



Personality and life satisfaction: a moderated mediation model of subjective health and rural-to-urban migration experience

Cuicui Wang^{1,2,3,4} · Xiang Lu⁵ · Daoyang Wang^{6,7}

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Abstract

It is important to investigate whether subjective health mediated the relationship between personality and life satisfaction, and whether the rural-to-urban migration experience moderated this relationship via subjective health. The findings could inform ways to promote subjective health and improve life satisfaction for rural-to-urban migrant adolescents and young adults. However, few studies have examined these research questions, and the present study therefore investigated them. Participants were recruited from six high schools and universities, and were selected randomly at each school using the cluster random sampling method. A total of 943 Chinese adolescents and young adults participated in the study (17.18 ± 1.76 years old; 415 with rural-to-urban migration experience and 528 without migration experience). The NEO-Five-Factor inventory, the Satisfaction with Life Scale, and subjective health complaints were implemented. The results showed that subjective health was significantly correlated with both personality and life satisfaction. In addition, subjective health mediated the relationship between personality and life satisfaction. Moderated mediation analysis further indicated that the direct and indirect relationships between personality and life satisfaction were moderated by the rural-to-urban migration experience. The indirect effect of the extraversion dimension of personality on life satisfaction via subjective health was weaker for rural-to-urban migrant adolescents than for nonmigrant adolescents and young adults. In summary, subjective health mediated the relationship between personality and life satisfaction; further, the rural-to-urban migration experience moderated the relationship between personality and life satisfaction via subjective health, which fills the knowledge gaps.

Keywords Personality · Subjective health · Life satisfaction · Rural-to-urban migration experience · Adolescents and young adults

✉ Daoyang Wang
daoyangwang@hznu.edu.cn

¹ Center for Cognition and Brain Disorders, The Affiliated Hospital of Hangzhou Normal University, Hangzhou, China

² National Clinical Research Center for Mental Disorders, Department of Psychiatry, The Second Xiangya Hospital of Central South University, Changsha, China

³ Deqing Hospital of Hangzhou Normal University, Huzhou, China

⁴ Institute of Psychological Sciences, Hangzhou Normal University, Hangzhou, China

⁵ School Educational Science, Anhui Normal University, Wuhu, China

⁶ College of Education, Hangzhou Normal University, Hangzhou, China

⁷ Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, China

Introduction

Personality refers to the enduring tendency to feel, think, and behave in a characteristic way (Allik & McCrae, 2002; Costa & McCrae, 1991) proposed the five-factor model of personality, which holds that personality includes the five following dimensions: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Personality is the most reliable indicator of life satisfaction (Chapman et al., 2007; Steel et al., 2008), which refers to an individual's overall evaluation of life quality (Pavot & Diener, 1993). Cross-culture research with undergraduate students from the United States, Australia, the United Kingdom, and Canada showed that personality is significantly correlated with life satisfaction (Francis et al., 1998; Zhang et al., 2007) investigated the relationship between personality and life satisfaction in 379 Chinese adolescents and young adults. They found that both the extroversion and conscientiousness dimensions of

personality were positively correlated with life satisfaction, while neuroticism was negatively correlated with life satisfaction, which was consistent with other studies (Diener et al., 2003; Schimmack et al., 2004). Individuals with higher extraversion and agreeableness are more enthusiastic, confident, energetic, sociable, altruistic, friendly, and caring, and they usually experience a higher sense of self-efficacy in life. In contrast, individuals with higher neuroticism tend to experience more tension, excitement, sentimentality, and depression, which may result in lower life satisfaction. Personality could explain 41–63% of the variation in life satisfaction (Steel et al., 2008), and therefore has a predictive effect on life satisfaction. Many researchers have revealed the direct effect of personality on life satisfaction. However, it is also likely that there are indirect effects, such as that of subjective health, that may mediate the relationship between personality and life satisfaction.

Personality is closely related with subjective health (Deary et al., 2010), which refers to an individual's subjective evaluation of the health status (Eriksen & Ursin, 2002). The neuroticism dimension of personality has been found to be a robust predictor of subjective health (Kööts-Ausmees et al., 2016). Individuals with high neuroticism are more likely than those with low neuroticism to report health-related symptoms (Aiken-Morgan et al., 2014). Studies have shown that the extraversion, openness, agreeableness, and conscientiousness dimensions of personality are positively associated with subjective health (Roberts et al., 2007; Wu & Wang, 2009). A study of 6,976 Chinese undergraduate students revealed that personality traits such as activeness, tenacity, and being easygoing were beneficial for individuals' physical and mental health (Wu & Wang, 2009; Dong & Wang, 2018) also found that the extraversion, agreeableness, and conscientiousness dimensions of personality were positively correlated with subjective health in rural-to-urban migrant adolescents. Subjective health is not only closely correlated with personality, but also predicts life satisfaction. Many studies have revealed that subjective health is a good predictor of life satisfaction (Bao et al., 2013; Diener et al., 2003; Kööts-Ausmees et al., 2013). Bao et al. (2013) examined the relationship between subjective health and life satisfaction in Chinese adults, and found that subjective health was significantly correlated with life satisfaction.

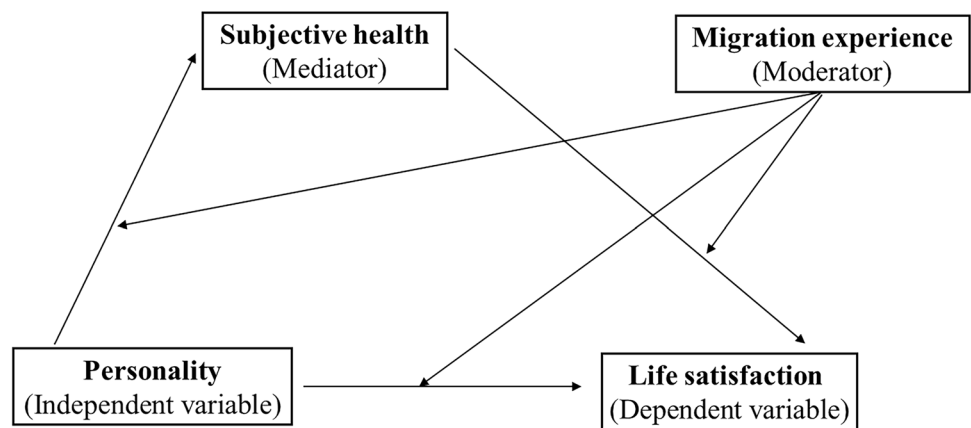
Subjective health may mediate the relationship between personality and life satisfaction. Individuals with high neuroticism usually have an increased risk of poor physical and mental health (Smith-Osborne & Felderhoff, 2016), which can result in low life satisfaction (Furr & Funder, 1998). In contrast, individuals with high extraversion, openness, agreeableness, and conscientiousness tend to have better physical and mental health, which may lead to high life satisfaction (Bao et al., 2013). Although previous studies have revealed close relationships between personality, subjective

health, and life satisfaction, few have directly examined whether subjective health mediates the relationship between personality and life satisfaction. The present study aimed to examine this.

In recent years, adolescents and young adults have increasingly migrated from rural areas to urban areas with their parents (National Health Commission of the PRC, 2018). Compared with nonmigrant peers, migrant adolescents and young adults are more prone to experience stressful life events, such as academic stress, social discrimination, and family conflicts, and therefore have lower life satisfaction (Lin et al., 2009; Ye et al., 2016). Rural-to-urban migration experience could moderate the relationship between personality and life satisfaction. For example, although peer victimization significantly threatens the life satisfaction of migrant adolescents (Gu et al., 2010; Liu et al., 2014), the personality trait that positively faces adversity could reduce the negative effect of peer victimization on life satisfaction (Ye et al., 2016). Some studies have also revealed that migrant adolescents and young adults usually have poor subjective health (Luo, 2013; Wang & Mesman, 2015; Zhang et al., 2010), and that they are more likely to experience anxiety and depression than their nonmigrant peers (Li et al., 2008; Lin et al., 2009). In summary, rural-to-urban migration experience could moderate the relationship between personality and life satisfaction, and may induce poor subjective health. It is proposed that rural-to-urban migration experience moderates the relationships between personality and life satisfaction via subjective health; however, few studies have examined this possibility.

While many studies have revealed close relationships between personality, subjective health, and life satisfaction, it remains unclear whether subjective health mediates the relationship between personality and life satisfaction. It also remains unclear whether rural-to-urban migration experience moderates the relationship between personality and life satisfaction via subjective health. Therefore, the present study explored (1) the relationship between personality, subjective health, and life satisfaction; (2) whether subjective health mediates the relationship between personality and life satisfaction; and (3) whether rural-to-urban migration experience moderates the relationships between personality and life satisfaction via subjective health. We hypothesized that personality would be significantly correlated with subjective health and life satisfaction. In addition, we hypothesized that subjective health would mediate the relationship between personality and life satisfaction. Furthermore, rural-to-urban migration experience would moderate the relationships between personality and life satisfaction via subjective health. We adopted a moderated mediation model (Fig. 1) in the present study, since it offers the opportunity to simultaneously examine moderation and mediation (Edwards & Konold, 2020; Hayes & Preacher, 2013).

Fig. 1 The proposed moderated mediation model



Methods

Participants

Participants were recruited from six high schools and universities in Hefei, Wuhu, and Xuancheng, Anhui province, China. These three cities were chosen because Hefei and Wuhu rank as the middle level, and Xuancheng ranks as the less advantaged level in China. Participants were selected randomly at each school using the cluster random sampling method. We used $G \times Power$ to calculate the suitable sample size (Faul et al., 2007). The power analysis for the correlation analysis suggested a sample size of 111 with a medium effect size (0.3), an alpha of 0.05, and a power of 0.95. Considering that some factors can reduce the power with moderate effects (Dawson, 2014), the final sample included more participants than did the calculation. A total of 943 participants took part in the study. Participants were aged 14–20 years old (average age of 17.18 ± 1.76 years). The definitions of rural-to-urban migrant adolescents and young adults were as follows: (1) they had followed their parents or guardians from a rural to an urban area more than 6 months, and (2) their household was registered (i.e., *hukou*) in a rural area. Of all participants, 415 had a rural-to-urban migration experience, and 528 did not have migration experience.

This study was reviewed and approved by the Institutional Review Board of Human Research Ethics Committee for Non-Clinical Faculties at Anhui Normal University. Written informed consent was obtained from all participants. For participants aged under 18 years, written informed consent was also obtained from their parents/guardians.

Instruments

Demographic questionnaire

The background questionnaire was a parent-reported inventory that collected data on gender, date of birth, *hukou* (household

registered in an agricultural or nonagricultural area), annual family income (scored on a 9-point scale as follows: 1 = ¥ 3000, 2 = ¥ 3001–6000, 3 = ¥ 6001–10,000, 4 = ¥ 10,001–30,000, 5 = ¥ 30,001–50,000, 6 = ¥ 50,001–100,000, 7 = ¥ 100,001–150,000, 8 = 150,001–200,000, 9 = more than ¥ 200,001), and parental educational level (years).

The 60-item NEO-Five-Factor Inventory

The NEO-FFI was developed by Costa and McCrae (1991), and includes the following five dimensions: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Each dimension is measured using 12 items that are scored on a 5-point Likert-type scale. The Chinese version of the NEO-FFI has good reliability and validity, and the Cronbach's α of the NEO-FFI for each dimension has been reported to range from 0.63 to 0.78 (Yao & Liang, 2010). In the present study, the Cronbach's α of the NEO-FFI for each dimension ranged from 0.62 to 0.82.

Satisfaction with Life Scale

The 5-item Satisfaction with Life Scale was developed by Diener et al. (1985). Each item is scored on a 7-point Likert-type scale ranging from strongly disagree to strongly agree. The Chinese version of the Satisfaction with Life Scale has good reliability and validity, with a Cronbach's α coefficient of 0.78 and a split-half reliability of 0.70 (Wang et al., 2009). In the present study, the Cronbach's α of the Satisfaction with Life Scale was 0.89.

Subjective health complaints

The Subjective Health Complaints Scale was developed by Haugland and Wold (2001). It measures the subjective health for headaches, stomach pain, back pain, depression, irritability, nervousness, and dizziness. Responses

are scored on a 5-point scale according to whether each symptom is experienced daily, more than once a week, once a week, once a month, or rarely or never. The higher the score, the better the subjective health (Haugland & Wold, 2001). In the present study, the Cronbach's α of the Subjective Health Complaints Scale was 0.86.

Statistical analyses

Pearson's correlations, mediating analysis, moderated mediation analysis, and simple slope analysis were applied. First, Pearson's correlations were used to examine the relationships between personality, subjective health, and life satisfaction. Second, the mediating effect of subjective health on the relationship between personality and life satisfaction was tested by following MacKinnon's four-step procedure (MacKinnon, 2008). This procedure requires (a) a significant association between personality and life satisfaction, (b) a significant association between personality and subjective health, (c) a significant association between subjective health and life satisfaction while controlling for personality, and (d) a significant coefficient for the indirect path between personality and life satisfaction via subjective health. The mediating effect of subjective health between personality and life satisfaction was tested using the Bootstrap estimation procedure in MPLUS (a Bootstrap sample of 1000 was specified). Bootstrap estimation can reduce the Type I and Type II errors (Fang & Zhang, 2012). Third, we explored whether the mediation process was moderated by migration experience using Hayes's PROCESS macro (Model 59) (Hayes, 2013). In addition, simple slope analysis was used to specify the moderated mediation effect. Confidence intervals that do not include zero indicate effects that are significant at $\alpha = 0.05$ (Erceg-Hurn & Mirosevich, 2008).

Results

Descriptive statistics and correlations between variables

The descriptive statistics for background variables, personality, subjective health, life satisfaction, and their correlations are shown in Table 1. The results showed that (1) both neuroticism and openness were negatively correlated with subjective health ($r = -0.467, -0.091$, all $ps < 0.05$), while extraversion, agreeableness, and conscientiousness were positively correlated with subjective health ($r = 0.114, 0.299, 0.257$, all $ps < 0.01$); (2) neuroticism was negatively correlated with life satisfaction ($r = -0.295, p < 0.01$), while extraversion, pleasantness, and responsibility were positively corrected with life satisfaction ($r = 0.288, 0.135, 0.2$, all $p < 0.01$); and (3) subjective health was positively correlated with life satisfaction ($r = 0.173, p < 0.01$).

The mediation effect of subjective health

We investigated whether subjective health mediated the relationship between personality and life satisfaction. The results of the multicollinearity test for the variables showed that the Variance Inflation Factor values were between 0.1 and 10, which indicates that there was no multicollinearity problem (Harris & Mossholder, 1996).

We used the bias-adjusted nonparametric percentile Bootstrap method to investigate whether subjective health has a mediating effect on the relationship between personality and life satisfaction. Parents' educational level and annual family income were the control variables, personality was the independent variable, subjective health was the mediating variable, and life satisfaction was the dependent variable (Table 2). For neuroticism, a significant negative predictive effect on subjective health was found ($\beta =$

Table 1 Descriptive statistics and correlations among variables

	Mean (SD)	1	2	3	4	5	6	7	8	9
1. Annual family income	4.15 (1.84)	1.000								
2. Father's educational level	7.37 (2.83)	0.170**	1.000							
3. Mother's educational level	5.94 (3.33)	0.165**	0.645**	1.000						
4. Neuroticism	35.91 (6.86)	-0.106**	-0.140**	-0.087**	1.000					
5. Extraversion	38.9 (5.77)	0.049	0.034	0.111**	-0.311**	1.000				
6. Openness	36.03 (3.88)	0.036	-0.043	-0.008	-0.067*	0.096**	1.000			
7. Agreeableness	40.11 (4.67)	0.012	-0.065*	-0.061	-0.357**	0.237**	0.061	1.000		
7. Conscientiousness	39.01 (5.44)	-0.008	0.089**	0.111**	-0.478**	0.277**	0.169**	0.436**	1.000	
9. Subjective health	27.94 (5.34)	0.120**	0.048	-0.039	-0.467**	0.114**	-0.091*	0.299**	0.257**	1.000
10. Life satisfaction	20.54 (5.79)	0.040	0.144**	0.156**	-0.295**	0.288**	0.063	0.135**	0.200**	0.173**

* $p < 0.05$, ** $p < 0.01$

Table 2 Testing the mediation effect of subjective health on the relationship between personality and life satisfaction

Predictors	Subjective health			Life satisfaction		
	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>B</i>	<i>SE</i>	95% <i>CI</i>
Annual family income	0.053	0.017	0.020, 0.086	-0.009	0.018	-0.043, 0.026
Father's educational level	0.073	0.042	-0.009, 0.156	0.053	0.044	-0.033, 0.139
Mother's educational level	-0.124	0.039	-0.200, -0.048	0.120	0.401	0.004, 0.200
Neuroticism	-0.060	0.004	-0.068, -0.052	-0.038	0.005	-0.048, -0.028
Subjective health				0.046	0.037	-0.026, 0.118
	$R^2 = 0.280, F(6,936) = 60.682^{**}$			$R^2 = 0.115, F(7,935) = 17.266^{**}$		
Extraversion	0.024	0.005	0.134, 0.034	0.046	0.005	0.035, 0.057
Subjective health				0.119	0.033	0.054, 0.184
	$R^2 = 0.139, F(6,936) = 25.274^{**}$			$R^2 = 0.131, F(7,935) = 20.170^{**}$		
Openness	-0.025	0.008	-0.040, -0.009	0.020	0.008	0.004, 0.036
Subjective health				0.168	0.034	0.101, 0.235
	$R^2 = 0.130, F(6,936) = 23.292^{**}$			$R^2 = 0.070, F(7,935) = 10.076^{**}$		
Agreeableness	0.061	0.006	0.049, 0.074	0.021	0.007	0.007, 0.035
Subjective health				0.129	0.036	0.059, 0.199
	$R^2 = 0.200, F(6,936) = 39.040^{**}$			$R^2 = 0.072, F(7,935) = 10.418^{**}$		
Conscientiousness	0.042	0.005	0.032, 0.053	0.026	0.006	0.015, 0.038
Subjective health				0.123	0.035	0.054, 0.191
	$R^2 = 0.173, F(6,936) = 32.708^{**}$			$R^2 = 0.083, F(7,935) = 12.079^{**}$		

* $p < 0.05$, ** $p < 0.01$

-0.060, 95% confidence interval [*CI*] = -0.068–0.052); however, subjective health did not predict life satisfaction ($\beta = 0.046$, 95% *CI* = -0.026–0.118), which indicates that subjective health did not mediate the relationship between neuroticism and life satisfaction. Extraversion, openness, agreeableness, and conscientiousness had significant positive effects on subjective health ($\beta = 0.024, -0.025, 0.061, 0.042$; 95% *CI* = 0.134–0.034, -0.040–0.009, 0.049–0.074, 0.032–0.053). In addition, subjective health also has a positive effect on life satisfaction ($\beta = 0.119, 0.168, 0.129, 0.042$; 95% *CI* = 0.054–0.184, 0.101–0.235, 0.059–0.199, 0.054–0.191), which indicates that subjective health mediated the relationship between extraversion, openness, pleasantness, responsibility, and life satisfaction.

The moderated mediation effect of rural-to-urban migration experience

We examined whether rural-to-urban migration experience moderated the direct and indirect relationships between personality and life satisfaction via subjective health. According to Hayes (2013) and Edwards and Lambert (2007), moderated mediation is established if one, two, or three patterns exist (direct effect and/or first stage and/or second stage moderation), as follows: (a) direct effect, i.e., the path between personality and life satisfaction was moderated by migration experience (Model 1 of Table 3); (b) first stage moderation, i.e., the path between personality and subjective

health was moderated by migration experience (Model 2 of Table 3); (c) second stage moderation, i.e., the path between subjective health and life satisfaction was moderated by migration experience (Model 3 of Table 3). Background variables were controlled in each of the models.

Model 1 showed a significant main effect of extraversion on life satisfaction ($\beta = 0.604, t = 5.891, p < 0.01$), and this effect was moderated by rural-to-urban migration experience ($\beta = -0.332, t = -3.236, p < 0.01$), which indicates that rural-to-urban migration experience moderated the direct path between extraversion and life satisfaction. To further investigate the nature of this moderation, a simple slope analysis was performed separately for the migration experience and nonmigration experience groups (Fig. 2). In the nonmigration experience group, there was a significant positive relationship between extraversion and life satisfaction (simple slope = 0.069, $t = 8.510, p < 0.01$). In the migration experience group, the positive relationship between extraversion and life satisfaction was still significant but weaker (simple slope = 0.036, $t = 5.050, p < 0.01$). Model 2 only showed a significant main effect of extraversion on life satisfaction ($\beta = 0.293, t = 2.744, p < 0.01$), which indicates that migration experience did not moderate the first stage of moderation. Model 3 revealed that migration experience moderated the effect of subjective health and life satisfaction ($\beta = 0.281, t = 2.796, p < 0.01$), which indicates that migration experience moderated the second stage of moderation. Simple slope analysis further revealed that there was a significant positive relationship between subjective health and life satisfaction in the nonmigration experience group (simple slope = 0.237, $t = 5.332,$

Table 3 Testing the moderated mediation effect of personality on life satisfaction

Predictors	Model 1 (Life satisfaction)		Model 2 (Subjective health)		Model 3 (Life satisfaction)	
	<i>B</i>	<i>t</i>	<i>B</i>	<i>t</i>	<i>B</i>	<i>t</i>
Extraversion	0.604	5.891**	0.293	2.744**	0.603	5.874**
Migration experience	-0.001	-0.025	-0.068	-2.110*	0.278	0.781
Extraversion × migration experience	-0.332	-3.236**	-0.189	-1.775	-0.341	-3.340**
Subjective health					-0.131	-1.296
Subjective health × migration experience					0.281	2.796**
	$R^2=0.093, F=32.120^{**}$		$R^2=0.021, F=6.655^*$		$R^2=0.119, F=25.311^{**}$	
Openness	0.086	0.784	-0.220	-2.018*	0.078	2.420**
Migration experience	-0.007	-0.216	-0.066	-2.023*	0.223	0.824
Openness × migration experience	-0.024	-0.220	0.134	1.224		
Subjective health					0.047	0.963
Subjective health × migration experience					1.780	0.075
	$R^2=0.004, F=1.274$		$R^2=0.015, F=4.788^{**}$		$R^2=0.040, F=9.676^{**}$	
Agreeableness	0.321	3.014**	0.350	3.406**	0.092	2.741**
Migration experience	0.000	0.012	-0.051	-1.624	0.009	0.288
Agreeableness × migration experience	-0.195	-1.834	-0.056	-0.549		
Subjective health					-0.038	-0.367
Subjective health × migration experience					0.194	1.871
	$R^2=0.022, F=6.948^{**}$		$R^2=0.092, F=31.869^{**}$		$R^2=0.041, F=10.105^{**}$	
Conscientiousness	0.304	2.859**	0.200	1.908	0.166	5.045**
Migration experience	0.006	0.178	-0.054	-1.697	0.013	0.405
Conscientiousness × migration experience	-0.108	-1.019	0.534	0.594		
Subjective health					-0.035	-0.339
Subjective health × migration experience					0.175	1.702
	$R^2=0.041, F=13.473^{**}$		$R^2=0.069, F=23.268^{**}$		$R^2=0.059, F=14.746^{**}$	

* $p < 0.05$, ** $p < 0.01$

$p < 0.01$). The positive relationship between extraversion and life satisfaction was still significant, but weaker, in the migration experience group (simple slope = 0.114, $t = 2.417$, $p < 0.01$; Fig. 3). The moderated mediation effect of extraversion and life satisfaction is summarized in Fig. 4. No moderated mediation effects were found for the other dimensions of personality (Table 3).

Discussion

The present study examined whether subjective health mediates the relationship between personality and life satisfaction, and whether rural-to-urban migration experience moderates the direct and indirect relationships between

personality and life satisfaction through subjective health. The results revealed significant correlations between personality, subjective health, and life satisfaction. Subjective health mediated the relationship between personality and life satisfaction, and rural-to-urban migration experience moderated this mediating effect. Specifically, the indirect effect of extraversion on life satisfaction via subjective health was weaker for migrant adolescents and young adults than for nonmigrant adolescents and young adults.

Extraversion, agreeableness, and conscientiousness were positively correlated with life satisfaction, while neuroticism was negatively correlated with life satisfaction, which is consistent with previous studies (Köötus-Ausmees et al., 2016; Roberts et al., 2007). Adolescents and young adults

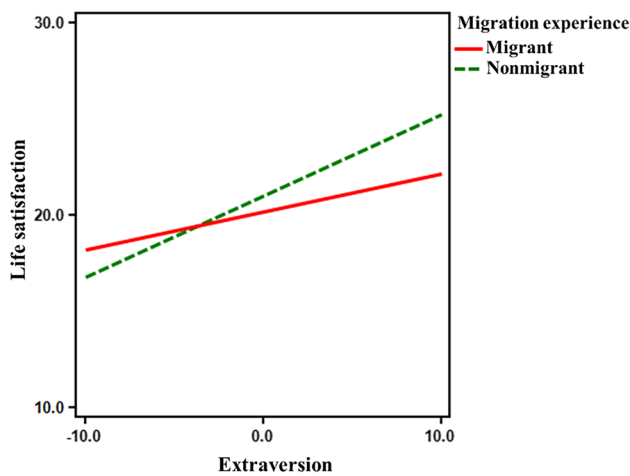


Fig. 2 Plots of slopes for the interaction between extraversion and migration experience on life satisfaction

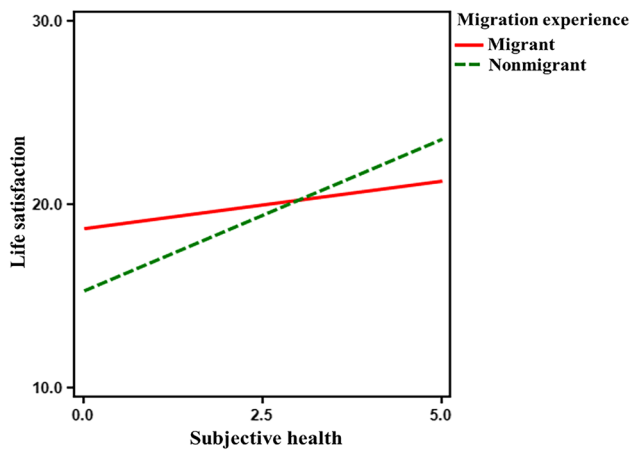
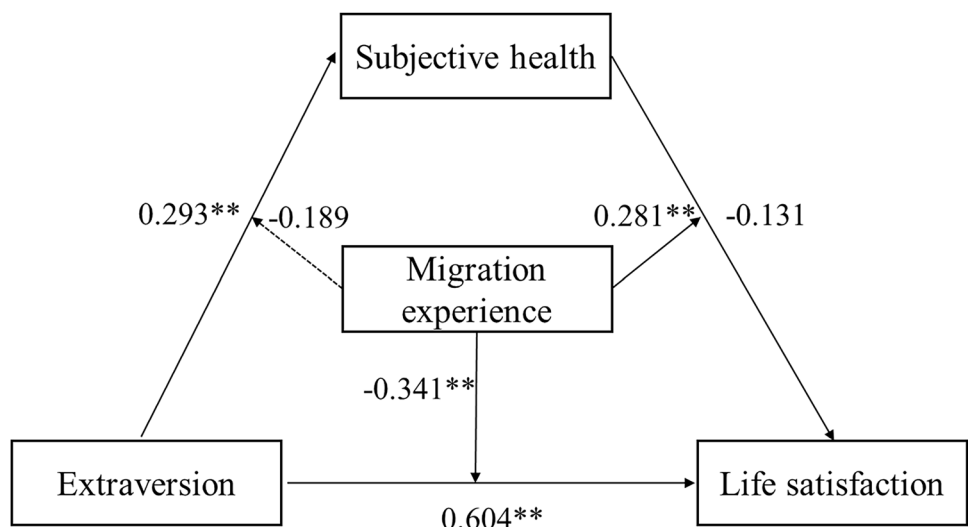


Fig. 3 Plots of slopes for the interaction between subjective health and migration experience on life satisfaction

Fig. 4 The moderated mediation effect of migration experience



with high extraversion, agreeableness, and conscientiousness usually have greater enjoyment from life, which has been found to increase their life satisfaction (Roberts et al., 2007). In contrast, adolescents and young adults with high neuroticism usually have greater emotional volatility and less harmonious interpersonal relationships, with an unwillingness to communicate with friends and parents, which has been reported to result in less life satisfaction (Aiken-Morgan et al., 2014; Kööts-Ausmees et al., 2016). In the present study, the correlation coefficient for significant correlation was low, which could be due to the large sample size. Indeed, sample size can affect correlation coefficients (Fisher, 1990). As a general rule, when the sample size is large, the correlation can reach significance even when the correlation coefficient is small.

Both neuroticism and openness were negatively correlated with subjective health, while extraversion, agreeableness, and conscientiousness were positively correlated with subjective health. Adolescents and young adults with higher neuroticism are more sensitive and suspicious when faced with physical and mental changes, which leads to worse subjective health (Schimmack et al., 2004). The present study found that openness was negatively correlated with subjective health, which differs from previous reports. This could be because adolescents and young adults with high openness have abundant emotions, imagination, creativity, and a sense of ambition, which may mean that they overestimate their health problems (Oswald et al., 2006). Extraversion, agreeableness, and conscientiousness were positively correlated with subjective health, which is consistent with previous studies (Roberts et al., 2007). People with high extraversion, agreeableness, and conscientiousness have positive emotionality and social support, such that they can positively perceive mental and physical health (Roberts et al., 2007). Besides personality,

subjective health was also positively correlated with life satisfaction, which is consistent with previous results (Bao et al., 2013; Kööts-Ausmees et al., 2013). Adolescents and young adults with better subjective health generally have a more optimistic mentality, which might directly lead to better life satisfaction (Bao et al., 2013).

The present study is the first to reveal that subjective health mediated the relationship between personality (extraversion, openness, agreeableness, and conscientiousness) and life satisfaction in adolescents and young adults. Adolescents and young adults with high extraversion are more enthusiastic and energetic; those with high openness are more prone to exploration and creativity; those with high agreeableness are more helpful and altruistic; and those with a strong sense of conscientiousness are more organized, planned, and persevering (Allik & McCrae, 2002; Costa & McCrae, 1991). These personality traits enable adolescents and young adults to better understand the changes in their physical and mental health, and to positively evaluate their mental and physical health. Moreover, improvement in subjective health could in turn enable adolescents and young adults to attain more life satisfaction and a greater well-being (Bao et al., 2013).

This study is also the first to find that rural-to-urban migration experience moderated the mediation effect of personality on life satisfaction in adolescents and young adults. Specifically, the indirect effect of extraversion on life satisfaction via subjective health was weaker for migrant adolescents and young adults than for nonmigrant adolescents and young adults. This indicates that rural-to-urban migration experience not only reduces the direct positive effect of extraversion on life satisfaction, but also indirectly reduces life satisfaction by reducing the positive effect of subjective health on life satisfaction. Rural-to-urban migrant adolescents and young adults face large fluctuations in their living environment, which can lead to anxiety, loneliness, and depression (Lin et al., 2009). Furthermore, these mental problems have been found to reduce their life satisfaction (Dai et al., 2009). Rural-to-urban migrant adolescents and young adults are special groups, and society, schools, and families should pay more attention to their personality and physical and mental health.

The present study has some limitations. First, the sample was selected from Anhui province only; to increase the representativeness of the results, future studies could recruit participants from different regions. Second, the present study only explored the moderated mediation effect of personality on life satisfaction in adolescents and young adults, and future studies could further expand this to other groups, such as children, adults, and older individuals.

Author contributions Cuicui Wang, Xiang Lu, and Daoyang Wang designed the study. Cuicui Wang collected, analyzed the data and wrote the manuscript. Xiang Lu collected and analyzed the data. Daoyang Wang supervised the whole study.

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

Declarations

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The institutional review board at Beijing Normal University approved the study procedures.

Informed consent Written consent was obtained from young adults and the parents/guardians of adolescents after a full explanation of the study procedure.

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

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