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The Effect of Meta-Stereotypes on Aggressive Behavior in Migrant Children: The Mediating Role of Frustration

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Abstract

Using migrant children as participants and manipulating their negative meta-stereotypes, this study investigated the effect of meta-stereotype threat on aggressive behavior and its underlying mechanism. The results showed that: (1) meta-stereotype threat can increase individuals' aggression levels; (2) frustration partially mediated the relationship between meta-stereotype threat and aggressive behavior (targeting urban children); (3) using an imagined intergroup contact strategy to control frustration levels, it was found that the effect of meta-stereotype threat on aggressive behavior (targeting urban children) weakened as frustration decreased, further supporting the mediating role of frustration. In summary, the study demonstrates that meta-stereotype threat leads to increased frustration levels in migrant children, thereby eliciting more aggressive behavior.

Full Text

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Abstract

Using migrant children as participants, this study manipulated their negative meta-stereotypes to examine the effect of meta-stereotype threat on aggressive behavior and its underlying mechanism. Results showed: (1) Meta-stereotype threat can increase individuals' aggression levels; (2) Frustration partially mediates the relationship between meta-stereotype threat and aggressive behavior (targeted at urban children); (3) Using imagined intergroup contact strategy

to control frustration levels, the effect of meta-stereotype threat on aggressive behavior (targeted at urban children) weakened as frustration decreased, further supporting the mediating role of frustration. In summary, the study demonstrates that meta-stereotype threat leads to elevated frustration levels in migrant children, thereby triggering more aggressive behavior.

Keywords: Migrant children; Meta-stereotype threat; Frustration; Aggressive behavior

1 Introduction

In recent years, with the increasing number and scale of migrant workers, a large number of rural children have accompanied their parents or guardians to study in cities. These children aged 7-15 who have lived in the host city for more than six months are called "migrant children" (Sun, He, & Luo, 2015; Wang & Shan, 2013). Similar concepts include floating children, children of migrant workers, children of floating population, and children of migrant workers (Xu, 2016). Currently, migrant children have become an important group in urban schools, and their education has received widespread attention from all sectors of society. However, their social integration remains concerning, as they often experience various discomforts and psychological shocks during the transition between rural and urban cultures (Qiao, 2015), such as strong feelings of loneliness, identity difficulties, and decreased self-esteem and self-efficacy (Li, Zou, Wang, & Dou, 2008; Liu et al., 2010; Xiong & Ye, 2011).

Moreover, more commonly, compared with local urban children, migrant children exhibit higher levels of aggressive, rebellious, and delinquent problem behaviors. Internationally, Bengi-Arslan, Verhulst, Ende, and Erol (1997) found that Turkish immigrant children living in the Netherlands showed higher levels of problem behaviors (including aggression) than Dutch local children. Many domestic studies also support the finding that migrant children' s problem behaviors, particularly aggressive behavior, are significantly higher than those of local urban children (Hu et al., 2018; Li, 2014; Li, Zou, Jin, & Ke, 2008). In summary, substantial research evidence indicates that migrant children tend to respond to conflicts through aggression, and a strong tendency toward aggressive behavior has become one of the prominent manifestations of maladaptive behavioral patterns in this group (Wang, 2016). These abnormal aggressive behaviors not only significantly affect the daily lives and healthy physical and psychological development of migrant children themselves and others, hindering the smooth formation of their personality and socialization, but also deteriorate the school social atmosphere, creating unpredictable hidden dangers for campus safety.

Regarding the aggressive behavior of migrant children, previous studies have found associations with factors such as parenting styles, peer relationships, personality, and family functioning (Li, Zou, Jin, & Ke, 2008). However, beyond these factors, the potential effects of negative meta-stereotypes—a prevalent neg-

ative psychological structure within disadvantaged groups—on migrant children' s aggressive behavior have not received sufficient research attention. Meta-stereotypes refer to individuals' beliefs and perceptions about the stereotypes that outgroup members hold about their own group (Vorauer, Main, & O' Connell, 1998). Meta-stereotypes are a form of intergroup meta-perception that can elicit negative emotions related to intergroup interaction such as anxiety and anger (Gordijn, Finchilescu, Brix, Wijnants, & Koomen, 2008), as well as negative attitudes and unfavorable evaluations toward outgroup members (Owuamalam, Tarrant, Farrow, & Zagefka, 2013). Research has found that such intergroup meta-perceptions are often negative (Vorauer, Hunter, Main, & Roy, 2000). When negative meta-stereotypes are activated, individuals typically experience conflict between enhanced self-efficacy and negative meta-stereotypes, falling into a state of social-psychological dilemma and cognitive imbalance that induces fear and stress experiences and impairs behavioral performance. This series of reactions is termed meta-stereotype threat (Sun, He, & Luo, 2015). Compared with dominant group members, disadvantaged group members pay more attention to how outgroup members view them and are more susceptible to meta-stereotype influence (Lammers, Gordijn, & Otten, 2008). As members of disadvantaged groups in urban schools, many migrant children perceive that outgroups hold negative views of them. For instance, Zou (2012) found that migrant children commonly hold negative meta-stereotypes such as being rustic, unsociable, irritable, and rude; Qu, Zou, and Wang (2004) surveyed migrant children across nine Chinese cities, revealing that 24.7% complained that urban residents looked down on them, and 29.3% were somewhat worried that urban children looked down on them. This suggests that the migrant children group generally holds negative meta-stereotypes about their own group, which may be one reason for their frequent aggressive behavior.

According to the Integrated Threat Theory proposed by W. G. Stephan and C. W. Stephan (2000), negative meta-stereotypes are likely to affect ingroup aggressive behavior. The Integrated Threat Theory posits that intergroup threats include negative stereotypes. Since meta-stereotypes essentially belong to stereotypes (Schneider, 2005), when negative meta-stereotypes are activated, the meta-stereotype threat perceived by individuals is actually a type of intergroup threat. The theory also states that perceived threats from the ingroup lead to negative emotional and behavioral reactions toward the outgroup. This speculation is supported by numerous research findings, such as that intergroup threats can elicit negative emotions like anger, frustration, disappointment, and helplessness (Renfro, Duran, Stephan, & Clason, 2006; Stephan & Renfro, 2002); simultaneously, these triggered negative emotions can activate a series of aggressive behaviors including confrontation, hostility, conflict, and violence (Stephan, Ybarra, & Morrison, 2009). Therefore, once the negative meta-stereotypes commonly held by migrant children are activated, they are likely to have certain effects on their emotional responses and even behavioral performance (such as aggressive behavior).

Furthermore, substantial research supports the link between negative meta-

stereotypes and antisocial behaviors such as crime. For example, Owuamalam, Issmer, Zagefka, Klaßen, and Wagner (2013) noted that negative meta-stereotypes may lead to increased non-normative behaviors (such as destructive behaviors) and decreased normative behaviors; similarly, Issmer, Stellmacher, and Gollwitzer (2009) measured meta-stereotypes about mainstream society and aggressive attitudes among 225 incarcerated adolescents, finding that negative meta-stereotypes could predict both aggressive attitudes and actual criminal behavior. However, no research has directly examined the effect of negative meta-stereotype activation on individuals' subsequent aggressive behavior, nor has any study explored the impact of meta-stereotype threat on aggressive behavior in migrant children. Based on the above theories and the effects of negative meta-stereotypes on antisocial behavior, we can reasonably expect that meta-stereotype threat will lead migrant children to exhibit more aggressive behavior (H1).

Regarding the mechanism of aggressive behavior, the frustration-aggression hypothesis posits that frustration triggers aggressive behavior, with aggression being a consequence of frustration and always contingent upon the existence of frustration (Dollard, Miller, Doob, Mowrer, & Sears, 1939). Although Berkowitz (1989) later revised the frustration-aggression hypothesis to address its limitations, noting that frustration only arouses an emotional state—a readiness for aggression—and whether an individual engages in aggressive behavior depends on situational cues, it remains undeniable that frustration is still an important factor leading to aggressive behavior (Berkowitz, 1989; Dill & Anderson, 1995; Reio, 2011). In China, Li (2002) experimentally demonstrated that students' frustration in academics and social interactions can trigger problem behaviors. Qu, Tong, Lu, and Lu (2012) also found that if children and adolescents experience frustration in peer interactions and academic achievement, they are more likely to trigger aggressive behavior. This suggests that if migrant children experience frustration caused by peer rejection, the probability of their aggressive behavior may further increase.

Additionally, according to previous literature, there is also a certain association between negative meta-stereotypes and frustration. Berkowitz (1989) mentioned that if disadvantaged groups generally hold negative views about their own disadvantaged status, it is likely to trigger frustration; Issmer (2013) also believed that activation of negative meta-stereotypes strengthens people' s beliefs about social injustice, which exacerbates frustration among ingroup members. Although there is currently no direct empirical evidence supporting that meta-stereotype threat leads to enhanced frustration, studies have found that activation of negative meta-stereotypes can elicit high negative emotions related to intergroup interaction such as anxiety, depression, and anger (Gordijn et al., 2008), and these emotions are typical responses of frustration (Che, 2001). Therefore, based on the above perspectives and research, we can speculate that when migrant children perceive meta-stereotype threat, they are likely to experience emotional responses and experiences related to frustration, that is, activation of negative meta-stereotypes will lead to increased frustration (H2).

Comprehensive literature review reveals that negative meta-stereotypes, frustration, and aggressive behavior are all closely related to each other. Specifically, activation of migrant children' s negative meta-stereotypes can cause increased frustration levels and enhanced aggressive behavior, while frustration also leads to increased aggressive behavior. For understanding the exact relationship among the three, the Intergroup Threat Potential Model proposed by Riek, Mania, and Gaertner (2006) based on the Integrated Threat Theory provides some guidance. This theory points out that intergroup emotions are mediating variables between intergroup threats and intergroup behaviors, and various intergroup threats affect behavior through the mediating role of intergroup emotions. Therefore, in the relationship between meta-stereotype threat and aggressive behavior, frustration as an emotion is likely to play an important role. That is, if migrant children' s negative meta-stereotypes are activated, leading to negative views about intergroup relations with corresponding outgroup members (urban children), then individuals are likely to experience obvious frustration during peer interactions, thereby triggering more aggressive behavior. Based on this, we can propose another hypothesis: frustration plays a mediating role in the effect of meta-stereotype threat on migrant children' s aggressive behavior (H3).

Based on previous research and analysis, this study used migrant children as participants and activated their negative meta-stereotypes to explore the effects of meta-stereotype threat on migrant children' s frustration and aggressive behavior, and to reveal the mediating role of frustration in the relationship between meta-stereotype threat and aggressive behavior. Study 1 served as a preliminary exploratory study, primarily examining the effect of migrant children' s meta-stereotype threat on aggressive behavior toward corresponding outgroup members (urban children). Study 2 explored the effects of meta-stereotype threat on migrant children' s frustration and aggressive behavior, and examined the mediating role of frustration. To verify the mediating effect, Study 3 used an effective strategy to reduce migrant children' s frustration experience by controlling their frustration levels after meta-stereotype manipulation, further testing the mediating role of frustration in the relationship between meta-stereotype threat and aggressive behavior, thereby seeking additional evidence for the stability and reliability of the relationship among the three variables.

Study 1

Study 1 used migrant children as participants and measured their aggressive behavior toward urban children under conditions of activated versus non-activated meta-stereotypes to explore the effect of meta-stereotype threat on aggressive behavior. The experimental paradigm adapted the hot sauce paradigm used by Lieberman, Solomon, Greenberg, and McGregor (1999) to measure aggressive behavior. Considering the potential harm of hot sauce to children, balsam pear juice was substituted for hot sauce in this study. According to our Hypothesis 1, migrant children experiencing meta-stereotype threat would show enhanced

aggressive behavior, that is, compared with the control group, migrant child participants would exhibit stronger aggressive behavior (tending to allocate more balsam pear juice to urban children).

2.2.1 Participants

Sixty migrant children from Grade 6 of an elementary school in Xi' an participated, with a mean age of 11.88 years (SD = 0.69). Participants were randomly assigned to either the meta-stereotype threat group or the control group. The threat group consisted of 15 boys and 15 girls with a mean age of 11.87 years (SD = 0.63); the control group consisted of 16 boys and 14 girls with a mean age of 11.90 years (SD = 0.76). The two groups showed no significant age difference (t(58) = -0.19, p = 0.85), and none had previously participated in related experiments.

2.2.2 Experimental Materials

Several bottles of pure natural edible balsam pear juice, and several paper cups and lids.

2.2.3 Experimental Design and Procedure

A single-factor between-subjects design was employed, with experimental condition (meta-stereotype threat group vs. control group) as the independent variable and aggressive behavior index (weight of balsam pear juice allocated) as the dependent variable.

Participants first completed demographic information including age, gender, and grade, then were randomly assigned to either the meta-stereotype threat group or the control group and tested individually. The experiment adapted the negative meta-stereotype activation paradigm from Owuamalam et al. (2013) to manipulate the independent variable by having migrant children write adjectives according to different instructions. The meta-stereotype threat group received the following instructions: "As a migrant child, what negative impressions or views do you think urban children have of you? Please describe them using some adjectives (lifestyle, study, personality)." The control group received: "What are your views on current technological development? Please describe them using some adjectives." After completion, the balsam pear juice paradigm was used to measure participants' aggressive behavior toward urban children in both the meta-stereotype threat and control groups.

The core idea of the balsam pear juice paradigm is to have participants allocate a certain amount of balsam pear juice to the other party after being informed that the other party dislikes bitter taste. The weight of the allocated balsam pear juice represents the level of aggressive behavior; greater weight indicates higher aggression. Before the balsam pear juice task, participants tasted the juice and rated its "bitterness level" (1 = not bitter at all, 7 = very bitter) and "liking of bitter taste" (1 = like very much, 7 = dislike very much) on a 7-point

scale to ensure the validity of the aggressive behavior measure. After rating, an experimenter distributed to each participant a lidded paper cup containing 50g of balsam pear juice and an empty lidded paper cup, informing them that another experiment was being conducted in which several groups of urban children in other classrooms were participating in a study about taste preferences of children from different regions. According to previous survey research, children feel most pleasure when eating sweet foods and most pain when eating bitter foods. Participants were now asked to allocate balsam pear juice to these urban children according to their own wishes, and were told that the allocated juice would be randomly distributed to urban children in other classrooms who would need to drink all the allocated juice. After allocation, participants sealed the cup with a paper lid. The experiment was completely anonymous, and the experimenter present did not know how much balsam pear juice each participant allocated.

2.3.1 Balsam Pear Juice Ratings

Independent samples t-tests were conducted to examine differences between the two groups in their ratings of balsam pear juice "bitterness level" and "liking." Results showed no significant difference in "bitterness level" ratings between the meta-stereotype threat group ($M = 6.07$, $SD = 0.52$) and the control group ($M = 6.13$, $SD = 0.43$), $t(58) = -0.54$, $p = 0.59$, Cohen' s $d = 0.13$; nor in "liking" ratings ($M = 6.10$, $SD = 0.71$ vs. $M = 6.13$, $SD = 0.51$), $t(58) = -0.21$, $p = 0.84$, Cohen' s $d = 0.04$. This indicates that the balsam pear juice used in the experiment met experimental requirements, with participants generally perceiving it as very bitter (close to the maximum scale score) and disliking it (also close to the maximum scale score). This suggests that, under the premise of clearly knowing that the other party also dislikes bitter taste, the weight of allocated balsam pear juice can serve as an indicator of intentional harm-directed aggressive behavioral tendency.

2.3.2 Weight of Balsam Pear Juice

Independent samples t-test results showed that the weight of balsam pear juice allocated by the meta-stereotype threat group ($M = 35.91$, $SD = 9.73$) was significantly higher than that allocated by the control group ($M = 19.35$, $SD = 7.82$), $t(58) = 7.27$, $p < 0.001$, Cohen' s $d = 1.88$. This demonstrates that, compared with participants not exposed to meta-stereotype threat, migrant children who had negative meta-stereotypes about outgroup members activated showed higher levels of aggressive behavior.

Study 1 Discussion

Study 1 employed the balsam pear juice paradigm to measure differences in aggressive behavior toward urban children among migrant children under meta-stereotype threat versus no-threat conditions. Results showed that migrant

children with activated negative meta-stereotypes about outgroup members exhibited higher aggression levels than those without activated meta-stereotypes. This indicates that meta-stereotype threat can enhance migrant children' s aggressive behavior toward corresponding outgroups, consistent with Hypothesis 1 predictions. However, Study 1 had certain limitations. In practice, some participants wrote very few adjectives according to the instructions, possibly due to language development delays among some migrant children (Wang & Zhang, 2005), which might affect the effectiveness of the experimental manipulation. Additionally, Study 1 did not deeply explore the mechanism of meta-stereotype threat on aggressive behavior, and the target of aggression was limited to corresponding outgroup members (i.e., urban children). Whether aggressive behavior toward ingroup members (i.e., migrant children) is affected by meta-stereotype threat remains unclear. Study 2 addressed these limitations through further improvements.

Study 2

Study 2 also used migrant children as participants and the balsam pear juice paradigm to explore the effect of meta-stereotype threat on aggressive behavior. Differences from Study 1 included: First, in the meta-stereotype manipulation, in addition to having participants write adjectives according to instructions, a relevant adjective list was provided; second, a test for the effectiveness of meta-stereotype threat activation was added; third, participants' frustration was measured during the experiment; finally, the target of aggression was no longer limited to outgroup members but also included ingroup members. Based on these improvements, Study 2 measured migrant children' s frustration and aggressive behavior toward both urban children and migrant children under meta-stereotype threat versus no-threat conditions, exploring the effects of meta-stereotype threat on migrant children' s frustration and aggressive behavior, and further revealing the role of frustration in the relationship between meta-stereotype threat and aggressive behavior.

3.2.1 Participants

Sixty migrant children from Grade 6 of another elementary school in Xi' an participated, with a mean age of 12.02 years (SD = 0.65). Participants were randomly assigned to either the meta-stereotype threat group or the control group. The threat group consisted of 15 boys and 15 girls with a mean age of 12.13 years (SD = 0.73); the control group consisted of 13 boys and 17 girls with a mean age of 11.90 years (SD = 0.55). The two groups showed no significant age difference ($t(58) = 1.40$, $p = 0.17$), and none had previously participated in related experiments.

3.2.2 Measures and Experimental Materials

(1) Manipulation check question: Following Owuamalam et al. (2013) regarding meta-stereotype valence, after the meta-stereotype threat versus no-threat manipulation, participants completed the check question "What do you think is the overall view of urban children toward migrant children?" on a 7-point scale (1 = very negative, 7 = very positive) to test the effectiveness of meta-stereotype activation.

(2) Frustration Scale: The scale designed by Keller and Dauenheimer (2003) was used to measure frustration. This scale consists of 4 items asking participants to indicate their current level of frustration, including "I feel frustrated," "I feel sad," "I feel disappointed," and "I feel depressed." Participants responded on a 7-point scale (1 = very uncharacteristic, 7 = very characteristic), with the total score across the 4 items representing participants' frustration level. The scale' s α coefficient in this experiment was 0.70.

(3) Balsam pear juice materials: Several bottles of pure natural edible balsam pear juice, and several paper cups and lids.

3.2.3 Experimental Design and Procedure

A 2 (experimental condition: meta-stereotype threat group vs. control group) $\times$ 2 (target of aggression: urban children vs. migrant children) mixed design was employed, with experimental condition as a between-subjects variable and target of aggression as a within-subjects variable, and the weight of allocated balsam pear juice as the dependent variable. Instructions and experimental procedures were similar to Study 1. According to Zhang, Kou, Zhao, and Fu (2016), directly informing participants how outgroups evaluate their group is also an effective means of activating meta-stereotypes, and visual cues (such as written text) can serve as prompts to facilitate children' s vocabulary expression (Quill, 1997). Therefore, to further strengthen the meta-stereotype activation effect and avoid situations where some children had difficulty writing adjectives, this experiment provided a list of relevant meta-stereotype adjectives (such as rustic, rude, irritable; Zou, 2012) immediately after asking threat group participants to write adjectives describing negative impressions or views they thought urban children held of migrant children (this adjective list had been evaluated and matched migrant children' s perceptions of urban children' s impressions of them, thus could be presented as relevant meta-stereotype adjectives in the experiment). The control group was also provided with a list of adjectives related to technological development. Subsequently, participants completed the manipulation check question and the frustration scale. Then, similar to Study 1, participants first rated the "bitterness level" and "liking" of the balsam pear juice. Next, an experimenter distributed to each participant a lidded paper cup containing 50g of balsam pear juice and two empty lidded paper cups, informing them that another experiment was being conducted in which several groups of

urban children and migrant children in other classrooms were participating in a study about taste preferences of children from different regions. According to previous survey research, children feel most pleasure when eating sweet foods and most pain when eating bitter foods. Participants were now asked to allocate balsam pear juice according to their own wishes to urban children and migrant children in other classrooms, and were told that children receiving the juice would need to drink all the allocated juice. During allocation, the experimenter would inform participants in advance whether they were allocating to urban children or migrant children, with the order of allocation targets counterbalanced. After allocation, participants sealed the cups with paper lids. The experiment was completely anonymous, and the experimenter present did not know how much balsam pear juice each participant allocated.

3.3.1 Manipulation Check

Independent samples t-test was conducted to examine differences between the two groups in the degree of meta-stereotype activation (manipulation check question). Results showed a significant difference between the two groups, $t(58) = -5.66$, $p < 0.001$, Cohen' s $d = 1.47$, with meta-stereotype threat group participants scoring significantly lower ($M = 2.83$, $SD = 1.02$) than control group participants ($M = 4.17$, $SD = 0.79$). This indicates that the threat group held more negative meta-stereotypes, confirming the effectiveness of the experimental manipulation.

3.3.2 Balsam Pear Juice Ratings

The meta-stereotype threat group' s ratings of balsam pear juice "bitterness level" ($M = 6.57$, $SD = 0.57$) showed no significant difference from the control group ($M = 6.23$, $SD = 0.86$), $t(58) = 1.77$, $p = 0.08$, Cohen' s $d = 0.47$; nor did "liking" ratings ($M = 6.30$, $SD = 0.70$ vs. $M = 6.43$, $SD = 0.63$), $t(58) = -0.78$, $p = 0.44$, Cohen' s $d = 0.19$. Similar to Study 1, participants generally perceived the balsam pear juice as very bitter and disliked it.

3.3.3 Frustration

Independent samples t-test revealed a significant difference in frustration levels between the two groups, $t(42) = 2.14$, $p = 0.04$, Cohen' s $d = 0.55$, with meta-stereotype threat group participants showing significantly higher frustration levels ($M = 12.10$, $SD = 4.08$) than control group participants ($M = 10.33$, $SD = 1.97$). This indicates that meta-stereotype threat induced higher levels of frustration in migrant children, supporting Hypothesis 2.

3.3.4 Aggressive Behavior

Study 2 conducted a 2 (experimental condition: meta-stereotype threat group vs. control group) $\times$ 2 (target of aggression: urban children vs. migrant children) mixed-design repeated measures ANOVA, with experimental condition as

a between-subjects variable, target of aggression as a within-subjects variable, and weight of allocated balsam pear juice as the dependent variable. Results showed a significant main effect of experimental condition, $F(1, 58) = 9.35$, $p = 0.003$, $^{2}p = 0.14$, indicating that the meta-stereotype threat group showed significantly higher aggressive behavior than the control group. Additionally, the main effect of target of aggression was significant, $F(1, 58) = 35.04$, $p < 0.001$, $^{2}p = 0.38$, with aggressive behavior toward outgroup (urban children) significantly higher than toward ingroup (migrant children) (see Table 1). The interaction effect between experimental condition and target of aggression was not significant, $F(1, 58) = 1.10$, $p = 0.30$, $^{2}p = 0.02$. These results indicate that meta-stereotype threat significantly increased individuals' aggressive behavior levels.

3.3.5 Mediation Analysis of Frustration

The different manipulations of meta-stereotype threat (threat group, control group) were coded as a dummy variable with two levels (1 = meta-stereotype threat group, 0 = control group). The correlations among the examined variables are shown in Table 2 .

Meta-stereotype manipulation was significantly correlated with frustration, aggressive behavior toward urban children, and aggressive behavior toward migrant children. According to Wen, Zhang, Hou, and Liu (2004), these significant correlations meet the prerequisite conditions for mediation testing.

To explore the role of frustration in the relationship between meta-stereotype threat and aggressive behavior, we used the Bootstrap method in the SPSS macro program PROCESS (Hayes, 2013) to assess the indirect effect, i.e., whether the indirect effect of meta-stereotype threat on aggressive behavior through frustration was significantly different from zero. We set the resampling to 5000 times and calculated the 95% confidence interval to run the mediation test. Results showed that in the effect of meta-stereotype threat on aggressive behavior (toward urban children), the 95% confidence interval for the mediating effect of frustration did not contain zero (CI = [0.003, 0.558]), indicating that the effect of meta-stereotype threat on migrant children' s aggressive behavior (toward urban children) was mediated by frustration, with a mediating effect value of 0.21. Simultaneously, the direct effect of meta-stereotype threat on aggressive behavior (toward urban children) was also significant, with the 95% confidence interval not containing zero (CI = [0.036, 0.097]). These results indicate that frustration plays a partial mediating role in the effect of meta-stereotype threat on migrant children' s aggressive behavior (toward urban children), supporting Hypothesis 3. However, for the ingroup (migrant children) as a target, the 95% confidence interval contained zero (CI = [-0.055, 0.426]), indicating that the indirect effect of meta-stereotype threat on aggressive behavior toward ingroup members through frustration was not significant (see Figure 1 [Figure 1: see original paper]). Specific parameter values are shown in Table 3 .

[Figure 1: see original paper]

Study 2 Discussion

Study 2 results indicate that meta-stereotype threat has significant effects on both frustration and aggressive behavior, and that frustration mediates the relationship between meta-stereotype threat and aggressive behavior toward urban children. First, compared with the control group, migrant children in the meta-stereotype threat group showed higher levels of frustration. Previous research has shown that after experiencing meta-stereotype threat, individuals often exhibit lower ingroup identification and reduced self-esteem (Owuamalam & Zagefka, 2011), consequently showing a series of negative emotions including depression (Owuamalam & Zagefka, 2013). In addition to supporting this finding, our results more directly and clearly demonstrate that activation of negative meta-stereotypes can trigger frustration.

Second, compared with the control group, meta-stereotype threat led to a general increase in aggressive behavior, consistent with Study 1 results. According to the principle of reciprocity, in intergroup interactions individuals may develop toward the meta-stereotypes they hold (Anseel, 2011), with positive meta-stereotypes leading to positive behaviors and negative meta-stereotypes leading to negative behaviors (Oldenhuis, 2007). Kamans, Gordijn, Oldenhuis, and Otten (2009) similarly confirmed that Moroccan youth who believed Dutch people held negative stereotypes about them exhibited behaviors consistent with negative meta-stereotypes. Therefore, when migrant children' s negative meta-stereotypes (such as rude, irritable) were activated, participants tended to act in a direction consistent with their negative meta-stereotypes, i.e., showing irritability, stronger aggression, and being more likely to allocate more balsam pear juice to aggression targets, rationalizing their aggressive behavior.

Finally, mediation analysis indicates that the relationship between migrant children' s meta-stereotype threat and aggressive behavior (toward urban children) was partially mediated by frustration, revealing that frustration may be a potential mechanism underlying the link between meta-stereotype threat and aggressive behavior toward urban children. However, the mediating effect of frustration between meta-stereotype threat and aggressive behavior toward ingroup members (migrant children) was not significant, suggesting that for ingroup targets, the effect of meta-stereotype threat on aggressive behavior may involve other mechanisms, which requires more in-depth future research.

Furthermore, from the above findings we can anticipate that if this mediating pathway of "meta-stereotype threat → frustration → aggressive behavior toward urban children" exists, then after experimentally reducing frustration, migrant children with activated meta-stereotypes would show significantly reduced aggressive behavior toward urban children. To further verify this statistically derived effect, Study 3 used an experimental manipulation method, employing imagined intergroup contact paradigm to directly intervene with frustration,

re-examining the covariation pattern among meta-stereotype threat, frustration, and aggressive behavior, and validating the mechanism of meta-stereotype threat on aggressive behavior from an experimental manipulation perspective.

Study 3

4.1 Research Purpose

Using imagined intergroup contact paradigm to control participants' frustration levels, this study further examined the relationship pattern among meta-stereotype threat, frustration, and aggressive behavior variables. Imagined intergroup contact refers to achieving the goal of alleviating intergroup tension and eliminating intergroup prejudice by imagining positive, friendly interactions with outgroup members (Turner, Crisp, & Lambert, 2007). According to previous research, imagined intergroup contact can reduce negative emotions in intergroup interactions (such as depression, anxiety) (Crisp, Stathi, Turner, & Husnu, 2010), enable individuals to show more positive attitudes in peer interactions, and have positive effects on interpersonal relationships (Stathi & Crisp, 2008). We therefore speculate that imagined intergroup contact can effectively improve intergroup relations, alleviating the frustration psychology (including depression and frustration) experienced by individuals holding negative meta-stereotypes in negative peer interactions.

In this experiment, after inducing negative meta-stereotypes, migrant children were randomly assigned to three groups: imagined intergroup contact, imagined scenery, or no imagination. They then completed the frustration scale and balsam pear juice task. The experimental expectation was: if frustration is the mediating variable in the effect of meta-stereotype on aggressive behavior, then after reducing participants' frustration levels through imagined intergroup contact, participants' aggressive behavior levels would also significantly decrease, i.e., the effect of meta-stereotype on aggressive behavior would be reduced or eliminated.

4.2.1 Participants

Ninety-five migrant children from Grade 6 of an elementary school in Xi' an participated, with a mean age of 12.22 years (SD = 0.61). Participants were randomly assigned to the imagined intergroup contact group, imagined scenery group, or no imagination group. The imagined intergroup contact group had 32 participants (15 boys, 17 girls) with a mean age of 12.31 years (SD = 0.54); the imagined scenery group had 30 participants (15 boys, 15 girls) with a mean age of 12.17 years (SD = 0.59); the no imagination group had 33 participants (18 boys, 15 girls) with a mean age of 12.18 years (SD = 0.68). The three groups showed no age difference ($F(2, 92) = 0.55$, $p = 0.58$), and none had previously participated in related experiments.

4.2.2 Experimental Materials

The manipulation check question, frustration scale ($\alpha = 0.90$), and balsam pear juice task were the same as in Study 2.

4.2.3 Experimental Design and Procedure

A 3 (type of meta-stereotype threat intervention: imagined intergroup contact group vs. imagined scenery group vs. no imagination group) × 2 (target of aggression: urban children vs. migrant children) mixed experimental design was employed. All participants first activated negative meta-stereotypes about urban children and completed the manipulation check question. Subsequently, participants were randomly assigned to the imagined intergroup contact group, imagined scenery group, or no imagination group. Based on the research paradigm of Turner et al. (2007), manipulations were conducted for the imagined intergroup contact group, imagined scenery group, and no imagination group in this experiment.

Instructions for the imagined intergroup contact group: "Next, please close your eyes and spend three minutes imagining that you are playing a house-building game with an urban child. This urban child and you help each other and finally jointly build a very beautiful house. During this process, you talk and laugh together, and your interaction with this urban child is comfortable, relaxed, and pleasant."

Instructions for the imagined scenery group: "Next, please close your eyes and spend three minutes imagining that you have come alone to a secluded forest park with tall trees, bright flowers, green grass, and birds flying among the trees. Imagine the beautiful scenery you might see in this forest park."

For participants in these two conditions, the imagination time was precisely controlled at three minutes. After completing the imagination, both groups completed the frustration scale and balsam pear juice task. The no imagination group completed the frustration measurement and balsam pear juice task directly.

4.3.1 Manipulation Check

The three groups showed no significant difference in meta-stereotype threat level, $F(2, 92) = 1.60$, $p = 0.21$. Moreover, compared with the control group in Study 2, all three groups differed significantly ($ts > 7.50$, $ps < 0.001$). This indicates that participants were successfully manipulated by negative meta-stereotypes, and the degree of negative meta-stereotype activation was roughly equivalent across the three groups.

4.3.3 Balsam Pear Juice Ratings

One-way ANOVA was conducted on the three groups' ratings of balsam pear juice "bitterness level" and "liking of bitter taste." Results showed no significant

differences among the three groups in either bitterness level ratings or liking ratings, $F(2, 92) = 1.83$, $p = 0.17$, and $F(2, 92) = 2.18$, $p = 0.12$, respectively. Specific data are shown in Table 4 .

4.3.2 Frustration

To examine frustration levels across the three groups, a one-way ANOVA was conducted. Results showed significant differences in frustration among the three groups, Welch' s $F(2, 53) = 10.95$, $p < 0.001$. Post-hoc comparisons revealed that the imagined intergroup contact group ($M = 10.38$, $SD = 2.50$) had significantly lower frustration levels than the imagined scenery group ($M = 12.90$, $SD = 4.90$), $p = 0.04$; the imagined intergroup contact group also differed significantly from the no imagination group ($M = 15.24$, $SD = 5.90$), $p < 0.001$; the difference between imagined scenery and no imagination groups was not significant ($p = 0.21$). These results demonstrate that the imagined intergroup contact intervention strategy can effectively reduce participants' frustration caused by meta-stereotype activation, and that the cause of reduced frustration is positive intergroup interaction rather than imagination alone.

4.3.4 Aggressive Behavior

Study 3 conducted a 3 (experimental condition: imagined intergroup contact group vs. imagined scenery group vs. no imagination group) × 2 (target of aggression: urban children vs. migrant children) mixed-design repeated measures ANOVA, with experimental condition as a between-subjects variable, target of aggression as a within-subjects variable, and weight of balsam pear juice (aggressive behavior level) as the dependent variable. Results showed a significant main effect of target of aggression, $F(2, 92) = 74.70$, $p < 0.001$, $^{2}p = 0.45$, with aggressive behavior toward urban children significantly higher than toward migrant children. The main effect of experimental condition was also significant, $F(2, 92) = 3.32$, $p = 0.04$, $^{2}p = 0.07$, with post-hoc comparisons revealing significant differences between the imagined intergroup contact group and imagined scenery group ($p = 0.03$) and between imagined intergroup contact and no imagination groups ($p = 0.03$), but no significant difference between imagined scenery and no imagination groups ($p = 0.92$). This indicates that migrant children in the imagined intergroup contact group showed significantly lower aggression levels than the other two groups. Additionally, the interaction between experimental condition and target of aggression was significant, $F(2, 92) = 3.04$, $p = 0.05$, $^{2}p = 0.06$. Further simple effects analysis found that for the ingroup target (migrant children), none of the pairwise comparisons among the three groups were significant ($ps > 0.09$); however, for urban children as targets, both the imagined intergroup contact group vs. imagined scenery group ($p = 0.01$) and imagined intergroup contact vs. no imagination group ($p = 0.03$) comparisons were significant, while the imagined scenery vs. no imagination group comparison was not significant ($p = 0.67$). This indicates that imagined intergroup contact group participants showed significantly lower

aggressive behavior toward urban children than the imagined scenery and no imagination groups, with no differences in aggressive behavior toward ingroup (migrant children) members.

Study 3 Discussion

In Study 2, we had already discovered through statistical testing that frustration partially mediates the relationship between meta-stereotype threat and aggressive behavior toward urban children. Based on this result, Study 3 used experimental manipulation methods to directly manipulate the mediating variable —frustration—and examined changes in the effect of meta-stereotype threat on aggressive behavior under this condition. Results showed that the experimental manipulation not only significantly reduced frustration but also simultaneously decreased migrant children' s aggressive behavior toward outgroup members (urban children). This result again confirms the covariation pattern of "meta-stereotype threat → frustration → aggressive behavior toward urban children" from the perspective of experimental variable manipulation, further supporting the results of Study 2.

5 General Discussion

People in society always belong to different groups, making intergroup getting along and interaction the theme of daily communication processes. Compared with other factors, for members of disadvantaged groups in unfavorable situations, meta-stereotypes have more profound and lasting effects on their intergroup emotions and behaviors (Gómez & Huici, 2008). This study focused on migrant children—a disadvantaged group receiving widespread social attention —to explore the effects of meta-stereotype threat on aggressive behavior and its mechanism. The findings contribute to in-depth research on the relationship between meta-stereotype threat and aggressive behavior, and provide ideas and methods for ameliorating the negative emotions and maladaptive behavioral manifestations caused by meta-stereotype threat.

As an exploratory study, Study 1 used the balsam pear juice paradigm, which can directly and clearly reflect physically harmful behavior, and preliminarily found that migrant children with activated negative meta-stereotypes showed more aggressive behavior toward urban children than those without activated meta-stereotypes. Study 2, building on Study 1, added the effect of negative meta-stereotype activation on ingroup aggressive behavior, finding that meta-stereotype threat could significantly increase both outgroup and ingroup aggressive behavior, providing further evidence for Study 1's hypothesis. Clearly, these results demonstrate that migrant children' s negative meta-stereotypes can significantly affect individuals' aggressive behavior. According to Gómez' s (2002) summary of three main characteristics of meta-stereotypes, meta-stereotypes inherently contain behavioral components. When individuals believe that outgroups' evaluations of their ingroup are negative, they produce several differ-

ent behavioral outcomes, such as avoiding communication with outgroups or showing angry and hostile reactions toward outgroups. Compared with urban children, migrant children with non-local household registration have weaker sense of belonging and lower social identity (Zheng & Yu, 2009), while also having higher rates of mental health problems, particularly in interpersonal sensitivity, anger, and hostility (Xu, 2010). Therefore, after activating negative meta-stereotypes, migrant children are likely more prone to using aggression rather than avoidance of outgroup contact to express their behavior.

Additionally, Study 2 found that activation of negative meta-stereotypes could lead to enhanced frustration, and that frustration partially mediates the relationship between meta-stereotype threat and aggressive behavior toward urban children. Previous research has shown that negative meta-stereotypes, to some extent, imply that individuals hold negative expectations of outgroups, leading to a series of negative emotions (such as depression, frustration) and strengthening negative attitudes toward outgroups (Stephan & Stephan, 1985). That is, when migrant children' s negative meta-stereotypes are activated, individuals often experience strong frustration during peer interactions, which further prompts migrant children to develop unfriendly or even hostile views toward outgroups, ultimately leading to increased incidence of aggressive behavior.

Second, Study 2 results show that the mediating role of frustration between meta-stereotype threat and aggressive behavior toward ingroup members (migrant children) was not significant. This suggests that in the relationship between meta-stereotype threat and ingroup aggressive behavior, there exists a mechanism distinct from frustration. This speculation received further support in Study 3 results. In Study 3, through imagined intergroup contact intervention on frustration, aggressive behavior toward urban children was significantly reduced, while aggressive behavior toward ingroup members showed no significant differences from other groups. These two results demonstrate that although meta-stereotype threat can generally increase migrant children' s overall aggression level, its mechanisms of action differ significantly: For urban children as outgroup members, meta-stereotype threat often promotes the expansion and enhancement of aggressive behavior through frustration; whereas for ingroup members, meta-stereotype threat affects aggressive behavior levels not through frustration but through other mechanisms (such as emotional arousal), which requires more in-depth future research.

Study 3 divided all migrant children who had activated negative meta-stereotypes into three groups: imagined intergroup contact group, imagined scenery group, and no imagination group. Through imagined intergroup contact intervention on frustration, it was found that compared with imagined scenery and no imagination groups, imagined intergroup contact could effectively reduce frustration and aggressive behavior toward urban children, consistent with previous research findings. Previous studies have found that imagined intergroup contact can increase self-efficacy for future outgroup contact (Stathi, Crisp, & Hogg, 2011) and increase prosocial behavior toward

outgroup members (Meleady & Seger, 2016).

Bilewicz and Jaworska (2013) noted that to achieve reconciliation between conflicting groups, attention must be paid to the emotional aspects of conflict, and that controlling frustration psychology facilitates positive effects in intergroup contact. According to intergroup contact theory, direct contact is not a necessary condition for creating positive intergroup effects; imagining contact situations with others can also improve negative intergroup attitudes (Crisp & Turner, 2009). Therefore, after activating migrant children' s negative meta-stereotypes, the imagined intergroup contact strategy can greatly alleviate frustration psychology caused by intergroup tension and negative peer interactions, rebuild confidence in contact and communication with outgroups, enable individuals to experience comfortable feelings of interacting with outgroups in imagination, and form more positive and pleasant emotions, thereby prompting individuals to show more acceptance intentions in specific interactive behaviors.

6 Research Significance, Limitations, and Future Directions

This study explored the effects and mechanisms of meta-stereotype threat on aggressive behavior, finding that meta-stereotype threat can lead migrant children to exhibit more aggressive behavior, and that frustration is the potential mechanism underlying meta-stereotype threat and aggressive behavior toward outgroups. This enriches and improves the theoretical system of meta-stereotype threat to some extent. Additionally, past research mostly focused on the effects of family, personality, and other factors on migrant children' s aggressive behavior, while neglecting the meta-stereotype threat psychology experienced by this special group in peer interactions. This study expands previous research by revealing that meta-stereotype threat may be an important reason for the frequent occurrence of aggressive behavior among migrant children. Simultaneously, our study also adopted the easily controllable and improvable imagined intergroup contact intervention strategy to alleviate negative effects caused by activating negative meta-stereotypes: By controlling migrant children' s frustration levels, aggressive behavior toward outgroups was improved. This is not only practically significant but also provides effective ideas and methods for migrant children' s future social integration.

However, this study still has certain limitations. First, it lacks exploration of migrant children' s own aggressiveness. Due to huge differences between urban and rural life, preschool migrant children may treat unprovoked aggression as a form of play (Wang, 2016), and individuals with high aggressive personality traits will have much higher rates of aggressive behavior than those with low aggressive personality traits. Therefore, individual aggressiveness may be one of the important factors triggering migrant children' s aggressive behavior, and future research should include it in the research scope. Additionally, some researchers have pointed out that negative meta-stereotypes do not necessarily lead to negative behaviors (Hopkins et al., 2007); migrant children may also engage in impression management after negative meta-stereotype activation, i.e., consciously

changing their behavior to avoid confirming negative meta-stereotypes, which is inconsistent with our research results. In view of this, future research could attempt to integrate multiple factors, such as changing different meta-stereotype activation situations, to further explore the specific patterns of meta-stereotype threat effects on behavioral outcomes.

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Abstract

Effects of Meta-Stereotype Threat on Aggressive Behavior among Migrant Children and the Mediating Effect of Frustration

Meta-stereotype threat refers to an unbalanced cognition state when a person' s negative beliefs regarding the stereotype that out-group members hold about their own group are activated. Previous research has shown that the activation of negative meta-stereotype contributes to social behavior, but the mechanism of the meta-stereotype threat effects on aggressive behavior remains unclear.

Moreover, compared with dominant groups, migrant children are more susceptible to meta-stereotype. However, the influence of negative meta-stereotype on migrant children' s aggressive behavior has not been thoroughly investigated. Therefore, the current study aimed to explore the meta-stereotype threat effects on aggressive behavior among migrant children, and the mediated role of the frustration between meta-stereotype threat and aggressive behavior. Finally, we attempted to use imagined intergroup contact to intervene frustration in order to relieve the negative effects of meta-stereotype threat.

As an exploratory study, 60 migrant children participated in study 1. Participants were instructed to write adjectives to arouse negative meta-stereotype or not according to different instructions. Then, participants were assigned to complete the distribution of balsam pear juice which represented aggressive behavior against local children. The study 2 was improved on the basis of study 1. This study was organized into a 2 (meta-stereotype threat condition: activate meta-stereotype threat or not) $\times$2(attacked aim: local children and migrant children) mixed design. A total of 60 migrant children participated in study 2. After writing adjectives based on different instructions, participants were assigned to complete a test to make sure meta-stereotype was evoked. Then the frustration questionnaire and the balsam pear juice task against local children and migrant children were completed and measured. Study 3 was organized into a 3(type of imagination: imagined intergroup contact, imagined scenery and non-imagination) $\times$2(attacked aim: local children and migrant children) mixed design. Firstly, 95 migrant children were asked to arouse meta-stereotype and complete the meta-stereotype test. Next, the non-imagination group completed frustration questionnaire and the balsam pear juice task directly, while the migrant children of imagined intergroup contact group imagined the positive interaction with local children, and imagined scenery group imagined the outdoor scenery. After that, the two groups completed frustration questionnaire and the balsam pear juice task. T test, ANOVA and mediation analysis were used to analyze all data.

The following results were observed: (1) The frustration and aggressive behavior under the meta-stereotype threat (MST) condition was higher than the non-MST condition. (2) The relationship between the meta-stereotype threat and the aggressive behavior against local children was partly mediated by the frustration. (3) The mediated role of frustration was further supported by the results of study 3. Imagined intergroup contact could reduce the aggressive behavior against local children by controlling frustration.

In sum, the results proved that the effects of meta-stereotype threat on frustration among migrant children contributed to the explanation of the increase of aggressive behavior against local children.

Keywords: migrant children; meta-stereotype threat; frustration; aggressive behavior.

Note: Figure translations are in progress. See original paper for figures.

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