A Meta-Analysis on the Effects of Social Support and Self-Concept on Subjective Well-Being

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Abstract

This study focused on the causal relations among social support, self-concept and subjective well-being. A meta-analysis was conducted with 17 available published works in use. These studies have homogeneous effect sizes and have no publication bias. The findings empirically revealed that social support and self-concept can positively affect subjective well-being, and social support positively affect self-concept. The mean effect sizes represented the high or medium effect size of the correlations between the three variables. Self-concept partially mediated the effects of social support on subjective well-being, implying that subjective well-being could be affected by social support indirectly via self-concept. Social support and self-concept can explain 27.04% and 10.25% variation in subjective well-being respectively, so a total of 37.29% variation in subjective well-being can be explained. The results provided a more comprehensive understanding of the causal relations among social support, self-concept, and subjective well-being.

Keywords: Social Support, Self-Concept, Subjective Well-Being

1. Introduction

Subjective well-being (SWB) refers to a self-reported evaluation of a personal feelings about emotional affects and life satisfaction. SWB includes personal moods, emotions, and a cognitive assessment of general and specific fields of life satisfaction. SWB is not only a construct, but also a common interest in the scientific field (Diener*et al.*, 1999). Many researchers paid much attention in this field, and thus, researches regarding to SWB can easily be found in the literature. For example, if we simply choose "subjective well-being" as the keyword, and search for articles with "subjective well-being" in the title through Google Scholar, we will find that there are about 16,000 links on the website. However, most of the researchers analyzed sample data from a specific population, and the results may have some degree of error. In recent years, more and more studies have used meta-analysis as a systematic review of the quantitative combination of previous studies to derive aggregate estimates. Meta-analysis is a statistical technique of combining sample evidence from previous quantitative studies, and can be applied to assess the differences among study results, and to find out the potential moderators, causes of discrepancy among studies.

Many different types of effect size measures are proposed in the literature to synthesize selected research results. One of the effect size indicators is the sample correlation coefficient r, which is suitable for evaluating the association between variables. By using a meta-analysis, Bücker*et al.* (2018) indicated that the correlation between SWB and academic achievement was small to medium effect size (r=0.164). According to the results of the meta-analysis, Ngamaba, Panagioti and Armitage (2018) pointed out that income inequality was unrelated with SWB (r=-0.01), however, the relationship was moderated by country economic development (r=-0.06 for developed countries, and r=0.16 for developing countries). Wiese, Kuykendall and Tay (2018) carried a meta-analysis out to investigate the association of leisure time physical activity (LTPA) with SWB (positive affect, negative affect and life satisfaction), and showed that LTPA was related to life satisfaction (r=0.12) and positive affect (r=0.21), but the correlation between LTPA and negative affect was statistically insignificant (r=-0.05). Based on the quantitative literature review, Yu, Levesque-Bristol and Maeda (2018) showed that the correlation between autonomy and SWB was moderate (r=0.46), and the difference between Eastern and Western studies was not significant. Tan *et al.* (2020) conducted a systematic review to combine the correlation between objective socioeconomic status (OSES; income, education) and subjective socioeconomic status (SSES; ladder SES, perceived SES) with SWB quantitatively, and found that SWB was significantly related to income (r=0.23), education (r=0.12), ladder SES (r=0.22), perceived SES (r=0.20), OSES (r=0.16), and SSES (r=0.22).

In addition to the constructs mentioned in the above studies, some other constructs related to SWB have also been considered in systematic reviews and meta-analyses. Constructs associated with SWB included emotional intelligence (Xu, Pang & Xia, 2020), fear of crime (Alfaro-Beracoechea *et al.*, 2018), financial satisfaction (Ngamaba *et al.*, 2020), gratitude (Ding & Zhao, 2018), health status (Ngamaba, Panagioti & Armitage, 2017), humor styles (Jiang *et al.*, 2020), internet overuse (Lei, Chiu & Li, 2020), job performance (Moscoso& Salgado, 2021), mindfulness (Wang *et al.*, 2019), mortality (Martín-María *et al.*, 2017), physical activity (Buecker *et al.*, 2020; Won *et al.*, 2020), positive psychological capital (Liu, 2017), presence of meaning (Li, Dou & Liang, 2021), search for meaning (Li, Dou & Liang, 2020), self-esteem (Bilgin*et al.*, 2021), and trait meta-mood (Sánchez-Álvarez, Extremera & Fernández-Berrocal, 2019), etc.

When studying the factors that affect SWB, both external and internal factors should be considered (Diener *et al.*, 1999). Social support (SS) is an important external factor that depends on others and is not subject to personal influence or guidance. SS has been shown to have a significantly positive impact on SWB (Liou, 2007; Li*et al.*, 2014; Lin, 2014; Chou & Chen, 2016; Jeon, Lee & Kwon, 2016; Song, Liu & Du, 2018; Zhai & Wang, 2018). Internal factors of SWB are related to personalities, in which self-concept (SC) is known as an important predictor of SWB. The relationship between SC and SWB has been shown to be a significantly positive causality (Zhang & Xu, 2007; Wang, 2008; Zhang, 2016; Meng, Wang & Lei, 2017; Chao & Wu, 2018). There is a causal relationship between SS and SC, where SC is positively affected by SS (Lin *et al.*, 1999; Chang *et al.*, 2002; Lv & Li, 2011; Hu & Liu, 2012; Chao & Wu, 2018). According to the literature review, it was found that SS, SC and SWB are causally associated, which can be used as the theoretical basis for the conceptual model. An attempt was then made to implement a meta-analysis so as to understand the integrated model.

2. Method

Meta-analysis is an approach that combines statistical results of previous studies to provide an aggregate estimate. Many studies on management applied questionnaire sampling surveys to explore the relationship among variables. Sample correlation coefficient is often used to measure the degree and direction of the linear correlation between two variables. When considering a meta-analysis in the field of management, sample correlation coefficient was commonly used as an effect size.

2.1 Effect size estimation

Suppose that a meta-analysis is conducted by collecting k studies, in which the sample size and sample correlation coefficient of the i^{th} study are denoted by n_i and r_i, where the variance of r_i is given by $Var(r_i) = (1 - r_i^2)^2/n_i$, $i = 1, \ldots, k$. In order to measure the mean effect size, weighted mean with weight w_i proportional to sample size is commonly chosen, which is given by

$$\bar{r} = \frac{\sum_{i=1}^{k} w_i r_i}{\sum_{i=1}^{k} w_i} = \frac{\sum_{i=1}^{k} n_i r_i}{N}$$

where $N = \sum_{i=1}^{k} n_i$ denotes the total sample size of k studies. When the population correlation coefficient $\rho \neq 0$, the sampling distribution of $\bar{r}$ is not symmetric. In this case, measuring the mean effect size by using sample correlation coefficient $\bar{r}$ will result in some bias. A better way to overcome this drawback is to estimate after adopting Fisher's Z transformation. The formula of Fisher's Z transformation is to compute $Z_{r_i} = 0.5\ln[(1 + r_i)/(1 - r_i)]$, $i = 1, \ldots, k$, with variance given by $Var(Z_{r_i}) = (n_i - 3)^{-1}$. With the weight of the reciprocal of the variance, given by $w_i = (Var(Z_{r_i}))^{-1} = (n_i - 3)$, $i = 1, \ldots, k$, such that $\sum_{i=1}^{k} w_i = (N - 3k)$, the weighted mean of Z_{r_i} can be expressed as

$$\hat{Z}_r = \frac{\sum_{i=1}^{k} w_i Z_{r_i}}{\sum_{i=1}^{k} w_i} = \frac{\sum_{i=1}^{k} (n_i - 3) Z_{r_i}}{N - 3k}$$

Using the inverse function relationship of Fisher's Z transformation, the weighted mean, as an estimator of mean effect size, can be obtained as

$$\hat{r} = \frac{e^{2\hat{Z}_r} - 1}{e^{2\hat{Z}_r} + 1}$$

The above process of weighted averaging with the inverse of the estimates' variance (within-studies variance) is named as the fixed-effects model, which assuming the homogeneity across studies. Assuming the potential existence of heterogeneity, the random-effects model takes both the within-studies and between-studies variances into account when assigning the weights (Lipsey & Wilson, 2001). The mean effect sizes with values close to 0.1, 0.3, and 0.5 are considered as small, medium, and large levels, respectively (Cohen, 1992).

2.2 Homogeneity test

In meta-analysis, the Q statistic, given by,

$$Q = \sum_{i=1}^{k} w_i (Z_{r_i} - \hat{Z}_r)^2 \sim \chi^2_{(k-1)}$$

is commonly used to test the homogeneity of distributions of effect size. The Q statistic follows the χ^2 distribution with degree of freedom $(k-1)$. For a given significance level α, when the value of Q statistic is lower than $\chi^2_{(k-1),(1-\alpha)\%}$, the evidence is not enough to disprove that homogeneity of the variances exists. Conversely, higher value of Q than $\chi^2_{(k-1),(1-\alpha)\%}$ means that heterogeneity of the variances holds, which implies the existence of potential moderators, and it is in need of searching for moderators (Lipsey & Wilson, 2001).

Another way to assess the homogeneity of the studies is to compute I^2, where

$$I^2 = \begin{cases} \dfrac{Q-df}{Q} \times 100\%, & Q > df \\ 0 & , Q \le df \end{cases} = \begin{cases} \dfrac{Q-(k-1)}{Q} \times 100\%, & Q > (k-1) \\ 0 & , Q \le (k-1) \end{cases}$$

The value reflects the observed variance from the differences among the studies that exceed the assumed random error. A value of I^2 closes to 0.25, 0.50, and 0.75 respectively represents low, moderate as well as high level of heterogeneity (Higgins *et al.*, 2003).

2.3 Publication bias assessment

The fail-safe number (FSN) was suggested to assess whether there is a publication bias in the results of meta-analysis. Denote by Z_i the value of standardized normal distribution of the i^{th} study, $i = 1, \dots, k$, the FSN_α is given by

$$FSN_\alpha = \left(\frac{\sum_{i=1}^{k} Z_i}{Z_{(1-\alpha)}} \right)^2 - k$$

This means that it is necessary to collect at least FSN_α insignificant studies to disprove the previous significant conclusion. Noted that the formula of FSN_α is related to a given significance level α.

A simple way to compute FSN is that, if we simply choose α=0.05, and if further collected FSN studies on the same topic are not significant, the ratio of s statistically significant studies to all the collected $(k + FSN)$ studies should be equivalent to α=0.05, that is, $FSN = 20s - k$. Higher value of FSN than tolerance level $(5k + 10)$ means that publication bias is small (Rosenthal, 1979).

3. Research design

A meta-analysis approach was carried out in this study to combine statistical results of previous studies on the relationships between SS, SC and SWB. The studies collected in this meta-analysis were performed from 2002 through 2018. By using “social support”, “self-concept” along with “subjective well-being” as keywords, we search the related studies from databases such as Airiti Library, CNKI, Google Scholar, Oriprobe Information Services, PubMed, etc. Noted that, even if the title of an article contains the three keywords, it may be excluded from this meta-analysis. This is because in such a study, researchers utilized a different standard of measurement, such as measuring self-esteem instead of SC, or measuring life satisfaction instead of SWB. Studies unrelated to the subject of this study, descriptive, or unreported estimates of relationships between variables were excluded.

It is noted that standardized regression coefficient of simple linear regression analysis is used to measure the degree and direction of an independent variable’s influence on the dependent variable. Although the two analytical methods, correlation analysis and simple linear regression analysis, are different, the computing formulas of the two coefficients, correlation coefficient and standardized regression coefficient, are the same. Correlation coefficient r (or standardized regression coefficient of simple linear regression analysis) was utilized as effect size in this study. It is known that Fisher’s Z transformation enables us to test all the possible null hypothesis about population correlation coefficient ρ, not just $\rho = 0$. All the observed values r_i were therefore transformed to Z_{r_i}, $i = 1, \dots, k$. Calculating the weighted mean $\hat{Z}_r$ with weights of the reciprocal of $Var(Z_{r_i})$, $i = 1, \dots, k$, the value of $\hat{Z}_r$ was then transformed back to correlation $\hat{r}$ with 95% confidence interval (CI) $(L_{\hat{r}}, U_{\hat{r}})$. Studies included in this research were summarized in Table 1.

Table 1: Summary of studies included

Relationship	Studies	n	r
SS → SWB	Liou (2007)	99	0.440
	Li *et al.* (2014)	381	0.570
	Lin (2014)	609	0.502
	Chou and Chen (2016)	647	0.521
	Jeon, Lee and Kwon (2016)	333	0.530
	Song, Liu and Du (2018)	283	0.540
	Zhai and Wang (2018)	142	0.426
SC → SWB	Zhang and Xu (2007)	233	0.572
	Wang (2008)	164	0.410
	Zhang (2016)	234	0.496
	Meng, Wang and Lei (2017)	550	0.540
	Chao and Wu (2018)	717	0.490
SS → SC	Lin *et al.* (1999)	81	0.527
	Chang *et al.* (2002)	96	0.496
	Lv and Li (2011)	171	0.326
	Hu and Liu (2012)	152	0.389
	Chao and Wu (2018)	717	0.430

Totally 17 studies published between 1999 and 2018 were applied, where 7 studies with 2494 samples for SS→SWB, 5 studies with 1898 samples for SC→SWB, and 5 studies with 1217 samples for SS→SC. The correlation coefficients ranged from 0.426 to 0.570 for SS→SWB, from 0.410 to 0.572 for SC→SWB, and from 0.326 to 0.527 for SS→SC.

4. Results

Among the collected 17 studies, the studies performed both on female and male comprised percentage of 94.12%. The target population of 52.94% of the studies were students, followed by older adults (17.65%) and patients (17.65%). 52.94% of the studies were written in simplified Chinese, followed by traditional Chinese (29.41%), and then English (17.65%). Homogeneity test and publication bias assessment were summarized in Table 2.

Table 2: Summary of homogeneity test and publication bias assessment

Relationship	Q	I^2	$FSN_{0.05}$	FSN	Tolerance
SS → SWB	5.642 (p=0.464)	0.00%	1891	140	45
SC → SWB	5.900 (p=0.207)	32.21%	999	100	35
SS → SC	4.657 (p=0.324)	14.10%	377	100	35

Critical region of Chi-square test for homogeneity with significance level α is that the Q value should be higher than $\chi^2_{(k-1),(1-\alpha)\%}$, where k denotes numbers of studies. From Table 2, the three Q values were all less than the corresponding critical values ($Q_{\text{SS,SWB}}$=5.642<12.592=$\chi^2_{6,0.95}$, $Q_{\text{SC,SWB}}$=5.900<9.488=$\chi^2_{4,0.95}$, $Q_{\text{SS,SC}}$=4.657<9.488 =$\chi^2_{4,0.95}$), indicating that the null hypotheses of homogeneity were not rejected, implying that differences in effect size were due to random error. Moreover, $I^2_{\text{SS,SWB}}$=0.00% showed that there is no heterogeneity in the studies for SS→SWB. $I^2_{\text{SC,SWB}}$=32.21% and $I^2_{\text{SS,SC}}$=14.10% indicated low-moderate, and low level of heterogeneity for SC→SWB and for SS→SC, respectively. It could be concluded that the studies were homogeneous as the differences between studies were small. According to the results of FSN_α computation, we got $FSN_{\text{SS,SWB,0.05}}$=1891, $FSN_{\text{SC,SWB,0.05}}$=999 and $FSN_{\text{SS,SC,0.05}}$=377, which showed that at least 377 studies with zero mean effect size should be included to offset the significance. The three FSN values were all more than the corresponding tolerance levels ($FSN_{\text{SS,SWB}}$=140>45, $FSN_{\text{SC,SWB}}$=100>35, $FSN_{\text{SS,SC}}$=100>35), indicating that there is no publication bias or file drawer problem in this study. These verified the reliability of the meta-analysis. Results of meta-analysis were summarized in Table 3.

Table 3: Summary of meta-analysis

Relationship	k	N	$\hat{Z}_r$	$\hat{r}$	95% CI ($L_{\hat{r}}$, $U_{\hat{r}}$)
SS → SWB	7	2494	0.576	0.520	(0.483, 0.555)
SC → SWB	5	1898	0.562	0.510	(0.461, 0.555)
SS → SC	5	1217	0.451	0.423	(0.355, 0.487)

The mean effect size of SS→SWB was $\hat{r}_{SS,SWB}$=0.520 with the 95% CI ranged from 0.483 to 0.555, based on the fixed-effects model, and 0.520 with the 95% CI ranged from 0.484 to 0.554, based on the random-effects model. Since 0 did not belong to the 95% CIs, we concluded that SS has a positive impact on SWB. The value $\hat{r}_{SS,SWB}$=0.520 indicated the large effect size of SS on SWB. The mean effect size of SC→SWB was $\hat{r}_{SC,SWB}$=0.510 with the 95% CI ranged from 0.461 to 0.555, based on the fixed-effects model, and 0.509 with the 95% CI ranged from 0.443 to 0.569, based on the random-effects model. Since 0 did not belong to the 95% CIs, we concluded that SC has a positive impact on SWB. The value $\hat{r}_{SC,SWB}$=0.510 indicated the large effect size of SC on SWB. The mean effect size of SS→SC was $\hat{r}_{SS,SC}$=0.423 with the 95% CI ranged from 0.355 to 0.487, based on the fixed-effects model, and 0.423 with the 95% CI ranged from 0.341 to 0.498, based on the random-effects model. Since 0 did not belong to the 95% CIs, we concluded that SS has a positive impact on SC. The value $\hat{r}_{SS,SC}$=0.423 indicated that the correlation between SS and SC was medium to large in magnitude. Noted that the three coefficients of determination were $\hat{r}^2_{SS,SWB}$=0.2704, $\hat{r}^2_{SC,SWB}$=0.2601 and $\hat{r}^2_{SS,SC}$=0.1789. That is, SS can explain 27.04% variation in SWB, SC can explain 26.01% variation in SWB, and SS can explain 17.89% variation in SC.

5. Conclusion and discussion

It should be noted that there are few literature that study the relationships between SS, SC and SWB simultaneously. If we can assume that the effect sizes were computed by using the same database, we have the following inference. Partial correlation coefficient is commonly applied to examine the correlation between the dependent variable and one of several independent variable under the situation that other independent variables remain fixed. According to the pairwise relationships of the three constructs, SWB was the dependent variable, SS was the independent variable, and SC was the mediating variable. The partial correlation coefficients can then be obtained as $\hat{r}_{SS,SWB\cdot SC}$=0.390 and $\hat{r}_{SC,SWB\cdot SS}$=0.375, and the coefficients of partial correlation were respectively given by $\hat{r}^2_{SS,SWB\cdot SC}$=0.1524 and $\hat{r}^2_{SC,SWB\cdot SS}$=0.1404. In other words, excluding SC, SS can explain 15.24% variation in SWB, and excluding SS, SC can explain 14.04% variation in SWB. In addition, the coefficient of determination of multiple regression model was r^2=0.3729, that is, totally 37.29% variation in SWB can be explained by SS and SC. So, the 37.29% explanation percentage of the variation in SWB can be divided into three parts: 11.28% was explained by SS alone, 10.25% was explained by SC alone, and 15.76% was the common explanation percentage of SS and SC. Since SC was the mediating variable between SS and SWB, the common explanation percentage of 15.76% should be considered to be contributed by SC rather than SS, implying that total explanation percentage of SC was $\hat{r}^2_{SS,SWB}$= 27.04%. In addition, testing the explanation percentage of SS showed that 11.26% was significantly different from zero. We then concluded that SC played a partial mediating role between SS and SWB.

In sum, results from meta-analyses supported the relationships among SS, SC and SWB. Based on the significantly positive relationships, it was suggested that a potential mediating role of SC between SS and SWB. It is noted that there are relatively few studies exploring the combined effect of SS and SC on SWB. To fill this gap, future studies are advised to investigate the integrated model regarding SS, SC and SWB. SS and SC can explain 37.29% variation in SWB, which means that the unexplained variation in SWB account for 62.71%.It is recommended that researchers are suggested to study other variables simultaneously to increase the interpretation of SWB.

6. References

Alfaro-Beracoechea, L., Puente, A., Da Costa, S., Ruvalcaba, N., & Páez, D. (2018). Effects of fear of crime on subjective well-being: A meta-analytic review. European Journal of Psychology Applied to Legal Context, 10(2), 89-96.

Bilgin, A., Brylka, A., Wolke, D., Trower, H., Baumann, N., & Lemola, S. (2021). Subjective well-being and self-esteem in preterm born adolescents: An individual participant data meta-analysis. Journal of Developmental & Behavioral Pediatrics, Publish Ahead of Print.

Buecker, S., Simacek, T., Ingwersen, B., Terwiel, S., & Simonsmeier, B. A. (2020). Physical activity and subjective well-being in healthy individuals: A meta-analytic review. Health Psychology Review, DOI: 10.1080/ 17437199.2020.1760728

Chang, C. P., Tsai, Y. F., Chen, Y. C., & Hwang, S. L. (2002). Anxiety and its related factors in burn patients. Formosan Journal of Medicine, 6, 661-671.

Chao, Q., & Wu, J. (2018). The mediation role of general self-concept between social support and subjective well-being in older adults. Chinese Journal of Behavioral Medicine and Brain Science, 27(5), 430-433.

Chou, C. C., & Chen, C. C. (2016). Are you tired? Empirical analysis of the relationships between role stress, social support and well-being of junior high school teachers serving as administrative staff in Taiwan. Journal of

National Taichung University: Mathematics, Science & Technology, 30, 21-43.
Cohen, J. (1992). A power primer. Psychological Bulletin, 112(1), 155-159.
Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. Psychological Bulletin, 125(2), 276-302.
Ding, F., & Zhao, H. (2018). Is the individual subjective well-being of gratitude stronger? A meta-analysis. Advances in Psychological Science, 26(10), 1749-1763.
Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. BMJ, 327(7414), 557-560.
Hu, B., & Liu, H. (2012). The relevance study between social support and selfconcept of patients with cerebral apoplexy. China Medical Herald, 9, 112-114.
Jeon, H., Lee, K., & Kwon, S. (2016). Investigation of the structural relationships between social support, self-compassion, and subjective well-being in Korean elite student athletes. Psychological Reports, 119(1), 39-54.
Jiang, F., Lu, S., Jiang, T., & Jia, H. (2020). Does the relation between humor styles and subjective well-being vary across culture and age? A meta-analysis. Frontiers in Psychology, 11, 2213.
Lei, H., Chiu, M. M., & Li, S. (2020). Subjective well-being and internet overuse: a meta-analysis of mainland Chinese students. Current Psychology, 39(3), 843-853.
Li, B., Ma, H., Guo, Y., Xu, F., Yu, F., & Zhou, Z. (2014). Positive psychological capital: A new approach to social support and subjective well-being. Social Behavior and Personality, 42, 135-144.
Li, J. B., Dou, K., & Liang, Y. (2021). The relationship between presence of meaning, search for meaning, and subjective well-being: A three-level meta-analysis based on the meaning in life questionnaire. Journal of Happiness Studies, 22, 467-489.
Lin, C. C. (2014). Exploring the relationships among gratitude, social support, and well-being: A test of a mediated-effects model. Formosa Journal of Mental Health, 27, 453-482.
Lin, Y. C., Li, I. C., Hsu, H. Y., Wanne, Y. W., Kuo, I. T., & Lu, C. W. (1999). Self-concept of home-bound spinal cord injured patients and its correlates in Pingtung Area. Nursing Research, 7, 51-64.
Liou, C. P. (2007). A study on subjective well-being and social support of college students from low-income families - An example of the evening division of Fu Jen Catholic University. Journal of Holistic Education, 1,179-207.
Lipsey, M. W., & Wilson, D. B. (2001). Practical Meta-Analysis. Thousand Oaks, CA: Sage Publications.
Liu, Z. (2017). The relationship between positive psychological capital and subjective well-being: A meta-analysis. Advances in Psychology, 7(1), 104-115.
Lv, F. F., & Li, C. F. (2011). Relationship between professional self-concept and social-support among nursing students during clinical practice. Chinese Nursing Management, 11, 31-33.
Martín-María, N., Miret, M., Caballero, F. F., Rico-Uribe, L. A., Steptoe, A., Chatterji, S., & Ayuso-Mateos, J. L. (2017). The impact of subjective well-being on mortality: a meta-analysis of longitudinal studies in the general population. Psychosomatic Medicine, 79(5), 565-575.
Meng, N., Wang, Y., & Lei, L. (2017). The relationship between selfie editing and subjective well-being among female college students: The mediating role of positive feedback and self-concept. Psychological Development and Education, 33(6), 751-758.
Moscoso, S., & Salgado, J. F. (2021). Meta-analytic examination of a suppressor effect on subjective well-being and job performance relationship. Journal of Work and Organizational Psychology, Publish Ahead of Print.
Ngamaba, K. H., Armitage, C., Panagioti, M., & Hodkinson, A. (2020). How closely related are financial satisfaction and subjective well-being? Systematic review and meta-analysis. Journal of Behavioral and Experimental Economics, 85, 101522.
Ngamaba, K. H., Panagioti, M., & Armitage, C. J. (2017). How strongly related are health status and subjective well-being? Systematic review and meta-analysis. The European Journal of Public Health, 27(5), 879-885.
Rosenthal, R. (1979). The file drawer problem and tolerance for null results. Psychological Bulletin, 86(3), 638-641.
Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2019). The influence of trait meta-mood on subjective well-being in high school students: A random intercept cross-lagged panel analysis. Educational Psychology, 39(3), 332-352.
Song, G., Liu, Z., & Du, N. (2018). Social support and subjective well-being: The mediating effects of emotional intelligence among 12th graders. Modern Education Management, 7, 100-105.
Wang, S., Song, X., Che, X., Cai, L., & Huang, J. (2019). Meta analysis of the relationship between mindfulness and subjective well-being in Chinese context. Advances in Psychology, 9(3), 544-551.
Wang, X. Y. (2008). SWB and self-concept of the college youth physical education teachers. Shandong Sports Science and Technology, 30(3), 69-71.

Won, D., Bae, J. S., Byun, H., & Seo, K. B. (2020). Enhancing subjective well-being through physical activity for the elderly in Korea: A meta-analysis approach. International Journal of Environmental Research and Public Health, 17(1), 262-272.

Xu, X., Pang, W., & Xia, M. (2020). Are emotionally intelligent people happier? A meta-analysis of the relationship between emotional intelligence and subjective well-being using Chinese samples. Asian Journal of Social Psychology, 10.1111/AJSP.12445.

Zhang, L. (2016). Research on the relationship between self concept and subjective well-being of normal university students. International Journal of Innovation Education and Research, 4(4), 79-87.

Zhai, S., & Wang, J. (2018). The relations between social support and subjective well-being among elderly: A study based on the multiple mediation effects of mental health factors. Northwest Population Journal, 39, 43-50.

Zhang, L., & Xu, Q. (2007). Effects of undergraduates' self-concept, collective self-esteem and individual self-esteem on their subjective well-being. Chinese Journal of Clinical Psychology, 15(6), 609-611.