# The causal relationship between social support and psychological well-being among undergraduate students in North China

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**Abstract:**

**BACKGROUND:** Psychological well-being is an important part that undergraduate students and universities cannot neglect as it helps students lead a better study life at the university. Various studies revealed that social support can affect students' psychological well-being. However, the causal relationship between social support and psychological well-being has received little attention in North China. Therefore, the aim of the current study was to analyze the causal relationship between social support and psychological well-being among undergraduate students in North China.

**MATERIALS AND METHODS:** The survey approach was adopted and conducted with a total of 689 undergraduate students in North China. Data were collected using a reliable questionnaire. Data analysis was performed with descriptive statistics, Pearson's correlation, and structural equation modeling at $P < 0.01$ significance level using Statistical Package for Social Sciences (SPSS) and Linear Structural Relations (LISREL).

**RESULTS:** The overall levels of social support and psychological well-being among undergraduate students in North China were high. All observed variables in this study were significantly correlated. The findings also confirmed that the causal relationship between social support and undergraduate students' psychological well-being in North China fitted to the empirical data well ($\chi^2$ [22, $N = 689$] $= 27.69$, $\chi^2$/degree of freedom [df] $= 1.26$, $P = 0.19$, goodness of fit index [GFI] $= 0.99$, adjusted goodness of fit index [AGFI] $= 0.98$, comparative fit index [CFI] $= 1.00$, standardized root mean square residual [SRMR] $= 0.02$, root mean square error of approximation [RMSEA] $= 0.02$).

**CONCLUSIONS:** Undergraduate students' psychological well-being had been significantly affected by social support in North China. The findings from the current study will be useful for university administrators to develop strategies for the enhancement of undergraduate students' psychological well-being.

**Keywords:**

Causal Relationship, psychological well-being, social support, undergraduate students

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## Introduction

Psychological well-being could be conceptualized concerning the processes including the process of emotion, physical process, cognitive process, spiritual process, personal process, and social process, which offer information regarding how people look at themselves and the characteristics of their life.[1] Ryff[2] explained that psychological well-being refers to the situation regarding happiness and psychological satisfaction on the subjective mental health and moods of individuals, so as to maintain their quality of life. Furthermore, it also means satisfaction of life and serenity on the sense of achievement in life. According to Ryff, psychological well-being can be categorized into six

areas consisting of autonomy (AUTO), environmental mastery (ENMA), personal growth (PERG), positive relations with others, purpose in life (PUIL), and self-acceptance.[2] Psychological well-being is an important part that undergraduate students and universities cannot neglect in order to help students lead a better study life at the university. Various studies revealed that undergraduate students would face lots of challenges and problems such as poor ability to adapt to the new environment, disharmonious interpersonal relationships, and psychological problems caused by the pressure of employment, which further affect their levels of psychological well-being when they begin their study at the university.[3-5] According to the study conducted by Wei,[4] undergraduate students were experiencing some challenges and problems in study and life that made them have low levels of psychological well-being, resulting in inability of some students to adapt themselves successfully to the university life and some even becoming addicted to online games. Empirical studies also showed that people who were at higher levels of psychological well-being would lead a better life, demonstrate higher commitment, and be more productive than others who had lower levels of psychological well-being.[6] Undergraduate students at high levels of psychological well-being can not only get accustomed to the campus life well, but also achieve academic success.[7]

According to literature review, various studies have been conducted regarding the factors that affect undergraduate students' psychological well-being, such as gender,[8-10] meaning in life,[11] emotional intelligence,[12] mindset,[13] depression,[14] media literacy,[15] stress management,[16] and academic satisfaction.[17] The relationship between social support and psychological well-being has been studied by some researchers in the world, while it is still not much studied in North China.[18-20] The current study sought to empirically analyze how the variable of social support would influence undergraduate students' psychological well-being in North China.

According to Sari and Fakhruddiana, social support that can be of real help is a healthy relationship when people are experiencing problems or difficulties, which would let them feel that they are cared, loved, and appreciated.[21] Social support generally measures people's perceptions regarding the support mainly provided by their family members, friends, and other people.[22] Zimet *et al.*[23] explained that there are three dimensions of social support consisting of social support from significant other, social support from family, and social support from friends. Empirical studies report that social support is an important factor that affects undergraduate students' psychological well-being. Social support has a significant and positive effect on students'

psychological well-being.[18-20] Social support could statistically predict 13.6% of the variance of adolescents' psychological well-being.[18] People who perceived more social support from friends and family would also experience more happiness and life satisfaction, which would also help to increase their psychological well-being.[24] Students who perceived high level of social support were more satisfied with their life and were also at a high level of psychological well-being.[25]

Some studies have been conducted to explore the relationship between social support and psychological well-being in some areas in China. Lian[26] conducted a study to examine whether social support could influence college students' psychological well-being in Shaanxi province in 2017. Yang analyzed the relationship between social support and university students' psychological well-being in Shandong province in 2010.[27] However, the causal relationship between social support and psychological well-being has received little attention in North China, according to the literature review. Therefore, the aim of the current study was to analyze the causal relationship between social support and psychological well-being among undergraduate students in North China.

## Materials and Methods

### Study design and setting
The survey approach was employed in this study in order to analyze the causal effect of social support on undergraduate students' psychological well-being in North China.

### Study participants and sampling
The study population consisted of undergraduate students who studied in North China, which includes Beijing, Tianjin, Hebei, Shanxi, and Inner Mongolia.

A-priori sample size calculator for structural equation modeling (SEM) was used to calculate the sample size in this study.[28] The required sample size was 664. Furthermore, around 20% of the sample size was added in order to substitute for the response rate; therefore, the final sample size was 800. Multistage sampling techniques were used in this study. Firstly, stratified random sampling and disproportional sampling were adopted to select universities from all the five provinces in North China. Four universities were selected from each province. Secondly, simple random sampling was used to select four universities from each province; thus, a total of 20 universities were selected in North China. Thirdly, disproportional sampling technique and simple random sampling were used to select 40 participants from each of the selected university. In total, 800 questionnaires were distributed and 689 questionnaires

were returned, indicating that the overall response rate of this study was 86.13%.

## Data collection tool and technique

The data were collected using a questionnaire including demographic information, social support scale, and psychological well-being scale. The scale of social support contains three subdimensions consisting of social support from significant other, family, and friends. The psychological well-being scale has six dimensions, including AUTO, ENMA, PERG, positive relations with others, PUIL, and self-acceptance. All items were assessed by using a 5-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5).

In the current study, the content validity of this instrument was confirmed by five relevant experts. A pilot study with 30 participants was carried out to test the reliability. The reliability of the questionnaire was evaluated using Cronbach's α coefficient (0.87) for social support scale and Cronbach's α coefficient (0.84) for psychological well-being scale. Previous studies have confirmed the construct validity of the social support scale and psychological well-being scale.[23,29,30] The authors in this study also conducted a confirmatory factor analysis to validate the social support scale, which showed that the social support scale fitted to the empirical data well ($\chi^2$ [0, $N$ = 689] = 0, $\chi^2$/degree of freedom (df) = 0, $P$ = 1.00, root mean square error of approximation [RMSEA] = 0.00). The psychological well-being scale also fitted to the empirical data well after a confirmatory factor analysis was developed ($\chi^2$ [6, $N$ = 689] = 8.40, $\chi^2$/df = 1.40, $P$ = 0.21, goodness of fit index [GFI] = 1.00, adjusted goodness of fit index [AGFI] = 0.99, comparative fit index [CFI] = 1.00, standardized root mean square residual [SRMR] = 0.02, RMSEA = 0.02).

The data were analyzed by using computer programs including the Statistical Package for Social Sciences (SPSS, version 20) and Linear Structural Relations (LISREL, student edition 9.20). Descriptive statistics were used to analyze the data, including percentage, mean (M) and standard deviation (SD). The correlations between observed variables were checked using Pearson's correlation coefficient. Also, SEM was performed to analyze the causal relationship between social support and psychological well-being among undergraduate students in North China. According to Hooper *et al*.,[31] the model fit in this study was assessed with Chi-square test and five fit indices. GFI >0.95, AGFI >0.95, CFI >0.95, SRMR <0.08, and RMSEA <0.07 were considered as good model fit.

## Ethical consideration

Questionnaires were sent to the participants after the researcher received the Institutional Review Board (IRB)

approval certificate from MUSSIRB, Office of the Committee for Research Ethics (Social Sciences), Faculty of Social Sciences and Humanities, Mahidol University, with the number 2022/010 (B2). The participant information sheet and informed consent form were also sent and signed by the participants.

## Results

In this study, a total of 689 undergraduate students were recruited, including 340 male students (49.35%) and 349 female students (50.65%). The results showed that 234 students were studying in the first year (33.96%), followed by 224 students in the second year (32.51%), 127 students in the third year (18.43%), and 104 students in the fourth year (15.09%). A total of 333 undergraduate students attended activity clubs (48.33%), while 356 undergraduate students did not attend any activity club (51.67%). With regards to the field of study, 252 undergraduate students were from the field of applied sciences/science and technology/health sciences (36.57%), while 437 undergraduate students were from the field of social sciences/liberal arts (63.43%).

The results revealed that the overall social support among undergraduate students in North China was at a high level (M = 3.65, SD = 0.60). The findings also revealed that the overall psychological well-being among undergraduate students in North China was at a high level (M = 3.57, SD = 0.58), as shown in Table 1. As shown in Table 2, all the observed variables were positively correlated with each other. The variable of positive relations with others had the highest positive correlation with the variable of self-acceptance ($r$ = 0.63, $P$ < 0.01).

The results also revealed that the causal relationship between social support and psychological well-being among undergraduate students in North China fitted

**Table 1: Descriptive statistics of the level of social support and psychological well-being among undergraduate students in North China**

| Variables | Mean | SD | Level |
|---|---|---|---|
| Overall social support | 3.65 | 0.60 | High |
| Significant other | 3.58 | 0.73 | High |
| Family | 3.70 | 0.71 | High |
| Friends | 3.67 | 0.70 | High |
| Overall psychological well-being | 3.57 | 0.58 | High |
| Autonomy | 3.61 | 0.77 | High |
| Environmental mastery | 3.64 | 0.77 | High |
| Personal growth | 3.66 | 0.77 | High |
| Positive relations with others | 3.44 | 0.94 | High |
| Purpose in life | 3.61 | 0.80 | High |
| Self-acceptance | 3.45 | 0.96 | High |

Lowest=1.00-1.80, low=1.81-2.60, moderate=2.61-3.40, high=3.41-4.20, highest=4.21-5.00

to the empirical data well ($\chi^2$ [22, $N$ = 689] = 27.69, $\chi^2$/df = 1.26, $P$ = 0.19, GFI = 0.99, AGFI = 0.98, CFI = 1.00, SRMR = 0.02, RMSEA = 0.02). All the nine factor loadings were statistically significant at $P < 0.01$, as shown in Table 3. The findings also revealed that the direct causal coefficient between social support and psychological well-being was 0.82 ($P < 0.01$), as shown in Table 4 and Figure 1.

## Discussion

The findings showed that the overall social support of undergraduate students was at a high level. It was consistent with the study conducted by Zhang[32] on the situation regarding undergraduate students' social support, which showed that the overall social support among undergraduate students was at a high level in China. It was also supported by Lei *et al*.[33] who indicated that the mean score of students' social support was at a higher level. In the meantime, the overall psychological well-being of undergraduate students was high, according to the results. The findings corresponded

with the research conducted by Zhu and Liu[34] on undergraduate students' psychological well-being and its corresponding influencing factors in China, which revealed that Chinese university students' psychological well-being was at a high level and was at a much higher than the average level. This was also congruent with the results of Jin,[35] who conducted an investigation on the levels of university students' psychological well-being in Guangxi, China, using the case study approach and found that the psychological well-being among university students was at a high level and the mean score of PERG subdimension was at the highest level, which is also consistent with the results of the current study.

According to the findings, the direct causal relationship between social support and psychological well-being among undergraduate students in North China was found to be statistically significant ($\gamma$ = 0.82, $P < 0.01$). The findings were congruent with Adyani *et al*.[18] who found that there was a positive relationship between social support and psychological well-being among interstate
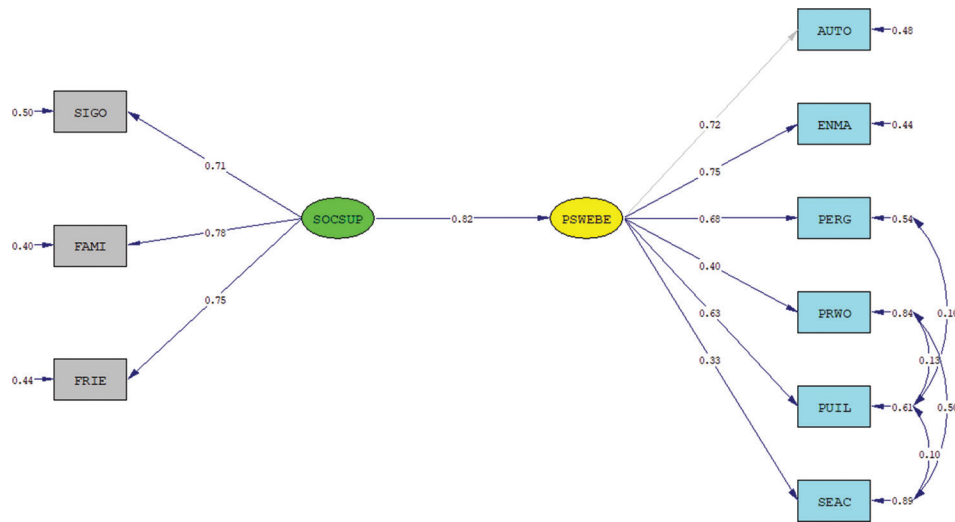


**Figure 1:** The causal relationship between social support and psychological well-being among undergraduate students in North China. AUTO = autonomy, ENMA = environmental mastery, FAMI = family, FRIE = friends, PERG = personal growth, PRWO = positive relations with others, PSWEBE = psychological well-being, PUIL = purpose in life, SEAC = self-acceptance, SIGO = significant other, SOCSUP = social support

### Table 2: The correlation matrix of the nine observed variables

| Variables | SIGO | FAMI | FRIE | AUTO | ENMA | PEGR | PRWO | PUIL | SEAC |
|---|---|---|---|---|---|---|---|---|---|
| SIGO | 1.00 | | | | | | | | |
| FAMI | 0.57** | 1.00 | | | | | | | |
| FRIE | 0.51** | 0.58** | 1.00 | | | | | | |
| AUTO | 0.43** | 0.47** | 0.47** | 1.00 | | | | | |
| ENMA | 0.42** | 0.43** | 0.45** | 0.55** | 1.00 | | | | |
| PEGR | 0.39** | 0.42** | 0.46** | 0.45** | 0.52** | 1.00 | | | |
| PRWO | 0.21** | 0.26** | 0.27** | 0.28** | 0.28** | 0.28** | 1.00 | | |
| PUIL | 0.37** | 0.40** | 0.37** | 0.43** | 0.48** | 0.52** | 0.38** | 1.00 | |
| SEAC | 0.17** | 0.21** | 0.25** | 0.21** | 0.25** | 0.24** | 0.63** | 0.31** | 1.00 |

AUTO=autonomy, ENMA=environmental mastery, FAMI=family, FRIE=friends, PERG=personal growth, PRWO=positive relations with others, PUIL=purpose in life, SEAC=self-acceptance, SIGO=significant other. **$P$<0.01

**Table 3: Standardized parameter estimates for validation of the causal relationship**

| Variables | Standardized factor loadings ($\beta$) | Factor loadings | | | $R^2$ |
|---|---|---|---|---|---|
| | | b | SE | t | |
| SOCSUP | | | | | |
| SIGO | 0.71** | 0.52 | 0.03 | 19.62 | 0.50 |
| FAMI | 0.78** | 0.55 | 0.03 | 21.99 | 0.60 |
| FRIE | 0.75** | 0.53 | 0.03 | 21.07 | 0.56 |
| PSWEBE | | | | | |
| AUTO | 0.72** | 0.55 | - | - | 0.52 |
| ENMA | 0.75** | 0.57 | 0.03 | 16.94 | 0.56 |
| PERG | 0.68** | 0.52 | 0.03 | 15.43 | 0.46 |
| PRWO | 0.40** | 0.37 | 0.04 | 9.30 | 0.16 |
| PUIL | 0.63** | 0.50 | 0.04 | 14.30 | 0.39 |
| SEAC | 0.33** | 0.32 | 0.04 | 7.80 | 0.11 |

AUTO=autonomy, ENMA=environmental mastery, FAMI=family, FRIE=friends, PERG=personal growth, PRWO=positive relations with others, PSWEBE=psychological well-being, PUIL=purpose in life, SE=standard error, SEAC=self-acceptance, SIGO=significant other, SOCSUP=social support. **$P<0.01$

**Table 4: The structural model result (direct effect)**

| Direct path | Standardized regression weight | b | SE | t | $R^2$ |
|---|---|---|---|---|---|
| Social support psychological well-being | 0.82** | 0.82 | 0.05 | 16.28 | 0.67 |

AGFI=adjusted goodness of fit index, CFI=comparative fit index, df=degree of freedom, GFI=goodness of fit index, RMSEA=root mean square error of approximation, SE=standard error, SRMR=standardized root mean square residual. Model fit indices: $\chi^2$ (22, $N$=689) = 27.69, $\chi^2$/df=1.26, $P$=0.19, GFI=0.99, AGFI=0.98, CFI=1.00, SRMR=0.02, RMSEA=0.02. **$P<0.01$

students of the Malikussaleh University ($\gamma = 0.40$, $P < 0.05$). The findings were similar to the study conducted by Poudel *et al*.,[20] which revealed that the variable of social support could significantly affect Nepalese adolescents' psychological well-being ($P < 0.05$). The findings were also in conformity with Gardner and Webb[17] who found that social support from family had a direct impact on Jamaican adolescents' psychological well-being ($\beta = 0.16$, $P < 0.01$).

## Limitation and recommendation
The limitations of this study were as follows: (1) only two latent variables, social support and psychological well-being, were included in this study and social support only explained 67.0% of undergraduate students' psychological well-being and (2) this study used a self-report questionnaire and the participants might not have honestly answered some questions, especially on sensitive questions. Recommendations for future studies are as follows: (1) more literature and theories can be reviewed in order to find other variables that affect undergraduate students' psychological well-being and (2) the researcher could communicate with the participants sincerely and explain that all the collected responses would be confidentially treated and only be used for academic purpose.

## Conclusions
The current findings demonstrated that ENMA, AUTO, PERG, and PUIL had high and nearly equal factor loadings regarding undergraduate students' psychological well-being. Therefore, enhancing or improving ENMA, AUTO, PERG, and PUIL of undergraduate students' psychological well-being in North China would be key in the future. The findings also showed that social support had a statistically significant effect on undergraduate students' psychological well-being. University administrators should pay more attention to the impacts of undergraduate students' social support from family, friends, and significant other and provide specific courses in order to develop strategies for the enhancement of undergraduate students' psychological well-being.

### Conflicts of interest
There are no conflicts of interest.

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