

Other-Oriented Empathetic Concern as the Underlying Factor of Extrinsic Emotion Regulation Motives and Its Positive Application for Social Well-Being

Yanhua Zhao¹, Min Liao¹, Jiahui Niu¹, Lili Wang¹, Jiandong Zhang²

¹Department of Psychology, Faculty of Education, Henan University, Jinming Campus, Kaifeng, People's Republic of China; ²Department of Educational Sciences, Faculty of Education, Henan University, Jinming Campus, Kaifeng, People's Republic of China

Correspondence: Jiandong Zhang, Department of Educational Sciences, Faculty of Education, Henan University, Jinming Campus, Kaifeng, 475001, People's Republic of China, Tel +86 1833 7192 620, Email zhangjd111@126.com

Purpose: In recent years, research on interpersonal emotion regulation has garnered increasing attention. Extrinsic emotion regulation (EER) or the regulation of others' emotions is associated with individual personal relationships and mental health outcomes. However, investigations into why people engage in extrinsic emotion regulation are relatively rare. The current study aimed to identify the underlying factor structure of the motives of extrinsic emotion regulation, based on the Extrinsic Emotion Regulation Motives Scale (EERMS), to examine how these factors related to people's moral identity and social relationships during the COVID-19 pandemic.

Participants and Methods: The participants of this study were 464 adults (73.1% females) from China who completed an online survey based on EERMS and other related measures. An exploratory factor analysis (EFA) was utilized to examine the underlying structure of EER motives followed by a bifactor EFA (bi-EFA).

Results: Analyses revealed that the bi-EFA model, with an overarching factor (other-oriented empathetic concern) and three specific factors (self-orientation, reciprocation, and obligation), was best applied to the data. These factors were differently associated with social well-being indicators (moral self-identity, peer relationship quality, and perceived social support).

Conclusion: This preliminary study supports the use of a hierarchical perspective to understand the different dimensions of motives for extrinsic emotion regulation.

Keywords: other-oriented empathetic concern, extrinsic emotion regulation motives, moral identity, peer relationship, social support

Introduction

The prevalence of depression and anxiety has been exacerbated by the lockdowns, isolation, and health threats resulting from the COVID-19 pandemic.¹⁻³ Throughout the pandemic, in response to these challenging circumstances, many individuals have engaged in emotional management processes, either for themselves or to assist others in regulating their emotions. On a global scale, nearly everyone has experienced interpersonal emotional support at various times, whether from family and friends, local community members, or even strangers encountered online. While numerous existing studies have underscored the significance of intrapersonal regulation of one's own emotions, it's important to recognize that individuals not only regulate their own emotions but also frequently endeavor to influence the emotions of those around them. A recent study showed that individuals attempt to help others regulate their emotions with more conscious effort than they put into the management of their own emotions.⁴ The process by which people attempt to regulate their own and others' emotions through social interaction is known as interpersonal emotional regulation or the social regulation of emotions.^{5,6}

The process model of interpersonal emotion regulation proposed by Zaki and Williams is currently the most systematic theoretical structure in the field.^{5,7} It divides interpersonal emotion regulation into intrinsic and extrinsic

regulation according to whether this regulates one's own or others' emotions. Intrinsic interpersonal emotion regulation (IER) refers to the regulatory process dominated by the regulation of one's own emotions in social interaction; the regulatory process dominated by the regulation of other people's emotions is called extrinsic IER. Most studies investigating interpersonal emotion regulation have focused on the intrinsic regulation aspect.^{8–11} Although people regulated others' emotions nearly twice as often as they turned to others to help with regulating their own emotions, there are fewer studies on extrinsic IER than on intrinsic IER.⁴ Nozaki and Mikolajczak developed an extended process model of extrinsic IER, which modeled how the extrinsic IER occurs and how individual differences in extrinsic IER abilities may arise.¹² Zaki integrates the study of empathy and prosocial behavior with interpersonal emotion regulation, pointing out that behaviors such as empathy, help, and support are characteristics shared by prosocial behavior and extrinsic IER.⁵ Both prosocial behavior and extrinsic IER aim to decrease the target's negative emotions, increase their positive emotions, and help the target achieve their goals. Extrinsic IER helps the regulation of other people's emotions and has been associated with crucial relationship and well-being outcomes.^{13,14}

Although we have found extrinsic IER to be useful, research that explores the reasons why people engage in extrinsic IER is still lacking. According to previous literature, people who engage in extrinsic IER are motivated by different goals, whether these are hedonic, non-hedonic (impression management motivation), selfish or prosocial.^{5,14–16} To assess the motives of extrinsic IER, Cloonan developed the Extrinsic Emotion Regulation Motive Scale.¹⁷ The EERMS consists of 28 items that describe regulation motives covering four higher-order goals: other-orientation to help reduce others' negative emotions; self-orientation to regulate others' emotions to benefit the self; obligation as a sense of responsibility to help others feel better; and reciprocation with receiving or expecting the same help from others. The factor correlations between other-orientation and reciprocation and between self-orientation and obligation were moderately positive, whereas other between-factor correlations were low or insignificant. The EERMS is a self-reporting tool that is simple to implement. However, these descriptions and factors of EERMS were originally identified based on responses from western-American participants. Thus, careful validation is essential before applying these elements in non-Western cultures.

Although research on cultural disparities in extrinsic emotion regulation is limited, prior studies have highlighted differences in intrinsic emotion regulation between Eastern and Western cultures.^{18–20} For instance, Western cultures tend to encourage open emotional expression as a means of social connection, while non-Western cultures often prioritize emotional suppression and the preservation of emotional harmony in social settings.^{21,22} In non-Western cultures valuing emotional control and emotional harmony, it is anticipated that regulators may use gentler and indirect methods to influence other's emotions.²³ These approaches may help preserve the "face" of individuals receiving extrinsic emotion regulation and maintain interpersonal harmony while influencing others' emotional states.²⁴ These cultural factors may have profoundly influenced people's motivations for engaging in extrinsic emotion regulation. Nevertheless, we maintain that, regardless of cultural background, there are common motivations underlying extrinsic emotion regulation behaviors. Exploring these shared motivations alongside cultural distinctions in extrinsic emotion regulation will provide valuable insights into the diverse applications of emotion regulation in different cultural contexts.

Previous studies have shown that extrinsic IER significantly correlates with individual differences and results in positive implications for social relationships.^{14,25–29} To test the convergent validity of the EERMS, we investigated the associations of the motives of extrinsic IER with several well-being indicators (moral self-identity, peer relationships, and perceived social support). Moral identity has been described as the degree to which one holds moral concerns as important to one's identity.³⁰ This may increase prosocial intentions and is especially effective in accounting for prosocial behaviors.^{31,32} Regarding the emotional aspect, moral identity (both internalization and symbolization) was positively related to emotional prosocial behaviors among adolescents.³³ Moreover, previous studies have found that extrinsic IER could predict perceived couple's relationship, quality of friendship over time, female friends' psychopathology.^{15,34,35} Given the importance of extrinsic IER in social domain, we thus hypothesized that other-oriented motives of extrinsic IER would report higher moral identity, peer relationships and perceived social support.

The Present Study

Existing literature has shown notable cultural contingencies in the norms of regulating and expressing emotion. Although we would like to adapt the EERMS to a different culture, we did not expect that the original factor structure would

explain the current data best. We took an exploratory factor analysis (EFA) approach to understand the construct of extrinsic IER motives by specifying a series of EFA models. Moreover, as proposed by Zaki, the other-oriented concern including the element of empathy may be a superordinate prosocial response that motivates people to engage in the improvement of others' welfare, which includes the regulation of other people's emotions.⁵ To check this proposition, a bifactor exploratory factor analysis (bi-EFA) model with one general factor and several specific factors was specified. As people are more conscientious when regulating others' emotions, and because other-oriented empathetic concern may be a common reason as to why people engage in this regulation, we hypothesized that a bifactor model would yield more interpretable results, relative to a multidimensional EFA structure without a general factor.^{4,5}

Participants and Methods

Participants and Procedure

A total of 464 young adults (73.1% females, 95.5% Han-Chinese) aged 18–54 years old ($M = 21.67$, $SD = 2.09$) participated in this online survey. Participants were recruited from college classes, social media, and online forums. It was found that 5.6% had a “low” social economic status, 18.5% “below middle”, 35.6% “middle level”, 4.3% “above middle”, and 0.2% “high”. Of these participants, 166 subjects (59.6% females) answered a short questionnaire containing the EERMS and demographic questions, and 298 subjects (80.2% females) answered all measures. Participants were first introduced to the purpose of the survey and the online consent letter and then were required to answer all the questions and submit their responses. After their submission, participants received an electronically generated red envelope with varying amounts of electronic money for online payments and shopping. The protocol and procedures used in this study were reviewed and approved by the local University Review Committee.

Measures

Extrinsic Emotion Regulation Motives Scale

The 28-item EERMS first underwent a translation and back-translation process to develop a Chinese version.¹⁷ The scale has four specific domains: other-orientated motives, self-orientated motives, reciprocal motives, and obligated motives. It was rated on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). The Cronbach's α coefficient for the total scale was 0.94.

Moral Self-Identity Scale

The Chinese version of the Moral Self-identity Scale was used to measure the self-importance of moral identity.³⁶ It includes two dimensions: internalization and symbolization. The scale was rated on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). The Cronbach's α coefficient for the scale was 0.73 for internalization and 0.74 for symbolization.

Peer Relationship Scale

The 4-item Peer Relationship Scale was adapted to assess the positive peer relationship of young adults.³⁷ The scale was rated on a 5-point scale ranging from 1 (extremely disagree) to 5 (completely agree). The structure of this scale was estimated through confirmatory factor analysis (CFA). The one-factor CFA model resulted in a good fit: $\chi^2(df) = 4.902(2)$, $p < 0.001$, CFI = 0.989, RMSEA = 0.070, SRMR = 0.019. The Cronbach's α coefficient was 0.84.

Perceived Social Support Scale

The Chinese version of Perceived Social Support Scale was used to assess perceptions of support from friends, family, and significant others.³⁸ This 12-item scale includes three dimensions: friends' support, family support, and significant other support, which was rated on a 7-point scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The Cronbach's α coefficient was 0.93 for the total scale, 0.91 for friend support, 0.88 for family support, and 0.87 for significant other support.

Data Analysis

We first examined the originally designed four-factor CFA model with orthogonal rotation. Second, we ran several EFA models with oblique rotation to ascertain the number of factors to retain. Following this, we examined exploratory bifactor models with one general factor (bigeomin rotational rotation) and three (S-1) specific factors according to the suggestion from Heinrich et al³⁹ All models were conducted in Mplus 8.3 using the robust maximum likelihood (MLR) estimator which did not assume the multivariate normality of data. Items with significant factor loadings of ≥ 0.30 were considered relevant in all models. All models were considered acceptable when they achieved the following model fit cut-offs: a comparative fit index (CFI) ≥ 0.90 , a root mean square error of approximation (RMSEA) ≤ 0.10 , and a standardized root mean square residual (SRMR) ≤ 0.08 .⁴⁰ For model comparisons, a change ≥ 0.010 in CFI supplemented by a change of ≥ 0.015 in RMSEA would be viewed as a significant change in the model fit.⁴¹

Results

Factor Analyses

CFA Model Results

We estimated a CFA model based on the originally designed four factors, resulted in a poor model fit, $\chi^2(df) = 1680.32$ (344), $p < 0.001$, CFI = 0.809, TLI = 0.790, RMSEA = 0.091 (0.087, 0.096), SRMR = 0.070. The bivariate correlations among the four factors were high ($r_s = 0.62-0.84$, $M_r = 0.73$), implying a hierarchical factor underlying the different dimensions.

EFA Models

We then performed an EFA by estimating the model fit of one to four factors (see Table 1). The four-factor EFA model outperformed the one-, two-, and three-factor models and showed the best fit: $\chi^2(df) = 778.57$ (272), $p < 0.001$, CFI = 0.907, RMSEA = 0.063 (0.058, 0.069), SRMR = 0.034. However, after screening the items, we found that there were many cross-loaded items (with factor loadings above 0.30) that were explained by more than one factor (see Table 2). The correlation among these latent factors was also high, indicating a possible general factor underlying these items.

Bi-EFA Models

Bi-EFA models with one to four factors were first estimated with bigeomin orthogonal rotation. The model with one general factor and three (S-1) specific factors best fit the data: $\chi^2(df) = 904.59$ (272), $p < 0.001$, CFI = 0.909, RMSEA = 0.071 (0.066, 0.076), SRMR = 0.034. However, we found that Item 27 did not load on the general factor or any specific factor (with factor loadings below 0.30), and Item 27 was thus deleted. Bi-EFA models were reexamined with the remained 27 items (see Table 1). Among these models, the bi-EFA model with one general factor and three specific factors (M3) outperformed M1 and M2 and fit the data best. Thus, M3 (see Figure 1) was retained as the best-fit model for the current data.

Table 2 presents the factor loadings for M3. All items were significantly loaded on the general factor, with loadings ranging from 0.47 to 0.76 to indicate a strong general factor. The first specific factor self-orientation included four items (Item 3, Item 12, Item 21, and Item 25) from the originally designed self-oriented dimension. The second specific factor obligation comprised of three items (Item 4, Item 6, and Item 15) and the third specific factor reciprocation contained three items (Item 9, Item 10, and Item 11). The remaining items substantially loaded on only the general factor,

Table 1 Model Fit Indices for Bifactor Exploratory Factor Analysis

Model (N = 464)	S-B χ^2 (df)	p	CFI	RMSEA [90% CI]	SRMR
M1 One general and one specific factor	1506.02(298)	<0.001	0.823	0.093 [0.089, 0.098]	0.055
M2 One general and two specific factors	1137.52(273)	<0.001	0.873	0.083 [0.078, 0.088]	0.042
M3 One general and three specific factors	847.43(249)	<0.001	0.912	0.072 [0.067, 0.077]	0.034

Abbreviations: N, number of participants; S-B χ^2 , Satorra-Bentler scaled Chi-square; df, degree of freedom; p, p value; CFI, comparative fit index; RMSEA, root mean square error of approximation; 90% CI, 90% confidence interval for the RMSEA; SRMR, standardized root mean square residual.

Table 2 Standardized Factor Loadings for the Four-Factor EFA Model and the Best-Fit Bi-EFA Model

Item	EFA (N=464)				Bi-EFA (N=464)			
	1	2	3	4	G-Factor	Self-Oriented	Obligation	Reciprocation
1. I do not like seeing others feel distressed.	0.28	0.01	0.21	0.28	0.55^a	-0.05	0.21	0.11
2. Their distress is making me uncomfortable	0.03	0.23	0.29	0.31	0.53	0.21	0.20	0.18
5. Helping others with their problems makes me feel good.	0.30	-0.04	0.43	0.24	0.66	-0.11	0.22	0.28
7. Their emotions might negatively affect others around them.	0.25	0.33	0.21	0.08	0.63	0.15	-0.03	0.13
8. Helping others is an important part of who I am.	0.43	-0.02	0.22	0.16	0.62	-0.15	0.13	0.12
13. It makes my life easier when they are not upset.	0.41	0.35	0.05	0.14	0.72	0.13	0.00	-0.01
14. I always try to make others feel better when they are feeling down.	0.55	0.02	0.14	0.25	0.74	-0.13	0.16	0.04
16. I knew they would help me if I were in their situation.	0.65	-0.02	0.05	0.02	0.64	-0.25	-0.02	-0.01
17. I love and care about them.	0.87	-0.07	-0.07	0.00	0.72	-0.36	-0.04	-0.12
18. I want those around me to be happy.	0.85	0.03	-0.01	-0.09	0.76	-0.32	-0.13	-0.06
19. I do not want to be around people experiencing negative emotions.	0.47	0.39	0.07	-0.26	0.60	0.03	-0.32	0.04
20. My life is easier when the people around me are not upset.	0.49	0.53	-0.04	-0.21	0.67	0.13	-0.32	-0.05
22. I feel like it is the right thing to do.	0.50	0.08	0.17	0.04	0.65	-0.13	-0.01	0.09
23. It is in my best interest to reduce their negative emotions.	0.28	0.49	0.00	0.06	0.62	0.25	-0.09	-0.03
24. I consider myself to be an empathetic and compassionate person.	0.56	0.07	0.12	0.09	0.69	-0.15	0.03	0.04
26. Their feelings are important to me.	0.38	0.23	-0.10	0.32	0.62	0.10	0.17	-0.13
28. My relationship to them makes me feel obligated to help them.	0.56	0.00	0.03	0.21	0.64	-0.17	0.16	-0.04
3. When other people are upset, it is harder for me to do what I want to do.	-0.04	0.32	0.07	0.46	0.47	0.35	0.29	0.01
12. Their emotions make me feel bad too.	0.02	0.52	0.10	0.24	0.56	0.43	0.04	0.06
21. Their emotions have a negative impact on me.	0.08	0.79	-0.02	-0.02	0.57	0.51	-0.23	-0.02
25. Their negative emotions stress me out.	-0.08	0.77	-0.07	0.17	0.48	0.60	-0.05	-0.06
4. I feel obligated to make others feel better.	0.17	0.02	0.01	0.63	0.51	0.10	0.53	-0.07
6. I genuinely care about the well-being of others.	0.41	-0.01	0.07	0.43	0.65	-0.06	0.34	-0.02
15. I felt responsible for making them feel better.	0.39	0.03	-0.04	0.50	0.62	0.00	0.37	-0.11
9. I would want someone to do the same for me in that situation.	-0.01	0.12	0.83	0.01	0.62	0.05	0.00	0.63
10. I would hope they would make me feel better in the future.	0.16	0.14	0.65	-0.02	0.66	0.00	-0.05	0.48
11. They have helped me in the past so I should help them now.	0.45	-0.06	0.44	-0.10	0.61	-0.26	-0.07	0.30
27. I do not want them to take out their negative feelings on me.	-0.03	0.56	0.10	-0.23				

Note: ^aThe factor loadings greater than 0.30 were in bold.

Abbreviations: EFA, exploratory factor analysis; N, number of participants; Bi-EFA, bifactor exploratory factor analysis; G-factor, general factor.

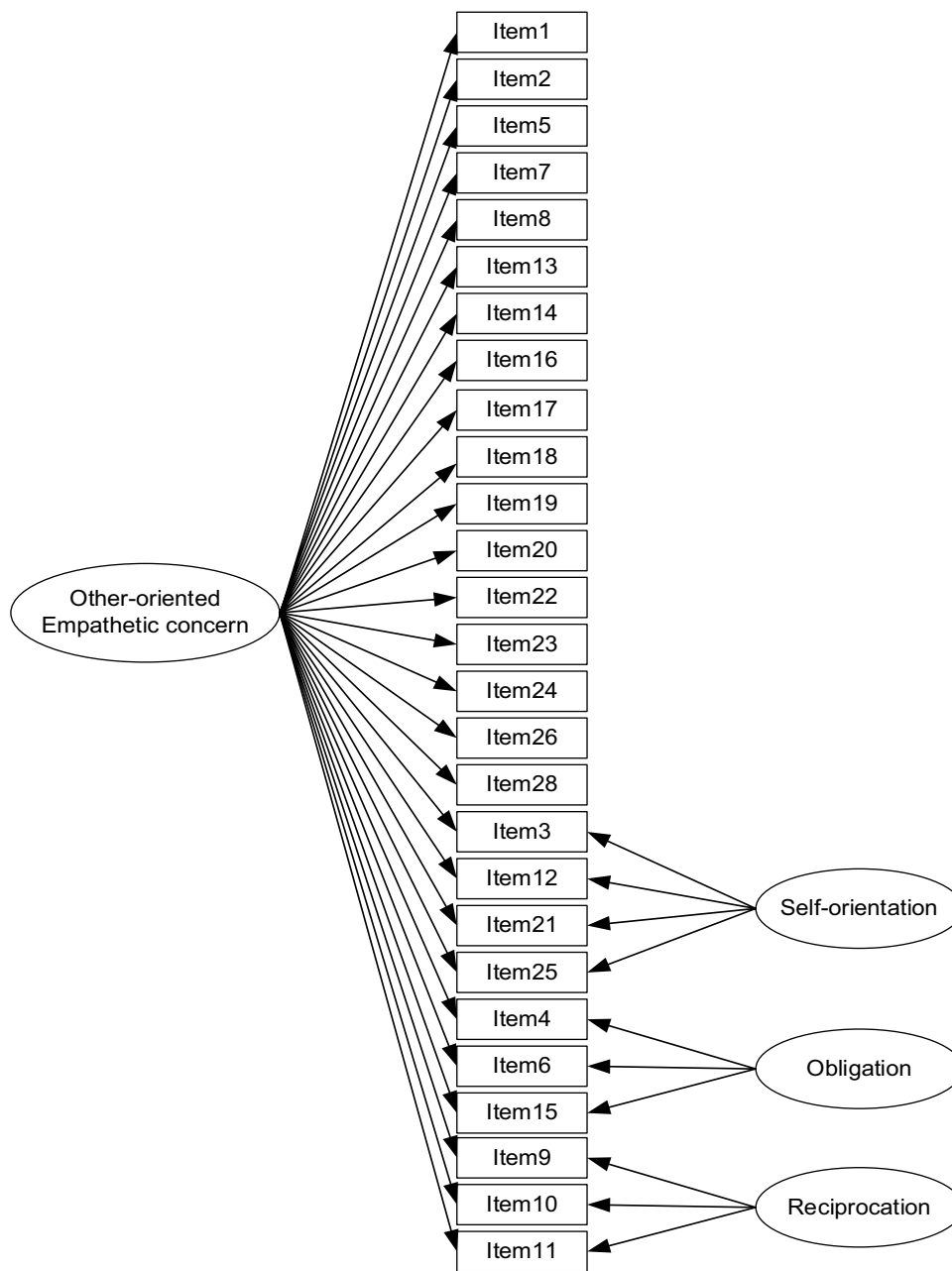


Figure 1 The best-fit bifactor exploratory factor analysis model.

supporting a hierarchical factor behind these motives. The Cronbach’s α coefficient was 0.94 for the total scale, 0.77 for self-orientation, 0.77 for obligation, and 0.83 for reciprocation.

Associations with Social Well-Being

Table 3 shows the correlations between the total EERMS and moral self-identity, peer relationships, and perceived social support from friends, family, and others. Consistent with our hypotheses, the overall EERMS score showed moderate to high positive correlations with moral self-identity and relationship indicators. The three specific dimensions of EERMS also showed positive correlations with moral self-identity, peer relationship, and perceived social support, aside for self-orientation, which was found to only correlate with moral identity.

Table 3 Means, Standard Deviation, and Correlation Between Factors of EERMS and Moral Identity, Peer Relationship, and Perceived Social Support (N=298)

Factors	M	SD	Total EERMS	SO	OB	INT	SYB	PR	PSS
1. Total EERMS	120.54	15.82	1			0.47**	0.38**	0.43**	0.33**
2. Self-oriented	3.98	0.87	0.71**	1		0.16**	0.14*	0.05	0.05
3. Obligation	4.03	0.76	0.72**	0.44**	1	0.30**	0.34**	0.25**	0.21**
4. Reciprocation	4.91	0.91	0.68**	0.33**	0.29**	0.37**	0.22**	0.32**	0.28**

Note: ** $p < 0.01$.

Abbreviations: EERMS, the Extrinsic Emotion Regulation Motives Scale; N, number of participants; M, mean; SD, standard deviation; SO, self-oriented; OB, obligation; INT, internalization; SYB, symbolization; PR, peer relationship; PSS, perceived social support.

Discussion

Using an exploratory factor analysis approach and based on the EERMS, the study investigated the structure of the motives of extrinsic emotion regulation. The current findings provide further insights into the conceptualization of extrinsic IER motives and to understand people's extrinsic IER behaviors during COVID-19 pandemic. Results indicated that a bi-EFA model with one general factor and three specific factors best fit the data, consistent with Zaki's statement that the common motive, namely other-oriented empathetic concern, may be the dominant motive that motivates people to regulate others' emotions.⁵ Moreover, previous studies on the relationship between interpersonal emotion regulation and well-being primarily focused on intrinsic emotion regulation,^{10,11,42,43} whereas this study explores the correlation between extrinsic emotion regulation and young adults' social well-being.

To investigate the factor structure of EERMS, a series of EFA models were estimated to reveal that many items were cross loaded on more than one latent factor. The bi-EFA modeling indicated that one general and three specific factors best fit the current data. In this model, the general factor, namely other-oriented empathetic concern, was represented by all items. Most items were loaded on the general empathetic concern factor only. Results indicated that the variation in an EERMS total score is mostly attributable to a general factor and that variances in self-oriented, reciprocation, or obligation motives may still be found between individuals. These findings are unique compared to prior studies. The reason could be that during the COVID-19 pandemic, a common emergency, people consistently experienced urgency and insecurity, which potentially increased cooperation and pro-social inclinations in individuals.^{44,45} Additionally, due to pandemic-induced lockdown measures, people spent more time engaging in online activities. By breaking down temporal and spatial barriers, online pro-social behaviors incurred lower costs compared to traditional pro-social support, likely protecting individuals' intuition to assist others.⁴⁶ Moreover, inconsistent with the previous study,¹⁷ reciprocation was significantly correlated with self-oriented motives. This is understandable in a culture with a tradition of reciprocity.⁴⁷ When people attempt to regulate others' emotions, they naturally consider the possible benefit of such attempts, including making themselves feel better both in the present and future.⁴⁸

We found that the general factor of other-oriented empathetic concern and three specific factors significantly correlated with moral identity, and the strongest association was found for the general factor. Previous studies have presented similar links between emotional social support and moral identity.^{25,30,32} As previous studies found, the general factor of other-oriented empathetic concern and two specific factors (obligation and reciprocation) significantly correlated with peer relationship and perceived social support.^{33,34,49} However, the self-oriented motives were not associated with peer relationships or perceived social support. This is reasonable, as when people engage in extrinsic IER to achieve their self-benefit goals, the regulator-benefit goals may be well understood by targets. The target would be more likely to see the regulator as unsupportive and unhelpful, which in turn decreases the social connection between the individuals.

The results of this study have several potential implications. Given the relatively scarce research on extrinsic emotion regulation compared to intrinsic emotion regulation, our findings suggest that the EERMS may be an ideal research and practical tool with which to assess the motives of extrinsic emotion regulation in diverse cultures. This study contributes to our understanding of the underlying factors driving extrinsic emotional support behaviors, which holds great value for psychologists, therapists, and counselors seeking insight into the motivations behind these altruistic behaviors. Moreover, the study demonstrates that these extrinsic emotion regulation motives are interconnected with moral identity and social

relationships, particularly in the context of the COVID-19 pandemic. These insights can be practically applied in therapeutic settings, assisting in the design of targeted programs aimed at enhancing interpersonal emotion regulation ability and social emotional well-being.

This study has following limitations. Firstly, the collection of data occurred during the pandemic and lockdown policies differed for participants from different locations, which may affect participants' responses. For example, participants in regions with lockdowns might have had different emotional experiences and responses compared to those in regions with no restrictions.⁵⁰ Secondly, Participants' responses could also vary before and after the implementation and removal of these restrictions.^{51,52} Thirdly, we did not distinguish the individuals' COVID-19 infection statuses when they responded to the questionnaire.⁵³ Participants' experiences with infection may have had the potential to influence the results of the current research. Finally, this preliminary study lacks a confirmation for the bifactor model, and future studies are needed to fully replicate the current study using large and diverse samples. In summary, the current findings should be explained by considering the impact of the COVID-19 pandemic.

Conclusion

In conclusion, this study contributes to our knowledge in understanding the essence of multiple motives behind regulating other people's emotions. We hope to ignite researchers' and practitioners' interest in the investigation of extrinsic emotion regulation. Future studies from other Western and non-Western cultures would be useful for further examining the construct validity of the EERMS and its usefulness in diverse cultures.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Approval

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Medical and Scientific Research Ethics Committee of Henan University (No.: HUSOM-2018-371).

Consent for Publication

Informed consent was obtained from all individual participants included in the study.

Acknowledgments

The authors acknowledge the people who participated in this study by filling in the questionnaires and the support from Henan Provincial Philosophy and Social Science Planning Project (grant number 2021BJY010).

Funding

This study was funded by the National Natural Science Foundation of China (grant number 72104070).

Disclosure

The authors report no conflicts of interest in this work.

References

1. Daniali H, Martinussen M, Flaten MA. A global meta-analysis of depression, anxiety, and stress before and during COVID-19. *Health Psychol.* 2023;42(2):124–138. doi:10.1037/hea0001259
2. Agrawal S, Dayama SO, Galhotra A. COVID-19 mental health challenges: a scoping review. *J Educ Health Promot.* 2022;11:375. doi:10.4103/jehp.jehp_426_22
3. Zhang Y, Bao X, Yan J, Miao H, Guo C. Anxiety and depression in Chinese students during the COVID-19 pandemic: a meta-analysis. *Front Public Health.* 2021;9:697642. doi:10.3389/fpubh.2021.697642
4. Tran A, Greenaway K, Kostopoulos J, Kalokerinos E. What does interpersonal emotion regulation look like in everyday life?; 2022.
5. Zaki J. Integrating empathy and interpersonal emotion regulation. *Ann Rev Psychol.* 2020;71:517–540. doi:10.1146/annurev-psych-010419-050830

6. Reeck C, Ames DR, Ochsner KN. The social regulation of emotion: an integrative, cross-disciplinary model. *Trends Cogn Sci*. 2016;20(1):47–63. doi:10.1016/j.tics.2015.09.003
7. Zaki J, Williams WC. Interpersonal emotion regulation. *Emotion*. 2013;13(2):803–810. doi:10.1037/a0033839
8. Hofmann SG, Carpenter JK, Curtiss J. Interpersonal emotion regulation questionnaire (IERQ): scale development and psychometric characteristics. *Cognit Ther Res*. 2016;40(3):341–356. doi:10.1007/s10608-016-9756-2
9. Dixon-Gordon KL, Haliczzer LA, Conkey LC, Whalen DJ. Difficulties in interpersonal emotion regulation: initial development and validation of a self-report measure. *J Psychopathol Behav Assess*. 2018;40(3):528–549. doi:10.1007/s10862-018-9647-9
10. Williams WC, Morelli SA, Ong DC, Zaki J. Interpersonal emotion regulation: implications for affiliation, perceived support, relationships, and well-being. *J Pers Soc Psychol*. 2018;115(2):224–254. doi:10.1037/pspi0000132
11. Messina I, Spataro P, Grecucci A, Marogna C, Dixon-Gordon KL. Difficulties in interpersonal regulation of emotions (DIRE) questionnaire: psychometric properties of the Italian version and associations with psychopathological symptoms. *J Psychopathol Behav Assess*. 2022;44(4):1126–1134. doi:10.1007/s10862-022-09992-6
12. Nozaki Y, Mikolajczak M. Extrinsic emotion regulation. *Emotion*. 2020;20(1):10–15. doi:10.1037/emo0000636
13. Niven K, Holman D, Totterdell P. How to win friendship and trust by influencing people's feelings: an investigation of interpersonal affect regulation and the quality of relationships. *Hum Relat*. 2012;65(6):777–805. doi:10.1177/0018726712439909
14. Springstein T, Hamerling-Potts K, Landa I, English T. Adult attachment and interpersonal emotion regulation motives in daily life. *Emotion*. 2023;23(5):1281–1293. doi:10.1037/emo0001169
15. Horn AB, Samson AC, Debrot A, Perrez M. Positive humor in couples as interpersonal emotion regulation: a dyadic study in everyday life on the mediating role of psychological intimacy. *J Soc Pers Relat*. 2019;36(8):2376–2396. doi:10.1177/0265407518788197
16. Netzer L, Kleef GAV, Tamir M. Interpersonal instrumental emotion regulation. *J Exp Soc Psychol*. 2015;58:124–135. doi:10.1016/j.jesp.2015.01.006
17. Cloonan S. "It's Part of My Responsibility to Help": developing a Measure of Motivations for Extrinsic Emotion Regulation [Honor Theses]. UR Scholarship Repository; 2019.
18. Ford B, Mauss I. The paradoxical effects of pursuing positive emotion. In: Gruber J, Moskowitz J, editors. *Positive Emotion: Integrating the Light Sides and Dark Sides*. Oxford University Press; 2013:363–382.
19. Qu Y, Telzer EH. Cultural differences and similarities in beliefs, practices, and neural mechanisms of emotion regulation. *Cultur Divers Ethnic Minor Psychol*. 2017;23:36–44. doi:10.1037/cdp0000112
20. Teuber Z, Nussbeck FW, Wild E. School burnout among Chinese high school students: the role of teacher-student relationships and personal resources. *Educ Psychol*. 2021;41(8):985–1002. doi:10.1080/01443410.2021.1917521
21. Frijda NH, Mesquita B. The social roles and functions of emotions. In: Markus HR, Kitayama S, editors. *Emotion and Culture*. New York: American Psychological Association; 1994:51–87.
22. Deng X, An S, Cheng C. Cultural differences in the implicit and explicit attitudes toward emotion regulation. *Pers Individ Dif*. 2019;149:220–222. doi:10.1016/j.paid.2019.05.057
23. Taylor SE, Welch WT, Kim HS, Sherman DK. Cultural differences in the impact of social support on psychological and biological stress responses. *Psychol Sci*. 2007;18(9):831–837. doi:10.1111/j.1467-9280.2007.01987.x
24. Liu Y, Yue S, Hu X, et al. Associations between feelings/behaviors during COVID-19 pandemic lockdown and depression/anxiety after lockdown in a sample of Chinese children and adolescents. *J Affect Disord*. 2021;284:98–103. doi:10.1016/j.jad.2021.02.001
25. Niven K, Macdonald I, Holman D. You spin me right round: cross-relationship variability in interpersonal emotion regulation. *Front Psychol*. 2012;3:394. doi:10.3389/fpsyg.2012.00394
26. Coo S, Garcia MI, Prieto F, Medina F. The role of interpersonal emotional regulation on maternal mental health. *J Reprod Infant Psychol*. 2022;40(1):3–21. doi:10.1080/02646838.2020.1825657
27. Kinkead A, Riquelme CS. Emotional interdependence: the key to studying extrinsic emotion regulation. *Psicologia*. 2022;35(1):35. doi:10.1080/02646838.2020.1825657
28. Nozaki Y, Mikolajczak M. Effectiveness of extrinsic emotion regulation strategies in text-based online communication. *Emotion*. 2023;23(6):1714–1725. doi:10.1037/emo0001186
29. Tanna VJ, MacCann C. I know you so I will regulate you: closeness but not target's emotion type affects all stages of extrinsic emotion regulation. *Emotion*. 2023;23(5):1501–1505. doi:10.1037/emo0001073
30. Hardy SA, Carlo G. Moral identity: what is it, how does it develop, and is it linked to moral action? *Child Dev Perspect*. 2011;5(3):212–218. doi:10.1111/j.1750-8606.2011.00189.x
31. Rullo M, Lalot F, Heering MS. Moral identity, moral self-efficacy, and moral elevation: a sequential mediation model predicting moral intentions and behavior. *J Posit Psychol*. 2022;17(4):545–560. doi:10.1080/17439760.2021.1871942
32. Patrick RB, Bodine JA, Gibbs JC, Basinger KS. What accounts for prosocial behavior? Roles of moral identity, moral judgment, and self-efficacy beliefs. *J Genet Psychol*. 2018;179(5):231–245. doi:10.1080/00221325.2018.1491472
33. Fatima S, Dawood S, Munir M. Parenting styles, moral identity and prosocial behaviors in adolescents. *Curr Psychol*. 2020;41(2):902–910. doi:10.1007/s12144-020-00609-3
34. Son D, Padilla-Walker LM. Happy helpers: a multidimensional and mixed-method approach to prosocial behavior and its effects on friendship quality, mental health, and well-being during adolescence. *J Happiness Stud*. 2020;21(5):1705–1723. doi:10.1007/s10902-019-00154-2
35. Christensen KA, Dyk ISV, Nelson SV, Vasey WM. Using multilevel modeling to characterize interpersonal emotion regulation strategies and psychopathology in female friends. *Pers Individ Dif*. 2020;165:110–156. doi:10.1016/j.paid.2020.110156
36. Wan Z, Yang S. The revision of moral self-identity scale for Chinese adolescents. *Sci Soc Psychol*. 2008;23(5):41–45.
37. Anderson-Butcher D, Amorose AJ, Iachini A, Ball A. *Community and Youth Collaborative Institute School Experience Surveys: Peer Relationship Scale in Middle & High School*. College of Social Work: The Ohio State University; 2013.
38. Jiang QJ. The perceived social support scale. *Chin J Behav Med Sci*. 2001;10(10):41–43.
39. Heinrich M, Zagorscak P, Eid M, Knaevelsrud C. Giving G a meaning: an application of the Bifactor-(S-1) approach to realize a more symptom-oriented modeling of the Beck Depression Inventory–II. *Assessment*. 2020;27(7):1429–1447. doi:10.1177/1073191118803738

40. L-t H, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Modeling*. 1999;6(1):1–55. doi:10.1080/10705519909540118
41. Chen FF. Sensitivity of goodness of fit indexes to lack of measurement invariance. *Struct Equ Modeling*. 2007;14(3):464–504. doi:10.1080/10705510701301834
42. Chan S, Rawana JS. Examining the associations between interpersonal emotion regulation and psychosocial adjustment in emerging adulthood. *Cognit Ther Res*. 2021;45(4):652–662. doi:10.1007/s10608-020-10185-2
43. Messina I, Maniglio R, Spataro P. Attachment insecurity and depression: the mediating role of interpersonal emotion regulation. *Cognit Ther Res*. 2023;1–11. doi:10.1007/s10608-023-10386-5
44. Moussaïd M, Trauernicht M. Patterns of cooperation during collective emergencies in the help-or-escape social dilemma. *Sci Rep*. 2016;6(1):33417. doi:10.1038/srep33417
45. Drury J, Cocking C, Reicher S. Everyone for themselves? A comparative study of crowd solidarity among emergency survivors. *Br J Soc Psychol*. 2009;48(3):487–506. doi:10.1348/014466608X357893
46. Bode NWF, Miller J, O’Gorman R, Codling EA. Increased costs reduce reciprocal helping behavior of humans in a virtual evacuation experiment. *Sci Rep*. 2015;5(1):15896. doi:10.1038/srep15896
47. Barbalet J. *The Theory of Guanxi and Chinese Society*. Oxford University Press; 2021.
48. Cohen N, Arbel R. On the benefits and costs of extrinsic emotion regulation to the provider: toward a neurobehavioral model. *Cortex*. 2020;130:1–15. doi:10.1016/j.cortex.2020.05.011
49. Bayar Y, Sayıl M, Tepe YK. The relationship of autonomous motivation to prosocial behavior: mediator role of prosocial friends and friendship quality among Turkish adolescents. *Res Educ Psychol*. 2020;4(1):98–113.
50. Santi G, Quartiroli A, Costa S, et al. The impact of the COVID-19 lockdown on Coaches’ perception of stress and emotion regulation strategies. *Front Psychol*. 2021;11:601743. doi:10.3389/fpsyg.2020.601743
51. Liu J, Jiang XZ. A comparative study of face culture between China and America. *9th International Conference on Education and Social Science*; Wuhan, China. UK: Francis Academic Press; 2019.
52. Sachser C, Olaru G, Pfeiffer E, et al. The immediate impact of lockdown measures on mental health and couples’ relationships during the COVID-19 pandemic-results of a representative population survey in Germany. *Soc Sci Med*. 2021;278:113954. doi:10.1016/j.socscimed.2021.113954
53. Dillard AJ, Meier BP. Getting COVID-19: anticipated negative emotions are worse than experienced negative emotions. *Soc Sci Med*. 2023;320:115723. doi:10.1016/j.socscimed.2023.115723

Psychology Research and Behavior Management

Dovepress

Publish your work in this journal

Psychology Research and Behavior Management is an international, peer-reviewed, open access journal focusing on the science of psychology and its application in behavior management to develop improved outcomes in the clinical, educational, sports and business arenas. Specific topics covered in the journal include: Neuroscience, memory and decision making; Behavior modification and management; Clinical applications; Business and sports performance management; Social and developmental studies; Animal studies. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/psychology-research-and-behavior-management-journal>