



Focusing on the Past, Present, or Future? Why Proactive Personality Increases Weekly Subjective Well-Being

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Abstract

Subjective well-being (SWB) varies within a person. However, even though previous studies have paid attention to why people with a more proactive personality have higher SWB, they have ignored how proactive personality influences an individual's state SWB using a within-person approach. According to the time perspective, we propose that proactive personality positively influences an individual's weekly SWB. Moreover, we propose that weekly rumination, weekly mindfulness, and weekly future optimism—which represent the past, present, and future time perspective, respectively—mediate the relationship between proactive personality and weekly SWB. Using a multilevel model, including 97 people and 388 within-person data points, we found that proactive personality positively influences an individual's weekly SWB. Only the mediation of weekly future optimism underlying this relationship was supported. We discuss the theoretical and practical implications of our findings.

Keywords Proactive personality · Weekly SWB · Time perspective · Weekly rumination · Weekly mindfulness · Weekly future optimism

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1 Introduction

Proactive personality refers to “a stable disposition to take personal initiative in a broad range of activities and situations” (Seibert et al., 2001, p. 847). People with a more proactive personality are characterized as proactively shaping rather than passively adopting their environment (Fuller & Marler, 2009). Subjective well-being (SWB) is an eternal human pursuit. It refers to an individual’s overall evaluation of their quality of life, including the cognitive evaluation and emotional experience of their living conditions (Diener, 1984). Previous studies have found that proactive personality is positively related to employee SWB, such as job satisfaction (Zhang et al., 2012), life satisfaction (Wang et al., 2019a, b), and positive affect (Li et al., 2019). These findings suggest that people with a more proactive personality may have higher SWB. However, there are two unanswered questions that need to be explored.

First, the dynamic of how proactive personality influences within-person SWB has been ignored. In the traditional view, scholars have paid attention to what determines people’s SWB, explaining the between-person variance of SWB, and have found that people with a more proactive personality tend to have greater SWB (Li et al., 2019; Wang et al., 2019a, b). Nevertheless, in a dynamic view, SWB is also a changing experience, indicating that people have different levels of SWB across time and contexts (Busseri & Sadava, 2013). How proactive personality influences state SWB has yet to be examined. This question deserves more exploration because it unpacks the micro-level mechanism underlying proactive personality and state SWB from a within-person perspective.

Second, the dynamic mechanism underlying proactive personality and state SWB is not yet clear. Proactive personality is a relatively stable trait across time and contexts (Bleidorn et al., 2018; Seibert et al., 2001), but state SWB fluctuates across over time (Busseri & Sadava, 2013). It is a critical proposition for understanding how people with a more proactive personality experience greater SWB across time.

To fill in these gaps, in this study we explore how proactive personality influences weekly SWB. Our first aim is to examine the relationship between proactive personality and weekly SWB, using a person-centered approach. We aim to explore whether proactive personality is positively related to weekly SWB. In this study, we define state SWB as weekly SWB, because the subjects are undergraduates, and their lives are repeated week by week. Our second aim is to explore the mediating process underlying proactive personality and weekly SWB from a time perspective (Zimbardo & Boyd, 1999). Time perspective suggests that people understand themselves according to their thoughts and feelings about their past, present and future selves (Zimbardo & Boyd, 2008), and it was applied to explained people’s SWB (Anagnostopoulos & Griva, 2012; Busseri et al., 2009a; Cunningham et al., 2015). According to the time perspective (Zimbardo & Boyd, 1999), we focus three mediators by representing the subjective evaluations of the subjects’ past, present, and future lives: weekly rumination, weekly mindfulness, and weekly future optimism. Rumination refers to an individual’s immersion in the past (Nolen-Hoeksema & Morrow, 2008). Mindfulness refers to an individual’s attention to what is taking place internally and externally in the present, and accepting it without judgment (Brown & Ryan, 2003). Future optimism refers to an individual’s optimistic and confident view of the future (Rottinghaus et al., 2012). In line with the time perspective, weekly SWB is expected to be positively related to weekly mindfulness and weekly future optimism, and negatively related to weekly rumination. Moreover, weekly rumination, weekly mindfulness, and weekly

future optimism are expected to mediate the relationship between proactive personality and weekly SWB.

This study contributes to the existing research in two ways. First, by adopting a dynamic and person-centered approach (Busseri et al., 2009b), we examine the relationship between proactive personality and weekly SWB. Compared with previous studies, which have reached a consensus that proactive personality is positively associated with SWB in a between-person approach, our study extends the knowledge about the influence of proactive personality on state SWB. State SWB, which captures momentary happiness, contributes to the SWB literature at the micro level. Second, by introducing time perspective (Zimbardo & Boyd, 1999), we examine the mediating effect of weekly rumination, weekly mindfulness, and weekly future optimism in the relationship between proactive personality and weekly SWB. We unpack the underlying psychological process of how proactive personality influences weekly SWB. Moreover, we explore this mediating process in the Chinese context, in which there is little evidence about SWB in the time perspective. Therefore, this study also increases our cultural insight into how proactive personality impacts state SWB in a time perspective.

2 Theory and Hypotheses

2.1 Time Perspective

Humans' existence and development operate in the framework of time, and our perceptions and experiences of time constitute an important background for understanding and explaining life experiences and daily behaviors (Matthews & Meck, 2016). Therefore, the time perspective, a basic psychological time structure that unconsciously divides human experience into past, present and future time frames in the cognitive process (Zimbardo & Boyd, 1999), impacts humans' behavior and experience.

The time perspective includes three dimensions: the past time perspective, the present time perspective, and the future time perspective (Zimbardo & Boyd, 1999). The past time perspective refers to the psychological characteristics of an individual's cognition, emotional experience, and action of the past time (Cunningham et al., 2015). The present time perspective refers to an individual's experiences and perceptions of the present time, affecting their attention, perceptions, decision-making, and actions (Zimbardo et al., 1971). The future time perspective mainly refers to an individual's perceptions of future time, meaning that they are motivated to think about the future, form a cognitive representation, and explore future choices (Seginer, 2000).

The time perspective is an overarching framework for understanding the mechanism underlying proactive personality and weekly SWB. Matthews and Stolarski (2014) have explored the relationship underlying the time perspective and SWB, and they highlighted the role of temporal schemas in shaping an individual's sense of self and appraisal of significant events. According to the time perspective, we conceptualize that weekly rumination, weekly mindfulness, and weekly future optimism represent weekly subjective evaluations of individuals' past, present, and future lives, respectively. By examining these three mediators underlying proactive personality and weekly SWB, we can compare the competitive roles of the past, present and future time perspectives in explaining this relationship.

2.2 Proactive Personality and Weekly SWB

The conventional view of SWB is that it varies among people, indicating that different people have differing levels of SWB (Kroll, 2011). Accordingly, most previous studies have focused on the individual and environmental factors influencing the between-person variance of SWB (Dolan et al., 2008; Steel et al., 2008). However, SWB is not permanent for a person; rather, it changes across time (e.g., hours, days, weeks, and months; Sonnentag, 2015; Vries et al., 2020). In the time perspective, SWB changes within a person (Boniwell & Zimbardo, 2004) and varies across time and occasions (Busseri & Sadava, 2013). Therefore, how proactive personality influences people's weekly SWB is well worth knowing.

Proactive personality is a characteristic of individuals who actively pursue their goals (Rodríguez-Carvajal et al., 2019), and SWB is a fundamental human concern (Steel et al., 2008). Therefore, people with a more proactive personality are oriented to pursuing their SWB in daily life. In this study, we argue that proactive personality shapes weekly SWB by increasing weekly positive affect and weekly life satisfaction, and reducing weekly negative affect.

First, individuals with a more proactive personality are good at controlling their environment and reducing uncertainty (Crant, 2000). Living in a controlled and predictable environment increases one's momentary positive affect, such as satisfaction and joy, and decreases an individual's momentary negative affect, such as anxiety and depression (Lam et al., 2018). Second, individuals with a more proactive personality can access more favorable resources, including material, interpersonal, and psychological resources (Wang et al., 2019a, 2019b), shaping their momentary feelings of life satisfaction as a result. Thus, we propose the following hypothesis:

Hypothesis 1 Proactive personality is positively associated with weekly SWB.

2.3 Past Time Perspective: The Mediating Role of Weekly Rumination

Rumination refers to a way or process of thinking that individuals habitually do toward the past (Brinker & Dozois, 2009). Individuals with high rumination tend to review their life regrets and ruminate on negative events in the past (Frone, 2015). Therefore, rumination indicates the belief that one's environment is uncontrollable, and failures inevitably emerge in one's mind (Martin & Tesser, 2006; Shigemoto et al., 2017). Weekly rumination captures the weekly variance of how people habitually focus on the past. We argue that proactive personality is positively related to an individual's weekly SWB, and that weekly rumination mediates the relationship between proactive personality and weekly SWB.

People with a more proactive personality are future-oriented and change-oriented (Fuller & Marler, 2009). They tend to focus on how to change their environment to achieve a better future, rather than recalling what happened in the past. Even if they have experienced some adverse events or failures, they tend to stand straight and look ahead. Therefore, a proactive person experiences lower state rumination each week. Moreover, proactive individuals usually pay more attention to the present and the future than to the past. They have a strong desire to change what they can control instead of dwelling on the past that they cannot change. In conclusion, proactive personality is negatively related to an individual's weekly rumination.

According to the time perspective, we argue that weekly rumination, conceptualized as the past time perspective, decreases one's weekly SWB. When individuals have higher weekly rumination, they become absorbed in the past, a phenomenon that arouses negative memories about life circumstances (e.g., failures and adverse events) and negatively affects their life experience (Zhang & Howell, 2011) each week. People with a past time perspective have a lower evaluation of life satisfaction, which is a cognitive indicator of SWB (Zhang & Howell, 2011). During the weekly episode, the more the individuals ruminate, the less they are able to separate themselves from past failures and negative events (Shigemoto et al., 2017). Accordingly, they have fewer psychological resources to recover from past negative emotions (Wang et al., 2013). All of these factors lead to a lower weekly SWB. In support, previous studies have shown that a lower level of rumination improves the quantity and quality of sleep (Mazzer et al., 2019), resulting in higher weekly SWB through the recovery of physical resources. Based on these arguments, we propose the following hypotheses:

Hypothesis 2a Proactive personality is negatively associated with weekly rumination.

Hypothesis 2b Weekly rumination mediates the relationship between proactive personality and weekly SWB.

2.4 Present Time Perspective: The Mediating Role of Weekly Mindfulness

Originating in Buddhism, mindfulness is often defined as a state of focusing on the present (Brown & Ryan, 2003). It is a dynamic form of self-attention throughout the present (Siegel et al., 2009). We conceptualize weekly mindfulness as the construct that reflects the individual's present time perspective across weeks, and propose that it mediates the relationship between proactive personality and weekly SWB. Proactive personality emphasizes that individuals face a realistic environment and seek solutions even though the situation is unsatisfactory (D. Wang et al., 2019a; S. Wang et al., 2019b). Individuals with a more proactive personality pay attention to the present and control their environment in the present. Weekly mindfulness helps individuals focus on the present and keep their minds open (Roche et al., 2014). Therefore, individuals with a stronger proactive personality are more active in taking self-adjustment measures, so as to better interact with their environment in daily life. Thus, proactive personality is positively related to weekly mindfulness.

The time perspective argues that the present time perspective is a prerequisite for the individual's SWB (Csikszentmihalyi, 1992). Weekly mindfulness can momentarily reframe one's cognition and keep one's mind open, resulting in higher cognition of their lives. Moreover, weekly mindfulness reduces an individual's weekly emotional disorders (such as depressive symptoms and stress) and increases their positive emotional experience (Brown et al., 2007; Martins et al., 2019). By reducing negative emotions and increasing positive emotions during weekly episodes (Mesmer-Magnus et al., 2017), weekly mindfulness improves weekly SWB. Based on these arguments, we propose the following hypotheses:

Hypothesis 3a Proactive personality is positively associated with weekly mindfulness.

Hypothesis 3b Weekly mindfulness mediates the relationship between proactive personality and weekly SWB.

2.5 Future Time Perspective: The Mediating Role of Weekly Future Optimism

Future optimism refers to a positive expectation and belief about the future. It helps people build confidence in the expected results and generate greater motivation and more positive emotions (Rand, 2009). We conceptualize weekly future optimism as the construct that reflects an individual's future time perspective, and propose that it mediates the relationship between proactive personality and weekly SWB. According to the time perspective, the future time perspective indicates that individuals have a clear perception of time and a deep understanding of the time value. They are confident in the process of realizing their future ideals and work hard to put them into action. We argue that proactive personality is positively related to weekly future optimism. First, individuals with a more proactive personality have a positive and optimistic attitude toward the future because they concentrate on it and prepare in advance (Baroudi et al., 2018). Second, individuals with a more proactive personality have more positive expectations for the future. They believe that they can control the future, rather than passively waiting for or adapting to it (Parker et al., 2010). Third, individuals with a more proactive personality regulate their attention to the future (Fuller & Marler, 2009). They continue to engage in forward-looking and proactive behaviors to ensure that they can substantially change their environment. Thus, proactive personality positively predicts one's weekly future optimism.

Weekly future optimism increases one's weekly SWB. More weekly future optimism means more envisioning of and preparation for the future, resulting in less uncertainty and more predictability about the future. Uncertainty is a source of anxiety when facing an uncontrollable environment (Lind & Bos, 2002). When facing a lower level of uncertainty about the future, individuals experience less anxiety, depression, and other negative emotions. In this way, when individuals have greater weekly future optimism, they experience more weekly positive emotions and fewer weekly negative emotions. In addition, weekly future optimism means that individuals have hope for the future, which can improve their SWB (Satici, 2016). Indeed, when individuals are constantly optimistic about the future, they are energized by hope, which improves weekly SWB. Integrating these arguments, we propose the following hypotheses:

Hypothesis 4a Proactive personality is positively associated with weekly future optimism.

Hypothesis 4b Weekly future optimism mediates the relationship between proactive personality and weekly SWB.

3 Method

3.1 Participants and Procedure

This study was approved by the institution to which the corresponding author is affiliated (IRB protocol #EM200022). To reduce concerns regarding common method variance (CMV) and cross-sectional designs, we collected data in two stages. In stage one (week 1), we collected data regarding proactive personality, because it is a stable trait at the between-person level. There was then a 4-week interval (weeks 2–5). In stage two (weeks 6–9), we collected within-person data regarding weekly rumination, weekly mindfulness, weekly future optimism, and

weekly SWB four times (once each week). Thus, every participant completed one personality survey in stage one, and four repeated weekly surveys in stage two.

Data was obtained through two courses named Organizational Behavior and Business Ethics at a prestigious business school in China. The participants were undergraduates in these two courses. One of the authors was the course instructor of these two classes; he explained the research project in detail and requested students' participation. All students in the two courses were clearly informed that joining the project would not result in any course credit or bonus credit, and deciding not to join would result in no loss. The researchers did not provide a written consent form for participants to sign up; instead, students orally expressed their consent when the teacher inquired about intention to participate. This measure was confirmed by the IRB committee. Given that students were free to decide whether or not to join the project, and there was no pressure in terms of gaining incentives or losing benefit, their oral consent truly expressed their willingness.

According to the name list of the participants, we prepared the surveys. In every week, participants received an unsealed envelope including a cover letter and a questionnaire. The cover letter restated our research purpose, ethics, and promise of confidentiality, and highlighted that participants were free to choose to complete the survey or not. The participants completed the survey after the courses. Once completed, they were required to put the survey in the envelope, seal it, and submit it to the research assistant. A research assistant matched the five waves surveys according to the students' names, and then, names were replaced by codes. Course instructor was blind to the names of responses to avoid potential interest conflict.

A total of 102 undergraduates voluntarily joined the study. After the five-wave survey, 388 weekly responses from 97 participants were collected (every participant finished four weekly surveys), with a response rate of 95.1%. Those who failed to finish any one of the surveys were excluded from the analyses. The final sample consisted of 21.7% males and 78.3% females, with an average age of 19.1 years ($SD=0.995$ years).

The gender distribution was not balanced in the sample: there were more female students than male students in the classes. We tested the potential impact of gender distribution on the measures. An analysis of variance (ANOVA) showed that the proactive personality of the male participants ($M=3.724$, $SD=0.377$) was higher than that of the female participants ($M=3.532$, $SD=0.420$), and the difference was significant ($F=14.396$, $p<0.001$). In terms of SWB, there was no significant difference ($F=0.056$, *n.s.*) between the male participants ($M=3.514$, $SD=0.741$) and the female participants ($M=3.495$, $SD=0.618$). In terms of mediators, the male participants reported higher weekly rumination ($M=3.019$, $SD=1.075$) than the female participants ($M=2.826$, $SD=0.818$), but the difference was not significant ($F=3.183$, *n.s.*). The male participants reported higher future optimism ($M=3.569$, $SD=0.813$) than the female participants ($M=3.382$, $SD=0.732$), and the difference was significant ($F=4.081$, $p<0.05$). Furthermore, the male participants reported higher weekly future optimism ($M=3.441$, $SD=0.679$) than the female participants ($M=3.391$, $SD=0.627$), but the difference was not significant ($F=0.387$, *n.s.*). Therefore, the gender imbalance cautions the necessity of adding gender as a control variable in the analysis.

3.2 Measures

The surveys were translated from English to Chinese following the principle of double-blind translation. All the scales were measured by a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Proactive personality was measured using Seibert et al.'s (1999) ten-item scale. A sample item was "I am constantly on the lookout for new ways to improve my life." Cronbach's α for this scale was 0.727.

Weekly rumination was measured using a five-item scale adopted from Trapnell and Campbell (1999). A sample item was "Over the past seven days, I have often played over in my mind how I acted in a past situation." Cronbach's α for this scale was 0.912.

Weekly mindfulness was measured using Brown and Ryan's (2003) Mindful Attention Awareness Scale (MAAS), and we reversed the scores of all four items. A sample item was "I find it difficult to stay focused on what's happening in the present." Cronbach's α for this scale was 0.815.

Weekly future optimism was measured using Rottinghaus et al.'s (2005) six-item scale, which is typically adopted to measure career optimism, referring to how optimistic individuals are about their future career. We used this scale to measure future optimism because undergraduates usually define their future by constructing their career. A sample item was "I get excited when I think about my career." Cronbach's α for this scale was 0.859.

Weekly SWB was assessed using the five-item World Health Organization's Well-Being Index (WHO-5) (Bech et al., 2003). The items were "I feel energetic, active, and vigorous," "I feel downhearted and sad," "I feel calm and peaceful," "I wake up feeling fresh and rested," and "My daily life is full of things that interest me." Cronbach's α for this scale was 0.88.

Control variables: Previous studies have shown that demographic variables such as gender and age are associated with individual SWB (Kroll, 2011; Wang et al., 2019a, 2019b). Moreover, the gender imbalance issue highlights that we need to control the effect of gender in the analysis. Given that gender and age were the between-person variables used in this study, we controlled them at the between-person level. Gender was a dummy variable coded as 1 for male and 0 for female. The age of each participant was recorded with a number.

3.3 Analytical Strategy

Due to the multilevel structure of within-person and between-person data, the traditional multiple linear regression method is not an appropriate approach for testing multilevel mediation, and multilevel structural equation modeling (MSEM) is the preferred way of accessing mediation with a clustered structure (Preacher et al., 2010). This study used Mplus 7.0 (Muthén & Muthén, 1998–2012) to conduct MSEM. Following the recommendation of Zhang et al. (2009), we adopted the 2–1–1 model to test the hypothesized model, that is, a level-2 independent variable (proactive personality) influences level-1 mediators (weekly rumination, weekly mindfulness, and weekly future optimism), which in turn influence a level-1 dependent variable (weekly SWB). MSEM allows to estimate the coefficient *a* (regression coefficients of independent variables on three mediators, Model 1–3 in Table 3) and *b* (regression coefficients of three mediators on the dependent variable, Model 5 in Table 3) to be estimated simultaneously. According to the product of coefficients approach, the indirect effect is accessed by the product of *a* and *b* ($a \times b$; Shrout & Bolger, 2002). When calculating the 95% confidence interval (CI) of the cross-level indirect effect (ab), this study used the Monte Carlo method accessing mediation using an R package (Preacher et al., 2007). This method adopted parameter-based bootstrapping because resampling-based bootstrapping cannot be performed in multilevel research (Preacher & Selig, 2012).

4 Results

4.1 Multilevel Confirmatory Factor Analysis

Due to the multilevel structure, we conducted multilevel confirmatory factor analysis (MCFA) to examine the discriminant validity of the measurable variables. MCFA was analyzed by Mplus 7.0 (Muthén & Muthén, 1998–2012). Given that there were only 97 samples at the between-level, the parameter-sample ratio was quite low, so we used the item-parcel technique (Bagozzi & Edwards, 1998) to randomly assign the proactive personality items into three parcels. The results in Table 1 reveal that the five-factor model with proactive personality, weekly rumination, weekly mindfulness, weekly future optimism, and weekly SWB indicated a good fit of the data ($\chi^2=390.34$, $df=146$, CFI=0.92, TLI=0.90, RMSEA=0.07), whereas the alternative models combining any two or more factors showed unacceptable goodness of fit. These results support the discriminant validity of the measurement model.

4.2 Testing the Hypotheses

The means, standard deviations and correlations of the variables are presented in Table 2.

First, in order to test Hypothesis 1, we examined a direct effect model (Model 1 in Table 3) that proactive personality positively influences weekly SWB. Result in this model revealed that proactive personality was positively related to weekly SWB ($\beta=0.345$, $p<0.01$), supporting Hypothesis 1.

Second, we tested the multiple mediation model (Models 2–5 in Table 3) to test Hypotheses 2a, 2b, 3a, 3b, 4a and 4b simultaneously. Models 2, 3 and 4 were regressions of proactive personality on three mediators (weekly rumination, weekly mindfulness, and weekly future optimism), whose results could be used to examine Hypotheses 2a, 3a and 4a, respectively. Model 5 in Table 3 was a regression of three mediators on weekly SWB in the presence of proactive personality. Therefore, Models 2–5 presented the parameters of coefficients a and b, which will be used to estimate the indirect effect and its 95% CI using parameter-based bootstrapping, examining Hypotheses 2b, 3b and 4b.

Model 2 in Table 3 revealed that proactive personality was not significantly related to weekly rumination ($\beta=0.025$, *n.s.*), hence Hypothesis 2a was not supported. Model 5 in Table 3 showed that weekly rumination was not associated with weekly SWB ($\beta=-0.009$, *n.s.*) when proactive personality and three mediators regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly rumination was 0 (95% CI [-0.038, 0.037], including 0). Therefore, Hypothesis 2b was not supported.

Table 1 Results of confirmatory factor analyses

Models	χ^2	<i>df</i>	CFI	TLI	SRMR	RMSEA
Five-factor model	390.34	146	0.92	0.90	0.06	0.07
Four-factor model	787.39	149	0.79	0.75	0.15	0.11
Three-factor model	2223.00	151	0.31	0.21	0.17	0.19
Two-factor model	2054.75	152	0.37	0.28	0.18	0.18

n = 388

Table 2 Means, standard deviations, and correlations of variables

Variables	Mean	St. D	1	2	3	4	5	6
1. Gender	0.217	0.414						
2. Age	19.103	0.995	0.122*					
3. Proactive personality	3.573	0.42	0.190***	-0.111*				
4. Weekly rumination	2.868	0.882	0.090	0.016	0.027			
5. Weekly mindfulness	3.422	0.753	0.102*	-0.141**	0.227***	-0.314**		
6. Weekly future optimism	3.402	0.638	0.032	-0.105*	0.325***	-0.069	0.417***	
7. Weekly SWB	3.50	0.646	0.012	-0.069	0.223***	-0.149**	0.443***	0.481***

$n_{between} = 97$, $n_{within} = 388$

* $p < .05$, ** $p < .01$, *** $p < .001$

Model 3 in Table 3 revealed that proactive personality was positively related to weekly mindfulness ($\beta = 0.355$, $p < 0.05$), thus Hypothesis 3a was supported. Model 5 in Table 3 showed that weekly mindfulness was not associated with weekly SWB ($\beta = 0.172$, *n.s.*) when proactive personality and three mediators regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly mindfulness was 0.061 (95% CI [-0.039, 0.202], including 0). Therefore, Hypothesis 3b was not supported.

Model 4 in Table 3 revealed that proactive personality was positively related to weekly future optimism ($\beta = 0.491$, $p < 0.001$). Therefore, Hypothesis 4a was supported. Model 5 in Table 3 showed that future optimism was positively associated with weekly SWB ($\beta = 0.646$, $p < 0.001$) when proactive personality and three mediators regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly future optimism was 0.317 (95% CI [0.143, 0.528], excluding 0). Therefore, Hypothesis 4b was supported.

According to the results in Models 2–5 in Table 3, we have drawn Fig. 1 to visually show the regression results in MSEM.

4.3 Post-hoc Analysis

In the above analysis, we examined the three mediating paths simultaneously. Considering that it is hard for people to think simultaneously about feelings regarding the past, present, and future, it is reasonable to examine each mediating effect one by one. Therefore, we conducted a post-hoc analysis to examine three mediating effects separately. The results of the post-hoc analysis are also presented in Table 3. In particular, the results of testing the mediation of weekly rumination can be seen in Model 2 (proactive personality on weekly rumination) and Model 6 (weekly rumination on weekly SWB). The results of testing the mediation of weekly mindfulness can be seen in Model 3 (proactive personality on weekly mindfulness) and Model 7 (weekly mindfulness on weekly SWB), and the results of testing the mediation of weekly future optimism can be seen in Model 4 (proactive personality on weekly future optimism) and Model 8 (weekly future optimism on weekly SWB).

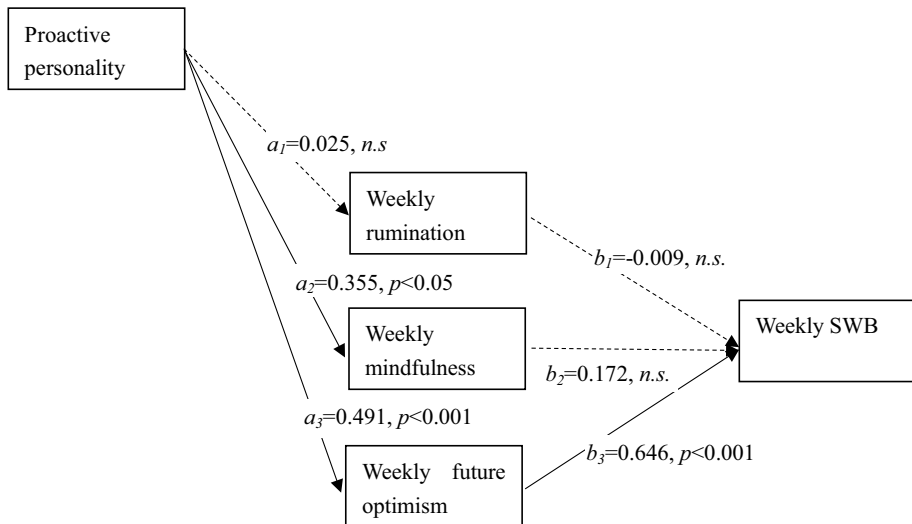
Regarding the mediating effect of weekly rumination, the results in Model 2 in Table 3 indicated that proactive personality was not associated with weekly rumination ($\beta = 0.025$, *n.s.*), and the results in Model 6 in Table 3 indicated that weekly rumination was not

Table 3 Mediations in relationship between proactive personality and weekly SWB

Variable	Weekly SWB		Weekly rumination		Weekly mindfulness		Weekly future optimism		Weekly SWB		Weekly SWB	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 6	Model 7	Model 8	
Intercept	4.026***	2.710 ⁺	5.260***	4.231***	0.411	4.331***	2.010	0.935				
Gender	- 0.04	0.187	0.147	- 0.033	- 0.042	- 0.018	- 0.096	- 0.016				
Age	- 0.027	0.006	- 0.098	- 0.043	0.018	- 0.026	0.010	0.004				
Proactive personality	0.345**	0.025	0.355*	0.491***	- 0.033	0.348**	0.209	- 0.014				
Weekly rumination					- 0.009	- 0.112						
Weekly mindfulness					0.172		0.383***					
Weekly future optimism					0.646***							
R ²	0.10	0.012	0.12+	0.206*	0.550***	0.129	0.275**	0.731***			0.518***	

$n_{between} = 97, n_{within} = 388$

* $p < .05$, ** $p < .01$, *** $p < .001$



Note: $n_{between}=97$, $n_{within}=388$, * $p<.05$, ** $p<.01$, *** $p<.001$.

Fig. 1 Results of the mediating hypotheses

related to weekly SWB ($\beta = -0.112$, *n.s.*) when proactive personality and weekly rumination regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly rumination was -0.003 (95% CI [-0.059 , 0.048], including 0), hence Hypothesis 2b was not supported.

Regarding the mediating effect of weekly mindfulness, the results in Model 3 in Table 3 indicated that proactive personality was positively associated with weekly mindfulness ($\beta = 0.355$, $p < 0.05$), and the results in Model 7 in Table 3 indicated that weekly mindfulness was positively related to weekly SWB ($\beta = 0.383$, $p < 0.001$) when proactive personality and weekly mindfulness regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly mindfulness was 0.136 (95% CI [0.023 , 0.290], excluding 0), hence Hypothesis 3b was supported.

Regarding the mediating effect of future optimism, the results in Model 4 in Table 3 indicated that proactive personality was positively associated with weekly future optimism ($\beta = 0.491$, $p < 0.001$), and the results in Model 8 in Table 3 indicated that weekly future optimism was positively related to weekly SWB ($\beta = 0.731$, $p < 0.001$) when proactive personality and weekly future optimism regressed on weekly SWB. The bootstrapping results revealed that the indirect effect of weekly future optimism was 0.359 (95% CI [0.166 , 0.586], excluding 0), thus Hypothesis 4b was supported.

5 Discussion

Based on the time perspective, we examined the underlying mechanism between proactive personality and weekly SWB. We found that proactive personality is positively related to weekly SWB. Moreover, we discovered that weekly future optimism mediates the relationship between proactive personality and weekly SWB. However, the mediations of weekly rumination and weekly mindfulness were not supported. In the post-hoc analysis, when

examining three mediations separately, we found that the mediation of weekly mindfulness and weekly future optimism were supported, respectively, and the mediation of weekly rumination was still not supported.

5.1 Theoretical Implications

Our study makes several contributions to the existing literature. First, we found that proactive personality is positively related to weekly SWB. In contrast to previous studies, which have adopted a between-person approach to examine why proactive personality is positively related to SWB (D. Wang et al., 2019a; S. Wang et al., 2019b), this study found that proactive personality increases an individual's weekly SWB; that is, people with a more proactive personality experience greater weekly SWB. Weekly SWB is a form of state SWB, highlighting that SWB changes across time and contexts (Busseri & Sadava, 2013; Sonnentag, 2015). In response to the call from Busseri and Sadava (2013), we have examined how proactive personality shapes weekly SWB. Our findings shift research attention to state SWB using a within-person approach.

Second, we found that weekly future optimism mediates the relationship between proactive personality and weekly SWB; however, the mediations of weekly rumination and weekly mindfulness were not supported. According to the time perspective, individuals unconsciously assign personal and social experiences to past, present, and future time perspectives (Anagnostopoulos & Griva, 2012). We conceptualized weekly rumination, weekly mindfulness, and weekly future optimism as the past, present, and future time perspectives, respectively. Through the competition of three mediators (weekly rumination, weekly mindfulness, and weekly future optimism), we compared the explanatory power of the different time perspectives (i.e., past, present, and future) underlying proactive personality and weekly SWB. Our findings only supported the mediation of weekly future optimism between proactive personality and weekly SWB, and it initially showed that the future time perspective has greater explanatory power than its past and present counterparts in explaining this relationship. These results are in line with existing studies that have shown a positive correlation between the future time perspective and SWB (Boniwell & Zimbardo, 2004; Kooij et al., 2018). Subjective temporal perspective trajectories propose that individuals generally follow the way of "past < present < future" when evaluating the past, present, and expected future (Busseri et al., 2009a, 2009b). Individuals with proactive personality pay more attention to the expected future when evaluating the trajectory of the time perspective, so the future time perspective has a larger effect than the past and present time perspectives in the relationship between proactive personality and weekly SWB.

In the post-hoc analysis, the three mediations were examined separately. Both the main analysis and post-hoc analysis supported the mediation of future optimism, but did not supported the mediation of weekly rumination. The results of the post-hoc analysis supported the mediation of weekly mindfulness when examining it alone, however, this mediation was not supported in the main analysis when examining three mediations together. As Preacher and Hayes (2008) have stated: "The effects of the mediators on Y (the b paths) are often attenuated to the degree to which the mediators are correlated" (p. 882). Even though the present time perspective and the future time perspective are distinct, they are closed related; for example, the future is an extension, continuity, and directionality of the present (Kooij et al., 2018). In this study, weekly mindfulness and weekly future optimism were found to have a positive correlation. The overlap of the two variables indicates that the mediating effect of weekly mindfulness could be explained by weekly future optimism.

These findings also provide a cultural insight into the time perspective and SWB. Chinese cultural values of long-term orientation (Hofstede & Hofstede, 2005) may explain why the future time perspective (weekly future optimism) rather than the past time perspective (weekly rumination) and the present time perspective (weekly mindfulness) mediates the relationship between proactive personality and weekly SWB. People with a long-term orientation place more emphasis on the future rather than the present, and may even sacrifice the present for future goals (Hofstede, 2005). Thus, weekly future optimism (focusing on the long term) is more weighted than weekly rumination (focusing on the past) and weekly mindfulness (focusing on the present) when transmitting the influence of proactive personality on weekly SWB.

5.2 Practical Implications

Our findings provide several practical implications. First, our findings suggest that people with a more proactive personality have higher weekly SWB. Therefore, one way to improve an individual's weekly SWB is to evaluate and develop their proactive personality, or create an environment that can enable individuals to become more proactive. Second, weekly future optimism was found to be positively related to an individual's weekly SWB, indicating that people can improve their weekly SWB by improving their momentary future optimism. Third, weekly mindfulness was found to be positively related to an individual's weekly SWB. Individuals are encouraged to learn how to practice mindfulness. People may be able to improve their weekly SWB by practicing mindfulness. Fourth, our findings have brought attention to weekly (state) SWB. To improve individuals' SWB, researchers, individuals and managers should pay more attention to the changing state of SWB.

5.3 Limitations and Directions for Future Research

This study's limitations should be noted. First, CMV is a concern whenever self-reported data are involved, and we were unable to make causal inferences among the variables. However, individuals are the most appropriate subjects to evaluate their own proactive personality and weekly SWB. It is difficult to avoid CMV when collecting data from the same sources. To allay this concern, we collected data over nine weeks in two stages with a four-week interval. Future studies are encouraged to adopt a longitudinal design in order to increase rigor. Second, we introduced the time perspective as the overarching framework and conceptualized three mediators as three dimensions of the time perspective; however, we did not measure the past, present, and future time perspectives in our study. Future studies could examine these three variables in the relationship between proactive personality and weekly SWB. Third, we did not explore the boundary conditions between proactive personality and the three mediators. We encourage researchers to explore the contingencies between proactive personality and weekly rumination, weekly mindfulness, and weekly future optimism in future studies. Fourth, we conducted this study in China, and the generalizability of the findings may be limited. As we have argued, the salience of the mediating role of weekly future optimism is consistent with cultural values in China, but whether these findings extend to other contexts (e.g., short-term orientation) is not yet clear and calls for more attention and empirical evidence.

6 Conclusion

Through the lens of the time perspective, we have unpacked how proactive personality influences weekly SWB. With a cross-level design comprising 97 (between-person level) individuals and 388 (within-person level) weekly data points, we found that proactive personality is positively related to weekly SWB. More importantly, weekly future optimism was found to mediate the mechanism relationship underlying this relationship, although the mediating effects of weekly rumination and weekly mindfulness were not supported. This study shifts research attention to unpack the mechanism underlying proactive personality and state SWB.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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

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