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The Relationship between Socially Mindful Experiences and Behaviors in Preschoolers

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Abstract: *Social Mindfulness (SoMi) is a prosocial action in which individuals consciously attend to, respect, and protect the needs and power of others' choices, contributing to good interpersonal relationships. In this study, 75 children aged 5-6 years were randomly selected, and the social mindfulness paradigm was used to explore the relationship between preschoolers' socially mindful experiences and behaviors. The results showed that there was no significant difference in the level of socially mindful behaviors among children of different genders. The socially mindful behaviors of preschoolers with positive experiences were significantly higher than those with negative experiences; the socially mindful behaviors of preschoolers with neutral experiences were not significantly different from those with positive and negative experiences. There was no significant difference in the psychological cost to preschoolers between acting and not acting in social mindfulness. This suggests that socially mindful experiences affect socially mindful behaviors, but not exclusively.*

Keywords: *Social Mindfulness; Preschoolers; Prosocial action*

1. Problem Posing

Social Mindfulness (SoMi) is a mental skill and intentional motivation to consider the needs of others in communication and interaction and to behave in a way that is conducive to satisfying others' right to choose[1]. It has the characteristics of Low-Cost Prosociality and initiative and is closely related to general prosocial behavior[2]. Researchers have mostly used the social mindfulness paradigm to measure individual levels of social mindfulness. Social Mindfulness can better facilitate cooperative behavior and intimate relationships. Individuals with high levels of social mindfulness have a positive and open social posture, are good at recognizing the needs of others, are more attentive to the autonomous needs of others, and contribute to a sense of belonging to a group[3]. Individuals will have pleasant emotions and be more likely to trust and cooperate with others who have a high level of social mindfulness[2]. As can be seen, it helps build good interpersonal relationships. Existing research on social awareness has primarily focused on adolescents, with little research on toddlers. Moreover, existing research has mainly focused on manipulating context to predict cooperative or aggressive behavior. Preschool is a critical period for social development, and it is important to investigate the characteristics and influencing factors of social mindfulness in preschool children.

Theory of Mind (ToM) refers to an individual's awareness of his or her own and others' wishes, emotions, and other mental activities, and is the key to triggering socially mindful behaviors. Research has confirmed that children aged 4-6 years can gradually understand and evaluate socially mindful behaviors, and social mindfulness understanding was found to be strongly correlated to the development of the Theory of Mind[4][5]. Therefore, the present research selected children aged 5-6 years. In terms of individual factors, it is generally believed that prosocial action is higher in girls compared to boys[6], but researchers found that social mindfulness in middle school students is stable across ages and genders[7]. The occurrence of socially mindful behaviors does not require individuals to lose excessive personal benefits, unlike prosocial action. Therefore, the first hypothesis of this study is that the difference between boys' and girls' socially mindful behaviors is marginally significant.

Perceptions of interpersonal fairness promote social mindfulness, and when children perceive unfair treatment, they will not exhibit socially mindful behaviors in subsequent interactions. Positive emotions such as happiness and pride arise when an individual's choice needs are respected and protected[8]. According to self-determination theory, this is because social mindfulness recipients' autonomous choices are respected and their autonomy needs are satisfied[9]. Are there then differences in the socially

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mindful behaviors of preschoolers under different socially mindful experiences? A second hypothesis is proposed for this: preschoolers with positive socially mindful experiences engage in socially mindful behaviors significantly more than those with negative experiences.

In summary, preschool is a critical period for the social development of children, and the quality of social development affects whether they can form good interpersonal relationships in the future. This study investigates the relationship between preschool children's socially mindful experiences and behaviors through behavioral experiments, which can provide a theoretical basis for effectively enhancing preschool children's social mindfulness in the future and further promoting preschool children's development in all aspects.

2. Method

2.1 Participants

One hundred children aged 5-6 years were randomly selected, all of whom were of normal intelligence and had not undergone the same type of experiment. A one-way between-subjects experimental design was used, with the independent variable being socially mindful experiences (positive vs. neutral vs. negative) and the dependent variable being socially mindful behaviors, as measured by scores and reaction times. The test was administered individually and 75 valid subjects were obtained, 41 boys and 34 girls. At the end of the experiment, the children were rewarded and the experiment ensured academic ethics.

2.2 Materials and Procedure

The social mindfulness level was measured using the social mindfulness paradigm developed by Van Doesum [1], with materials from the social mindfulness paradigm website (https://www.socialmindfulness.nl/ paradigm). A total of 14 items were screened (12 items from the social mindfulness paradigm website and 2 items through Baidu's image library). To avoid errors in the selection of items, the items screened by Baidu's library were only included in the experimental exercise. The experimental materials were all common items in life. Each item was designed in two colors (e.g., blue hat and yellow hat), and all parameters were identical except for the color. Each item was combined in two ways (e.g., three blue hats and one yellow hat or three yellow hats and one blue hat).

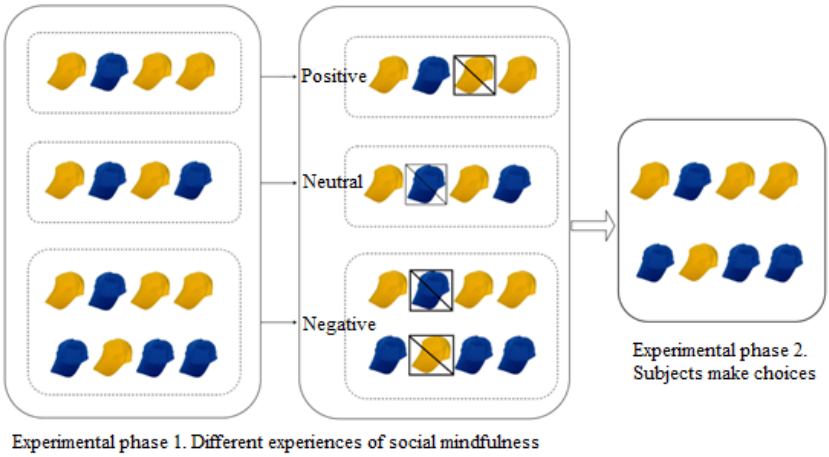

Figure 1: Example of experimental trial

The instructions for the formal experiment were "Imagine that you and another child are playing an object selection game. This child is of a similar age to you and is randomly matched by the game software to someone you have not seen before, and you will not see each other during the game. In this round of the game, you are asked to choose one of the four items presented in the center of the screen, and the other child chooses from the remaining three items. According to the rules of the game, you always choose first, and the other person chooses second. You may or may not take into account the other person's feelings when choosing".

The first phase of the experiment consisted of 10 trials (see Figure 1). In the neutral condition, virtual player A was set to choose any item. Unique items existed in both positive and negative conditions. The

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positive condition set virtual player A to choose a non-unique item, and the negative condition set virtual player A to choose a unique item. Subjects chose from the remaining items after virtual player A chose.

In the second phase of the experiment (see Figure 1), subjects acted as the preferred choice and measured whether there was a difference in the probability of the occurrence of the subject's socially mindful behaviors under different conditions. The procedure consisted of 12 experimental materials, each containing two combinations of forms, for a total of 24 trials. Children were given a score of 1 for choosing a non-unique item in both combinations and a score of 0 otherwise. This method has been shown to have good validity[10].

3. Results

Firstly, the socially mindful behaviors scores were calculated for each group. We divided the subjects into negative-girl (M = 3.00, SD = 2.00), neutral-girl (M = 4.09, SD = 1.04), positive-girl (M = 4.86, SD = 2.35), negative-boy (M = 3.75, SD = 2.11), neutral-boy (M = 4.86, SD = 1.61), and positive-boy (M = 6.00, SD = 3.03) groups according to their gender and socially mindful experiences. See Figure 2 for the results.

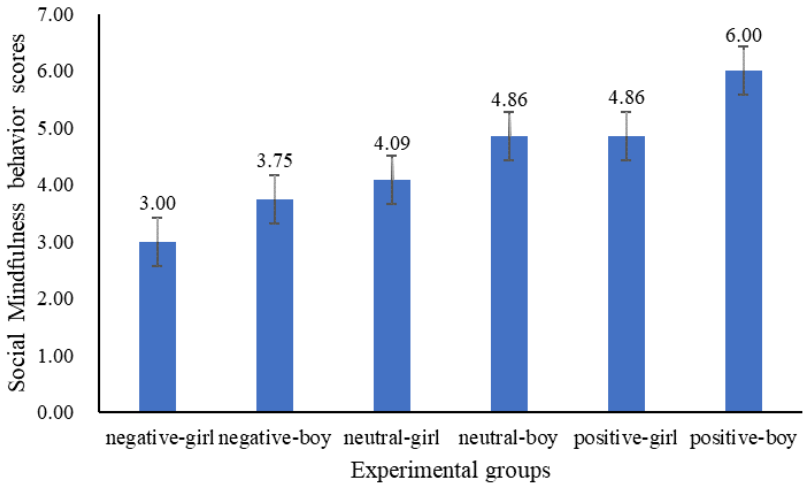

Figure 2: A score of each experimental group

In the second step, we analyzed the effects of gender and socially mindful experiences on s socially mindful behaviors. A significant main effect for socially mindful experiences was F(2, 69) = 5.64, p = 0.005,ηp2 = 0.14. There was no significant main effect for gender, F(1, 69) = 3.19, p = 0.08. The interaction of gender and socially mindful experiences, however, had no significance, F(2, 69) = 0.07, p = 0.93. Post hoc analyses using the LSD post hoc criterion for significance indicated that the socially mindful behaviors average score was significantly lower in the negative socially mindful experiences (M = 3.38, SD = 0.44) than in the positive socially mindful experiences(M = 5.43, SD = 0.43), F(2, 69) = 5.64, p = 0.005,ηp2 = 0.14. See Table 1 for the results.

Table 1: Tests of Between-Subjects Effects

	SS	*df*	*MS*	*F*	*p*	*Partial Eta Squared*
Corrected Model	59.249[a]	5.00	11.85	2.66	0.03	0.16
Intercept	1415.21	1.00	1415.21	317.73	0.00	0.82
socially mindful experiences	50.24	2.00	25.12	5.64	0.01	0.14
gender	14.19	1.00	14.19	3.19	0.08	0.04
socially mindful experiences × gender	0.60	2.00	0.30	0.07	0.93	0.00
Error	307.34	69.00	4.45			
Total	1854.00	75.00				
Corrected Total	366.59	74.00				

Finally, we compared the difference in reaction time between subjects who engaged in socially mindful behaviors and those who did not, across socially mindful experiences. Results indicate no

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significance for different socially mindful behaviors, ps > 0.05.

4. General Discussion

According to the experimental results, preschoolers with positive experiences tended to show more socially mindful behaviors than those with negative experiences. This suggests that socially mindful experiences may influence the probability of socially mindful behaviors in preschoolers. This may be due to the fact that under positive experiences, children gain the power to make their own choices, satisfy their autonomy needs, and experience positive emotions as a result. The subject children also consciously protect the power of choice of others when the subject toddler acts as the first choice. Children thought the first character who left a choice was much nicer than the character who left no choice, regardless of the valance of choice[4]. Thus children with positive sexual experiences are more inclined to behave in a way that protects the power of choice of others. It can be concluded that social mindfulness can be perceived and the perceiver will behave accordingly[1]. This supports the view that "the expression of social mindfulness facilitates the conversion of prosocial motivation in subjects and releases higher socially mindful behaviors"[8].

There was no significant difference in socially mindful behaviors between preschoolers with neutral experiences and those with positive and negative experiences. This suggests that children's socially mindful behaviors are not only influenced by socially mindful experiences. Researchers suggested that socially mindful behaviors may be based on the Theory of Mind and Perspective Taking[5]. Preschool is a critical time in the development of children's Theory of Mind and Perspective Taking, and thus their flexibility and complexity of social and moral evaluations grow as their Theory of Mind is better developed. In post-experimental interviews, it was learned that children who engaged in socially mindful behaviors were more likely to come from multiple birth families, and those who were more cooperative during the experiment also showed better sibling relationships. Positive peer relationships are positively associated with Perspective Taking[11]. Future research could investigate the effect of sibling relationships on social mindfulness.

Regardless of the socially mindful behaviors experiences, there was no significant difference in reaction time between preschoolers who engaged in socially mindful behaviors and those who did not. This suggests that social mindfulness differs from other altruistic behaviors in that it has Low-Cost Prosociality. Other altruistic behaviors are often studied using dilemmas such as the prisoner's dilemma and the game of chance, where subjects often have to sacrifice their interests for the common good. However, the probability of such scenarios occurring in real life is low. Therefore, social mindfulness, a low-cost altruistic behavior, is closer to real life. It is important to investigate the influencing factors or the inner thoughts of individuals when they engage in socially mindful behaviors to promote the formation of good moral character and good interpersonal relationships among children.

5. Contributions and limitations

The contribution of this study is that, first, it reveals the relationship between socially mindful experiences and socially mindful behaviors by taking preschool children as the research subjects. To a certain extent, this study has enriched the research on social mindfulness and provided a theoretical basis for promoting the development of social mindfulness in preschool children. Second, the experimental design is innovative. This study was conducted in a kindergarten. This avoids the influence of unfamiliar environments on preschoolers' social mindfulness to a certain extent. Moreover, we investigated the behavioral characteristics of preschoolers' social mindfulness through the overlay of multiple trials. To a certain extent, it avoids the randomness of preschoolers making a single choice.

Of course, there are limitations to this study. For example, the study did not design the independent variable of multiple birth families when the subjects were recruited in the first stage. In addition, the effect of the experimenter on preschoolers' socially mindful behaviors could not be explored in depth.

6. Future Direction

6.1 Development of Social Mindfulness Questionnaire

A large body of research has been using the social mindfulness paradigm (a game similar to item selection) to measure individual levels of social mindfulness[10][12]. And for this method of reliability

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assurance, the social mindfulness paradigm website was developed to somewhat avoid experimental errors caused by the inconsistent selection of experimental materials by the researchers. However, this method, which measures the level of social mindfulness by the weight of respondents' choices of unique or non-unique items, focuses more on the performance of socially mindful behavior. It may be influenced by various factors, such as the environment in which the individual is measured and the presence of others. According to interdependence theory, individuals with high levels of social mindfulness prioritize the wants and needs of others during social interactions. Awareness of the wants and needs of others, seeing things from the perspective of others, and prioritizing the mental processes of others are three aspects that the item selection game may not be able to measure. Therefore, it is necessary to develop a social mindfulness implicit or projective test.

Future researchers could design and develop situational judgment tests to measure individual levels of social mindfulness in a self-reported manner. Furthermore, the influence of early experiences, perceived social support, personality, temperament type, personality, and parenting style on social mindfulness can be explored, and structural equation models can be constructed to analyze the pathways of influence.

6.2 Longitudinal Analysis of the Development of Individual Social Mindfulness

In the past, researchers have focused on a particular age group. For example, researchers focused on exploring the development of preschoolers' understanding of the considerate socially mindful theory of mind and found that the higher the children's scores on a theory of mind task, the more mature the understanding of the theory of mind[5]. Social interaction style and feedback type influenced middle school students' social mindfulness, and middle school students' social mindfulness was stable across age and gender[7]. Researchers have also focused on aggression, which is the opposite of social mindfulness, and used college students as the research participants, confirming that perceived social hostility increased the negative emotional experience of college students, which in turn increased their outward aggression[13]. Does social mindfulness, which is characterized as "otherness", decrease during the developmental stage of individual self-awareness? Does the level of social mindfulness continue to rise, a plateau at a certain age, or even decline? Due to the differences among individuals, it may not be rigorous to investigate the trend of social mindfulness through a cross-sectional survey.

Therefore, future research can select a large sample and conduct a longitudinal tracking survey on the development of social mindfulness in individuals. Not only can we obtain the trend among social mindfulness of individuals in a certain cultural context, but we can also analyze the inflection point of social mindfulness development in depth.

6.3 A Multidimensional Exploration of the Factors Influencing Social Mindfulness

Many researchers have focused on the factors influencing social mindfulness. Researchers have experimentally confirmed that social mindfulness is influenced by intra-individual factors such as the theory of mind[5], perspective taking[1], and extra-individual factors such as the pattern of Social interactions[7], type of feedback, and sense of power and status. However, most research has only explored intra- or extra-individual factors, and less attention has been paid to the interactive effects of these two factors on individuals' social mindfulness. The social mindfulness of individuals may be influenced by various factors during their development, such as the level of social mindfulness of their parents, their internal-external personality traits, the presence of significant others, and their sense of security. In addition, intra- and extra-individual factors may interact to influence social mindfulness.

In the future, researchers can explore the influence of social mindfulness in multiple ways and multiple dimensions. If an individual has been treated unfairly or for other reasons, and social mindfulness is low, can protective factors be found to mitigate or hedge against it?

6.4 Neurophysiological Mechanisms of Social Mindfulness

Socially mindful behaviors involve cognitive and decision-making processes that are difficult to investigate through behavioral experiments alone. Researchers found by functional MRI that socially mindful behaviors activate the left prefrontal cortex, the right parietal cortex, and the caudate nucleus [14]. In addition, socially good thoughts are regulated by oxytocin, a physiological hormone [15].

There are still aspects of the neurophysiological mechanisms of social mindfulness that need further investigation. The first is that social mindfulness is a complex process that involves identifying the needs

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of others, considering their feelings, respecting their choices, avoiding conflicts, and promoting cooperation, and the mechanism of social mindfulness is regulated by which brain regions and how each brain region collaborates. The second is the mechanism of oxytocin's role in enhancing social mindfulness.

6.5 Promote Individual Social Mindfulness

Interdependence theory suggests that individuals develop relational commitment when they interact socially with others if the other person's behavior leads to good outcomes [16]. Strong relational commitment promotes pro-social motivation. Social mindfulness, a strategic interpersonal communication, is a facilitator of cooperative behavior. This may be because social mindfulness induces positive emotions, which in turn promote cooperative behavior [17]. And social mindfulness enhances positive emotions, possibly due to satisfying each other's autonomy needs. In addition to this, Researchers confirmed that trustworthiness plays an important role in social mindfulness and cooperative behavior [18][19]. And the trusting party can repair the damaged trust to some extent when perceiving the social mindfulness of the violating party [20].

Social mindfulness positively contributes to positive emotions, cooperative behavior, and trust. Researchers showed that individuals with positive traits were more likely to use perspective-taking skills and show kind attention in interpersonal interactions. As an important way to enhance perspective-taking, such as educational drama, future research can try to verify its effectiveness in enhancing social mindfulness through empathy training, educational drama activities, and positive thinking.

7. Conclusion

(1) The socially mindful behaviors of preschoolers with positive experiences were significantly higher than those with negative experiences; the socially mindful behaviors of preschoolers with neutral experiences were not significantly different from those with positive and negative experiences.

(2) The differences in socially mindful behaviors of preschoolers by gender were not significant.

(3) There was no significant difference between preschoolers who showed socially mindful behaviors and those who did not show the psychological cost of giving.

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