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Research paper

The association between insecurity and subjective well-being among youth during the COVID-19 outbreak: A moderated mediation model

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ABSTRACT

Background: Sudden and unpredictable changes caused by the COVID-19 pandemic have profoundly threatened the psychological well-being and increased insecurity among adolescents worldwide. At a critical developmental stage, the well-being of the youth is more vulnerable to adverse environments. This study constructed a moderated mediation model to explore the buffering factors between insecurity and subjective well-being of the youth during the pandemic.

Methods: During the COVID-19 outbreak in June 2020, data of 5,503 Chinese youth (15–29 years old) were collected via an online questionnaire. Subjective well-being, insecurity, self-control, and hope were measured, and the moderated mediation model was analyzed.

Results: Findings from this study showed that with the mediating effect of self-control, insecurity negatively predicted subjective well-being, and hope moderated the association between insecurity and self-control. Specifically, the link between insecurity and self-control was stronger when hope was low but weaker when hope was high.

Limitations: Since this study was mainly conducted in China, and considering the continuous change of the pandemic on a global scale, it is of great significance to conduct cross-cultural and cross-time studies in the future.

Conclusions: The results demonstrate that self-control and hope play important roles in buffering the negative effects of insecurity on the subjective well-being of adolescents and young adults. The findings provide implications for reducing the negative impact of insecurity from a positive psychology perspective and for youth mental health interventions during public health crises.

1. Introduction

The global outbreak of the Coronavirus disease 2019 (COVID-19) has profoundly threatened the psychological and physical well-being of adolescents worldwide (WHO, 2020; Cattellino et al., 2021). Consolidated evidence has indicated that as a critical period in development, the youth's psychological well-being has a close correlation with their life-long mental health and shows a higher sensitivity to environmental influences (Pigaiani et al., 2020; Germani et al., 2020; Ortuño-Sierra et al., 2020). Moreover, lockdowns imposed during the COVID-19 pandemic have resulted in the sudden interruption of routine educational and leisure activities, which are indispensable for the youths' development (de Abreu et al., 2021; Cattellino et al., 2021). These radical and unpredictable changes have contributed to a significant rise in perceived insecurity (Zuo et al., 2021; Wen et al., 2021), which in turn

induce long-term negative consequences on the well-being of adolescents and young adults (Morelli et al., 2020; Inanc, 2018; Nica et al., 2016).

Despite the challenging situation, there were still many youths who were able to remain calm and maintain relatively high levels of well-being, highlighting that the regulatory effect of self-control has proven to be instrumental in the coping process (Li et al., 2020; Schnell and Krampe, 2020). According to Bandura's social cognitive theory, individuals' self-control levels in the course of self-regulation highly depend on their inner beliefs, in which hope is a noteworthy member (Bandura, 1991; Xin et al., 2020). However, limited attention has been paid to the buffering effects and associations between these protective factors in the context of the COVID-19 pandemic, especially for the younger population. Therefore, the current study conducted a cross-sectional investigation targeting adolescents and young adults

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during the pandemic lockdown in China. In this research, a moderated mediating model was constructed to examine the mediating role of self-control in the link between perceived insecurity and subjective well-being of the youth. Further, we examined the moderating effect of hope on the association between insecurity and self-control.

1.1. The role of insecurity on subjective well-being

Subjective well-being refers to people's cognitive and affective positive evaluation of the overall quality of their lives (Diener et al., 2018a, 2018b; Yildirim and Arslan, 2020), which is conceptualized as a multidimensional construct consisting of cognitive evaluations (e.g., life satisfaction) and positive and negative affections (Busseri, 2015; Metler and Busseri, 2017; Busseri, 2018). Notably, for the youth, subjective well-being has been found to have a strong connection with life-course health and well-being and is particularly vulnerable to adverse environments (Pigaiani et al., 2020; Germani et al., 2020).

As the pandemic progresses, the youth's subjective well-being is highly likely to be impaired due to the insecurity developed from the sudden changes in their daily lives (Zuo et al., 2021; Wen et al., 2021). Insecurity is broadly defined as the premonition of possible psychological or physical risks (Greenhalgh and Rosenblatt, 1984), including the dimensions of interpersonal security and sense of control (An et al., 2004; Zhou et al., 2018; Wen et al., 2021). Abundant evidence has indicated the negative association between insecurity and subjective well-being in various contexts (Inanc, 2018; Nica et al., 2016; Barrech et al., 2016); this demonstrates that feelings of insecurity adversely affect an individual's sense of control, increase negative affections, and decrease life satisfaction, subsequently leading to a lower level of subjective well-being (Barrech et al., 2016; Wills-Herrera et al., 2011).

It is worth noting that, different from the crises concerned in previous studies, the COVID-19 pandemic not only has harmful impacts on the sense of control dimension of insecurity but also undermines the interpersonal security dimension due to the prolonged periods of quarantine (WHO, 2020; Germani et al., 2020). Hence, investigating the association between pandemic-caused insecurity and subjective well-being can be meaningful and thought-provoking. Explorations targeting the youth during the pandemic have demonstrated that higher levels of perceived insecurity were correlated with stronger negative affections and higher risk of mental illness and suicide, indicating the negative consequences of pandemic-related insecurity on the youths' well-being (Wen et al., 2021; Ganson et al., 2021; Genç and Arslan, 2021; Fitzpatrick et al., 2020). However, there is limited evidence about the influencing mechanism and buffering factors in the association between insecurity and the subjective well-being of the youth, especially in the context of the COVID-19 pandemic (Wen et al., 2021). Therefore, the current study adopts the perspective of positive psychology to examine how perceived insecurity affects youths' subjective well-being and identify the mediating and moderating factors that might mitigate the harmful consequences of insecurity. With reference to previous findings, we proposed the hypothesis that insecurity will negatively predict the subjective well-being of youth during the COVID-19 pandemic (H_1).

1.2. The mediating role of self-control between insecurity and subjective well-being

Based on the context-process-outcome model, contextual factors tend to influence adolescents through their psychological processes (Roeser et al., 1996; Xie et al., 2021). Hence, positive psychological traits have been found to have buffering effects against the harmful consequences of adverse environments. Among these protective factors, the important role of self-control has been supported by abundant evidence (Ding et al., 2021; Li et al., 2020; Schnell and Krampe, 2020).

The present study employs the conceptualization of self-control as the ability to override or change one's internal responses, as well as to interrupt or regulate undesirable behavioral tendencies in favor of

promoting long-term interests (Nielsen et al., 2019; Hofmann et al., 2014). Numerous research has confirmed the wide-reaching benefits of self-control on the physical and mental health of individuals (Schnell and Krampe, 2020; Nielsen et al., 2019; Wiese et al., 2018). In particular, the positive association between self-control and subjective well-being was also widely supported (Ding et al., 2021; Ronen et al., 2016). Further, investigations targeting the youth have demonstrated that through the self-control process, adolescents can volitionally regulate emotions, cognitions, and behaviors, which will lead them to experience higher satisfaction of their own autonomy, relatedness, and competence, thereby promoting their subjective well-being (Orúzbar et al., 2019; Orkibi and Ronen, 2017).

Relevant research during the COVID-19 outbreak also highlighted the crucial role of self-control. According to the risk-resilience model, risk events usually induce adverse outcomes; however, individuals with sufficient psychological assets can attenuate these negative impacts, thus, are able to protect their mental well-being from being harmed (Li et al., 2020; Masten, 2001). Accordingly, as an important psychological asset, self-control may also play a compensatory role in the context of the pandemic (Ding et al., 2021; Li et al., 2020; Schnell and Krampe, 2020). During the pandemic lockdown, adolescents with higher self-control were more adept at adjusting the rhythm of study and social life, maintaining a healthy daily routine, and regulating the negative effects induced by the stressful situation, compared to those with a lower level of self-control. The lack of self-control may lead youths to engage in addictive or excessive activities that have negative consequences on well-being in the long term (Li et al., 2021; Ding et al., 2021; Li et al., 2020). Therefore, self-control can be an important factor that is conducive to the subjective well-being of adolescents in the context of the pandemic.

Evidence on the antecedent factors of self-control has indicated the crucial role of insecurity as the predictor of self-control, especially for children (Jackson et al., 2018; Kimbro and Denney, 2015; Meldrum and Hay, 2012). Drawing on the Self-determination theory (Deci and Ryan, 2012), it can be inferred that individuals' inherent growth tendencies are dependent on the environment; when the environment fails to provide sufficient nutrients, this positive internal process will be impaired. Previous research on children's developmental perspective has found that both short and long-term food insecurity will have impacts on children's self-control. For instance, children who grow up in environments with high food insecurity tend to develop low self-control (Jackson et al., 2018; Grineski et al., 2018). Therefore, based on the empirical and theoretical evidence, we proposed the hypothesis that insecurity and subjective well-being are associated with self-control in negative and positive directions, respectively. In other words, self-control plays a mediating role between perceived insecurity and subjective well-being of youths during the pandemic (H_2).

1.3. The moderating role of hope between insecurity and self-control

The mediating effect sheds light on the general question of how the independent variable influences the dependent variable; however, it fails to explain how the association varies under different conditions (Chen et al., 2015; Wang et al., 2017). Although the association between self-control and insecurity has been supported by abundant evidence (Ding et al., 2021; Schnell and Krampe, 2020), knowledge regarding the moderating variables between them remains limited. Meanwhile, being the core self-agency factor in the model (Nielsen et al., 2019), the exploration of the moderating variable between self-control and insecurity is of important meaning. Further, in the context of present conditions, it helps understand the psychological characteristics of adolescents during the pandemic.

The perspective of positive psychology has emphasized the role of positive inherent factors in challenging situations (Chai et al., 2018), among which the protective effect of hope has been widely supported, especially by studies targeting adolescents and young adults (Karababa,

2020; Jiang et al., 2018; Chai et al., 2018). Hope is defined as the ability to set goals, finding the path to reach those goals, and maintaining the motivation to achieve them (Snyder et al., 2000). Hope comprises two fundamental aspects: pathway thinking, which refers to the process of goal-directed planning, and agency thinking, which refers to goal-directed determination (Jiang et al., 2018; Snyder et al., 2000). Hope has been proved to be an important predictor and source of self-agency factors represented by self-control (Li et al., 2022; Schnell and Krampe, 2020). According to Bandura's social cognitive theory, an individual's self-control level in the process of self-regulation is largely influenced by their beliefs and motivations (Bandura, 1989; Yue and Ji, 2007). Hopeful adolescents are found to be more persistent in pursuing their goals and taking effective actions even amid difficulties. Whereas adolescents with lesser hope tend to have lower psychological resilience and a higher possibility to exhibit weak self-control and negative behaviors when encountering hardships (Jiang et al., 2018; Chai et al., 2018).

Beyond being a predictor of self-control, the hope theory indicates that hope is also a strong buffer to protect youths from adverse environments (Chai et al., 2018). Based on the model of individual-environment interaction, contextual factors usually influence adolescents' mental state through the interaction with individual factors (Chen et al., 2015; Wang et al., 2017); thus, providing theoretical support for the interaction between pandemic-related insecurity and hope. Inferred from empirical evidence, hopeful adolescents can better generate adaptive strategies or coping mechanisms to overcome difficulties in the face of the pandemic. In addition, hopeful adolescents might also have stronger motivation to advance towards developmental goals (Jiang et al., 2018; Chai et al., 2018), which is beneficial in mitigating the negative impacts of insecurity. Moreover, hopeful adolescents are more inclined to regard the insecurity brought by the pandemic as a worthwhile challenge or a learning opportunity for future growth; thus, they employ more active self-control measures to cope with difficulties (Schnell and Krampe, 2020). Conversely, a low level of hope is typically accompanied by a sense of hopelessness and depression, which makes the youths more vulnerable to the insecure environment, and succumb to addictive and excessive behaviors that are detrimental to their well-being (Jiang et al., 2018; Schnell and Krampe, 2020).

Therefore, our model mainly concerns the moderating role of hope in the link between insecurity and self-control. Based on the positive nature of hope, we hypothesize that there is a positive correlation between hope and self-control, and the association between insecurity and self-control will be weaker in adolescents with a higher level of hope than those with a lower level (H_3).

2. Present study

In summary, based on empirical and theoretical evidence, the present study constructed a moderated mediation model to examine the mediating effect of self-control on the link between perceived insecurity and subjective well-being of adolescents with the moderating role of hope in the first half. This model could provide further implications for reducing the negative impacts of environment-related insecurity on

adolescents' subjective well-being from the view of positive psychology and contribute to the development of effective interventions in promoting the youth's mental health during the pandemic. The following are the hypotheses of this study:

H_1 : There is a negative correlation between insecurity and the subjective well-being of youths.

H_2 : Self-control plays a mediating role in the link between insecurity and subjective well-being.

H_3 : The association between insecurity and self-control is moderated by hope, and the association will be weaker in youths with a higher level of hope.

The conceptual model is shown in Fig. 1.

3. Methods

3.1. Data collection

The study protocol, which comprised a series of online surveys targeted towards the youth, was approved by the Ethics Committee of the Center for Studies of Social Psychology at Central China Normal University (CSSP-2020017). A cross-sectional survey was conducted in a college in Hubei Province from June 12 to June 17, 2020. During the study period, the COVID-19 outbreak in China had been initially controlled; however, the influence of imported cases and sporadic outbreaks remained. Due to the pandemic control measures, students were still taking online lessons at home during the investigation, and their residences were scattered all over the country. Restricted by the control measures, this study was conducted via an online questionnaire platform (www.wjx.com), which is a commonly used channel for online investigations in China. According to Yu and Huang (2011), the differences between participants' responses in traditional paper and online assessments are not significant.

To ensure students' conscientiousness and a high completion rate, the questionnaires were distributed with the help of class assistants. Students voluntarily participated in the survey by clicking the questionnaire link sent to online social networking groups typically used to post public notices. A total of 6263 students completed the survey from June 12 to June 17, 2020. The data were screened according to the following criteria: (1) the participant read the instructions and then voluntarily engaged in the survey; (2) the whole survey was completed as required; and (3) the time taken to complete the questionnaire was in line with the estimation (3 mins; surveys completed in less time were deleted). The final sample included 5503 respondents, of which 2979 were male (54.1%) and 2524 (45.9%) were female, indicating a balanced gender ratio. Participants' ages ranged between 15–29 years old ($M = 19.65$, $SD = 1.14$).

Although the large-scale study based on worldwide representative adolescent samples is currently not available, the sample of this study is from 202 cities in 31 provinces in China, covering a wide area. In general, the socio-demographic characteristics of our sample, including regional distribution, gender, and age (15–29 years old) seem comparable to those of previous studies targeting youth. Therefore, the sample has relatively high representativeness for the target population (youth).

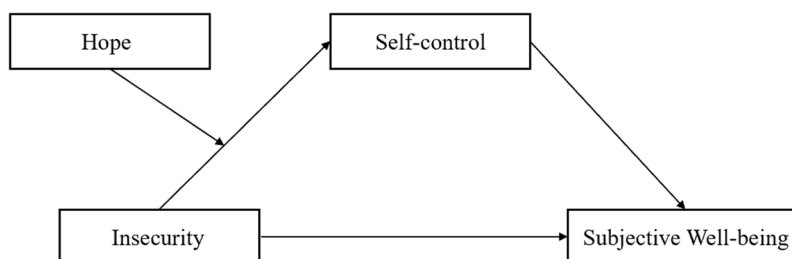


Fig. 1. Hypothetical model of the association among insecurity, subjective well-being, self-control, and hope.

4. Variables and measures

4.1. Insecurity

We used the Security Questionnaire developed by Cong and An (2004) to assess perceived insecurity among youth during the COVID-19 pandemic. This questionnaire comprises two dimensions, with eight questions each: interpersonal security and sense of control. In this study, two frequently used items were selected from each dimension, such as, 'People regard me as shy and withdrawn' and 'I feel like I have no way to deal with emergencies I may face in life.' Each item was rated on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*); no items were reverse-scored in the present study. Higher scores indicated higher levels of insecurity. Good reliability has been previously demonstrated in a sample of youth (An et al., 2004), and Cronbach's α in this study was 0.88.

4.2. Subjective well-being

In the present study, subjective well-being was assessed using the Students' Life Satisfaction Scale, which was developed by Huebner (1991) and updated and revised by Wang and Zhang (2012) for use in Chinese populations. Four items from the questionnaire were selected to assess participants' life satisfaction; for example, 'I live a better life compared to my peers.' Responses were rated on a five-point Likert scale (1 = *not at all true* to 5 = *always true*), with higher scores indicating more life satisfaction. Cronbach's α was 0.67 in the original study and 0.87 in the present study.

Positive and negative affections were measured using the Positive Affect and Negative Affect Scale, as developed by Zhang (2019). Six items were selected from the positive and negative dimensions respectively (12 items in total), and rated using a five-point Likert scale (1 = *almost none* to 5 = *very strong*); higher scores represented stronger feelings of either positive or negative affections. Cronbach's α was 0.92 for positive affect and 0.91 for negative affect in the original study, and 0.95 and 0.93 in the present study, respectively.

4.3. Self-control

The Self-Control Scale developed by Tan and Guo (2008) was used in the present study. The questionnaire consists of five dimensions including impulse control, healthy habits, resist temptation, focus on work, and entertainment restraint. Six items were selected to include in the survey (e.g., 'It is difficult for me to overcome bad habits'), and each was scored on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Higher scores represent a greater lack of self-control. Cronbach's α in the current study was 0.89.

4.4. Hope

Participants' levels of hope were measured using the Positive Psychology Capital Questionnaire, which was developed by Zhang et al. (2010) and includes the following dimensions: self-efficiency, resilience, hope, and optimism. In the present study, two items were chosen from the hope subscale (e.g., 'I am fighting for my goal'). The items were rated using a five-point Likert scale (1 = *does not correspond at all* to 5 = *corresponds exactly*), with higher scores representing higher levels of hope. Cronbach's α was 0.91 in the present study.

4.5. Data analysis

IBM SPSS version 22.0 and the plug-in PROCESS macro version 3.4 (Hayes, 2012) were used for data analysis. According to Erceg-Hurn and Mirosevich (2008), the Bootstrap method was used to test the significance of the regression coefficients. This method reconstructs the sample by random sampling with replacement of the meta-sample, so it has no

specific requirement for distribution form. This study constructs 5000 samples, each with a sample size of 5503, and the standard error and confidence intervals for the parameter estimates were obtained. If the confidence interval does not contain 0, the result is significant.

5. Results

5.1. Test for common method bias

Since the data of multiple variables in this study were provided by the same participant and acquired through self-report questionnaires, there may be a common method bias effect. A Harman one-factor test was conducted to test for possible common method bias in the study (Hair et al., 1998), and all the terms of the study variables were loaded on the same common factor. The results showed that the common factor explained 35.198% of the total variance, which was lower than the threshold of 40%. Thus, to some extent, there is no common method deviation in this study.

5.2. Descriptive statistics and correlational analysis

Descriptions and correlations of all variables are presented in Table 1. The results have shown that insecurity is negatively associated with self-control, life satisfaction, positive affection, and hope, while positively related to negative affection. Meanwhile, self-control is positively associated with life satisfaction, positive affection, and hope, while negatively related to negative affection. Furthermore, age and gender were both significantly correlated with insecurity, self-control, and negative affection. Therefore, age and gender were controlled as covariates in the following analyses.

5.3. Tests of moderated mediation

After standardizing the data, multicollinearity tests were conducted. It was found that the variance inflation factors (VIF) of all predictors were all lower than 2; hence, the multicollinearity problem can be excluded. Model 7 in PROCESS was adopted to test the moderated mediation model, in which insecurity was included as the independent variable, self-control was included as the mediator, and three dimensions of subjective well-being were included as dependent variables. In addition, hope was also incorporated as a moderator of the path from insecurity and self-control. Gender and age were set as covariates.

In line with H_1 and H_2 , the results showed that insecurity negatively predicted life satisfaction, positive affection as well as self-control, and positively predicted negative affection. Meanwhile, the interaction term of insecurity and hope positively and significantly predicted self-control. Moreover, self-control was also positively related to life satisfaction, positive affection dimensions and was negatively related to the negative affection dimension (Table 2). The above results suggest that insecurity, hope, and self-control constitute a mediated moderation model, with self-control mediating between insecurity and subjective well-being, and hope moderating in the first half path of the model (Fig. 2).

The significance of the mediation effect was tested with a bootstrap method in the sampling process. All of the upper and lower limits of the 95% confidence intervals did not contain 0, which indicated that the direct effects and indirect effects were all significant.

To better explain the moderated mediation model, we divided the level of hope into high ($M+SD$), medium (M), and low ($M-SD$) groups and applied a simple slope analysis to investigate the moderating effect of hope on the association between insecurity and self-control (Fig. 3). The results indicated that the predictive effect of insecurity on self-control was significant when at low levels of hope ($B_{\text{simple}} = -0.59$, $t = -39.78$, $p < 0.001$), when the level of hope is medium, the predictive effect of insecurity on self-control was diminished ($B_{\text{simple}} = -0.55$, $t = -49.64$, $p < 0.001$), and when the level of hope is high, the predictive effect of insecurity on hope was further diminished ($B_{\text{simple}} = -0.50$, $t =$

Table 1
Means, standard deviation and correlations of variables.

Variables	M	SD	1	2	3	4	5	6	7	8
1 Gender ^a	–	–	1							
2 Age	19.65	1.14	0.118**	1						
3 Insecurity	2.18	0.90	-0.151**	-0.036**	1					
4 Self-control	3.79	0.86	0.125**	0.090**	-0.612**	1				
5 Life satisfaction	3.53	0.76	-0.002	-0.024	-0.325**	0.328**	1			
6 Positive affection	3.29	0.82	0.050**	0.018	-0.368**	0.345**	0.639**	1		
7 Negative affection	2.15	0.86	0.043**	0.044**	0.287**	-0.204**	-0.131**	-0.086**	1	
8 Hope	3.72	0.87	-0.017	0.055**	-0.371**	0.351**	0.587**	0.607**	-0.203**	1

Note: a is a dummy variable, 0 = female, 1 = male.
.**p < 0.01.

Table 2
Testing for moderated mediation effects of hope and self-control.

Regression equation		Goodness of fit			Significance			
Outcome	Predictor	R	R2	F	β	se	t	95% CI
Self-control	Insecurity	0.63	0.40	730.79***	-0.55	0.01	-47.69***	[-0.57, -0.52]
	Hope				0.16	0.01	13.47***	[0.13, 0.18]
	Insecurity*Hope				0.05	0.01	4.49***	[0.03, 0.07]
Life satisfaction	Self-control	0.37	0.14	219.01***	0.21	0.02	13.49***	[0.18, 0.25]
	insecurity				-0.20	0.02	-12.77***	[-0.23, -0.17]
Positive affection	Self-control	0.40	0.16	259.33***	0.19	0.02	12.23***	[0.16, 0.22]
	insecurity				-0.25	0.02	-16.10***	[-0.28, -0.22]
Negative affection	Self-control	0.31	0.09	142.14***	-0.06	0.02	-3.45***	[-0.09, -0.02]
	Insecurity				0.27	0.02	16.35***	[0.23, 0.30]

Note: ***p < 0.001.

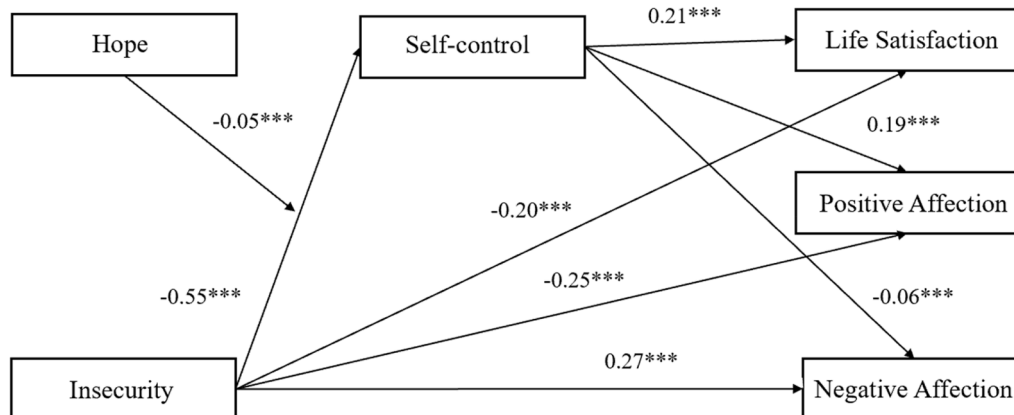


Fig. 2. Moderated mediation model of hope and self-control in association between insecurity and subjective well-being.

-33.68, p < 0.001).

6. Discussion

The current study has concentrated on the association between perceived insecurity and subjective well-being among youth during the lockdown period of the COVID-19 pandemic. Based on the model of individual-environment interaction and the social cognitive theory, a moderated mediation model was constructed with self-control as the mediator between insecurity and subjective well-being and hope as the moderator in the first half of the mediation model. The analysis based on data collected from an online survey of 5503 Chinese youths has supported the model. Our findings indicated that perceived insecurity during the pandemic negatively impacted subjective well-being among youth. Meanwhile, self-control mediated the relationship between insecurity and subjective well-being, while hope moderates the association between insecurity and self-control, both acting as buffers.

6.1. Effect of perceived insecurity on subjective well-being

Results from the correlation analysis indicate that insecurity is significantly negatively correlated with the life satisfaction and positive affection dimensions of subjective well-being and significantly positively correlated with the negative affection dimension. Thus, the pandemic-related insecurity can negatively predict subjective well-being in youth, which has supported H₁.

In this study, insecurity has been conceptualized to include the dimensions of interpersonal security, which refers to the experience of safety during interpersonal contacts, as well as the sense of control, which reflects the feelings of certainty of controlling one’s own life (Cong and An, 2004; Wen et al., 2021). Not only has the sudden and unpredictable changes caused by the COVID-19 pandemic damaged the youths’ sense of control over their daily lives, but the long-term lockdown and isolation measures have also negatively affected their interpersonal security (WHO, 2020; Germani et al., 2020). Therefore, feelings of insecurity can be a crucial trigger of mental problems during

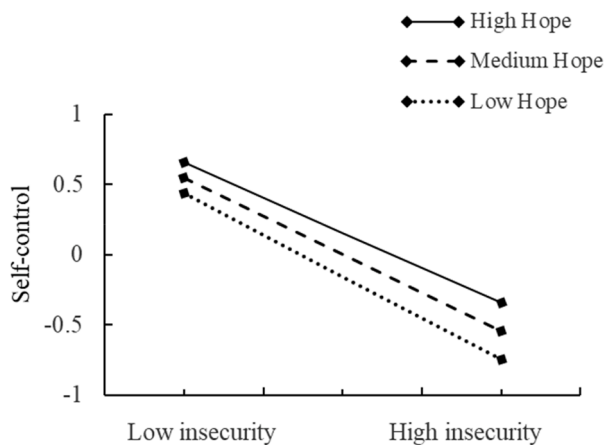


Fig. 3. Simple slopes of insecurity and self-control for youths with low, medium, and high levels of hope.

the pandemic.

Adolescents and young adults are in a critical period of psychological development, which makes them more vulnerable to the negative consequences of insecurity caused by the pandemic (Pigaiani et al., 2020; Berenbaum et al., 2015). The current study's results have suggested that higher perceived insecurity of youths during the pandemic will result in lower life satisfaction, lower positive affections, and higher negative affections, indicating the negative impact on subjective well-being. This negative correction is consistent with other studies conducted in the same period, which has indicated the links between insecurity, negative affections, and mental illness (Wen et al., 2021; Genç and Arslan, 2021). Further, the current study's findings contribute to the knowledge about the effect of insecurity on subjective well-being in the context of the COVID-19 pandemic, which indicates that perceived insecurity during the pandemic is a critical factor for decreased subjective well-being among youth.

6.2. The mediating role of self-control

According to the context-process-outcome model, positive psychological traits can help buffer the harmful consequences of adverse environments (Xie et al., 2021). The current study has confirmed the mediating role of self-control between perceived insecurity and subjective well-being among youths. Specifically, the analysis has indicated that insecurity is negatively correlated with self-control, while self-control positively predicts subjective well-being, showing a significant mediating effect. Therefore, the perceived insecurity of youths can influence their subjective well-being through the decrease of self-control; meanwhile, the adjustment of self-control can also act as the buffer in the association, which supports H_2 .

On the one hand, the negative effect of insecurity can be mediated by the decrease of self-control. Based on the self-determination theory, as an important inherent asset, the development of self-control is dependent on the nutrients provided by the environment (Deci and Ryan, 2012). For instance, previous studies have confirmed that the experience of food insecurity has damaging effects on the self-control of children, causing long-term negative consequences on their development (Jackson et al., 2018; Kimbro and Denney, 2015). However, knowledge regarding the influence of other kinds of insecure feelings was limited. Our model has further proved the negative effect of environment-related insecurity on youths' subjective well-being through the decrease of self-control during the pandemic, which has expanded the exploration of insecurity and the aftereffects of damaged self-control.

On the other hand, self-control can serve as an important buffering factor in the relationship between insecurity and the well-being of adolescents and young adults. Based on the positive traits of self-control,

improving the self-control of youths can help them to cope with the pandemic more rationally, control their emotional impulses better, and develop regular life and study routines (Li et al., 2021; Ding et al., 2021; King and Gaerlan, 2014). These characteristics associated with high self-control can help youths to maintain a healthier lifestyle during isolation and alleviate the impact of perceived insecurity during the pandemic; thus, helping stabilize their subjective well-being. Consistent with previous findings, the current study showed that self-control helps cope with and avoid motivational conflicts; thus, having a positive effect on subjective well-being (Briki, 2018; Hofmann et al., 2014). This model further supports the protective effect of increased self-control on the mental health of the youths in the context of the COVID-19 pandemic. Accordingly, improving self-control through psychological interventions during the pandemic could be an important method to help improve subjective well-being among youths.

6.3. The moderating role of hope

The mediating effect of self-control in the relationship between insecurity and subjective well-being has been discussed above. In addition to self-control which concerns the control of current behaviors, the important role of hope as a representation of the attitudes and motivations towards the future also cannot be ignored, especially in the unpredictable and adverse situation of the pandemic. Also, it is indicated in the social cognitive model that the internal beliefs of individuals have a significant effect on the processes of self-control (Bandura, 1989). However, there are few investigations about the moderating role of hope between environment-related insecurity and individuals' self-control, which is a critical self-agency factor. Therefore, it is very meaningful to explore the mediating effect of hope in this study, which fills the gap of previous studies.

The analysis has supported the moderating effect of hope on the influence of perceived insecurity on the self-control of the youth. The results indicate that compared with the youths with lower hope, the negative effect of insecurity on the self-control of the ones with high hope is mitigated. This finding supports H_3 , thereby demonstrating that hope can buffer the negative consequence of perceived insecurity, which again shows that hope, as an important positive psychological trait, is a critical protective factor for youths when dealing with adverse situations (Rock et al., 2014; Jiang et al., 2020; Steffen & Smith, 2013).

Hope comprises two fundamental aspects: pathway thinking and agency thinking (Jiang et al., 2018). Youths with higher levels of hope are likely to develop more problem-solving methods, change coping strategies more flexibly when encountering difficulties, and can also maintain a stronger belief in their own abilities to realize goals (Jiang et al., 2018; Schnell and Krampe, 2020). According to Bandura's social cognitive theory, the self-control level of individuals is also influenced by inner beliefs, including hope. Therefore, when responding to the crisis caused by the COVID-19 pandemic, the youths with higher hope were more likely to perceive difficulties as opportunities for growth or development and were more willing to facilitate self-regulatory methods to deal with the hardship. In contrast, individuals with lower levels of hope were less likely to develop effective solutions and have higher tendencies to give up. Additionally, their unsuccessful coping experiences can further affect how the youth perceives their own self-control; thus, decreasing their subjective well-being (Bryce et al., 2020; Crane, 2014). As such, the important role of hope can never be overlooked, and helping youths to increase their hope levels during the pandemic is beneficial to protect their self-control from being damaged, which in turn will have positive effects on their mental health.

6.4. Implications

This study's findings have three important theoretical implications. First, this study aimed to examine adolescents and emerging adults, who are at a critical stage of psychological development, and expanded

research on insecurity to wider populations. Previous studies have mainly focused on insecurity within the context of work (Selenko et al., 2017; Witte et al., 2016), such as the impact of job insecurity on employee well-being, turnover rates, organizational performance, with little attention given to youth. Second, to our knowledge, the present study was the first to investigate the role of self-control in the relationship between insecurity and subjective well-being, along with the protective role of self-control and hope. The results indicate that self-control and hope can effectively buffer the negative impact of insecurity on subjective well-being in youth, thus enriching and expanding relevant research on subjective well-being. Third, the present study constructed a moderated mediation model, focusing on the mediating effect of self-control and moderating effect of hope. This model can provide important empirical evidence for understanding the mechanism underlying the impact of increased insecurity on subjective well-being in youth during the COVID-19 pandemic.

Furthermore, the findings have important practical implications. With the pandemic progressing, experts and laypersons pay attention not only to physical health but also to mental health. Increases in negative affections such as anxiety, stress, depression, and insecurity during the pandemic have been closely related to mental health problems in the general population. The present study provides important implications for developing intervention strategies to improve subjective well-being in youth from the perspective of positive psychology, especially proposing the new viewpoint to alleviate the negative consequence of insecurity by increasing self-control and hope. When determining how to protect youth from the pandemic's negative impact on their mental health, this study's findings are expected to have significant implications for future practice.

6.5. Limitations and future research directions

Although the present study has important theoretical and practical significance, there are also some limitations that suggest directions for further exploration in the future. First, this research mainly examines the moderated mediation model based on the data collected from youths in China during the pandemic. Therefore, the generalizability of the findings in other areas remains to be explored. According to the data from WHO Health Emergency Dashboard, during our investigation, China has overcome the most critical stage of the COVID-19 pandemic, and the nationwide outbreak has been initially controlled. However, other countries in Asia (Japan, South Korea, India, etc.) were still experiencing an increase in cases. It has been proven in cross-area studies that both the severity of the outbreak and cultural contexts have important impacts on individuals' risk and insecurity perception (Van Bavel et al., 2020; Wen et al., 2020; Germani et al., 2020). Therefore, due to the different developing trends of COVID-19 worldwide, people in different areas may have experienced varying levels of insecurity due to the differences in confirmed cases, control measures, and cultural orientation. As such, considering the factors above, the applicability of this model in other areas in Asia still requires further verification. Second, the present study mainly examined the moderating role of hope between insecurity and self-control among youth, which has been supported by existing evidence and data analysis. However, the findings of previous studies also suggest that hope can moderate the association between negative factors and the subjective well-being of individuals. Therefore, it is meaningful to further examine the role of hope in future studies under different groups and cultural backgrounds. Additionally, as this study primarily used a cross-sectional design, it is difficult to determine causal effects. In future research, a longitudinal survey may help increase understanding of mental health changes among youth in different pandemic periods and provide better reference values for applying theoretical research into practical applications.

7. Conclusions

The present study was conducted in June 2020, during the COVID-19 lockdown period, using data from an online questionnaire survey conducted among 5503 Chinese youth. As for the study's main findings, first, perceived insecurity during the pandemic has a negative predictive effect on subjective well-being in youth. The negative correlation between insecurity and subjective well-being is mediated by self-control, and hope moderates the first half path of the mediation model. The less hope youth have for the future, the stronger the association between insecurity and self-control, and the more vulnerable their subjective well-being. The results demonstrate self-control and hope play important roles in buffering the negative effects of insecurity on the subjective well-being of adolescents and emerging adults.

CRedit authorship contribution statement

Fangfang Wen: Conceptualization, Methodology, Supervision. **Hanxue Ye:** Conceptualization, Writing – review & editing, Formal analysis. **Bin Zuo:** Project administration, Funding acquisition. **Shi Han:** Writing – original draft. **Jianli Zhu:** Data curation, Formal analysis. **Wenlin Ke:** Investigation. **Yujia He:** Investigation.

Declaration of Competing Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics approval statement

The authors declare that the research adhere to the APA code as well as the ethics guidelines of China. The Ethics Committee of the Center for Studies of Social Psychology at Central China Normal University (CSSP-2020017) has given permission to this research.

References

- An, L.J., Cong, Z., Wang, X., 2004. Research of high school students' security and the related factors. *Chin. Mental Health J.* 010 (018), 717–719. <https://doi.org/10.3321/j.issn:1000-6729.2004.10.015>, 2004722.
- Bandura, A., 1989. Human agency in social cognitive theory. *Am. Psychol.* 44 (9), 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>.
- Bandura, A., 1991. Social cognitive theory of self-regulation. *Organ. Behav. Hum. Decis. Process.* 50 (2), 248–287. [https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/10.1016/0749-5978(91)90022-L).
- Busseri, M.A., 2015. Toward a resolution of the tripartite structure of subjective well-being. *J. Pers.* 83 (4), 413–428. <https://doi.org/10.1111/jopy.12116>.

- Berenbaum, S.A., Beltz, A.M., Corley, R., 2015. The importance of puberty for adolescent development: conceptualization and measurement. *Adv. Child Dev. Behav.* 48, 53–92. <https://doi.org/10.1016/bs.acdev.2014.11.002>.
- Barrech, A., Baumert, J., Emeny, R.T., Gündel, H., Ladwig, K.H., 2016. Mid-life job insecurity associated with subjective well-being in old age: results from the population-based MONICA/KORA study. *Scand. J. Work, Environ. Health* 42 (2), 170–174. <https://doi.org/10.5271/sjweh.3546>.
- Busseri, M.A., 2018. Examining the structure of subjective well-being through meta-analysis of the associations among positive affect, negative affect, and life satisfaction. *Pers. Individ. Dif.* 122, 68–71. <https://doi.org/10.1016/j.paid.2017.10.003>.
- Briki, W., 2018. Trait self-control: why people with a higher approach (avoidance) temperament can experience higher (lower) subjective well-being. *Pers. Individ. Dif.* 120, 112–117. <https://doi.org/10.1016/j.paid.2017.08.039>.
- Bryce, C.I., Alexander, B.L., Fraser, A.M., Fabes, R.A., 2020. Dimensions of hope in adolescence: relations to academic functioning and well-being. *Psychol. Sch.* 57 (2), 171–190. <https://doi.org/10.1002/pits.22311>.
- Crane, M.F., 2014. The differential impact of agency and pathway thinking on goal pursuit and university exam performance. *Pers. Individ. Dif.* 58, 20–25. <https://doi.org/10.1016/j.paid.2013.09.026>.
- CHEN, W., Li, D., Bao, Z., Yan, Y., ZHOU, Z., 2015. The impact of parent-child attachment on adolescent problematic Internet use: a moderated mediation model. *Acta Psychol. Sinica* 47 (5), 611–623. <https://doi.org/10.3724/SP.J.1041.2015.00611>.
- Chai, W.Y., Kwok, S.Y., Gu, M., 2018. Autonomy-granting parenting and child depression: the moderating roles of hope and life satisfaction. *J. Child Fam. Stud.* 27 (8), 2596–2607. <https://doi.org/10.1007/s10826-018-1102-8>.
- ... & Cattelino, E., Testa, S., Calandri, E., Fedi, A., Gattino, S., Graziano, F., Begotti, T., 2021. Self-efficacy, subjective well-being and positive coping in adolescents with regard to COVID-19 lockdown. *Curr. Psychol.* 1–12. <https://doi.org/10.1007/s12144-021-01965-4>.
- Deci, E.L., Ryan, R.M., 2012. Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.). *Handbook of Theories of Social Psychology*. Sage Publications Ltd, pp. 416–436. <https://doi.org/10.4135/9781446249215.n21>.
- De Witte, H., Pienaar, J., De Cuyper, N., 2016. Review of 30 years of longitudinal studies on the association between job insecurity and health and well-being: is there causal evidence? *Aust. Psychol.* 51 (1), 18–31. <https://doi.org/10.1111/ap.12176>.
- Diener, E., Lucas, R.E., Oishi, S., Hall, N., Donnellan, M.B., 2018a. Advances and open questions in the science of subjective well-being. *Collabra* 4 (1). <https://doi.org/10.1525/collabra.115>.
- Diener, E., Oishi, S., Tay, L., 2018b. Advances in subjective well-being research. *Nat. Hum. Behav.* 2 (4), 253. <https://doi.org/10.1038/s41562-018-0307-6>.
- de Abreu, P.M.E., Neumann, S., Wealer, C., Abreu, N., Macedo, E.C., Kirsch, C., 2021. Subjective well-being of adolescents in Luxembourg, Germany, and Brazil during the COVID-19 Pandemic. *J. Adolesc. Health* 69 (2), 211–218. <https://doi.org/10.1016/j.jadohealth.2021.04.028>.
- Ding, Z.C., Yan, J., Fu, J., 2021. Internet and mobile phone addiction self-control mediate physical exercise and subjective well-being in young adults using IoT. *Mobile Inf. Syst.* 2021. <https://doi.org/10.1155/2021/9923833>.
- Fitzpatrick, K.M., Harris, C., Drawve, G., 2020. How bad is it? Suicidality in the middle of the COVID-19 pandemic. *Suicide Life Threat. Behav.* 50 (6), 1241–1249. <https://doi.org/10.1111/sltb.12655>.
- Greenhalgh, L., Rosenblatt, Z., 1984. Job insecurity: toward conceptual clarity. *Acad. Manage. Rev.* 9 (3), 438. <https://doi.org/10.2307/258284>.
- Grineski, S.E., Morales, D.X., Collins, T.W., Rubio, R., 2018. Transitional dynamics of household food insecurity impact children's developmental outcomes. *J. Dev. Behav. Pediatr.* 39 (9), 715. <https://doi.org/10.1097/DBP.0000000000000598>.
- Germani, A., Buratta, L., Delvecchio, E., Mazzeschi, C., 2020. Emerging Adults and COVID-19: the role of individualism-collectivism on perceived risks and psychological maladjustment. *Int. J. Environ. Res. Public Health* 17 (10), 3497. <https://doi.org/10.3390/ijerph17103497>.
- Ganson, K.T., Tsai, A.C., Weiser, S.D., Benabou, S.E., Nagata, J.M., 2021. Job insecurity and symptoms of anxiety and depression among US young adults during COVID-19. *J. Adolesc. Health* 68 (1), 53–56. <https://doi.org/10.1016/j.jadohealth.2020.10.008>.
- Genç, E., Arslan, G., 2021. Optimism and dispositional hope to promote college students' subjective well-being in the context of the COVID-19 pandemic. *J. Positive School Psychol.* 5 (2), 87–96. <https://doi.org/10.47602/jpsp.v5i2.255>.
- Hayes, A.F., 2012. PROCESS: a versatile computational tool for observed variable mediation, moderation, and conditional process modeling. [White paper]. Retrieved from <http://www.afhayes.com/public/process2012>.
- Hofmann, W., Luhmann, M., Fisher, R.R., Vohs, K.D., Baumeister, R.F., 2014a. Yes, but are they happy? Effects of trait self-control on affective well-being and life satisfaction. *J. Pers.* 82 (4), 265–277. <https://doi.org/10.1111/jopy.12050>.
- Hofmann, W., Luhmann, M., Fisher, R.R., Vohs, K.D., Baumeister, R.F., 2014b. Yes, but are they happy? Effects of trait self-control on affective well-being and life satisfaction. *J. Pers.* 82 (4), 265–277. <https://doi.org/10.1111/jopy.12050>.
- Inanc, H., 2018. Unemployment, temporary work, and subjective well-being: the gendered effect of spousal labor market insecurity. *Am. Sociol. Rev.* 83 (3), 536–566. <https://doi.org/10.1177/0003122418772061>.
- Jackson, D.B., Newsome, J., Vaughn, M.G., Johnson, K.R., 2018. Considering the role of food insecurity in low self-control and early delinquency. *J. Crim. Justice* 56, 127–139. <https://doi.org/10.1016/j.jcrimjus.2017.07.002>.
- Jiang, Y., Ren, Y., Liang, Q., You, J., 2018. The moderating role of trait hope in the association between adolescent depressive symptoms and nonsuicidal self-injury. *Pers. Individ. Dif.* 135, 137–142. <https://doi.org/10.1016/j.paid.2018.07.010>.
- Jiang, Y., Ren, Y., Zhu, J., You, J., 2020. Gratitude and hope relate to adolescent nonsuicidal self-injury: mediation through self-compassion and family and school resources. *Curr. Psychol.* 1–8. <https://doi.org/10.1007/s12144-020-00624-4>.
- King, R.B., Gaerlan, M.J.M., 2014. High self-control predicts more positive emotions, better engagement, and higher achievement in school. *Eur. J. Psychol. Educ.* 29, 81–100. <https://doi.org/10.1007/s10212-013-0188-z>.
- Kimbrow, R.T., Denney, J.T., 2015. Transitions into food insecurity associated with behavioral problems and worse overall health among children. *Health Aff.* 34 (11), 1949–1955. <https://doi.org/10.1377/hlthaff.2015.0626>.
- Karababa, A., 2020. The moderating role of hope in the relationship between maladaptive perfectionism and anxiety among early adolescents. *J. Genet. Psychol.* 181 (2–3), 159–170. <https://doi.org/10.1080/00221325.2020.1745745>. DOI: 10.1080/00221325.2020.1745745.
- Li, J.B., Yang, A., Dou, K., Cheung, R.Y., 2020. Self-control moderates the association between perceived severity of coronavirus disease 2019 (COVID-19) and mental health problems among the Chinese public. *Int. J. Environ. Res. Public Health* 17 (13), 4820. <https://doi.org/10.3390/ijerph17134820>.
- Li, J., Zhan, D., Zhou, Y., Gao, X., 2021. Loneliness and problematic mobile phone use among adolescents during the COVID-19 pandemic: the roles of escape motivation and self-control. *Addict. Behav.* 118, 106857. <https://doi.org/10.1016/j.addbeh.2021.106857>.
- Li, Q., Xiang, G., Song, S., Chen, H., 2022. How people reach their goals: neural basis responsible for trait self-control association with hope. *Pers. Individ. Dif.* 184, 111228. <https://doi.org/10.1016/j.paid.2021.111228>.
- Masten, A.S., 2001. Ordinary magic: resilience processes in development. *Am. Psychol.* 56 (3), 227.
- Meldrum, R.C., Hay, C., 2012. Do peers matter in the development of self-control? Evidence from a longitudinal study of youth. *J. Youth Adolesc.* 41 (6), 691–703. <https://doi.org/10.1007/s10964-011-9692-0>.
- Metler, S.J., Busseri, M.A., 2017. Further evaluation of the tripartite structure of subjective well-being: evidence from longitudinal and experimental studies. *J. Pers.* 85 (2), 192–206. <https://doi.org/10.1111/jopy.12233>.
- Morelli, M., Cattelino, E., Baiocco, R., Trumello, C., Babore, A., Candelori, C., Chirumbolo, A., 2020. Parents and children during the COVID-19 lockdown: the influence of parenting distress, parenting self-efficacy, and children emotional well-being. *Front. Psychol.* 11, 584645. <https://doi.org/10.3389/fpsyg.2020.584645>.
- Nica, E., Manole, C., Briscariu, R., 2016. The detrimental consequences of perceived job insecurity on health and psychological well-being. *Psychosocial. Issues Hum. Resour. Manag.* 4 (1), 175.
- Nielsen, K.S., Gwozdz, W., De Ridder, D., 2019. Unraveling the relationship between trait self-control and subjective well-being: the mediating role of four self-control strategies. *Front. Psychol.* 10, 706. <https://doi.org/10.3389/fpsyg.2019.00706>.
- Orkibi, H., Ronen, T., 2017. Basic psychological needs satisfaction mediates the association between self-control skills and subjective well-being. *Front. Psychol.* 8, 936. <https://doi.org/10.3389/fpsyg.2017.00936>.
- Orúz, H., Miranda, R., Oriol, X., Montserrat, C., 2019. Self-control and subjective well-being of adolescents in residential care: the moderator role of experienced happiness and daily-life activities with caregivers. *Child Youth Serv. Rev.* 98, 125–131. <https://doi.org/10.1016/j.childyouth.2018.12.021>.
- Ortuño-Sierra, J., Arriño-Solana, R., Fonseca-Pedrero, E., 2020. New evidences about subjective well-being in adolescence and its links with neurocognitive performance. *Int. J. Environ. Res. Public Health* 17 (6), 1866. <https://doi.org/10.3390/ijerph17061866>.
- ... & Pigaiani, Y., Zocante, L., Zocca, A., Arzenton, A., Menegolli, M., Fadel, S., Colizzi, M., 2020. Adolescent lifestyle behaviors, coping strategies and subjective well-being during the COVID-19 pandemic: an online student survey. *Healthcare* 8 (472), 1–12. <https://doi.org/10.3390/healthcare8040472>.
- Roeser, R.W., Midgley, C., Urdan, T.C., 1996. Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: the mediating role of goals and belonging. *J. Educ. Psychol.* 88, 408. <https://doi.org/10.1037/0022-0663.88.3.408>. <https://doi.org/>
- Rock, E.E., Steiner, J.L., Rand, K.L., Bigatti, S.M., 2014. Dyadic influence of hope and optimism on patient marital satisfaction among couples with advanced breast cancer. *Support. Care Cancer* 22 (9), 2351–2359. <https://doi.org/10.1007/s00520-014-2209-0>.
- Ronen, T., Hamama, L., Rosenbaum, M., Mishely-Yarlap, A., 2016. Subjective well-being in adolescence: the role of self-control, social support, age, gender, and familial crisis. *J. Happiness Stud.* 17 (1), 81–104. <https://doi.org/10.1007/s10902-014-9585-5>. DOI: 10.1007/s10902-014-9585-5.
- Snyder, C.R., Feldman, D.B., Taylor, J.D., Schroeder, L.L., Adams, V.H., 2000. The roles of Hopeful thinking in preventing problems and enhancing strengths. *Appl. Prevent. Psychol.* 9 (4), 249–270. [https://doi.org/10.1016/s0962-1849\(00\)80003-7](https://doi.org/10.1016/s0962-1849(00)80003-7).
- Selenko, E., Mäkikangas, A., Stride, C.B., 2017. Does job insecurity threaten who you are? Introducing a social identity perspective to explain well-being and performance consequences of job insecurity. *J. Organ. Behav.* 38 (6), 856–875. <https://doi.org/10.1002/job.2172>.
- Schnell, T., Krampe, H., 2020. Meaning in life and self-control buffer stress in times of COVID-19: moderating and mediating effects with regard to mental distress. *Front. Psychiatry* 11, 983. <https://doi.org/10.3389/fpsyg.2020.582352>.
- ... & Van Bavel, J.J., Baicker, K., Boggio, P.S., Capraro, V., Cichocka, A., Cikara, M., Drury, J., 2020. Using social and behavioural science to support COVID-19 pandemic response. *Nat. Hum. Behav.* 1–12. <https://doi.org/10.31234/osf.io/y38m9>.
- Wills-Herrera, E., Orozco, L.E., Forero-Pineda, C., Pardo, O., Andonova, V., 2011. The relationship between perceptions of insecurity, social capital and subjective well-being: empirical evidences from areas of rural conflict in Colombia. *J. Socio. Econ.* 40 (1), 88–96. <https://doi.org/10.1016/j.socec.2010.08.002>.

- Wang, Y., Li, D., Sun, W., Zhao, L., Lai, X., Zhou, Y., 2017. Parent-child attachment and prosocial behavior among junior high school students: moderated mediation effect. *Acta Psychol. Sinica*. <https://doi.org/10.3724/SP.J.1041.2017.00663>.
- ... & Wiese, C.W., Tay, L., Duckworth, A.L., D'Mello, S., Kuykendall, L., Hofmann, W., Vohs, K.D., 2018. Too much of a good thing? Exploring the inverted-U relationship between self-control and happiness. *J. Pers.* 86 (3), 380–396. <https://doi.org/10.1111/jopy.12322>.
- Wen, F.F., Ma, S.H., Ye, H.X., Qi, Y., Zuo, B., 2020. "Psychological Typhoon Eye Effect" and "Ripple Effect": double perspective test of risk perception and anxiety characteristics of people in different COVID-19 severity regions. *Acta Psychol. Sinica* 52 (9), 1087–1104. <https://doi.org/10.3724/SP.J.1041.2020.01087>.
- Wen, F.F., Zhu, J.L., Ye, H.X., Li, L.Y., Ma, Z., Wen, X.X., Zuo, B., 2021. Associations between insecurity and stress among Chinese university students: the mediating effects of hope and self-efficacy. *J. Affect. Disord.* 281, 447–453. <https://doi.org/10.1016/j.jad.2020.12.047>.
- World Health Organization, 2020. Coronavirus disease (COVID-19) pandemic (Questions and answers). <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub>.
- ... & Xin, M., Luo, S., She, R., Yu, Y., Li, L., Wang, S., Lau, J.T.F., 2020. Negative cognitive and psychological correlates of mandatory quarantine during the initial COVID-19 outbreak in China. *Am. Psychol.* 75 (5), 607. <https://doi.org/10.1037/amp0000692>.
- Xie, X., Guo, Q., Wang, P., 2021. Childhood parental neglect and adolescent internet gaming disorder: from the perspective of a distal—Proximal—Process—Outcome model. *Child Youth Serv. Rev.* 120, 105564 <https://doi.org/10.1016/j.chilyouth.2020.105564>.
- Yue, G.A., Ji, H.Y., 2007. On Bandura's self-regulatory theory in social cognitive perspective. *Nankai Univ. (Philosophy Soc. Sci.)* 5.
- Yıldırım, M., Arslan, G., 2020. Exploring the associations between resilience, dispositional hope, preventive behaviours, subjective well-being, and psychological health among adults during early stage of COVID-19. *Curr. Psychol.* 1–11. <https://doi.org/10.1007/s12144-020-01177-2>.
- Zhou, X., Wu, X.C., Wang, W.C., Tian, Y.X., 2018. The relation between repetitive trauma exposure and posttraumatic stress disorder: understanding the roles of feelings of safety and cognitive reappraisal. *Psychol. Dev. Educ.* 34 (01), 90–97. <https://doi.org/10.16187/j.cnki.issn1001-4918.2018.01.11>.
- Zuo, B., Yang, K., Yao, Y., Han, S., Nie, S., Wen, F., 2021. The relationship of perceived social support to feelings of hopelessness under COVID-19 pandemic: the effects of epidemic risk and meaning in life. *Pers. Individ. Dif.* 183, 111110 <https://doi.org/10.1016/j.paid.2021.111110>.