


The Relationship between Gratitude, Perceived Social Support, and Coping Strategies in Community Correctional Personnel: Evidence from Indirect Effects and Cross-Lagged Analysis

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The main purpose of this study is to explore the longitudinal mediating effect of perceived social support in the relationship between gratitude and coping strategies among community correctional personnel. On March 20, 2024, and June 20, 2024, we conducted a longitudinal follow-up survey with 299 community correctional personnel using the Gratitude Scale, the Perceived Social Support Scale, and the Simplified Coping Style Scale. Gratitude directly and significantly predicts coping strategies and also significantly predicts coping strategies through the indirect effect of perceived social support. Cross-lagged analysis results show that perceived social support (LW1) can significantly predict gratitude (G2), and perceived social support (LW1) can significantly predict coping strategies (Y2). The longitudinal mediating effect of perceived social support between gratitude and coping strategies is significant. It is necessary for community and judicial departments to enhance gratitude education among community correctional personnel, fostering a sense of gratitude that helps them better understand and appreciate the support they receive from others, thereby enhancing their social responsibility and psychological well-being.

Key words: gratitude, perceived social support, coping strategies, cross-lagged analysis, community correctional personnel

Introduction

According to data published in the China Law Yearbook, the number of arrests in society in-

creased from 958,000 to 1,088,000 between 2009 and 2019, indicating a rapid rise in crime rates in China (Li, 2022). Furthermore, many Western countries are also experiencing a significant increase in crime rates (Quan, 2016),

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which has placed immense pressure on prison management (Sun & Yuan, 2017). In terms of rehabilitating offenders, Chinese judicial authorities often rely on ideological education and productive labor; however, offenders are more frequently engaged in productive labor, while ideological education focuses on legal knowledge (Wang, 2016). Some scholars argue that merely understanding the law does not guarantee that offenders will adhere to it post-rehabilitation, which may explain the rising recidivism rates in recent years (Xu, 2015). To alleviate the pressures of prison management, the 44th session of the United Nations Economic and Social Council, held in 1998, adopted a resolution titled "International Cooperation to Reduce Overcrowding in Prisons and Promote Alternative Sentences." This resolution explicitly stated that overcrowding is a common issue faced by many countries, consuming judicial resources and potentially affecting the treatment of prisoners, which is detrimental to the protection of human rights. Therefore, reducing prison populations, expanding the use of non-custodial sentences, and increasing the implementation of community service or community corrections are shared tasks for all nations (Yang & Yang, 2003). It is evident that enhancing the positive coping strategies of community correctional personnel to prevent recidivism has become a pressing issue for governments worldwide, holding significant importance for maintaining social safety and stability. Thus, this study chooses this group as the research subject.

Research has found that, compared to non-criminal groups, offenders tend to have a weaker sense of gratitude (Yang, 2012), lower levels of perceived social support (Ma, Zhong, & Zhou, 2022), and more negative coping strategies (Ma, 2009), all of which affect their rehabilitation progress. Some scholars argue that gratitude and perceived social

support significantly influence an individual's coping strategies. Gratitude helps improve emotional regulation, enabling individuals to remain calm and positive when facing stress and reducing the occurrence of negative emotions (Emmons & McCullough, 2003). When individuals recognize the support resources around them during difficult times, it can boost their self-confidence and reduce anxiety in coping with stress, allowing them to better tackle challenges (Lakey & Cohen, 2000). This enhances an individual's psychological resilience, leading to greater adaptability and endurance when confronted with adversity (Lin, 2020).

Gratitude

Gratitude refers to an individual's positive emotional experience and attitude towards the kindness, care, support of others, or positive aspects of life. A grateful person typically exhibits appreciation, cherishment, and acknowledgment of good things in life (Ye, Zhang, Zhao, & Kong, 2023; He, Yan, & Hui, 2021; Wang, Kong, Li, & Lu, 2021). This feeling of gratitude can manifest in various ways, including verbal expressions, behaviors, and inner experiences. Verbal expression is one common way to show gratitude, which involves directly thanking others and acknowledging their kindness and contributions. In terms of behavior, gratitude can be expressed by reciprocating others' kindness or demonstrating respect and care through actions. On an internal level, gratitude is a positive emotional experience, reflecting an individual's deep appreciation and recognition of others' kindness, support, and the good things in life (Min, 2023). A person who understands gratitude often experiences numerous benefits, including positive effects on mental health, social relationships, and overall well-being (Wang, 2022). Firstly, a mindset of gratitude

helps enhance an individual's psychological health. Research indicates that gratitude is associated with lower levels of depression and anxiety, reducing negative emotions and feelings of stress (Ye, Zhang, Zhao, & Kong, 2023). Secondly, gratitude can strengthen psychological resilience, enabling individuals to better cope with life's challenges and difficulties (Liu, Dong, & Cheng, 2024), while promoting positive emotions and enhancing psychological well-being (Yin, Lan, Li, & Zhao, 2022). Additionally, these positive emotions foster a sense of intimacy and trust among people, encouraging more positive social interactions and cooperation (Dong, 2020).

Coping Strategies

Coping strategies refer to the behavioral, cognitive, or emotional tactics individuals use when facing challenges in real life. These strategies include problem-solving, seeking social support, avoidance, or denial. The choice of coping strategies may be influenced by individual traits, environmental factors, and the specific situations faced (Yu, Li, & Wang, 2023; Zhang, 2020; Wang, Wang, Dong, & Song, 2017; Su, Qu, & Gan, 2022). Generally, coping strategies can be broadly categorized into positive and negative strategies. Positive coping strategies typically involve individuals actively addressing problems, seeking information, and taking action to resolve difficulties, while negative coping strategies focus more on individuals' emotional experiences, attempting to cope with stress through emotional expression or regulation (Wu, Zhang, & Wang, 2024). Some researchers collected survey data from 122 general surgery nurses in two hospitals using stratified sampling to explore the relationships between work stress, coping strategies, and subjective well-being. The results showed a significant positive correlation between work stress and both coping

strategies and subjective well-being among general surgery nurses. Measures such as creating a positive organizational atmosphere, optimizing nursing workforce allocation, enhancing self-affirmation, and providing coping strategies for managing stress can effectively reduce work stress and improve the subjective well-being of these nurses (Kui, Chen, & Zhang, 2016). The importance of coping strategies lies in their direct impact on an individual's ability to adapt to stress and challenges. By choosing appropriate coping strategies, individuals can better handle difficulties in life, mitigate the negative effects of stress, and promote their psychological health and well-being (Yuan, 2023; Zhang et al., 2024). Research indicates that the use of positive coping strategies is associated with better mental health and coping abilities (Liu et al., 2022). In contrast, negative coping strategies are often linked to negative emotions and mental health issues (Arslan, 2017). Therefore, it is crucial to understand and adopt effective coping strategies to maintain individual psychological health and coping capacity.

In practical applications, coping strategy questionnaires typically include both positive and negative dimensions. Many researchers, when investigating participants' positive or negative coping strategies, do not consider that these strategies may influence each other in certain situations. They often rely on the overall scores from coping strategy questionnaires to determine whether the strategies are primarily positive or negative, making it difficult to clearly differentiate individual coping strategies. However, in this study, we aim to grasp individuals' coping strategies as a whole, so we do not need to independently apply the dimensions of positive or negative coping strategies. Instead, we will use the total score of the questionnaire to assess whether participants' coping strategies lean towards being positive or negative.

The Relationship between Gratitude and Coping Strategies

Social Exchange Theory posits that gratitude is a result of social exchange. When individuals perceive kindness and social support from others, they feel a sense of indebtedness and are willing to express gratitude to enhance their acceptance of support and assistance from others, thereby strengthening their social support network (Yu, Wang, & Wu, 2022; Peng, Nelissen, & Zeelenberg, 2018). One study involving 190 university students from a college in Henan Province, China, used three situational experiments to elicit emotional responses: gratitude, indebtedness, and happiness. Each class randomly received one of the experimental scenarios. The results indicated that gratitude positively predicts prosocial behaviors; individuals who feel grateful demonstrate more helping behaviors due to their internal sense of indebtedness, suggesting that gratitude fosters helping behavior (Hui et al., 2015). International research has shown that establishing clear gratitude intervention programs can help cultivate individuals' awareness of gratitude and encourage them to engage more actively in social contexts. Such interventions have significant effects on reducing stress and depression, effectively improving individuals' mental health (Komase et al., 2023), which aligns with findings from domestic studies (Wang, Huang, & Zhang, 2017; Wang, 2022). Gratitude not only promotes more positive coping strategies but may also enhance individuals' psychological well-being. A study involving 493 high school students in Shandong Province, China, explored the relationships among gratitude, positive coping strategies, perceived social support, and mental health. The findings revealed significant correlations between gratitude, positive coping strategies, perceived social sup-

port, and mental health; individuals' levels of gratitude were found to significantly predict their mental health (Wang, Huang, & Zhang, 2017). Based on this, the present study proposes Hypothesis 1: Gratitude can significantly and positively predict coping strategies.

The Indirect Effect of Perceived Social Support

Perceived social support refers to an individual's awareness and feelings regarding the emotional support, informational support, and tangible assistance they believe they receive from their social networks, such as family, friends, and colleagues. This concept encompasses not only the actual social support received but also the potential support that individuals believe is available to them in times of need (Gong et al., 2022; Li et al., 2023; Yue et al., 2022). Social support involves the respect and concern experienced in interpersonal interactions, as well as the feelings of support and assistance received (Liu et al., 2024). Comparing the concepts of perceived social support and actual social support, it is evident that perceived social support pertains more to an individual's psychological and cognitive dimensions, reflecting their trust in their social network and confidence in their social relationships. In contrast, actual social support often refers to specific forms of support, which can come from family, friends, colleagues, or the community. Research indicates that perceived social support effectively enhances an individual's mental health by providing emotional comfort and tangible assistance. High levels of perceived social support are associated with lower levels of depression, anxiety, and feelings of loneliness (Zhou & Zhang, 2024), and they are significantly negatively correlated with mental health disorders (Ozen, Karatas, & Polat, 2020). Regarding the relationship

between perceived social support and actual social support, studies show that perceived social support has a closer relationship with mental health than does actual social support (Qiao et al., 2018; Yang et al., 2016). High levels of perceived social support make individuals feel cared for and valued, which enhances their positive evaluations of life, increases overall life satisfaction, and boosts their overall well-being (Wei et al., 2022). When individuals feel supported, they often experience an increase in their sense of self-worth and confidence, making them more willing to establish and maintain close connections with others. This, in turn, further strengthens their social support networks (Yang, 2014).

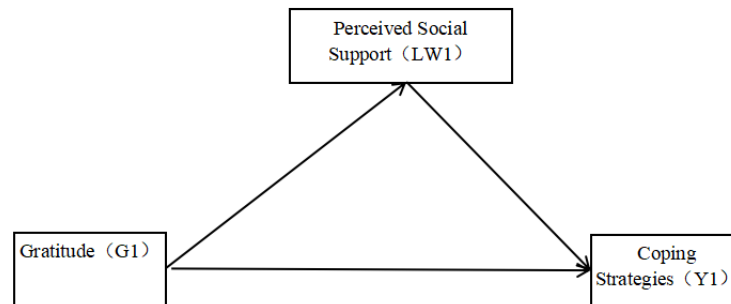
The Broaden-and-Build Theory of Positive Emotions posits that gratitude, as a positive emotion, can expand an individual's cognitive and behavioral responses, thereby enhancing their social support network. Perceived social support can promote individuals to adopt constructive coping strategies, which in turn enhances their ability to manage stress (Fredrickson, 2004). Research has shown that gratitude can increase an individual's perception of social support. Individuals with high levels of gratitude are more likely to notice the kindness and support of those around them, thereby enhancing their perception of social support (He, 2022). A grateful mindset encourages individuals to focus on positive social interactions, strengthening their trust and reliance on existing social support systems (Ye, Zhang, Zhao, & Kong, 2023). Under the combined influence of gratitude and perceived social support, individuals can alleviate stress, reduce levels of depression and anxiety, and enhance overall well-being (Wang, 2022). In other words, the interaction between gratitude and perceived social support creates a positive feedback loop that further enhances an individual's psychological resilience and life satisfaction. Studies have found that perceived

social support can influence the coping strategies individuals choose. When individuals feel supported by family, friends, and colleagues, they are more likely to adopt positive coping strategies, such as problem-solving and seeking support, rather than negative coping strategies, such as avoidance and denial (Taylor & Stanton, 2020). Positive coping strategies can also enhance individuals' perception of social support. For example, seeking social support as a coping strategy not only provides direct assistance but also strengthens individuals' trust and reliance on their existing support systems, thus enhancing their perceived social support (Jin, Zhang, & Qu, 2021). Moreover, positive coping strategies, such as expressing gratitude and building positive interpersonal relationships, can further solidify social support networks, mitigating the negative impacts of stress and maintaining psychological health and life satisfaction (Yang et al., 2020; Lakey & Orehek, 2018; Muniandy et al., 2022). Therefore, this study proposes Hypothesis 2: Perceived social support plays a significant indirect role between gratitude and coping strategies, as shown in Figures 1 and 2.

Method

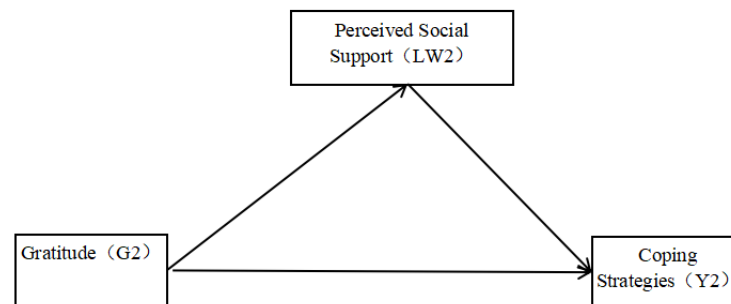
Participants

Using a cluster sampling method, we selected community correctional offenders from 27 communities in two cities: Wuhu in Anhui Province and Suzhou in Jiangsu Province, China. The community correctional offenders involved in this study are defined as individuals who have committed less serious crimes, exhibit lower levels of subjective malice, and pose minimal social harm. They are regularly managed by local community and judicial personnel. We conducted the questionnaire survey during routine interviews with these individuals, ensuring that sensitive informa-



Note. G1, LW1, Y1 are the data collected from the first wave survey, where G = Gratitude, LW = Perceived Social Support, and Y = Coping Strategies.

Figure 1 The indirect effect of perceived social support between gratitude and coping strategies.



Note. G2, LW2, Y2 are the data collected from the second wave survey, where G = Gratitude, LW = Perceived Social Support, and Y = Coping Strategies.

Figure 2 The indirect effect of perceived social support between gratitude and coping strategies.

tion such as names and home addresses were not collected to reduce their defensiveness. We strictly adhered to the relevant provisions of the Helsinki Declaration and ensured that the data from the community correctional offenders were kept confidential. Before conducting the survey, we provided standardized training for all personnel involved in the re-

search to ensure the adherence to the survey protocols. The study began after receiving approval from the ethics committee overseeing the research and conducting two rounds of longitudinal data collection. Since the personal information of the community correctional offenders had already been registered in the community, the demographic variables for

this study were directly obtained from community staff, with the participants' consent. The first survey was carried out on March 20, 2024, during which data on gratitude (G1), perceived social support (LW1), and coping strategies (Y1) were collected, yielding a total of 299 completed questionnaires. The second survey took place on June 20, 2024, collecting data on gratitude (G2), perceived social support (LW2), and coping strategies (Y2), with the same total of 299 completed questionnaires. This study consists of two parts: In the first part, we constructed a structural equation model using the data from the second survey to examine whether perceived social support plays a significant indirect role between gratitude and coping strategies. In the second part, we performed cross-lagged analysis using the longitudinal data from both surveys to investigate the causal relationships among the three variables: gratitude, perceived social support, and coping strategies.

Research Instruments

Gratitude Scale

We utilized the Gratitude Scale developed by McCullough et al. (2002). This scale consists of six items (e.g., item 5: "As I grew older, I found myself feeling more grateful for the people, events, and circumstances of my past."). Each item offers seven response options: strongly disagree, moderately disagree, somewhat disagree, uncertain, somewhat agree, moderately agree, and strongly agree. Participants receive 1 point for "strongly disagree" and 7 points for "strongly agree." A higher total score on the questionnaire indicates a greater sense of gratitude among participants (McCullough et al., 2002; Zeng & Xia, 2013). In this study, the overall Cronbach's α coefficients for the pre-test and post-test of this scale were 0.75 and 0.72, respectively.

Perceived Social Support Scale

We used the Perceived Social Support Scale developed by Zimet et al. (Zimet et al., 1988). This questionnaire includes three factors: family support (e.g., item 4: "I can receive emotional help and support from my family when needed."), friend support (e.g., item 12: "I can discuss my problems with my friends."), and other support [e.g., item 1: "Some people (leaders, relatives, colleagues) are there for me when I encounter problems."]. The scale consists of a total of 12 items and uses a 7-point Likert scoring system. Each item includes seven response options: strongly disagree (1 point), moderately disagree (2 points), somewhat disagree (3 points), neutral (4 points), somewhat agree (5 points), moderately agree (6 points), and strongly agree (7 points). Participants are asked to choose from the seven options for each item. A higher total score on the questionnaire indicates a greater level of perceived social support (Zhang, Zhang, & Li, 2015). In this study, the overall Cronbach's α coefficients for the pre-test and post-test of this scale were both 0.97.

Brief Coping Strategies Questionnaire

We used the revised version of the Brief Coping Strategies Questionnaire developed by Folkman et al. (Folkman et al., 1986). This questionnaire consists of two dimensions: active coping (e.g., item 6: "Stand firm in your position and fight for what you want.") and passive coping (e.g., item 19: "Dream about some miracle that might change the situation."). The active coping dimension contains 12 items, while the passive coping dimension includes 8 items. The questionnaire uses a 4-point Likert scoring system, with four response options: not at all (0 points), occa-

sionally (1 point), sometimes (2 points), and often (3 points). The sum of the scores for each item constitutes the total score for the questionnaire; a higher total score indicates more active coping strategies (Geng, Zheng, Zheng, & Lei, 2024). In this study, the overall Cronbach's α coefficients for the pre-test and post-test of this scale were 0.94 and 0.95, respectively.

Data Analysis

In this study, we utilized SPSS 25.0 and Mplus 7.0 software for data analysis, incorporating the pre-test and post-test data from all 299 participants into the analysis. We conducted our research in two steps: first, we constructed a structural equation model with gratitude as the independent variable, coping strategies as the dependent variable, and perceived social support as the mediating variable; second, we performed cross-lagged analysis using the pre-test and post-test data for gratitude, coping strategies, and perceived social support. For evaluating the model fit indices, we adopted the criteria proposed by Wen et al. (Wen et al., 2004): CFI \geq 0.90, TLI \geq 0.90, RMSEA \leq 0.08, and SRMR \leq 0.08.

Results

Common Method Bias Test

In this study, we collected longitudinal data, so we conducted common method bias tests separately for the pre-test and post-test data. We used Harman's single-factor test for this analysis. The results indicated that there were 5 factors in the pre-test and 4 factors in the post-test with eigenvalues greater than 1, and the first factor explained 48.29% and 49.51% of the variance, respectively, both below the 50% threshold. This suggests that there is no significant common method bias present in

either the pre-test or post-test data (Podsakoff & Organ, 1986; Tang & Wen, 2020).

Descriptive Statistics and Correlation Analysis

We conducted descriptive statistics on the demographic variables. The data from the first survey indicated that female offenders scored higher than male offenders in gratitude (G1), perceived social support (LW1), and coping strategies (Y1). The second survey data showed that female offenders scored higher than male offenders in gratitude (G2) and perceived social support (LW2), while male offenders had a slightly higher score in coping strategies (Y2) with 30.01 points compared to 29.62 points for female offenders. See Table 1.

We used SPSS software to conduct independent samples *t*-tests to compare the differences in gratitude, perceived social support, and coping strategies among community correction offenders of different genders. The results from the first and second tests were consistent, showing significant differences between male and female offenders in gratitude (G1), gratitude (G2), perceived social support (LW1), and perceived social support (LW2) ($p < 0.05$). However, there were no significant differences in coping strategies (Y1) and coping strategies (Y2) ($p > 0.05$), as detailed in Table 2. We also conducted ANOVA to compare the differences in gratitude, perceived social support, and coping strategies among community correction offenders of different ages and educational levels. The results indicated that there were no significant differences in gratitude, perceived social support, or coping strategies among offenders of varying ages and education levels in both the first and second tests ($p > 0.05$), as shown in Table 3.

Table 1 *Demographic variable statistics*

Item	Type	Number	Proportion	Mean	Standard Deviation	Minimum Value	Maximum Value
Gratitude (G1)	Total	299	100%	29.87	6.54	11.00	43.00
	Male	74	24.70	27.54	7.40		
	Female	225	75.30	30.64	6.06		
Perceived social support (LW1)	Total	299	100%	58.09	15.26	12.00	84.00
	Male	74	24.70	52.58	19.61		
	Female	225	75.30	59.90	13.08		
Coping Strategies (Y1)	Total	299	100%	30.05	11.66	0.00	60.00
	Male	74	24.70	28.82	13.16		
	Female	225	75.30	30.46	11.12		
Gratitude (G2)	Total	299	100%	29.49	6.55	15.00	43.00
	Male	74	24.70	27.00	6.92		
	Female	225	75.30	30.32	6.23		
Perceived social support (LW2)	Total	299	100%	29.71	12.21	0.00	60.00
	Male	74	24.70	52.62	19.70		
	Female	225	75.30	58.36	13.29		
Coping Strategies (Y2)	Total	299	100%	56.93	15.30	12.00	84.00
	Male	74	24.70	30.01	14.78		
	Female	225	75.30	29.62	11.27		

Table 2 *Gender differences in gratitude, perceived social support, and coping strategies among community correction offenders*

Dependent Variable	Independent Variable	Mean	F	Significance	t	Sig (two-tailed)
Gratitude (G1)	Genders	29.87	4.93	0.02	-3.61	0.00
Perceived Social Support (LW1)		58.09	15.27	0.00	-3.65	0.00
Coping Strategies (Y1)		30.05	2.26	0.13	-1.04	0.29
Gratitude (G2)		29.49	2.11	0.14	-3.86	0.00
Perceived Social Support (LW2)		29.71	12.27	0.00	-2.83	0.00
Coping Strategies (Y2)		56.93	7.55	0.00	0.23	0.81

Table 3 *Differences in gratitude, perceived social support, and coping strategies among community correction offenders by age and education level*

Dependent Variable	Independent Variable	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig (two-tailed)
Gratitude (G1)	Inter-group	60.89	2	30.44	0.70	0.49
	Intra-group	12708.77	296	42.93		
Perceived Social Support (LW1)	Inter-group	121.04	2	60.52	0.25	0.77
	Intra-group	69310.32	296	234.15		
Coping Strategies (Y1)	Inter-group	238.20	2	119.10	0.87	0.41
	Intra-group	40317.82	296	136.20		
Gratitude (G2)	Inter-group	52.70	2	26.35	0.61	0.54
	Intra-group	12770.04	296	43.14		
Perceived Social Support (LW2)	Inter-group	360.65	2	180.32	0.76	0.46
	Intra-group	69418.26	296	234.52		
Coping Strategies (Y2)	Inter-group	383.88	2	191.94	1.29	0.27
	Intra-group	44052.51	296	148.82		
Gratitude (G1)	Inter-group	1.18	2	0.59	0.01	0.98
	Intra-group	12768.47	296	43.13		
Perceived Social Support (LW1)	Inter-group	104.43	2	52.21	0.22	0.80
	Intra-group	69326.94	296	234.21		
Coping Strategies (Y1)	Inter-group	33.34	2	16.67	0.12	0.88
	Intra-group	40522.69	296	136.90		
Gratitude (G2)	Inter-group	14.38	2	7.19	0.16	0.84
	Intra-group	12808.36	296	43.27		
Perceived Social Support (LW2)	Inter-group	44.30	2	22.15	0.09	0.91
	Intra-group	69734.61	296	235.59		
Coping Strategies (Y2)	Inter-group	477.33	2	238.66	1.60	0.20
	Intra-group	43959.06	296	148.51		

In the correlation analysis among the variables, we found significant positive correlations among the six variables: gratitude (G1, G2), perceived social support (LW1, LW2), and

coping strategies (Y1, Y2) ($p < 0.01$). Regarding gender, the correlation coefficients between gender and coping strategies (Y1, Y2) were not significant ($p > 0.05$), while the correlation

coefficients between gender and gratitude (G1, G2) and perceived social support (LW1, LW2) were significant ($p < 0.01$), as detailed in Table 4.

Structural Equation Model Construction and Testing

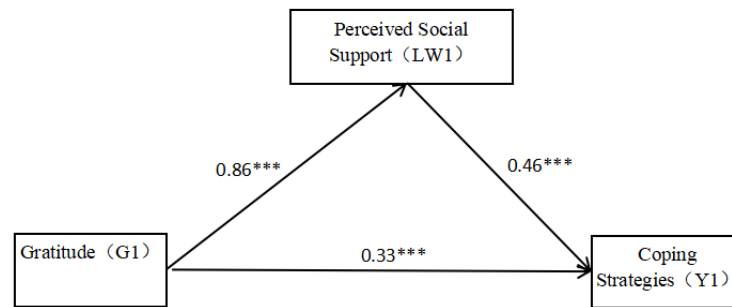
This study utilized a relatively large number of items from the perceived social support and coping strategies questionnaires. We employed a packaging method to group the items according to their dimensions before constructing the structural equation model (Wen, Huang, & Tang, 2018).

Since this study conducted two rounds of surveys, we constructed structural equation models separately using the first and second round data. First, we established the structural equation model with gratitude (G1) as the predictor variable, coping strategies (Y1) as the outcome variable, and perceived social support (LW1) as the mediator variable. The results indicated a good model fit: CFI = 0.96, TLI = 0.90, RMSEA = 0.08, SRMR = 0.02, as shown in Figure 3. The results showed that age and education level did not have a significant impact on coping strategies (Y1) ($\beta = -0.38, p > 0.05$; $\beta = -0.01, p > 0.05$), while gender had a significant effect on coping strategies ($\beta = 0.12, p < 0.05$). Gratitude (G1) significantly predicted perceived social support (LW1) ($\beta = 0.86, p < 0.001$), and perceived social support (LW1) significantly predicted coping strategies (Y1) ($\beta = 0.46, p < 0.001$). Additionally, gratitude (G1) significantly predicted coping strategies (Y1) ($\beta = 0.33, p < 0.001$). To test the significance of the indirect effect pathways, we conducted a bias-corrected bootstrap analysis with 1,000 resampling iterations. A path coefficient is considered significant if the 95% confidence interval does not include 0. The results showed that the total effect of the model was 0.73 [0.61, 0.84],

Table 4 Correlation coefficients among variables

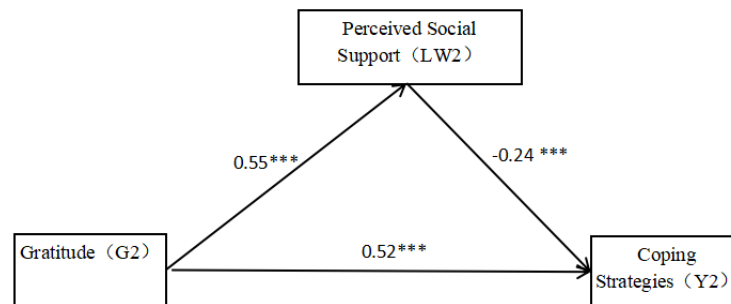
Variables	Genders	Gratitude (G1)	Perceived Social Support (LW1)	Coping Strategies (Y1)	Gratitude (G2)	Perceived Social Support (LW2)	Coping Strategies (Y2)
Genders	1						
Gratitude (G1)	0.20**	1					
Perceived Social Support (LW1)	0.20**	0.78**	1				
Coping Strategies (Y1)	0.06	0.54**	0.64**	1			
Gratitude (G2)	0.21**	0.61**	0.54**	0.35**	1		
Perceived Social Support (LW2)	0.16**	0.49**	0.57**	0.31**	0.72**	1	
Coping Strategies (Y2)	-0.01	0.37**	0.38**	0.37**	0.48**	0.61**	1

Note. $N = 299$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Note. G1, LW1, Y1 are the data collected from the first wave survey, where G = Gratitude, LW = Perceived Social Support, and Y = Coping Strategies.

Figure 3 The indirect effect of perceived social support between gratitude and coping strategies.



Note. G2, LW2, Y2 are the data collected from the second wave survey, where G = Gratitude, LW = Perceived Social Support, and Y = Coping Strategies.

Figure 4 The indirect effect of perceived social support (LW2) on gratitude (G2) and coping strategies (Y2).

and the indirect effect was 0.39 [0.22, 0.60], with both confidence intervals not containing 0, indicating that both the total effect and the indirect effect were significant.

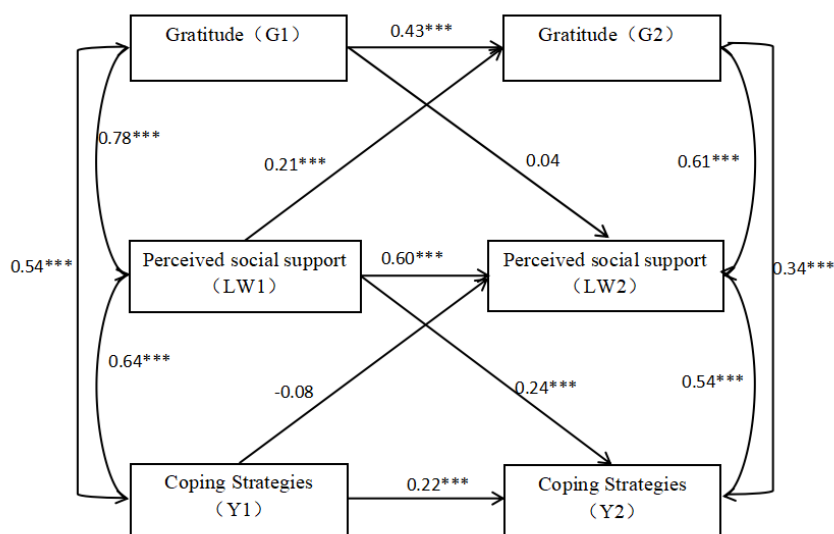
Next, we set gratitude (G2) as the predictor variable, coping strategies (Y2) as the outcome variable, and perceived social support (LW2) as the mediator variable. Gender, age,

and education level were included as covariates in the model to create an indirect effects model. The results indicated a good model fit: CFI = 0.98, TLI = 0.95, RMSEA = 0.06, SRMR = 0.02, as shown in Figure 4. The results showed that age and education level did not have a significant impact on coping strategies (Y2) ($\beta = 0.01$, $p > 0.05$; $\beta = 0.01$, $p > 0.05$), while

gender had a significant effect on coping strategies ($\beta = 0.30, p < 0.001$). Gratitude (G2) significantly predicted perceived social support (LW2) ($\beta = 0.55, p < 0.001$), and perceived social support (LW2) significantly predicted coping strategies (Y2) ($\beta = -0.24, p < 0.001$). Additionally, gratitude (G2) significantly predicted coping strategies (Y2) ($\beta = 0.52, p < 0.001$). To test the significance of the indirect effect pathways, we conducted a bias-corrected bootstrap analysis with 1,000 resampling iterations. A path coefficient is considered significant if the 95% confidence interval does not include 0. The results showed that the total effect of the model was 0.15 [0.11, 0.20], and the indirect effect was -0.05 [-0.03, -0.08], with both confidence intervals not containing 0, indicating that both the total effect and the indirect effect were significant.

Cross-Lagged Analysis

Using gratitude as the independent variable, coping strategies as the dependent variable, and perceived social support as the indirect variable, a cross-lagged model was established to examine the cross-lagged relationships among gratitude, perceived social support, and coping strategies. The results indicated that the model fit well, with RMSEA = 0.06, SRMR = 0.01, CFI = 0.99, and TLI = 0.97. Gratitude (G1) significantly predicted gratitude (G2) ($\beta = 0.43, p < 0.001$), perceived social support (LW1) significantly predicted perceived social support (LW2) ($\beta = 0.60, p < 0.001$), and coping strategies (Y1) significantly predicted coping strategies (Y2) ($\beta = 0.22, p < 0.001$). In terms of the relationships between



Note. G1, LW1, Y1 represent data collected from the first wave of the survey. G2, LW2, Y2 represent data collected from the second wave of the survey. G = Gratitude, LW = Perceived Social Support, Y = Coping Strategies.

Figure 5 The Cross-Lagged Model of gratitude, perceived social support, and coping strategies.

variables, gratitude (G1) did not significantly predict perceived social support (LW2) ($\beta = 0.04, p > 0.05$), while perceived social support (LW1) significantly predicted gratitude (G2) ($\beta = 0.21, p < 0.001$). Moreover, perceived social support (LW1) significantly predicted coping strategies (Y2) ($\beta = 0.24, p < 0.001$), whereas coping strategies (Y1) did not significantly predict perceived social support (LW2) ($\beta = -0.08, p > 0.05$). The first wave of testing data for gratitude, perceived social support, and coping strategies showed significant correlations, with correlation coefficients ranging from 0.54 to 0.78. The second wave of testing data also exhibited significant correlations among gratitude, perceived social support, and coping strategies, with correlation coefficients ranging from 0.34 to 0.61, as shown in Figure 5.

Discussion

This study found a significant difference in the gender ratio among community correctional personnel surveyed. The proportion of males was 24.7%, while females made up 75.3%, indicating a notably lower percentage of males. In judicial practice, male offenders are often more serious and destructive, leading to a higher likelihood of being incarcerated for management. In contrast, female offenders typically have relatively lighter offenses (Liu, 2008), which results in many of them being managed within the community. This explains the considerable disparity in the ratios of male and female community correctional personnel. In the two-wave survey conducted, males scored slightly higher than females only in coping strategies (Y2) (29.62 points). However, their scores in gratitude (G1), gratitude (G2), perceived social support (LW1), perceived social support (LW2), and coping strategies (Y1) were all lower than those of females. This further supports the hypothesis

that females tend to exhibit higher levels of gratitude, stronger perceived social support, and more proactive coping strategies. As a result, they may be less inclined to engage in severely disruptive behaviors, leading to lighter criminal offenses.

This study found that gratitude can directly and significantly predict coping strategies, supporting Hypothesis 1. This aligns with previous research findings (Cai, 2023; Wang, Huang, & Zhang, 2017; Komase et al., 2023). In current judicial practice in China, the judicial department adheres to the principle of combining education and labor in the rehabilitation of incarcerated offenders. This includes ideological education, cultural education, and vocational training, along with organizing offenders to engage in certain productive labor. By integrating education and labor, the aim is to help offenders acquire essential vocational skills to prepare for a successful reintegration into society. For community correctional personnel, management by community and judicial personnel is relatively lenient, with regular assessments of these individuals' potential harm. If it is found that their threat to society is increasing, they are usually sent back to prison for management to prevent harmful behavior outside of incarceration. Overall, prisons focus more on providing legal education to offenders, while there is relatively less emphasis on ideological education for community correctional personnel (Wang, 2019). This suggests that relying solely on legal education and productive labor is insufficient to address the rising crime rates (Bai, 2022). Some prisons in China have incorporated gratitude education into their rehabilitation programs. Results showed that offenders who received gratitude education exhibited significant improvements in violent tendencies, criminal thinking, lack of empathy, and recidivism compared to those who did not receive such education (Yao, Huang, &

Chen, 2015; Chen & Lin, 2019). Furthermore, one might wonder why these individuals became criminals. If their sense of gratitude had been strong enough, would they have still broken the law? The likely answer is no (Zhang, 2015). Therefore, this study argues that in addition to regular management, community correctional personnel should receive enhanced gratitude education. This education would help them recognize the importance of being grateful to society and acknowledge their mistakes, increasing the likelihood that they will abandon criminal thoughts and not become habitual offenders. The benefits of this approach would not only fundamentally reduce the likelihood of reoffending among community correctional personnel but also lower the costs of social management.

This study examined the significant indirect effect of perceived social support between gratitude and coping strategies, supporting Hypothesis 2. Evolutionary Psychology Theory provides a framework for understanding human psychology and behavior, positing that many psychological traits and behavioral patterns have evolved through natural selection. Human psychology and behavior are results of adaptations to ancient environmental pressures, which continue to influence our behavior and psychological mechanisms today. Gratitude is considered an evolutionary adaptation that aids in the survival and reproduction of human societies, promoting social cooperation and resource sharing, thereby increasing the survival chances of individuals and groups (Wedberg et al., 2024). Research indicates that when individuals perceive support from their social support systems, they are more likely to experience feelings of gratitude. This support can take various forms, including emotional support, tangible assistance, information, and advice from family, friends, colleagues, communities, and organizations. Moreover, gratitude can encourage

individuals to seek and accept social support, as they recognize that the help and support they receive are the results of others' selfless contributions. At the same time, realizing the importance of social support may enhance feelings of gratitude, making individuals more appreciative of their social support networks (Guo, Liu, & Ma, 2023). When individuals perceive an abundance of social support, it boosts their self-efficacy, reducing the likelihood of intense stress reactions in response to life's pressures and challenges. They are more likely to adopt positive coping strategies (Zhang, 2020).

This study established a cross-lagged model based on data from two longitudinal surveys to analyze the mutual influences and pathways between gratitude, perceived social support, and coping strategies. Compared to previous studies using cross-sectional data, this research surveyed the same group of subjects at two longitudinal time points, employing statistical analyses of the longitudinal data to explore the temporal changes of the variables and the causal relationships between them. The analysis results from the cross-lagged model based on the tracking data indicate that gratitude (G1) does not significantly predict perceived social support (LW2), whereas perceived social support (LW1) significantly predicts gratitude (G2). Additionally, perceived social support (LW1) significantly predicts coping strategies (Y2), while coping strategies (Y1) do not significantly predict perceived social support (LW2). Undoubtedly, cross-lagged analysis expands upon simple cross-sectional analysis by allowing for the determination of causal relationships between different variables across multiple time points, enhancing the credibility of the relationships between variables (Ji et al., 2023). However, some scholars argue that cross-lagged analysis also has its drawbacks, such as not accounting for certain personal-level

associations, which may lead to biased estimates of causal relationships between variables (Hamaker, Kuiper, & Grasman, 2015). Random intercept cross-lagged analysis can effectively avoid such errors (Zyphur et al., 2020). Nonetheless, this view is not universally accepted; some critics argue that random intercept cross-lagged analysis is based on the assumption that individual differences are completely stable, attributing differences among individuals to random intercept factors (Orth et al., 2021). Furthermore, the individual-level effects estimated by random intercept cross-lagged analysis are based on scores that “capture only temporary fluctuations around individual means,” which may not adequately address the underlying causes of differences among individuals (Ludtke & Robitzsch, 2021; Asendorpf, 2021). This study acknowledges that these viewpoints each have their merit. Future research should consider the strengths and weaknesses of both methods and discuss the findings using both approaches, as this could lead to more convincing conclusions.

Limitations and Implications

This study has certain limitations. Firstly, although our research involved two waves of longitudinal data collection, the time interval between the two surveys was not long enough, which may affect the cross-lagged effects between variables. Future research could adopt a longer follow-up design to better reveal the relationships between gratitude, perceived social support, and coping strategies. Secondly, by constructing structural equation models with the two waves of longitudinal data, we validated the indirect effect of perceived social support on the relationship between gratitude and coping strategies, and preliminarily validated the stability of the relationships between variables at

different time points. However, a limitation of this study is that the participants are community-corrected offenders, and it remains to be further verified whether the findings are applicable to other populations. Future research may expand the sample to include other populations.

Despite these limitations, we have made new progress based on previous research. Firstly, to the best of my knowledge, there has been relatively little research on gratitude and coping strategies among offenders, a group known for their destructive behaviors. This study enhances our understanding of gratitude and coping strategies within this population. Secondly, building on the work of earlier researchers, we applied the Broaden-and-Build Theory of Positive Emotions and Social Exchange Theory in our empirical research.

Conclusion

Gratitude not only significantly predicts coping strategies but also significantly predicts coping strategies through perceived social support. Based on these findings, we recommend strengthening gratitude education for community correctional personnel, fostering their awareness of gratitude. This can help them better understand and appreciate the support and assistance they receive from others, thereby enhancing their sense of social responsibility and mental health.

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