

The Impact of Relative Deprivation Among Inmates on Aggression: A Moderating Mediating Effect

Ning Xu¹, Ying Zhang¹ and Hui Wang^{2,*}

¹School of Public Health, Shaanxi University of Traditional Chinese Medicine, Xi'an Shaanxi, China

²Department of Military Medical Psychology, Air Force Military Medical University of the People's Liberation Army of China, Xi'an Shaanxi, China

Abstract

Relative deprivation is a kind of subjective psychological feeling, which affects individuals' cognition and emotions through unreasonable social comparison, and makes individuals make aggressive behaviors that harm others. As a special social group, the closed environment of prisoners leads them to a weak position in social comparison, which is easy to have a sense of relative deprivation and lead to strong aggression. This paper uses 416 prison inmates to investigate the mechanism of relative deprivation on aggression, and the mediation and regulating role of hostile attribution bias and social support. The study found that prisoners have a strong sense of relative deprivation, which significantly positively affects aggression, and hostile attribution bias plays a partial intermediary role, and is regulated by understanding social support.

Keywords

Relative deprivation, Aggressive behavior, Cognitive mechanism.

1. Question Posing

Relative deprivation refers to a subjective cognitive and emotional experience in which an individual or a group of individuals perceive themselves to suffer from a disadvantageous position through horizontal or vertical comparison, followed by experiencing negative emotions such as anger and resentment[1]. The behavioral responses of individuals living in society are intimately related to the macro-social environment. Since the introduction of reform and opening up in 1978, the speedy advancement of the commodity economy in China has resulted in the continuous widening of the gap between the rich and the poor. In conjunction with the negative impacts of the economic downturn triggered by the Covid-19 over recent years[2], it has been fairly easy for people to compare themselves or the group they are part of to other groups, thereby generating a sense of relative deprivation. In particular, upward comparisons are highly prone to provoking negative emotions, such as anger, frustration, and so forth, and to exerting influence on the beliefs of the members of the group[3]. Different levels of relative deprivation are likely to elicit various emotions and behaviors. When the degree of relative deprivation is relatively mild, individuals are likely to adopt behaviors that comply with social norms to reduce their bad feelings, namely by exerting more effort in exchange for more gains. When the degree of relative deprivation is relatively heavy, individuals are more likely to adopt behaviors that are not in compliance with social norms to release their inner bad feelings. Meanwhile, they may attack themselves, which can in turn lead to emotions such as depression and despair, and also turn to the outside, generate the distorted psychology of hating other people and attacking the society. In addition, they are likely to engage in offensive behaviors that jeopardize the safety and stability of the society[4], thereby resulting in an

increase in the probability of violating the law. As a consequence, the first hypothesis was formulated that relative deprivation can positively predict aggression in prison inmates.

Hostile attribution bias refers to the cognitive response or tendency of individuals to interpret the reason underlying the behaviors of others as a desire to harm themselves in ambiguous situations[5]. In accordance with a theoretical model of social information processing, the prior experiments revealed that a hostile attribution bias results in heightened aggression[6]. The research on the relationship between hostile attribution bias and aggression is primarily twofold: hostile attribution bias is a cognitive mechanism for aggressive behavior, while aggression is the behavioral basis or personality genesis of hostile attribution bias[7]. The studies have demonstrated that criminals exhibit a pronounced hostile attribution bias[8], with a significant positive correlation between hostile attribution bias and aggression tendency. Meanwhile, the studies have also revealed that there exists an attention bias in aggressors, who tend to attach more importance to hostile stimuli than to ordinary stimuli[9].

Given that the prison environment in which the inmates are located is comparatively isolated in comparison with the outside world, which is characterized by a lack of contact with the outside world, low freedom, and a significant gap between the inmates and the normal social life, they are prone to develop adverse emotions after comparing themselves with other people. In this way, cognitive biases are likely to occur, and the inmates are prone to attribute hostility to the behaviors of other people. Nevertheless, there exists no evidence currently to demonstrate that hostility attribution bias necessarily leads to aggression. As a result, the second hypothesis was put forward, which suggests that hostile attribution bias plays a mediating role in the influence of the relative deprivation on aggression.

The prior studies identified a significant negative correlation between perceived social support and aggression[10].

In line with the buffering effect model of social support, with regard to people who suffer from adverse experiences, the perceived social support from family, relatives, and friends is adequate to address the trauma caused by the experience, which is instrumental in reducing aggressive and even criminal behaviors[11]. In contrast to others, inmates are susceptible to greater levels of relative deprivation and hostile attribution bias, which motivate individuals to generate higher levels of aggression. Nevertheless, higher levels of perceived social support lead to greater inhibition of aggression for individuals. As explained in accordance with the Integrated Cognitive Model, hostile interpretations of individuals in the early stages of automated processing can provoke aggression through reflective attention to hostile messages. If the individual possess sufficient efforts to control resources, he may alter the original hostile interpretation through cognitive strategies (such as reassessing the situation.) As a consequence, a third hypothesis was proposed: the perceived social support plays a moderating role in the effect of hostile attribution bias on the aggressiveness of prison inmates.

Experimental Hypotheses

In conclusion, the following hypotheses were formulated in this study.

Hypothesis 1: The relative deprivation of inmates exerts a significant positive predictive effect on their aggressiveness.

Hypothesis 2: The relative deprivation of inmates can exert an effect on aggression through the mediating effect of hostile attribution bias.

Hypothesis 3: The relationship between hostile attribution bias and aggression among inmates is moderated by perceived social support.

Hypothesis 4: There exist significant differences between male and female inmates with respect to type of offense, relative deprivation, aggression, perceived social support, and hostile attribution bias.

A mediated moderation model was constructed for this study, which is illustrated in the following figure.

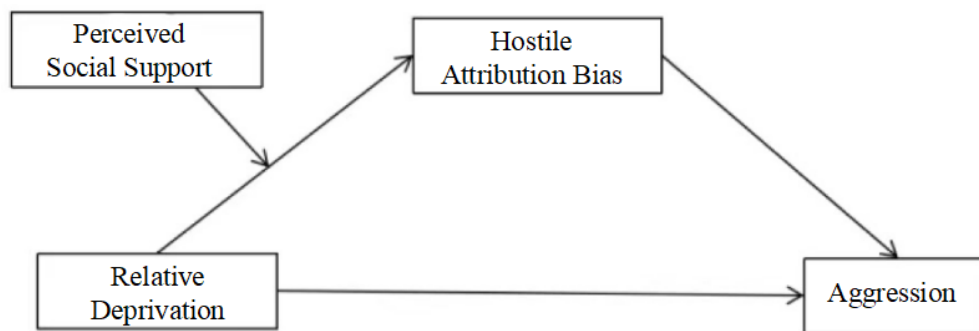


Figure 1. Structure Diagram of the Mediation Regulation Model

2. Research Subjects and Methods

2.1. Research Subject

In this study, a women's prison in Shaanxi Province and a men's prison in Shaanxi Province were selected as the target subjects, with a comparatively balanced number of male inmates and female inmates. A total of 500 questionnaires were distributed to inmates randomly selected from the two prisons, of which 475 questionnaires were retrieved, and 416 questionnaires were valid after being screened for validity, with an effective recovery rate of 87.5%. Among them, 215 were male inmates and 201 were female inmates. The mean age of the subjects was 39.5 years (SD =11.0), of which the mean age of males was 38 years (SD =10.7) and the mean age of females was 41 years (SD =9.9). The mean number of years in prison was 3.7 years (SD =3.26), with males serving a mean of 3.2 years (SD =3.07) and females serving a mean of 4.3 years (SD =3.38). The principal types of crimes involved more than a dozen types of crimes, including fraud, theft, organizing and leading pyramid schemes, transporting drugs, intentional injury, embezzlement and bribery, organizing prostitution, and illegally absorbing public deposits.

2.2. Research Instruments

2.2.1. Relative Deprivation Scale

The Relative Deprivation Scale developed by Ma Kai was employed to measure a subjective feeling regarding the difference between the two in the process of comparing the individual with the reference group. The questionnaire consists of four items, and the higher the total score, the more intense the relative deprivation of the individual is.

2.2.2. Perceived Social Support Scale

The Chinese version of the Perceived Social Support Scale (PSSS) revised by Jiang Qianjin was adopted. The PSSS was revised in accordance with the needs of localization based on the Zimet Perceived Social Support Scale (Blumenthal et al., 1987) introduced by Blumenthal and other scholars. It involves 12 self-assessment items, including 3 dimensions of family support, friend support, and other support, while the total score reflects the degree of overall social support perceived by the individual by adopting a Likert 7-point scale. The Cronbach's alpha coefficient of this scale in the experiment was 0.781, which indicated a favorable reliability.

2.2.3. Hostile Attribution Scale

The scale was adapted from the Word Sentence Association Test for OCD (Riemann Kuckertz, Rozenman, Weersing, & Amir, 2013). The scale consists of 32 items and encompasses the dimensions of good and hostile attributions, with the hostile attribution bias being the

difference between the hostile and good attributions. The Cronbach's alpha coefficient for this scale in the experiment was 0.769, which indicated a favorable reliability.

2.2.4. Aggression Scale

The Chinese revised version of the Reactive-Proactive Aggression Questionnaire (Zhang Wanli et al., 2014) was employed. This scale comprises a total of 20 items, including 10 items for each of the proactive aggression and reactive aggression factors, while a 6-point scale was adopted, with higher scores indicating higher levels of aggression. The Cronbach's alpha coefficient for the total scale in this study was 0.867.

3. Administration Process

During the process of administration of the questionnaire, the prison guards in charge of psychosocial correction uniformly administered the questionnaire to the inmates. After distributing the pen and paper to the inmates, the scientific attributes of the test, the principle of confidentiality, and the principle of voluntariness were explained to the inmates. The inmates sat in an open hall, each at a table, without talking to each other, and finished the paper questionnaire within one hour. The questionnaires were collected by the prison guards, while the researchers performed the data entry, screening and analysis of the questionnaires, followed by uniformly importing them into SPSS to create a database and analyzing the data.

4. Data Process

This study employed Spss26.0 software for data analysis, in addition to descriptive statistics, independent samples t-test, F-test, correlation analysis and other tests. Meanwhile, Process V4.1 was adopted to conduct the test of moderated mediation model.

5. Common Method Deviation Test

The adoption of self-reported data collection is likely to result in common method bias. In this study, the procedure was controlled by anonymous survey and reverse scoring of some questions to some extent. In the meantime, the Harman one-way test was performed to test for common method bias. The results demonstrated that there were 16 factors with eigenvalues greater than 1. Among them, the cumulative variance explained by the first factor was merely 15.642%, which was less than the critical value of 40%, suggesting that there was no serious common method bias in this study.

6. Research Results

6.1. Correlation Analysis

Correlational Analysis of Relative Deprivation, Hostile Attribution Bias, Perceived Social Support, and Aggression

The correlation analysis of the total mean scores of relative deprivation, hostile attribution bias, perceived social support and aggression demonstrated that there was a significant positive correlation between relative deprivation and hostile attribution bias and aggression, and a significant negative correlation with perceived social support; there was a significant positive correlation between hostile attribution bias and aggression, and a significant negative correlation with perceived social support; and there was a significant negative correlation between perceived social support and aggression (see Table 1 for more details).

Table 1. Results of Descriptive Statistics and Correlation Analysis of Variables

Research Variables	M	SD	1	2	3	4	5	6	7
1. Age	39.54	11.00	1						
2. Gender	-	-	0.18**	1					
3. Years in Prison	3.76	3.27	0.36**	0.16**	1				
4. Relative Deprivation	2.47	0.89	0.00	-0.13**	-0.07	1			
5. hostility Attribution Bias	0.32	1.53	0.024	-0.03	-0.02	0.36**	1		
6. Perceived Social Support	4.94	0.85	0.12*	0.08	0.04	-.30**	-0.42**	1	
7. Aggression	1.93	0.42	-0.18**	-0.21**	-0.08	0.38**	0.29**	-0.35**	1

Note: * $p < 0.05$, ** $p < 0.01$, same hereafter

6.2. The Relationship between Relative Deprivation and Aggression

The mediated mediation model test first tested the mediating role of hostility attribution bias in the relationship between relative deprivation and aggression by employing Model 4 of the SPSS macro program PROCESS, thereby conducting a bias-corrected nonparametric percentile bootstrap test (5000 samples were taken). The results demonstrated a significant positive effect of relative deprivation on hostile attribution bias after controlling for demographic variables such as gender and age ($a = 0.61, SE = 0.08, p < 0.01$); after incorporating both relative deprivation and hostile attribution bias into the regression equation for aggression, the results revealed that relative deprivation could significantly predict aggression ($c' = 0.14, SE = 0.02, p < 0.01$), while hostile attribution bias could significantly predict aggression ($b = 0.05, SE = 0.01, p < 0.01$). Meanwhile, the "bias-corrected confidence interval" derived on the basis of 5,000 Bootstrap samples also identified the indirect effect of relative deprivation on impulsive aggression through the hostile attribution bias to reach the level of significance ($ab = 0.03, 95\%$ confidence interval $[0.01, 0.04]$, excluding 0). This result suggested a significant partial mediating effect of hostile attribution bias between relative deprivation and impulsive aggression, with the mediating effect accounting for $ab / (ab + c) = 17.64\%$ of the total effect.

6.3. Moderating Effect Test

For the sake of examining the moderating role of just-world beliefs in the pathway of relative deprivation affecting impulsive aggression through moral identity, this study employed Model 14 in PROCESS 3.30 for the analyses, as presented in Table 2. The regression analysis identified that relative deprivation exerted a significant positive predictive effect on aggression ($b = 0.12, p < 0.01$), hostile attribution bias positively predicted aggression ($b = 0.03, p < 0.01$), perceived social support negatively predicted aggression ($b = -0.08, p < 0.01$), and the interaction term between hostile attribution bias and perceived social support was significant in the prediction of aggression ($b = -0.04, p < 0.01$). This suggested that perceived social support plays a moderating role in the effect of relative deprivation on aggression through hostile attribution bias, with Hypothesis 3 being verified.

The further simple slope analysis indicated (see Figure 4) that the hostile attribution bias exerted a significant positive predictive effect on aggression ($b = 0.038, P < 0.001$) for subjects with low levels of perceived social support (one 1 SD); while the hostile attribution bias did not have a significant predictive effect on aggression for subjects with high perceived social support beliefs (+1 SD) $b = -0.004, P > 0.001$.

Table 2. Analysis of Mediation Effects with Regulation

Variables	Hostility Attribution Bias			Aggression		
	b	SE	t	b	SE	t
Relative Deprivation	0.6136	0.0802	7.653**	0.1173	0.0218	5.3753**
Age	0.0033	0.007	0.4713	-0.0048	0.0018	-2.6948**
Years in Prison	-0.0023	0.0234	-0.0989	0.001	0.0059	0.163
Gender	0.0321	0.1458	0.2204	-0.1092	0.0365	-2.9896**
Hostility Attribution Bias				0.0386	0.0135	2.8669**
Perceived Social Support				-0.0790	0.0241	-3.2779**
Hostile Attribution Bias × Perceived Social Support				-0.0405	0.0131	-3.0935**
R2		0.1278			0.2687	
F		14.9421**			21.2615**	
	Moderating Variables	Level	Effect Value	SE	Boot 95% CI	
Conditional Indirect Effect	Perceived Social Support	High	0.0026	0.0085	-0.0149	0.0183
		Low	0.0448	0.0113	0.0242	0.068
Index of Moderated mediation			-0.0248	.0081	-0.0416	-0.101

Note: * p < 0.05, ** p < 0.01, *** p < 0.001

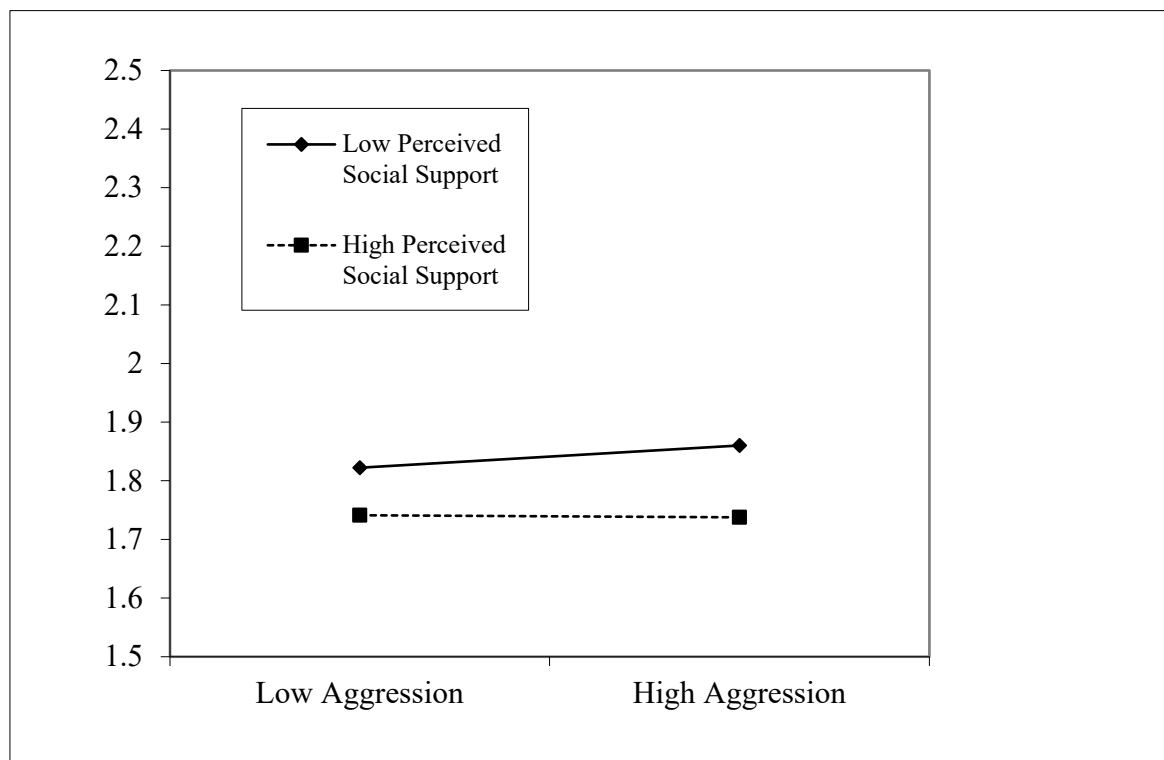


Figure 2. Map of the Moderating Effect of Perceived Social Support on the Relationship Between Relative Deprivation and Aggression

7. Discussion

This study revealed the relationship between relative deprivation and aggression among inmates, as well as its mechanism of action. On the one hand, it elucidated the ways in which relative deprivation plays a role through the mediating variable of hostile attribution bias. On the other hand, it interpreted the ways in which perceived social support moderates the second half of the pathway of the hostile attribution bias. In other words, in comparison to inmates with high perceived social support, those with low perceived social support exert greater predictive effect of hostile attribution bias on aggressiveness. aggression prediction was

stronger. The study results are of great significance for the rational prediction of aggression in prison inmates.

7.1. Relative Deprivation and Aggression

The study found that relative deprivation exerts a significant influence on aggressiveness. At the present time, China stands in a stage of social transformation, the gap between the rich and the poor has intensified, and the channel for class upward mobility has turned narrower. In conjunction with the impact of epidemics over recent years, this has resulted in a downward economic spiral, a tense employment situation, as well as an increase in social instability. In accordance with the frustration-aggression hypothesis, individuals suffering from frustration are bound to produce aggressive behaviors in a direct or indirect way to mitigate the negative feelings of frustration felt by themselves[12]. In such cases, the relative deprivation perceived by the individuals is heightened, which is highly susceptible to increased human aggression. With regard to the majority of prison inmates, the foundation of relative deprivation was laid by the poor living environment since childhood. The closed and monotonous life inside the prison, the lack of warm interpersonal relationships, and the formulaic daily work and rest pattern all contribute to their sense of unfairness and deprivation. The relative deprivation in turn generates negative emotions such as tension, anxiety, resentment, and anger, thereby causing the inmates to heighten their potential aggressiveness as a form of defense. The inmates themselves are also more aggressive than the general population, while their ability to self-relieve their emotions is poorer. When their emotions accumulate to a certain extent and fail to be alleviated in a timely manner, they are prone to take action and turn their aggressiveness into aggressive behaviors, which is likely to pose a threat to the security and stability of the prison system.

7.2. Mediating Effect of Hostile Attribution Bias

It was revealed that hostile attribution bias plays a mediating role in the effect of relative deprivation on aggression, which means that relative deprivation can increase aggression by enhancing hostile attribution bias. The special group of prison inmates is inherently neurotic, which is prone to cognitive bias and sensitive to the presence of hostile stimuli around them. When inmates develop relative deprivation through comparisons with others and fail to alleviate it, they are likely to become hostile to others, thereby strengthening the tendency of the mind to attribute hostility to the reasons underlying the behavior of others. They perceive others to be hostile to them, while the prison environment brings about a tense and depressing feeling, which aggravates the negative stimuli experienced by the inmates, thereby triggering biased processing in the cognitive system. This in turn reinforces the likelihood of a cognitive bias towards hostile attributions. Furthermore, they perceive others to be hostile to them, which leads them to project their inner emotions such as anger and jealousy outward in an aggressive manner, with a view to alleviating their inner negative emotions.

7.3. Moderating Effect of Perceived Social Support

The studies found that perceived social support moderates the second half of the pathway by which relative deprivation affects aggression through hostile attributional bias, whereby perceived higher social support attenuates the positive effect of hostile attributional bias on aggression. In line with the general aggression model, the emergence of cyber-aggressive behavior is correlated with the interaction of personal and situational factors[13]. As a subjective feeling, perceived social support is capable of playing a buffering role between emotions and behaviors of an individual, thereby lowering aggressiveness. Perceived social support serves as a buffer against the emergence of individual negative behaviors, whose main components are positive energies such as hope, optimism, and strength[14]. When the inmates possess a high level of perceived social support, they can reduce tension and anxiety, mobilize

their cognition to reappraise their surroundings, and reduce the aggressiveness of hostile attribution cognitive bias. In the meantime, the possession of a favorable social support system is capable of furnishing some positive emotional experiences to the inmates, which allows the inmates to maintain a certain sense of hope for the future. As a result, they are in a position to gain more psychological ability to cope with the adverse emotional experiences and undesirable environments by selecting the appropriate ways[15].

8. Deficiencies and Inadequacies

This study is in the form of a questionnaire, which suffers from a lack of physiological data support, and fails to demonstrate the changes in physiology of inmates with higher relative deprivation and aggression. Meanwhile, it lacks empirical evidence, for which the inclusion of empirical physiological indexes such as electroencephalography and oculomotor measurements can be taken into consideration in the future to enrich the research instruments. The relative deprivation questionnaire employed for the measurement of this study was not subdivided into dimensions. The comparison objects for generating relative deprivation were normal people outside the prison and the ideal selves of the inmates, which lacks the results of the data with other inmates inside the prison as the comparison subjects. In this context, the process of the change of relative deprivation before and after the imprisonment of the inmates could not be identified. In the upcoming future, consideration could be placed on the preparation of a relative deprivation questionnaire appropriate for use by prison inmates, with a view to conducting more precise measurements, and better observing the sources and intensity of the various types of relative deprivation experienced by the inmates.

9. Conclusion

In conclusion, this study revealed that 1) relative deprivation exerts a significant positive predictive effect on aggression in prison inmates. 2) hostile attribution bias plays a mediating role in the effect of relative deprivation on aggression. 3) the mediating effect of hostile attribution bias on aggression is moderated by perceived social support, whereby the higher the level of perceived social support, the lower the effect of hostile attribution bias on aggression in prison inmates.

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