

Evaluating the Impact of Social Support and Psychological Resilience on Employment Pressure: A Comparative Analysis of PROCESS and SEM Approaches

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Abstract

This study evaluates the impact of social support and psychological resilience on employment pressure among recent graduates, with a particular emphasis on the methodological comparison between the PROCESS macro and Structural Equation Modeling (SEM) for mediation analysis. A sample of 434 dance major graduates from Changsha Normal University in Hunan, China, was surveyed during the fall semester of 2023. The primary objective was twofold: first, to examine the mediating role of psychological resilience in the relationship between social support and employment pressure; second, to systematically compare the analytical performance, inferential capacity, and interpretive depth of PROCESS and SEM when applied to the same mediation model. Mediation analysis was conducted using both approaches. The results demonstrated that psychological resilience partially mediates the relationship between social support and employment pressure. Both methods yielded models with adequate fit and converged on the substantive conclusions. However, the comparative analysis revealed that SEM offers distinct methodological advantages for estimating mediation models involving latent variables, complex structural frameworks, and second-order constructs, whereas PROCESS provides greater accessibility for simpler, observable-variable mediation models. The findings contribute to the methodological literature by clarifying the conditions under which each approach is preferable and by demonstrating the practical implications of methodological choice for substantive conclusions.

Keywords: Psychological Resilience; Social Support; Employment Pressure; Mediation Analysis; PROCESS; SEM (Structural Equation Modeling); Methodological Comparison

1. Introduction

Social support refers to the various forms of assistance, backing, and understanding that individuals receive through social interactions, and it constitutes an essential component of coping with stress in challenging circumstances (Cobb, 1976). Numerous researchers have attempted to analyze different theories and concepts and to develop various social support scales to facilitate more in-depth investigation of social support (Xiong et al., 1998). In China, commonly used social support measures are typically divided into three dimensions: subjective support, objective support, and support utilization (Zhang, 2023). Previous research has demonstrated that college students' social support is significantly negatively correlated with employment pressure (Zhang, 2023; Liu, 2021).

Factors influencing the psychological resilience of recent college graduates can be categorized into two main aspects: internal factors and external factors (Shu, 2022), and psychological resilience is significantly negatively correlated with employment pressure (Han, 2016). Although many factors affect the employment psychology of recent college graduates, social support and psychological resilience are important determinants of employment pressure among this population (Qi, 2023). To promote the employment of recent college graduates, effectively enhancing the social support and psychological resilience of art majors, particularly dance majors, to help them achieve their employment goals more smoothly, constitutes an important task for educational authorities

in China. In this study, the authors referenced relevant psychological models and theories, such as Social Support Theory (Cobb, 1976; Xiong et al., 1998; Zhang, 2023) and Resilience Models (Qi, 2023), to explore how social support enhances psychological resilience, and attempted to integrate these theoretical backgrounds more closely with the hypotheses to strengthen the connection between social support and psychological resilience.

Mediation refers to a research design in which a third variable, known as the mediating variable, plays a role in the relationship between two related constructs. In mediation analysis, researchers investigate whether changes in independent variables can influence the mediating variable, which in turn affects the dependent variable within the model. Structural equation modeling (SEM) is commonly used to estimate cause-effect relationships involving latent variables. However, in some cases, researchers supplement their SEM studies with additional regression analyses using Hayes's (2018) PROCESS macro for SPSS (Hayes, 2017; Sarstedt et al., 2020) to analyze mediation or conditional process models. This study formulated hypotheses to explore the relationships among selected variables in the model, utilizing both PROCESS and SEM. To highlight the distinctions between these two approaches, we present a systematic comparison of data analysis using PROCESS and SEM.

The methodological contribution of this study lies in its comparative evaluation of two dominant analytical frameworks for mediation analysis. While both PROCESS and SEM are widely employed in social science research, the conditions under which each approach yields superior inferential precision, statistical power, and interpretive clarity remain insufficiently examined, particularly in the context of second-order latent constructs and multiple mediators. By applying both methods to the same dataset and model specification, this study provides empirical evidence regarding their relative strengths and limitations, thereby informing methodological decision-making in applied research.

In mediation analysis, researchers specifically investigate whether changes in the independent variables (social support and psychological resilience) lead to changes in the mediator, which subsequently affects the dependent variable (employment pressure) in the model. The goal of this study is to compare the mediation effects identified by two different methods to examine the relationship between social support, psychological resilience, and employment pressure.

2. Method

2.1. Sample

The participants of the study were dance major university graduates in the class of 2024 from Hunan Province, China. A total of 470 questionnaires were distributed. After excluding invalid questionnaires that did not meet the specifications, 434 valid questionnaires remained, giving a recovery rate of 92.34%. Among them, there were 164 males (36.9%), 279 females (60.8%), 380 undergraduate students (85.6%), and 54 junior college students (11.2%); 333 participants (75%) were from rural areas; 70 participants (15.8%) were only children; and 162 participants (36.5%) had work experience. Ethical approval clearance and informed consent clearance were granted due to the use of anonymous questionnaires.

2.2. Measures of the Constructs

To achieve the research objectives, this study adopted the social support scale, the adolescent psychological resilience scale, and the College Students' Employment Pressure Scale. The social support scale, compiled by Jiang Qinjin (2001), is divided into three dimensions: family support (4 items), friend support (4 items), and other support (4 items) (Jiang, 2001). The College Students' Employment Pressure Scale, developed by Chen Yuhong (2019), includes five dimensions: career positioning (5 items), professional demand (4 items), comprehensive quality (9 items), employment expectation (5 items), and job-seeking support (7 items) (Chen, 2019). All items in the social support scale and the College Students' Employment Pressure Scale are presented using a 5-point Likert

scale, ranging from 1 – strongly disagree to 5 – strongly agree.

The adolescent psychological resilience scale, developed by Hu Yueqin and Gan Yiqun (2008), includes five dimensions: emotional control (6 items), positive cognition (4 items), goal focus (5 items), family support (6 items), and interpersonal assistance (6 items) (Hu & Gan, 2008). The scale uses a 5-point Likert scale, ranging from 1 – strongly disagree to 5 – strongly agree, with items 1, 2, 5, 6, 9, 12, 15, 16, 17, 21, 26, and 27 being reverse-scored. Higher scores indicate greater psychological resilience.

2.3. Hypothesis Development

This study proposed four hypotheses regarding social support, psychological resilience, and employment pressure. The specific hypotheses are as follows:

Hypothesis 1: Social support directly affects employment pressure.

Hypothesis 2: Social support directly affects psychological resilience.

Hypothesis 3: Psychological resilience directly affects employment pressure.

Hypothesis 4: Social support indirectly affects employment pressure through psychological resilience.

2.4. Data analysis

With the statistical software SPSS, the PROCESS macro for SPSS, and AMOS, exploratory factor analysis and confirmatory factor analysis were utilized to identify the structure of each survey. Structural equation modeling (SEM) was used to determine the relationship between social support and employment pressure for dance major university graduates. Additionally, the PROCESS macro was used to detect the mediating effect of psychological resilience on the relationship between social support and employment pressure for dance major university graduates.

All scale items were modeled as reflective indicators of their corresponding latent constructs, the raw data set was used as input to the AMOS program, and significance analysis was performed using bootstrapping after pre-processing with construct level changes. Convergent validity, which examines whether individual indicators are indeed measuring the constructs they are purported to measure, was assessed using three criteria recommended by Fornell and Larcker (1981): (a) all indicator factor loadings should be significant and exceed 0.7, (b) construct reliabilities should exceed 0.80, and (c) average variance extracted (AVE) should exceed 0.50.

The methodological comparison between PROCESS and SEM was structured around four evaluative dimensions: (1) model specification flexibility, particularly regarding latent variable representation and second-order construct modeling; (2) parameter estimation precision and inferential validity under conditions of measurement error; (3) capacity to accommodate multiple mediators and complex structural relationships simultaneously; and (4) interpretive transparency and accessibility for applied researchers. These dimensions guided the comparative analysis and interpretation of results.

3. Results

3.1. Reliability and Validity Measurements

To validate the social support scale, the psychological resilience scale, and the employment pressure scale, exploratory factor analysis (EFA) was performed to clarify the structure. According to the EFA results for social support, the participants' responses were grouped into three factors: family support (4 items), friend support (4 items), and other support (4 items). Hair et al. (2006) noted that an item is remarkable if its factor loading

is greater than 0.50. The factor loadings of all the items in the social support scale ranged from 0.680 to 0.890, thus meeting the threshold (0.50) and demonstrating convergent validity at the item level. The Cronbach's alpha coefficients for the factors of social support were 0.83, 0.86, and 0.84, with 25.76%, 25.52%, and 22.82% of variance explained, respectively. The overall alpha was 0.93, and the total variance explained was 74.11%. The KMO value was 0.855, and the Bartlett χ^2 -value was 2871.991 ($p < 0.000$), suggesting that these factors had highly acceptable reliability for assessing teacher engagement.

According to the EFA results for the employment pressure scale for university students, the participants' responses were grouped into five factors: career positioning (5 items), professional demand (4 items), comprehensive quality (9 items), employment expectation (5 items), and job-seeking support (7 items). In the employment pressure scale for university students, the factor loadings of all the items ranged from 0.726 to 0.795, thus meeting the threshold (0.50) and demonstrating convergent validity at the item level. The Cronbach's alpha coefficients for the factors were .92, .92, .89, .93, and .92, with 16.41%, 15.93%, 15.90%, 13.76%, and 11.24% of variance explained, respectively. The overall alpha was .96, and the total variance explained was 73.24%. The KMO value was 0.962, and the Bartlett χ^2 -value was 27140.430 ($p < 0.000$), suggesting that these factors had highly acceptable reliability for assessing employment pressure for university students.

According to the EFA results of the adolescent psychological resilience scale, the participants' responses were grouped into five factors: emotional control (6 items), positive cognition (4 items), goal focus (5 items), family support (6 items), and interpersonal assistance (6 items). In the adolescent psychological resilience scale, the factor loadings of all the items ranged from 0.531 to 0.863, thus meeting the threshold (0.50) and demonstrating convergent validity at the item level. The Cronbach's alpha coefficients for the factors of psychological resilience were .93, .93, .90, .93, and .93, with 29.35%, 13.37%, 13.12%, 12.68%, and 11.23% of variance explained, respectively. The overall alpha was .95, and the total variance explained was 79.75%. The KMO value was 0.945, and the Bartlett χ^2 -value was 19636.647 ($p < 0.000$), suggesting that these factors had highly acceptable reliability for assessing psychological resilience.

3.2. Mediation Analysis of Psychological Resilience by PROCESS

The PROCESS plug-in was used to analyze the mediation effects, the results of which are summarized in Table 1 and Table 2. The results revealed that the effects of the independent variable (IV) social support on the mediators of goal focus, positive cognition, emotional control, and interpersonal assistance were significant, while the effect on family support was not significant. In the unique effects of the mediators, the effects of all dimensions were significant, except for the effect of emotional control, which was not significant.

Table 1. Mediation analysis of psychological resilience

Mediator	Dimensions	Effect of IV on mediator(a)	Unique effect of mediator(b)	Indirect effect(ab)	BC 95% CI	
					Lower	Upper
psychological resilience	goal focus	0.294***	-0.118***	-0.035	-0.068	-0.007
	positive cognition	0.232***	-0.193	-0.022	-0.049	-0.001
	emotional control	0.139*	-0.201***	-0.028	-0.005	0.060
	family support	0.092	-0.017	-0.002	-0.016	-0.110
	interpersonal assistance	0.218***	-0.142*	-0.031	-0.065	-0.004
Total				0.061	-0.104	-0.022

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regarding the indirect effect, by observing the confidence interval, among the five dimensions of the mediator variable psychological resilience, the dimensions of goal focus, emotional control, family support, and interpersonal assistance had significant indirect effects on employment pressure. Furthermore, the total indirect effect ($ab = 0.061$) of the five dimensions was also significant. The total effect of social support on employment pressure was -0.272 . Among them, the direct effect of social support on employment pressure was 0.242 , with a relative contribution of 88.97% ; the total indirect effect of social support through the mediator variable psychological resilience was -0.030 , with a relative contribution of 11.03% . According to the confidence interval shown in Table 2, since the total effect, the direct effect, and the total indirect effect were all significant, we can conclude that the mediator variable psychological resilience had a partial mediating effect. As expected, these results supported hypotheses H1, H2, H3, and H4.

Table 2. The confirmation of the effects and relative contributions

		BC 95% CI		Relative Contribution
		Lower	Upper	
Total effect of X on Y	-0.272	-0.366	-0.178	
Direct effect of X on Y	-0.242	-0.337	-0.146	88.97%
Total indirect effect of X on Y	-0.030	-0.061	-0.007	11.03%

3.3. Mediation analysis of psychological resilience by SEM

3.3.1. Results of the measurement model assessment

The findings confirmed that all the item loadings (Cronbach's α), composite reliabilities (CRs) and average variance extracted (AVEs) of the first-order and second-order measurement models exceeded the cutoff values of 0.7 , 0.8 and 0.5 respectively, ensuring adequate scale reliability.

For social support, $CR = 0.756$ and $AVE = 0.508$; for employment pressure, $CR = 0.834$ and $AVE = 0.501$; for psychological resilience, $CR = 0.851$ and $AVE = 0.533$. In sum, the first-order latent variables had highly acceptable reliability for assessing the second-order latent variables, as shown in Table 3. Additionally, the square root of the AVE that exceeded the inter-correlations of the construct with the other constructs in the model was calculated to ensure discriminant validity.

3.3.2. Results of the structural model assessment

The results of the structural equation modeling (SEM), along with the recommended values for the common model fit indices, and the suggested values for the saturated and independence models, are shown in Table 4. Most of the model-fit indices exceeded their respective common acceptance levels as suggested by previous research, thus demonstrating that the default measurement model exhibited a good fit with the collected data ($GFI = 0.971$, $AGFI = 0.957$, $CFI = 0.968$, $RMSEA = 0.049$, $SRMR = 0.020$, $NFI = 0.959$, $IFI = 0.968$). According to the χ^2/df index, the $\chi^2 = 160.229$ and $df = 62$, which indicates a good fit. Additionally, the parsimony-adjusted measures showed that the parsimonious normed fit index (PNFI) and parsimonious goodness-of-fit index (PGFI) met acceptable thresholds.

3.4. Comparative Analysis of PROCESS and SEM

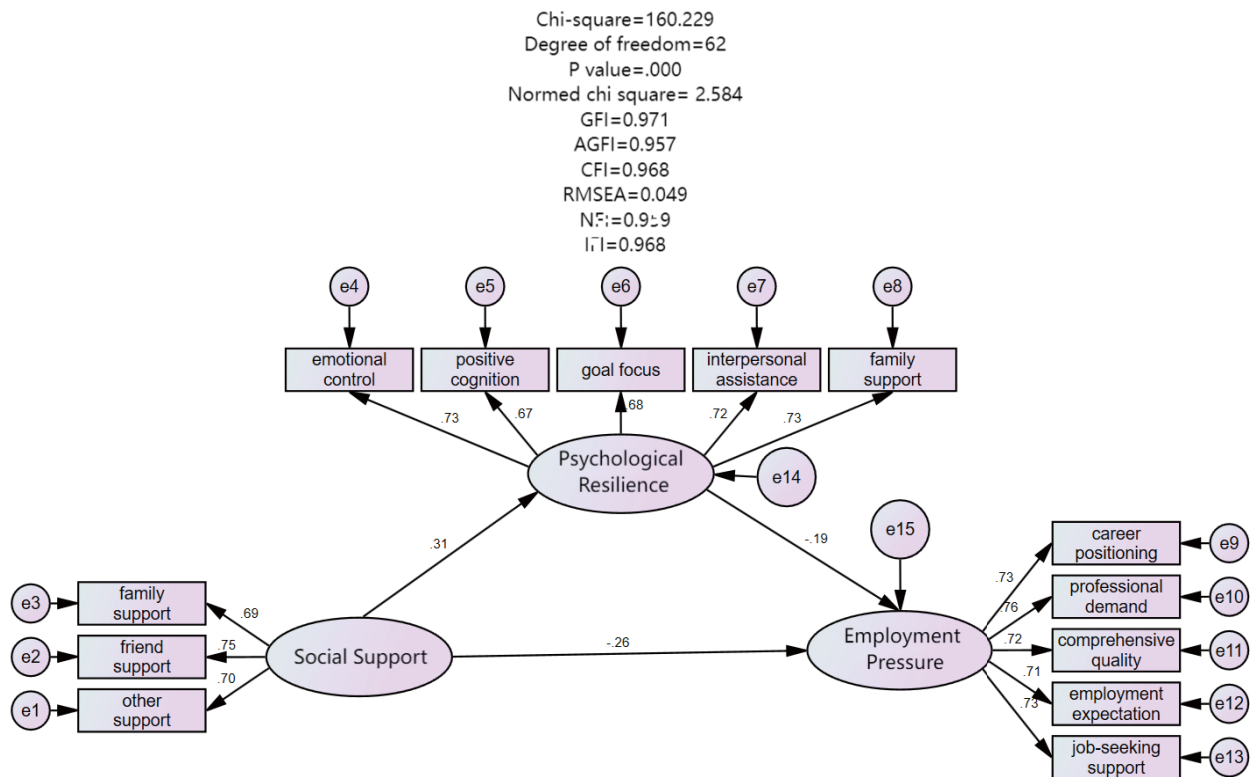
The comparative evaluation of PROCESS and SEM across the four methodological dimensions revealed distinct patterns of advantage and limitation. Regarding model specification flexibility, SEM demonstrated superior capacity by explicitly modeling latent constructs, accommodating measurement error, and estimating second-order factor structures. PROCESS, by contrast, requires observed composite scores and cannot simultaneously model measurement and structural components. Concerning parameter estimation precision, SEM

Table 3. Construct reliability and validity of the measurement model.

First order	Items	Loadings	CR	AVE	Second order	CR	AVE
family support	3, 4, 8, 11	0.784~0.829	0.941	0.638	support scale	0.756	0.508
friend support	6, 7, 9, 12	0.806~0.821	0.887	0.662			
other support	1, 2, 5, 10	0.756~0.852	0.834	0.626			
career positioning	10~18	0.769~0.817	0.917	0.647			
professional demand	24~30	0.797~0.834	0.923	0.666			
comprehensive quality	6~9	0.807~0.832	0.892	0.674	psychological resilience	0.851	0.533
employment expectation	19~23	0.804~0.847	0.927	0.68			
job-seeking support	1~5	0.806~0.834	0.915	0.682			
goal focus	3, 4, 11, 20, 24	0.823~0.856	0.926	0.715			
positive cognition	1, 2, 5, 21, 23, 27	0.814~0.818	0.905	0.705			
emotional control	10, 13, 14, 25	0.703~0.853	0.926	0.678			
family support	8, 15, 16, 17, 19, 22	0.820~0.871	0.932	0.694			
interpersonal assistance	P6, 7, 9, 12, 18, 26	0.787~0.879	0.929	0.685			

Table 4. Fit indices for the structural and independence models.

Fit indices	Recommended	Default_m	Saturated_m	Independence_m
Model fit summary				
χ^2/df	≤ 3.00	2.584	-	81.072
GFI	≥ 0.80	0.971	1.000	0.000
AGFI	≥ 0.80	0.957	-	0.375
CFI	≥ 0.90	0.968	1.000	0.464
RMSEA	≤ 0.08	0.049	-	0.243
SRMR	<0.05	0.020	-	
NFI	≥ 0.90	0.959	1.000	0.000
IFI	≥ 0.90	0.968	1.000	0.000
Parsimony adjusted measures				
PNFI	≥ 0.5	0.762	0.000	0.000
PCFI	≥ 0.5	0.770	0.000	0.000
AIC (relative)	smaller	312.229	182.000	6349.584



Note. First order path significance: $p < 0.05$. Second order path significance: $p < 0.05$. Parentheses indicate R^2 values.

Figure 1. Structural model path coefficients

provided more accurate estimates by disattenuating for measurement error, whereas PROCESS estimates may be attenuated by unreliability in observed variables. With respect to multiple mediator accommodation, both approaches successfully estimated the five-dimensional mediation model, though SEM offered greater flexibility in specifying interrelationships among mediators and between first-order and second-order constructs. Finally, regarding interpretive transparency, PROCESS offered more accessible output and simpler interpretation for applied researchers, while SEM required greater methodological sophistication but yielded richer diagnostic information through fit indices and modification indices.

Both approaches converged on the substantive conclusion that psychological resilience partially mediates the social support–employment pressure relationship, with comparable indirect effect estimates. However, the SEM analysis provided additional insights into the measurement quality of the second-order constructs and the relative contributions of each first-order dimension, which were not simultaneously available through PROCESS.

4. Conclusions

This study evaluated the impact of social support and psychological resilience on employment pressure among dance major graduates, with a systematic comparison of PROCESS and SEM approaches for mediation analysis. The findings provide several important insights.

First, the results confirmed that psychological resilience partially mediates the relationship between social support and employment pressure. This finding aligns with previous research demonstrating that social support enhances psychological resilience (Okojie et al., 2023; Lu et al., 2020), which in turn reduces employment pressure (Han, 2016; Qi, 2023). The partial mediation suggests that while psychological resilience serves as an important mechanism through which social support exerts its effects, other pathways may also be at work.

Second, the methodological comparison between PROCESS and SEM revealed important considerations for applied researchers. Both approaches yielded models with good fit and supported the hypothesized relationships. However, SEM demonstrated distinct advantages in handling complex models involving latent variables. As noted by Sarstedt et al. (2020), SEM provides more precise parameter estimates in complex models and is better suited for handling multiple variables simultaneously, while PROCESS is often used for simpler mediation or moderation analyses. The present study extends this methodological discussion by empirically demonstrating these differences within a single dataset and model specification.

Third, the findings have practical implications for educational authorities and career counselors working with art majors, particularly dance majors. Given that social support and psychological resilience are significant predictors of employment pressure, interventions aimed at strengthening social networks and building resilience may help graduates navigate the job market more effectively.

5. Limitations and Future Directions

Several limitations of this study should be acknowledged. First, the sample was limited to dance major graduates from a single university in Hunan Province, which may limit the generalizability of the findings. Future research should include more diverse samples across different regions and disciplines.

Second, the cross-sectional design precludes causal inferences. Longitudinal studies would be valuable for examining how social support and psychological resilience influence employment pressure over time.

Third, while both PROCESS and SEM were employed, future research could explore additional analytical approaches, such as PLS-SEM, which may offer advantages for certain types of mediation analyses (Sarstedt et al., 2020). Finally, the authors suggest incorporating more empirical studies and increasing literature support, especially those that examine the effects of social support on psychological resilience, to further justify the hypotheses. This will strengthen the theoretical basis for the hypotheses.

PROCESS is a valuable tool for estimating mediation and conditional processes in regression-based models that utilize single-item observable variables. However, it faces limitations when dealing with complex cause-effect models involving latent variables (Pek & Hoyle, 2016). Most research supports the use of Structural Equation Modeling (SEM) for analyzing complex models with latent variables (Sarstedt et al., 2020). For instance, SEM may provide more precise parameter estimates in complex models or be better suited for handling multiple variables simultaneously, while PROCESS is often used for simpler mediation or moderation analyses. This would give readers a clearer understanding of the differences and rationale for choosing each method. In this study, SEM was employed to test mediation analysis on second-order models with multiple mediators, providing a more robust validation of hypothetical models. Additionally, SEM often plays a central role in mediation analysis. Exploring the effectiveness of PROCESS versus SEM in predictive comparisons of mediation models would be highly beneficial. The practical applications and theoretical contributions of our study could inspire and inform future research.

6. Conclusion

This study evaluated the impact of social support and psychological resilience on employment pressure among dance major graduates and systematically compared PROCESS and SEM approaches for mediation analysis. The findings demonstrated that psychological resilience partially mediates this relationship and that both analytical approaches yielded comparable substantive conclusions. However, SEM proved more suitable for complex models involving latent variables, second-order constructs, and multiple mediators, while PROCESS offered greater accessibility for simpler mediation models. These findings contribute to the methodological

literature by clarifying the conditions under which each approach is preferable and provide practical guidance for researchers conducting mediation analyses in applied psychology and career development research.

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