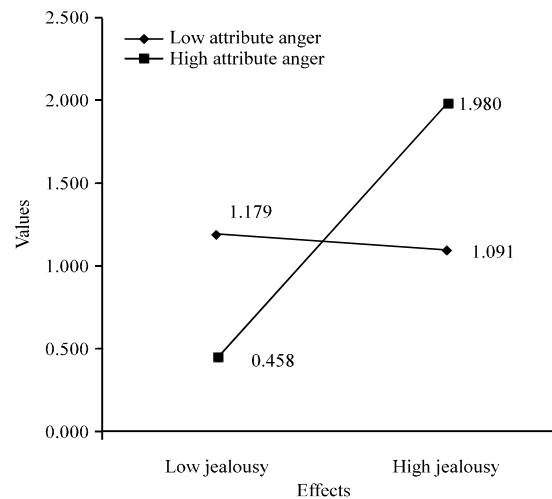


Fig. 2: Moderating effect of attribute anger on the relationship between jealousy and responsive aggression

**Table 1: Moderating effect of situational anger on the relationship between jealousy and responsive aggression (n = 382)**

Variables	Responsive aggression					
	Model 1			Model 2		
	B	Beta	t-values	B	Beta	t-values
Constant	0.611		4.104***	1.409		4.190***
Jealousy (A)	0.139	0.170	2.994**	-0.096	-0.117	-0.956
Envy	0.054	0.065	1.117	0.046	0.055	0.953
Situational anger (B)	0.319	0.326	6.075***	-0.145	-0.148	-0.791
Attribute anger	0.066	0.077	1.431	0.062	0.072	1.344
A*B				0.141	0.608	2.640**

F = 26.395\*\*\*, 22.845\*\*\*; R<sup>2</sup> = 0.219, 0.233; ΔR<sup>2</sup> = 0.04; \*\*p<0.01, \*\*\*p<0.001

**Table 2: Moderating effect of attribute anger on the relationship between jealousy and responsive aggression (n = 382)**

Variables	Responsive aggression					
	Model 1			Model 2		
	B	Beta	t-values	B	Beta	t-values
Constant	0.611		4.104***	1.522		3.659***
Jealousy (A)	0.139	0.170	2.994**	-0.137	-0.168	-1.085
Envy	0.054	0.065	1.117	0.056	0.068	1.178
Situational anger	0.319	0.326	6.075***	0.317	0.324	6.067***
Attribute anger (B)	0.066	0.077	1.431	-0.321	-0.374	-1.871
A*B				0.115	0.626	2.342*

F = 26.395\*\*\*, 22.465\*\*\*; R<sup>2</sup> = 0.219, 0.220; ΔR<sup>2</sup> = 0.010; \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

**Table 3: Moderating effect of situational anger on the effect of jealousy on leading aggression among old women (n = 382)**

Variables	Leading aggression					
	Model 1			Model 2		
	B	Beta	t-values	B	Beta	t-values
Constant	0.651		4.276**	1.293		3.748**
Jealousy (A)	0.079	0.095	1.660	-0.110	-0.132	-1.072
Envy	0.054	0.063	1.087	0.047	0.055	0.956
Situational anger (B)	0.399	0.400	7.422***	0.025	0.025	0.133
Attribute anger	0.014	0.016	0.299	0.011	0.012	0.224
A*B				0.113	0.481	2.071*

F = 25.326\*\*\*, 21.295\*\*\*; R<sup>2</sup> = 0.212, 0.221; ΔR<sup>2</sup> = 0.09; \*\*p<0.01

**Table 4: Moderating effect of attribute anger on the effect of jealousy on leading aggression among old women (n = 382)**

Variables	Responsive aggression					
	Model 1			Model 2		
	B	Beta	t-values	B	Beta	t-values
Constant	0.651		4.276***	1.275		2.986**
Jealousy(A)	0.079	0.095	1.660	-0.110	-0.133	-0.850
Envy	0.054	0.063	1.087	0.055	0.065	1.125
Situational anger	0.399	0.400	7.422***	0.397	0.398	7.406***
Attribute anger(B)	0.014	0.016	0.299	-0.251	-0.287	-1.425
A*B				0.079	0.421	1.563

F = 25.326\*\*\*, 20.827\*\*\*; R<sup>2</sup> = 0.212, 0.217; ΔR<sup>2</sup> = 0.05; \*p<0.05

**Moderating effect of anger on the relationship between jealousy and responsive aggression among old women:**

To examine situational anger on the effect of jealousy on responsive aggression among old women, this study input jealousy, envy and situational anger in the first state and interaction item of jealousy and situational anger in the second stage.

As shown in Table 1, explanatory power of jealousy, envy, situational anger and attribute anger on responsive aggression was 21.9%. And when interaction item of jealousy and situational anger is additionally input, explanatory power increased by 0.4%, boosting the explanatory power to 22.3%. More in detail about moderating effect of situational anger, interaction of

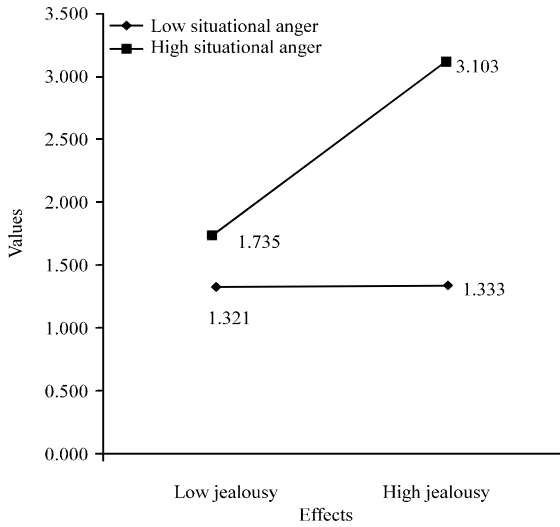


Fig. 3: Moderating effect of situational anger on the effect of jealousy on leading aggression

jealousy and situational anger has positive (+) effect on responsive aggression. That is, interaction of jealousy and situational anger increases responsive aggression.

Figure 1 shows the significant interaction effect patterns. As shown in Fig. 1, the higher jealousy is the higher responsive anger is. That is, the main effect of jealousy still exists. When situational anger is low, jealousy whether it is strong or weak, does not affect responsive aggression but when jealousy is high, responsive aggression also becomes high.

To examine moderating effect of attribute anger on the effect of jealousy on responsive aggression, jealousy, envy and anger were input in the first stage and interaction item of jealousy and attribute anger was input in the second stage. As shown in Table 2, the explanatory power of jealousy, envy, situational anger and attribute anger on responsive aggression among old women was 21.9%. When interaction item of jealousy and attribute anger was additionally input, the explanatory power increased by 1.0% and the explanatory power became 22.0%. If we deal with moderating effect of attribute anger more in detail, interaction of jealousy and attribute anger has positive effect (+) on responsive aggression. That is interaction of jealousy and attribute anger increases responsive aggression.

Figure 2 displays significant interaction effect patterns. Figure 2 shows significant disordinal interaction effect. When attribute anger is low, high jealousy, rather than low jealousy, lowers responsive aggression. But when attribute anger is high, high jealousy considerably boosts responsive aggression.

**Moderating effect of anger on the effect of jealousy on leading aggression among old women:** To examine moderating effect of situational anger on leading aggression, jealousy, envy and anger were input in the first stage and interaction item of jealousy and situational anger was input in the second stage.

As shown in Table 3, explanatory power of jealousy, envy, situational anger and attribute anger on leading aggression was 21.2%. And when interaction item of jealousy and situational anger is additionally input, explanatory power increased by 0.9%, boosting the explanatory power to 22.1%. If, we deal with moderating effect of situational anger more in detail, interaction of jealousy and situational anger has positive effect (+) on leading aggression. That is interaction of jealousy and situational anger increases leading aggression. From Table 3, displays significant interaction effect patterns. The figure shows that when situational anger is low, jealousy, whether it is low or high does not affect leading aggression. But when situational anger is high, high jealousy considerably boosts responsive aggression.

Figure 3 displays significant interaction effect patterns. The figure shows that, when situational anger is low, jealousy whether it is low or high does not affect leading aggression. But when situational anger is high, high jealousy considerably boosts responsive aggression.

To examine moderating effect of attribute anger on the effect of jealousy on leading aggression, jealousy, envy and anger were input in the first stage and interaction item of jealousy and attribute anger was input in the second stage.

As shown in Table 4, explanatory power of jealousy, envy, situational anger and attribute anger on leading aggression was 21.2%. And when interaction item of jealousy and situational anger is additionally input, explanatory power increased by 0.5%, boosting the explanatory power to 21.7%. But the moderating effect of attribute anger was not significant. That is interaction item of jealousy and attribute anger do not increase or decrease leading aggression. As explained up to now in the relationship between jealousy and leading aggression, only the moderating effect of attribute anger was not significant. But all the other three interactions were significant.

**CONCLUSION**

The aim of this study is to examine the moderating effect of anger on the relationship between jealousy and relational aggression using 382 old women of 60 years old or over as research targets. Specifically, this study set up

2 research questions and 4 hypotheses. During June 2016, this study did man-to-man survey to old women residing in Seoul and Chungnam Province. Major findings of this research are as follows.

First, the regression analysis on the effect of jealousy and envy on relational aggression partially supported. That is the higher jealousy is the higher responsive aggression is and the higher envy is the higher responsive aggression is. Jealousy was found to be more effective in its effect on responsive aggression. But while envy heightens responsive aggression, the effect of jealousy was not statistically significant.

Second, hierarchical multiple regression analysis to find out moderating effect of anger on the effect of jealousy on relational aggression proved three moderating effects out of four effects.

That is it was found that interaction of jealousy and situational anger boosts responsive aggression and interaction of jealousy and attribute anger also boosts responsive aggression. And interaction of jealousy and situational anger boosts leading aggression. Therefore, when anger is low, jealousy whether it is low or high does not affect responsive aggression and leading aggression. But when anger is high, jealousy considerably boosts leading aggression. But interaction of jealousy and attribute anger was not effective. This kind of result of the present research seems to be due to the life of the female elderly in Korea. The current Korean female elderly is a generation that has been educated and grown up to restrain themselves and be considerate to others. Therefore, jealousy that occurs in relation to a third person is suppressed rather than revealed until it is expressed as aggression when it is met with an anger. In other words when an anger is aroused due to jealousy, relational aggression is revealed, explosively. The moderating effect of jealousy and anger is reinforced, especially in reactive aggression and this is because the reactive aggression is revealed as a reaction to a perceived threat or a challenging situation (Han, 2008). That is to say as the reactive aggression itself is a type of anger, it can be regarded as a phenomenon of redoubled aggression. In contrast, proactive aggression is very goal-oriented using an abhorrent method of influencing or forcing others to act for the purpose of certain rewards such as domination of others (Han, 2008). It is a direct and goal-oriented aggression rather than a reaction to a certain situation. The Korean female elderly reveal relational aggression as a reaction to a certain situation but they do not reveal it proactively. Thus, the moderating effect of an attribute anger in jealousy and proactive aggression is interpreted as not significant.

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