

The Dynamic Relationship between Self-Identity Crisis, Ethnic Identity, Patriotic Sentiment, and Life Satisfaction: An Empirical Study Based on Cross-Lagged Modeling

Jia Wu^{1,a}, Xiaodong Li^{1,b}, Hui Kou^{1,c}, Taiyong Bi^{1,d,*}

¹Research Center of Humanities and Medicine, Zunyi Medical University, Zunyi, China

^atherealwujia@126.com, ^blixiaodongk@163.com, ^ckouhuizmu@126.com, ^dbitaiyong@126.com

*Corresponding author

Abstract: This study explored the dynamic relationships among four variables: self-identity crisis, ethnic identity, patriotic sentiment and life satisfaction using a cross-lagged model. Longitudinal data were collected from three time points: T1 (first year), T2 (second year), and T3 (third year) of junior high school, tracking 403 ethnic minority adolescents in Southwest China. The findings are as follows: (1) All four variables exhibited strong temporal stability, with autoregressive path coefficients ranging from 0.14 to 0.56; (2) self-identity crisis negatively predicted ethnic identity, patriotic sentiment, and life satisfaction at certain time points; (3) ethnic identity significantly and positively predicted patriotic sentiment; (4) life satisfaction significantly and negatively predicted self-identity crisis at subsequent time points; (5) all four variables showed significant correlations within each time point. These results reveal the dynamic, interactive relationship between psychological identity and emotional experience in ethnic minority adolescent groups. They also provide empirical evidence for adolescent mental health and patriotic education.

Keywords: Ethnic Minority Adolescent, Self-Identity Crisis, Ethnic Identity, Patriotic Sentiment, Life Satisfaction, Cross-Lagged Model

1. Introduction

In recent years, the process of identity formation among adolescents has become increasingly complex, driven by the accelerating pace of globalization and profound social changes ^[1]. Self-identity and ethnic identity are key components of social development, particularly during adolescence and early adulthood ^[2, 3]. The formation and evolution of these identities are shaped by individual psychological factors and are strongly influenced by the broader social and cultural contexts ^[4, 5]. At the same time, patriotic sentiment as an expression of ethnic identity and life satisfaction as a core indicator of subjective well-being are both potentially associated with the formation of individual identity ^[6-8]. However, previous studies have predominantly employed cross-sectional designs, limiting the ability to capture the dynamic relationships and developmental trajectories of these variables ^[9].

Self-identity crisis is a challenge that may arise during the process of identity formation, characterized by confusion and uncertainty regarding self-orientation, values, and future direction ^[10]. According to Erikson ^[2], resolving the self-identity crisis is a central task of adolescent development. The formation of self-identity is closely linked to the development of social identity ^[11]. Studies have shown that self-identity crisis may hinder individual's psychological identification with and emotional connection to a group ^[12], potentially impacting life satisfaction ^[13, 14].

Ethnic identity refers to an individual's cognitive and emotional attachment to their ethnic group and constitutes a key component of social identity ^[4]. Studies have shown that ethnic identity can enhance collective self-esteem and positive emotions, while also serving as a psychological buffer against uncertainty and stress ^[1]. Ethnic identity fulfills the emotional needs and psychological motivation for patriotism ^[15]. Zhang ^[16] found that ethnic identity significantly predicted individuals' patriotic sentiment.

Patriotic sentiment is defined as an individual's emotional attachment and loyalty to the country, reflecting love for and a sense of belonging to their homeland ^[17]. Research has shown that individuals'

patriotism is closely linked to their values, social participation, and civic behaviors [7, 18, 19]. Ha and Jang [20] suggested that patriotic sentiment influences individuals' support for national policies and their social identity, which may positively affect their subjective well-being.

Life satisfaction is an individual's subjective assessment of life quality and serves as the cognitive component of subjective well-being [21]. Studies have found a significant correlation between an individual's identity status and their life satisfaction [13]. A strong sense of identity contributes to mental health and a high quality of life [9].

In a multi-ethnic country like China, ethnic minority adolescents face unique challenges that can impact their life satisfaction. Zhao and Postiglione [22] found that ethnic minority students are often stigmatized in educational media, which negatively affects their self-perception and academic performance. Lai, Chui, Hausmann-Stabile, Yao, Wong and Di [23] highlighted that these adolescents experience culture shock when transitioning from rural areas to predominantly Han Chinese schools, disrupting their identity development and adaptation to mainstream society. Therefore, studying the formation and development of ethnic minority adolescents' sense of identity, patriotic sentiment, and life satisfaction is crucial.

Previous studies on the relationship between self-identity crises, ethnic identity, patriotic sentiment, and life satisfaction have primarily used cross-sectional designs, which examine correlations between variables and limit the exploration of potential causal relationships and developmental trajectories [1, 20]. The cross-lagged panel model (CLPM) is a longitudinal research method that simultaneously examines both the temporal stability of variables (i.e., autoregressive effects) and their cross-sectional influences (i.e., cross-lagged effects), offering an effective approach to exploring bidirectional causality among psychological variables [24].

Building on the research background, this study employs a longitudinal design with three time points and a cross-lagged model to explore the dynamic relationships among self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction in ethnic minority adolescents from Southwest China. The ethnic minorities in the region we studied mainly include the Miao, Dong, and Shui ethnic groups. The hypotheses of the study are as follows: (1) the autoregressions of the four variables are significant, indicating strong temporal stability; (2) self-identity crisis strongly predicts ethnic identity, patriotic sentiment, and life satisfaction; (3) ethnic identity unidirectionally predicts patriotic sentiment; (4) life satisfaction mitigates subsequent self-identity crises; and (5) the variables are significantly correlated within each time point. The results of this study will enhance our understanding of the development mechanisms underlying psychological identity and subjective well-being in adolescents, providing a scientific foundation for mental health and patriotism education.

2. Material and methods

2.1 Participants and Procedure

Participants were recruited from a junior middle school in an ethnic minority area of Qiandongnan, Guizhou Province, China. A total of 450 first-year students participated in this study, including 240 boys and 163 girls, with ages ranging from 10 to 15 years ($M = 13.22$, $SD = 0.53$). Among the valid participants, 282 were Miao (70.0%), 110 were Dong (27.3%), and 11 belonged to other ethnic minority groups (2.7%). The study employed a longitudinal design, with questionnaires administered at three time points: April 2023 (T1), April 2024 (T2), and April 2025 (T3), each one year apart. Due to the extended three-year time span, the study experienced a relatively high rate of questionnaire attrition. Following data screening, questionnaires with missing values exceeding 10.4% or identified as duplicates were excluded, resulting in a final valid sample of 403 students, with a validity rate of 89.5%.

The questionnaires were administered collectively in the classroom, with uniformly trained research assistants guiding participants to ensure consistency throughout the process. The administration time was limited to approximately 30 minutes. To enhance the efficiency of the tracking survey, each participant's class and school identification numbers were accurately recorded and organized, ensuring both data anonymity and traceability.

2.2 Ethical statement

All the participants were informed of the purpose of the study and were voluntary to participate. All procedures performed in this study involving human participants were in accordance with the ethical

standards of the Ethical Committee of Human Research at a medical university and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written informed consent was given by all adolescents and their legal guardians.

2.3 Measurements

All participants were assessed at three time points with one-year intervals: T1 (first year), T2 (second year), and T3 (third year) of junior high school with assessments conducted at the same time each year.

Adolescence Ego Identity Crisis Scale (AEICS) ^[25] It consists of 28 items in total, including 7 dimensions: time perspective, self-awareness, role experimentation, work incapacity, self-certainty, authority confusion, and value orientation. Each item is rated on a Likert 5-point scale ranging from 1 = strongly disagree to 5 = strongly agree. The scoring for all positively-worded items is reversed to facilitate understanding. Higher total scores indicate a higher level of ego identity crisis. The Cronbach's alpha coefficient for the Chinese version of the scale was 0.79 ^[25], and in the present study, Cronbach's alpha coefficient was 0.89.

Ethnic Identity Scale (EIS) ^[26] The scale is designed to measure an individual's sense of ethnic identity. It consists of 15 items across 3 dimensions: exploration, affirmation, and commitment. Exploration refers to an individual's active participation in activities that help them understand their ethnic group; affirmation reflects the degree to which individuals have positive feelings and evaluations about their ethnic identity; commitment refers to the perceived meaning of ethnic identity and the sense of mission it brings. Each item is rated on a Likert 4-point scale ranging from 0 = strongly disagree to 3 = strongly agree, with one item scored in reverse. In the present study, Cronbach's alpha coefficient was 0.86.

Patriotism Emotion Scale (PES) ^[27] It consists of 6 items and is rated on a 6-point Likert scale ranging from 1 = strongly disagree to 6 = strongly agree. The total score is obtained by summing the individual item scores, with higher scores indicating a stronger sense of patriotism. In the present study, the Cronbach's alpha coefficient for the scale was 0.72.

Satisfaction With Life Scale (SWLS) ^[21] The scale consists of 5 items in total, aimed at measuring the cognitive dimension of subjective well-being. The items are rated on a Likert 7-point scale from 1 = strongly disagree to 7 = strongly agree. Higher scores indicate greater satisfaction with life. The Cronbach's alpha coefficient for this scale in this study was 0.81.

2.4 Statistical analysis

The data were processed and analyzed using SPSS 26.0 and Mplus 8.3 software. Descriptive and correlation analyses were first conducted, followed by the construction of a cross-lagged model to examine the autoregressive and cross-lagged effects among four variables: self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction ^[28].

3. Results

3.1 Descriptive statistics and Bivariate correlation analysis

Descriptive statistical results showed the temporal stability and interactions among the four variables: patriotic sentiment, life satisfaction, ethnic identity, and self-identity crisis, as shown in Table 1. The data indicate slight differences across grade levels, with patriotic sentiment and ethnic identity showing a slight upward trend, while life satisfaction and self-Identity crisis exhibited fluctuations across different grades.

Table 1 also presents the correlation matrices for gender, ethnicity, self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction across the three time points. The results indicate strong stability in the correlations between the same variables at different time points, such as: self-identity crisis at T1 and T2 ($r = 0.568, p < 0.01$) and at T2 and T3 ($r = 0.627, p < 0.01$); ethnic identity at T1 and T2 ($r = 0.432, p < 0.01$) and at T2 and T3 ($r = 0.537, p < 0.01$); patriotic sentiment at T1 and T2 ($r = 0.266, p < 0.01$) and at T2 and T3 ($r = 0.432, p < 0.01$); and life satisfaction at T1 and T2 ($r = 0.472, p < 0.01$) and at T2 and T3 ($r = 0.590, p < 0.01$). These findings demonstrate that the four key variables of the study exhibit stability over time, thus supporting Hypothesis 1.

The correlation analysis revealed that self-identity crisis was significantly and negatively correlated with ethnic identity, patriotic sentiment, and life satisfaction across all three time points ($r = -0.114$ to -0.575 , $p < 0.05$ or $p < 0.01$). This supports Hypothesis 2, indicating that individuals with a higher level of self-identity crisis tend to report lower levels of ethnic identity, patriotic sentiment, and life satisfaction. A significant positive correlation was found between ethnic identity and patriotic sentiment ($r = 0.191$ to 0.639 , $p < 0.01$), affirming the hypothesis 3 that cognition and emotion are strongly interconnected within social identity. Additionally, ethnic identity was positively associated with life satisfaction ($r = 0.100$ to 0.339 , $p < 0.05$ or $p < 0.01$), suggesting that a stronger ethnic identity may contribute to greater individual well-being. Patriotic sentiment also showed a significant positive correlation with life satisfaction at certain time points ($r = 0.120$ to 0.220 , $p < 0.05$ or $p < 0.01$).

Notably, gender was significantly positively correlated with self-identity crisis at all three time points ($r = 0.205$ to 0.264 , $p < 0.01$) and significantly negatively correlated with life satisfaction ($r = -0.226$ to -0.247 , $p < 0.01$). This suggests that gender may influence the experience of ethnic identity. The ethnicity variable was significantly negatively correlated with ethnic identity at all three time points ($r = -0.138$ to -0.255 , $p < 0.01$), reflecting potential differences in ethnic identity among students of different ethnic backgrounds.

Table 1 Means, standard deviations, and zero-order correlations among study variables (N=403).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	M	SD
1. Gender	1														-	-
2. Ethnicity	.090	1													-	-
3. PE1	.038	-.069	1												29.64	4.51
4. LS1	-.235**	.005	.120*	1											20.12	6.31
5. EI1	.066	-.138**	.547**	.261**	1										31.15	7.22
6. SI1	.205**	-.079	-.193**	-.434**	-.286**	1									80.22	13.74
7. PE2	-.012	.012	.266**	.079**	.285**	-.239**	1								29.85	4.49
8. LS2	-.247**	-.036	.056	.472**	.100*	-.308**	.220**	1							20.02	6.53
9. EI2	.042	-.141**	.227**	.161**	.432**	-.259**	.624**	.339**	1						30.41	7.14
10. SI2	.249**	-.067	-.142**	-.337**	-.193**	.568**	-.303**	-.575**	-.363**	1					82.38	15.06
11. PE3	.035	-.036	.266**	.073**	.257**	-.114*	.432**	.131**	.349**	-.200**	1				29.95	4.27
12. LS3	-.226**	-.031	.016	.470**	.117*	-.259**	.157**	.590**	.223**	-.378**	.178**	1			20.49	6.05
13. EI3	.048	-.255**	.191**	.124*	.378**	-.155**	.333**	.159**	.537**	-.207**	.639**	.254**	1		31.11	6.29
14. SI3	.264**	.034	-.058	-.308**	-.132**	.486**	-.190**	-.438**	-.231**	.627**	-.256**	-.531**	-.323**	1	80.78	14.15

Note. PE = Patriotic Sentiment; LS = life satisfaction; EI = ethnic identity; SI = self-identity crisis; 1, 2, 3 represent the three measurement time points, respectively; gender was coded as "1" = male, "2" = female; ethnicity was coded as "1" = Miao, "2" = Dong, "3" = other

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

3.2 Cross-lag model analysis

According to the research hypothesis, a cross-lagged model including three measurement time points and four variables was constructed. The model diagram is presented in Figure 1, and the results of the main path coefficients are provided in Tables 2 and 3.

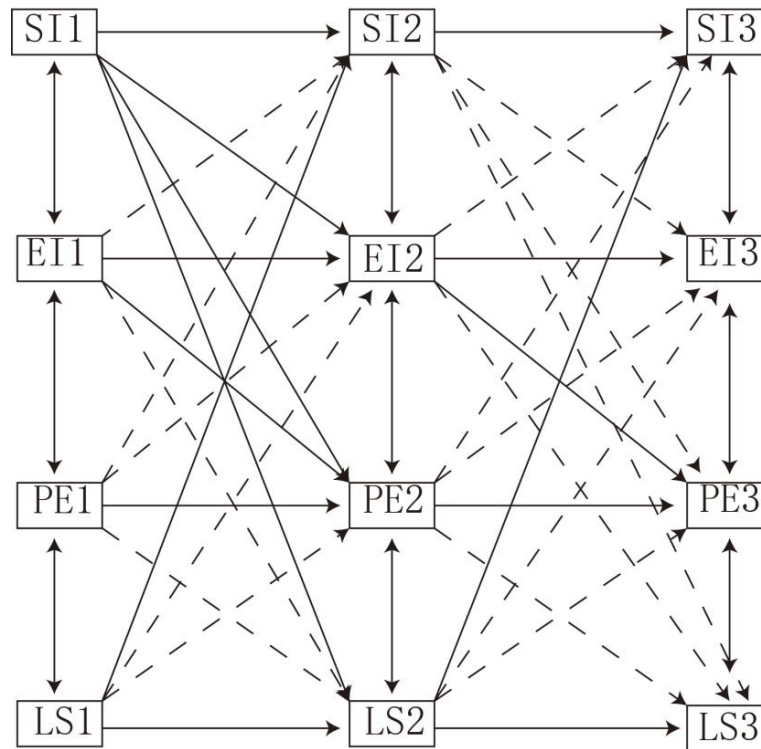


Figure 1 Cross-Lagged Model.

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction; Solid lines represent significant paths, dashed lines represent non-significant paths, and the numbers "1, 2, 3" next to the variables indicate the three time points.

Table 2: Path Coefficients of the T1 to T2 Cross-Lagged Model.

Dependent Variable	Independent Variable	β	SE	t	p
SI2	SI1	0.515	0.041	12.489	<.001
	EI1	-0.001	0.050	-0.024	.981
	PE1	-0.029	0.049	-0.599	.549
	LS1	-0.110	0.046	-2.414	.016
EI2	SI1	-0.151	0.050	-3.032	.002
	EI1	0.403	0.052	7.726	<.001
	PE1	-0.022	0.053	-0.414	.679
	LS1	-0.007	0.050	-0.134	.893
PE2	SI1	-0.191	0.052	-3.673	<.001
	EI1	0.169	0.057	2.944	.003
	PE1	0.144	0.055	2.604	.009
	LS1	-0.065	0.052	-1.239	.215
LS2	SI1	-0.138	0.049	-2.814	.005
	EI1	-0.055	0.054	-1.018	.308
	PE1	0.008	0.052	0.153	.878
	LS1	0.425	0.045	9.371	<.001

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

Table 3: Path Coefficients of the T2 to T3 Cross-Lagged Model

Dependent Variable	Independent Variable	β	SE	t	p
SI3	SI2	0.564	0.044	12.960	<.001
	EI2	0.014	0.051	0.281	.778
	PE2	-0.002	0.050	-0.041	.967
	LS2	-0.118	0.048	-2.478	.013
EI3	SI2	-0.038	0.053	-0.723	.470
	EI2	0.544	0.051	10.630	<.001
	PE2	-0.008	0.054	-0.149	.882

PE3	LS2	-0.046	0.052	-0.885	.376
	SI2	-0.067	0.056	-1.188	.235
	EI2	0.120	0.059	2.018	.044
	PE2	0.342	0.055	6.168	<.001
LS3	LS2	-0.023	0.055	-0.421	.674
	SI2	-0.052	0.051	-1.035	.301
	EI2	0.007	0.054	0.132	.895
	PE2	0.015	0.052	0.288	.774
	LS2	0.554	0.045	12.420	<.001

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

As shown in Tables 2 and 3, the autoregressive paths for all four variables are statistically significant, indicating a substantial degree of stability in self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction across the different time points. The autoregressive coefficients are as follows: for self-identity crisis, 0.515 from T1 to T2 and 0.564 from T2 to T3; for ethnic identity, 0.403 from T1 to T2 and 0.544 from T2 to T3; for patriotic sentiment, 0.425 from T1 to T2 and 0.554 from T2 to T3; and for life satisfaction, 0.425 from T1 to T2 and 0.342 from T2 to T3. These coefficients suggest considerable stability in the trajectory of each variable over time.

In terms of cross-lagged effects, the main findings include the following:

Self-identity crisis at T1 significantly and negatively predicted ethnic identity ($\beta = -0.151, p < 0.01$), patriotic sentiment ($\beta = -0.191, p < 0.001$), and life satisfaction ($\beta = -0.138, p < 0.01$) at T2, indicating that a self-identity crisis at an earlier time point inhibits the subsequent development of ethnic identity, patriotic sentiment, and life satisfaction. However, self-identity crisis at T2 did not significantly predict ethnic identity ($\beta = -0.038, p = 0.470$), patriotic sentiment ($\beta = -0.067, p = 0.235$) life satisfaction ($\beta = -0.052, p = 0.301$) at T3.

Ethnic identity at T1 significantly and positively predicted patriotic sentiment at T2 ($\beta = 0.169, p < 0.01$), suggesting that ethnic identity plays a key role in fostering patriotic sentiment. Additionally, ethnic identity at T2 significantly predicted patriotic sentiment at T3 ($\beta = 0.120, p < 0.05$), indicating that this effect persists over time.

Life satisfaction at T1 significantly and negatively predicted self-identity crisis at T2 ($\beta = -0.110, p < 0.05$), and similarly, life satisfaction at T2 significantly and negatively predicted self-identity crisis at T3 ($\beta = -0.118, p < 0.05$). These findings suggest that higher life satisfaction may alleviate subsequent self-identity crises, thereby supporting the hypothesis that life satisfaction mitigates the development of identity-related challenges over time.

Patriotic sentiment at T1 significantly and positively predicted patriotic sentiment at T2 ($\beta = 0.144, p < 0.01$), indicating the strong temporal stability of patriotic sentiment.

However, it is important to note that some of the hypothesized cross-lagged effects did not reach statistical significance. Specifically, ethnic identity and patriotic sentiment at T1 did not significantly predict self-identity crisis at T2. Additionally, patriotic sentiment at T1 did not significantly predict ethnic identity at T2. Furthermore, neither patriotic sentiment at T1 nor at T2 significantly predicted subsequent life satisfaction.

3.3 Contemporaneous Correlation Analysis

In addition to the cross-lagged relationships, the correlations between variables at the same time points also provide important information. Tables 4 through 6 present the results of the contemporaneous correlations at three time points.

Table 4: Correlations at T1.

Pair of variables	<i>r</i>	<i>SE</i>	<i>t</i>	<i>p</i>
SI1 WITH EI1	-0.286	0.046	-6.243	<.001
SI1 WITH PE1	-0.193	0.048	-4.031	<.001
SI1 WITH LS1	-0.434	0.040	-10.731	<.001
EI1 WITH PE1	0.547	0.035	15.688	<.001
EI1 WITH LS1	0.261	0.046	5.615	<.001
PE1 WITH LS1	0.120	0.049	2.443	.015

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

Table 5: Correlations at T2.

Pair of variables	<i>r</i>	<i>SE</i>	<i>t</i>	<i>p</i>
SI2 WITH EI2	-0.281	0.046	-6.131	<.001
SI2 WITH PE2	-0.214	0.048	-4.507	<.001
SI2 WITH LS2	-0.509	0.037	-13.805	<.001
EI2 WITH PE2	0.577	0.033	17.340	<.001
EI2 WITH LS2	0.330	0.044	7.436	<.001
PE2 WITH LS2	0.204	0.048	4.270	<.001

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

Table 6: Correlations at T3.

Pair of variables	<i>r</i>	<i>SE</i>	<i>t</i>	<i>p</i>
SI3 WITH EI3	-0.299	0.045	-6.593	<.001
SI3 WITH PE3	-0.191	0.048	-3.982	<.001
SI3 WITH LS3	-0.402	0.042	-9.632	<.001
EI3 WITH PE3	0.599	0.032	18.722	<.001
EI3 WITH LS3	0.217	0.047	4.560	<.001
PE3 WITH LS3	0.120	0.049	2.444	.015

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

The contemporaneous correlations revealed a stable pattern across the three time points (T1, T2, and T3). Self-identity crisis exhibited significant negative correlations with ethnic identity, patriotic sentiment, and life satisfaction, with the strongest negative association observed with life satisfaction ($r = -0.434$ to -0.509 , $p < 0.001$). Ethnic identity was strongly positively correlated with patriotic sentiment ($r = 0.547$ to 0.599 , $p < 0.001$) and moderately positively correlated with life satisfaction ($r = 0.217$ to 0.330 , $p < 0.05$). Patriotic sentiment showed a weak yet significant positive correlation with life satisfaction ($r = 0.120$ to 0.204 , $p < .05$). These findings support Hypothesis 5, which posits a weak but significant positive correlation between patriotic sentiment and life satisfaction ($r = 0.120$ to 0.204 , $p < 0.05$).

3.4 Explained Variance Analysis

The cross-lagged model also provided the proportion of variance explained (Adjusted R^2) for each variable at T2 and T3. The results are presented in Table 7.

Table 7: Proportion of Variance Explained for Each Variable.

Variables	T2	<i>SE</i>	<i>t</i>	<i>p</i>	T3	<i>SE</i>	<i>t</i>	<i>p</i>
SI	33.4%	0.038	8.708	<.001	40.3%	0.038	10.661	<.001
EI	20.7%	0.036	5.765	<.001	29.0%	0.038	7.622	<.001
PE	12.7%	0.031	4.097	<.001	20.0%	0.036	5.605	<.001
LS	23.8%	0.037	6.430	<.001	35.1%	0.038	9.161	<.001

Note. SI = Self-Identity Crisis; EI = Ethnic Identity; PE = Patriotic Sentiment; LS = Life Satisfaction

The results of the explained variance analysis indicate that 33.4% of the variance in self-identity crisis at T2 is accounted for by the model, increasing to 40.3% at T3, the highest among the four variables. The explained variance for patriotic sentiment is relatively lower, at 12.7% for T2 and 20.0% for T3. Overall, the proportion of variance explained for all variables is higher at T3 than at T2, suggesting that the predictive power of earlier variables on later variables strengthens over time.

4. Discussion

This study employed a cross-lagged model to examine the dynamic relationships among self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction. The findings indicate that these four variables exhibit high temporal stability, alongside complex cross-lagged effects. The main findings are discussed below.

First, all four variables demonstrated significant temporal stability, as evidenced by significant autoregressive effects, consistent with prior research on the stability of personality traits and psychological characteristics^[29]. Notably, self-identity crisis ($\beta = 0.515 - 0.564$) and life satisfaction ($\beta = 0.425 - 0.554$) exhibited the highest autoregressive coefficients, indicating strong short-term stability.

Life satisfaction, as a cognitive evaluation, tends to maintain relatively stable levels, aligning with Diener, Lucas and Scollon^[30] theory of a subjective well-being “set-point.” Notably, the autoregressive coefficients for patriotic sentiment were relatively lower ($\beta = 0.144 - 0.342$) compared to life satisfaction ($\beta = 0.425 - 0.554$), potentially reflecting greater plasticity in patriotic sentiment during adolescence, making it more susceptible to environmental and experiential influences.

Second, self-identity crisis significantly negatively predicts ethnic identity, patriotic sentiment, and life satisfaction at certain time points. This suggests that when individuals experience a self-identity crisis, their sense of identification with broader social groups (e.g., ethnic groups) is weakened, their patriotic sentiment diminishes, and their overall evaluation of life decreases. This finding supports the theory proposed by Erikson^[2] regarding the interconnectedness of individual and social identities. Specifically, a self-identity crisis, characterized by confusion about personal values and life goals, may extend to one's identification with ethnic culture and values, leading to a reduction in both ethnic identity and patriotic sentiment^[6]. Additionally, the psychological uncertainty and negative emotional experiences associated with an identity crisis directly impair subjective well-being^[12].

Third, ethnic identity significantly positively predicts patriotic sentiment, with this effect observed across both time intervals (T1→T2: $\beta = 0.169$; T2→T3: $\beta = 0.120$). This finding aligns with the core tenets of social identity theory, which posits that group identification fosters emotional attachment and loyalty to the group^[31]. Research by Zeng^[15] further corroborates that ethnic identity serves as a critical cognitive foundation for patriotic sentiment. Notably, this study found no significant predictive effect of patriotic sentiment on ethnic identity, suggesting a potential unidirectional causal relationship, where the formation of ethnic identity precedes the development of patriotic sentiment.

Fourth, life satisfaction significantly negatively predicts self-identity crisis, with this effect consistent across both time intervals (T1→T2: $\beta = -0.110$; T2→T3: $\beta = -0.118$). This indicates that higher life satisfaction may provide individuals with psychological resources to address challenges in identity development, thereby reducing the severity of self-identity crises. This finding is consistent with positive psychology's perspective that positive emotions broaden cognitive resources^[32]. Specifically, when individuals hold positive evaluations of their lives, they are more likely to adopt an optimistic outlook toward themselves and their future development, thereby alleviating confusion regarding self-positioning and values.

Fifth, the contemporaneous correlation analysis revealed that, at each time point, self-identity crisis was significantly negatively correlated with ethnic identity, patriotic sentiment, and life satisfaction, while ethnic identity, patriotic sentiment, and life satisfaction were significantly positively correlated with each other. These results suggest that the four variables form a tightly interconnected system within a cross-sectional framework. Of particular note, the negative correlation between self-identity crisis and life satisfaction was the strongest ($r = -0.402$ to -0.509), indicating a robust negative association between identity crisis and subjective well-being. This supports prior research on the relationship between identity integration and mental health^[13].

This study makes several theoretical contributions. First, by employing a cross-lagged design, it clarifies the causal relationships and developmental trajectories among self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction, thereby enriching the empirical foundation of identity theory and well-being research. Second, it confirms the dynamic interplay among cognitive factors (identity), emotional factors (patriotic sentiment), and evaluative factors (life satisfaction), thereby deepening our understanding of the internal mechanisms of the psychological system. Third, it explores the linkages between self-identity and social identity (ethnic identity), offering a novel perspective for research on identity integration.

In terms of practical implications, this study provides several key recommendations for enhancing mental health and patriotic education among ethnic minority adolescents. First, mental health education should prioritize addressing self-identity crises, as this not only enhances life satisfaction but also supports the development of both ethnic identity and patriotic sentiment. Second, patriotic education can foster students' patriotic sentiment by strengthening ethnic identity, with education on ethnic culture and history serving as a crucial foundation. Third, improving students' life satisfaction may help alleviate self-identity crises, suggesting that secondary schools should focus on enhancing both the quality of life and the psychological environment for students. Finally, mental health and patriotic education should be integrated, emphasizing the holistic development of identity, emotions, and well-being.

Despite its contributions, this study has limitations that warrant consideration. The sample was limited to students from a junior high school in Qiandongnan, Guizhou Province, which restricts the generalizability of the findings. Future research should include participants from diverse age groups and

regions to enhance external validity. Additionally, the study primarily relied on self-report measures, which may introduce common method bias. Future research could incorporate multiple measurement approaches to address this issue. Finally, while correlations between gender, ethnicity, and the study variables were identified, their moderating effects were not fully explored. Future studies could delve deeper into the roles of gender and ethnicity in the development of identity.

This study utilized a cross-lagged model to examine the dynamic relationships among self-identity crisis, ethnic identity, patriotic sentiment, and life satisfaction among ethnic minority adolescents. By addressing the limitations of prior work, it provides robust empirical evidence for the developmental mechanisms underlying psychological identity and subjective well-being. The findings highlight the reciprocal influences among these constructs and underscore the importance of integrating mental health and patriotic education. These insights not only advance theoretical frameworks but also offer practical guidance for fostering holistic development in ethnic minority adolescents, contributing to both academic research and educational practice.

5. Conclusion

This self-identity crisis negatively predicts ethnic identity, patriotic sentiment, and life satisfaction at certain time points, while ethnic identity positively predicts patriotic sentiment, and life satisfaction mitigates subsequent self-identity crises among ethnic minority adolescents in Southwest China, with all variables showing strong temporal stability and significant within-time correlations.

Acknowledgements

This work was supported by the Peking University Longitudinal Scientific Research Technical Service Project (G-252), and guizhou Provincial Graduate Student Research Fund Project (2024YJSKYJJ339).

References

- [1] Smith T B, Silva L. *Ethnic identity and personal well-being of people of color: a meta-analysis [J]. Journal of counseling psychology*, 2011, 58(1): 42.
- [2] Erikson E H. *Identity youth and crisis [M]. WW Norton & company*, 1968.
- [3] Rivas-Drake D, Seaton E K, Markstrom C, et al. *Ethnic and racial identity in adolescence: Implications for psychosocial, academic, and health outcomes [J]. Child development*, 2014, 85(1): 40-57.
- [4] Phinney J S, Ong A D. *Conceptualization and measurement of ethnic identity: Current status and future directions [J]. Journal of Counseling Psychology*, 2007, 54(3): 271.
- [5] Dimitrova R, Carmen B, Jitka T, et al. *Relationships between identity domains and life satisfaction in minority and majority youth in Albania, Bulgaria, Czech Republic, Kosovo, and Romania [J]. European Journal of Developmental Psychology*, 2018, 15(1): 61-82.
- [6] Schwartz S J, Zamboanga B L, Weisskirch R S, et al. *The relationships of personal and ethnic identity exploration to indices of adaptive and maladaptive psychosocial functioning [J]. International Journal of Behavioral Development*, 2009, 33(2): 131-144.
- [7] Basir S N M, Ismail F, Othman N Z, et al. *Using Multiple Regression Approach to Study Youth's Patriotism Tendency [J]. International Journal of Academic Research in Business and Social Sciences*, 2021, 11(7).
- [8] Dambrun M, Taylor D M. *The Counterintuitive Association BETWEEN Life Satisfaction and Racism [J]. SAGE Open*, 2013, 3(3).
- [9] Yip T. *Ethnic/racial identity—A double-edged sword? Associations with discrimination and psychological outcomes [J]. Current directions in psychological science*, 2018, 27(3): 170-175.
- [10] Marcia J E. *Identity in adolescence [J]. Handbook of adolescent psychology*, 1980, 9(11): 159-187.
- [11] Tajfel H, Turner J C. *The social identity theory of intergroup behavior [M]. Political psychology. Psychology Press*. 2004: 276-293.
- [12] Waterman A S. *Doing well: The relationship of identity status to three conceptions of well-being [J]. Identity: an International Journal of Theory and Research*, 2007, 7(4): 289-307.
- [13] Schwartz S J, Zamboanga B L, Luyckx K, et al. *Identity in emerging adulthood: Reviewing the field and looking forward [J]. Emerging adulthood*, 2013, 1(2): 96-113.
- [14] Hu Y, Zhang H, Zhang W, et al. *The influence of gratitude on patriotism among college students: a*

- cross-sectional and longitudinal study [J]. Frontiers in Psychology, 2024, 15: 1278238.*
- [15] Zeng S. *Between Reason and Emotion: On the Two Dimensions of ethnic identity and the Cultivation of Patriots [J]. Nanjing Journal of Social Sciences, 2015, (11): 139-143.*
- [16] Zhang Y. *The Relationship between Chinese Nation Identity and National Pride, National Stereotype of Adolescent [D]; Central China Normal University, 2007.*
- [17] Bar-Tal D. *Patriotism as fundamental beliefs of group members [J]. Politics & the Individual, 1993, 3(2): 45-62.*
- [18] Schatz R T, Staub E, Lavine H. *On the varieties of national attachment: Blind versus constructive patriotism [J]. Political psychology, 1999, 20(1): 151-174.*
- [19] He L, Wang K, Liu T, et al. *Does political participation help improve the life satisfaction of urban residents: Empirical evidence from China [J]. Plos One, 2022, 17(10): e0273525.*
- [20] Ha S E, Jang S-J. *ethnic identity, National Pride, and Happiness: The Case of South Korea [J]. Social Indicators Research, 2015, 121(2): 471-482.*
- [21] Diener E, Emmons R A, Larsen R J, et al. *The satisfaction with life scale [J]. Journal of personality assessment, 1985, 49(1): 71-75.*
- [22] Zhao Z, Postiglione G A. *Representations of ethnic minorities in China's university media [J]. Discourse: Studies in the Cultural Politics of Education, 2010, 31(3): 319-334.*
- [23] Lai A H-Y, Chui C H K, Hausmann-Stabile C, et al. *Ethnic identity in school context: The case of Yi ethnic minority adolescents in rural China [J]. Children & Society, 2024, 38(1): 176-196.*
- [24] Selig J P, Little T D. *Autoregressive and cross-lagged panel analysis for longitudinal data [J]. 2012.*
- [25] Zhang Q, Zheng R. *Reliability and Validity of Adolescence Ego Identity Crisis [J]. Chinese Mental Health Journal, 2002, (05): 304-307.*
- [26] Gao C, An J, Wan M. *On the Relationship between the Ethnic Identity, Acculturation and the Psychological Well-being of the Multi-ethnic University Students [J]. Contemporary Education and Culture, 2011, 3(05): 106-113.*
- [27] Lu J M, Liu W, He W, et al. *The status quo of China's contemporary college students' affective diathesis and its influencing factors [J]. Acta Psychologica Sinica, 2017, 49(01): 1-16.*
- [28] Hu L, Bentler P M. *Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives [J]. Structural equation modeling: a multidisciplinary journal, 1999, 6(1): 1-55.*
- [29] BW R. *The rank order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies [J]. Psychological Bulletin, 2000, 126: 3-25.*
- [30] Diener E, Lucas R E, Scollon C N. *Beyond the hedonic treadmill: revising the adaptation theory of well-being [J]. American psychologist, 2006, 61(4): 305.*
- [31] Turner J C, Tajfel H. *The social identity theory of intergroup behavior [J]. Psychology of intergroup relations, 1986, 5: 7-24.*
- [32] Fredrickson B L. *The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions [J]. American psychologist, 2001, 56(3): 218.*