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A META-ANALYSIS OF THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND WELL-BEING

Hsiu-Hung Wang

This study focuses upon the relationship between social support and well-being and the effect size of social support on well-being. Meta-analysis was used to synthesize the primary research studies and a computer search was used in the preliminary examination of the literature. After this preliminary screening and narrowing of the search, approximately 150 research articles published after 1985 were reviewed. Totally, 21 primary studies met the inclusion criteria of this meta-analysis.

This study indicated that 41 outcome variables were used in the 21 primary studies. Of these, seven outcome variables were categorized and named. Among these seven outcome variables, social support was significantly correlated with positive mood state, negative mood state, depression, level of functioning, and quality of life. Social support was not found to have a significant correlation at the .05 level of significance with perceived health status and physical symptoms. These findings have three implications: they facilitate external validity and generalization of research findings of the primary studies; they provide information on the magnitude of sample size for achieving statistical significance between social support and an outcome variable for future studies; and they provide information about social support intervention and enhancing the effect of social support on well-being.

Key words: meta-analysis, social support, well-being

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In addition to a buffering effect, social support has been considered to influence well-being directly[1-6] and to have the capability of enhancing well-being[7-9]. Social support affects well-being in three ways: by regulating thoughts, feelings and behavior to promote health; by fostering an individual's sense of meaning in life; and by facilitating health promoting behaviors[1]. Weiss[10] has proposed that an individual needs a set of relationships over the life course and all these relationships are necessary for well-being. Lack of social support may adversely affect well-being[11]. Although a direct effect of social support on well-being was advocated, the causal connections between these phenomena must be further examined[12].

Health-related scholars have agreed that social support is a multidimensional construct with different types or kinds of support. Emotional, appraisal, informational, instrumental, and tangible support were considered essential dimensions of social support[13,14]. Some scholars have defined social support as relational provisions[10], interpersonal transactions[15], or an individual's perceptions about the adequacy or availability of different types of support[9]. In this study, social support was broadly identified as a multiple construct involving several theoretical components, including support network resources, supportive interactions, and perception or belief of support[16].

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The literature has demonstrated that well-being is an important outcome measure for persons with stressful life events[17-25]. A variety of indicators of well-being had been presented in empirical studies. Happiness[26,27], morale[26,28], and satisfaction with life[17,26,29] were used to measure well-being in earlier research studies. More recently, depression (or anxiety) has popularly been used as an indicator of well-being[30-33]. Mood or affective state, which includes both positive and negative feelings, is also considered to be an important indicator of well-being[34-36]. Some other indicators of well-being combine psychological and spiritual dimensions; those include the negative indicators tiredness, loneliness, and boredom[24]; environmental mastery, purpose in life, personal growth, positive relations with others, and autonomy[22,32], self-esteem[22,32,37], and sense of future[21]. Some well-being research studies even focused on physical dimension, such as perceived health status[19,38,39], functional status [19,38], and number of doctor visits[39,40]. The studies show that well-being has been considered a multidimensional construct including physical, psychosocial, and spiritual dimensions.

Although social support and well-being have been considered major concepts in a number of research studies over the past decades, the influence of social support on well-being still seems to be inconclusive. Using meta-analysis to synthesize the research studies may effectively address the relationship between social support and well-being. Meta-analysis uses statistical techniques to estimate effect size, the magnitude and the direction of the association between variables[5]. The purpose of this study was to use a meta-analysis to examine the relationship between social support and well-being and to calculate the effect size of social support on well-being. In this meta-analysis, social support was measured by the self-reported scores of selected social support instruments (e.g., the Personal Resource Questionnaire and Norbeck Social Support Questionnaire). Well-being was identified as subjective perceptions, measured by self-reported scores of selected well-being instruments (e.g., the Bradburn Affect Balance Scale and Satisfaction With Life Scale).

MATERIALS AND METHODS

In this study, meta-analysis, a quantitative method for summarizing existing studies, was defined as an analysis of analyses: that is, pooled results of several studies are analyzed to provide a systematic, quantitative review of their data[41]. In the preliminary examination of the literature, a computer search used the key words "social support" and "health." Approximately 2,000 previous studies were associated with the key words in the Cumulated Index to Nursing and Allied Health Literature (CINAHL) and Social Science Abstracts after 1985. After preliminary screening and narrowing the search onto "social support" and "well-being," approximately 150 research articles published after 1985 were reviewed. Inclusion criteria of this study include: (a) the primary research study was published in a peer-reviewed journal; (b) social support was measured; (c) social support was correlated with criterion variable under the indicators of well-being; (d) the research was a study of adult subjects 18 years old or older; and (e) research data were in the form of correlation matrices among social support and criterion variables or simple correlations or regression analyses between social support and at least one outcome variable.

Totally, 21 primary studies [2,4,6-8,23,34,36,42-54] met the inclusion criteria of this meta-analysis. All of the primary studies were published between 1985 and 1996. A study coding sheet was designed to extract relevant information from each study. The coding sheet consisted of a study identification number, inclusion criteria, characteristics of the publication, characteristics of the author(s), characteristics of the subjects, methodological characteristics, descriptive data, and correlational data. According to the coding sheets, each outcome variable was examined. In the 21 primary studies 41 outcome variables on well-being were involved. Cards were used to sort out the homogenous variables and categorize them. Eight variables were categorized and named as positive mood state, negative mood state, depression, perceived health status, level of functioning, physical symptoms, quality of life, and stress (Table 1). Of these categorized variables, stress was only involved in three studies. This variable was,

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therefore, eliminated from further analysis because of possible lack of representativeness. The naming was the result of agreement between a nursing professor who is familiar with this study and an expert in meta-analysis.

A summary table, made up of variables, study number, sample size, correlation coefficient, and P value, was established to calculate the effect size of each outcome variable. A computer program "D-STAT" [55] was used for data analysis. Correlation coefficients or P values were used to determine the unweighted effect size (g). Based on sample size and unweighted effect size, every outcome variable was examined for its homogeneity between studies. Outliers of the variable were eliminated to achieve a homogenous state ($p > .05$). Then, weighted effect size (d) of each variable was determined.

RESULTS

Characteristics of the 21 primary studies were shown in Table 2. The majority of the first authors of the primary studies were nurses (80.9%). The first authors were predominantly academic doctorates (Ph.D.) (52.4%) and professional doctorates (DSN, MD, DrPH) (23.8%). The subjects of the primary studies had mean age from 25.9 to 77.7, with ranges from 20 to 98 years of age. Total sample size was 1,730, ranging from 30 to 164. Of the 21 primary studies, three did not state the gender distribution in the studies. In 18 studies, the average percentage of subjects that were female was 73.5% and male, 26.5%. The majority of the primary studies (71.4%) demonstrated that the subjects had such chronic diseases as heart disease, cancer, COPD, multiple sclerosis, and rheumatoid arthritis. The majority of the subjects were predominantly of middle income (57.2%). The major educational level of the subjects was predominantly some college or above (38.1%); the same percentage of studies (38.1%) did not state educational level.

A study quality scoring method modified from Brown [56] was used in this study (Table 3). For selection and specification of the study sample, 17 studies (80.9%) used convenience sample, including adequate description of demographic features of the sample. Three studies (14.3%) used random sample without adequate description of demographic features of the sample.One study (4.8%) used convenience sample without adequate description of demographic features of the sample. With regard

Table 1. Categorized outcome variables of the selected primary studies

Outcome variables	Indicators	Number of studies
Positive mood state	Positive psychological well-being Positive mood status	7
Negative mood state	Negative psychological well-being Negative mood status	7
Depression	Depression	6
Pereceived health	Pereceived health status Physical recovery, illness demand, and illness uncertainty	4
Level of functioning	Sickness impact and functional disability Family functioning	6
Physical symptoms	Physical symptoms	4
Quality of life	Marital quality, purpose-in-life, self-esteem, and hopefulness Life satisfaction	6
Stress	Perecived stress and strain Psychological symptoms	3

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Table 2. Characteristics of the selected primary studies

Characteristics		n	%
Profession of the first author	Nurse	17	80.9
	Psychologist	1	4.8
	Sociologist	1	4.8
	Not specified	2	9.5
Educational background of the first author	Academic doctorate	11	52.4
	Professional doctorate	5	23.8
	Master's degress	3	14.3
	Not specified	2	9.5
Mean age of the subjects	25.9-77.7		
Sample size	30-164		
Gender of the subjects	Female	73.5	
	Male	26.5	
Disease condition	Chronic diseases	15	71.4
	None	2	9.5
	Not specified	4	19.1
	Middle income	12	57.2
Income status	Low income	2	9.5
	Not specified	7	33.3
Educational level	College or above	8	38.1
	High school	4	19.0
	Less than high school	1	4.8
	Not specified	8	38.1

Table 3. Research quality scoring method

Item	Coding guidelines for allocation of points
Selection and specification of study sample	4=random population sample, including adequate description of demgraphic features of the sample
	3=random population sample without adequate description of demgraphic features of the sample
	2=convenience sample, including adequate description of demgraphic features of the sample
	1=convenience sample without adequate description of demographic features of the sample
	0=not stated
Validity of instruments	2=describing validity of all the instruments
	1=describing validity of some of the instruments
	0=not stated
Reliability of instruments	4=reliabilities of all the instruments are greater than .90
	3=reliabilities of all the instruments are greater than .80
	2=reliabilities of all the instruments are greater than .70
	1=reliabilities of at least one instrument is less than .70
	0=reliabilities of all the instruments are less than .70 or not stated
	1 bonus for describing reliabilities of the original instruments if all of them are greater than .70
Total quality points	Sum of items above — a total of 11 possible points

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Table 4. Effect size and related information of the outcome variables

Variable	Effect size	95% C. I	p value	Homogeneity test p value
Positive mood state	0.54	+0.42/ +0.65	<0.000	0.30
Negative mood state	-0.34	–0.47/ –0.21	<0.000	0.12
Depression	-0.32	–0.47/ –0.17	<0.000	0.17
Perceived health status	0.15	–0.02/ +0.32	>0.05	0.78
Level of functioning	0.31	+0.17/ +0.44	<0.000	0.12
Physical symptoms	-0.07	–0.28/ +0.13	>0.05	0.41
Quality of life	0.43	+0.30/ +0.55	<0.000	0.29

Note: Signs associated with effect sizes reflect direction of overall relationship between social support and outcome variables of well-being.

to validity of the instruments, 9 studies (42.8%) described validity of all the instruments. Six studies (28.6%) described validity of only some instruments. Six studies (28.6%) did not state validity of the instruments. As to reliability, 4 studies (19.0%) showed reliabilities of all the instruments greater than .90; 3 studies (14.3%) showed reliabilities of all the instruments greater than .80; 5 studies (23.8%) in which the reliabilities of all the instruments were greater than .70; 6 studies (28.6%) showed the reliabilities of at least one instrument less than .70; and 3 studies (14.3%) showed the reliabilities of all the instruments less than .70 or did not state the reliabilities. Total quality points - including 4 points for selection and specification of the study sample, 2 points for validity of the instruments, and 5 points for reliability of the instruments - could range from 0 to 11. The total quality points of this study ranged from 2 to 9, with a mean point of 5.19.

The effect sizes of social support on the outcome variables significantly correlated social support with positive mood state, negative mood state, depression, level of functioning, and quality of life. Social support was not found to have a significant correlation with perceived health status and physical symptoms (Table 4).

DISCUSSION

Examining study quality is an important step before a meta-analysis is begun because quality may influence study outcomes[57]. Overall, the 21 primary studies for meta-analysis demonstrated moderate quality. Various operational definitions and instruments used as measures of social support and well-being in the primary studies might make findings difficult to interpret. Involving multiple operationalizations of predictor variables (e.g., social support) and outcome variables (e.g., well-being), however, provided an opportunity to capture a broader extent of the variables and facilitate construct validity[58].

The methodology of this study raised several concerns. First, locating studies for inclusion was difficult. The inclusion criteria relied primarily on the types of data analysis in the primary studies, and clues to the methods of data analysis were not generally recognizable from the titles or abstracts of the studies. Because research questions often involved correlational and regression analyses secondary to the primary analyses, some potential studies had to be hand-searched to identify related studies. The second concern was the lack of complete data provided by primary studies. Pieces of data were extracted from various studies to create the dataset of this analysis.

Social support was positively correlated with positive mood state, level of functioning, and quality of life at .001 level of significance and was negatively correlated with negative mood state and depression at .001 level of significance. Of the seven outcome variables, perceived health status and physical symptoms were not significantly correlated with social support. This meta-analysis demonstrated that social support had a more obvious impact on psychological well-being than other dimensions of well-being, such as the physical dimension. Cohen's recommendation of effect size[59] results in medium effects of social support on positive

mood state (d = .54) and quality of life (d = .43) in this meta-analysis. The effects of social support on negative mood state (d = -.34), depression (d = -.32) and level of functioning (d = .31) were small. The findings suggest that adults who report higher levels of social support have higher levels of positive mood state, quality of life, and functioning and lower levels of negative mood state and depression.

The results provided information not only about the magnitude of sample size for achieving a statistical significance between social support and each outcome variable as a measure of well-being but also about strategies to guide further intervention programs and to evaluate their effectiveness. Using social support as a strategy to promote adults' well-being should be the subject of future study.

Several studies in Taiwan have examined the relations between social support and well-being. The dimensions of well-being included negative affect, emotion, mental health[60-62], depression[63,64], and physical symptoms[65]; the findings of this study can thus be inferred to the circumstances in Taiwan. Replication of this meta-analysis using a Taiwanese sample is needed to further validate the findings of this analysis.

The inclusion criterion limit of only published research was another concern of this study. Exclusion of theses, dissertations or other unpublished research studies might bias the results[66]. In general, journal reports had larger sample sizes and often reported significant results in the expected direction. In addition, publication bias in favor of significant findings should be considered a possibility. This factor may have artificially inflated the journal effect size[67]. Therefore, further rigorous synthesis including fugitive research reports should address more precise relations between social support and well-being. Another limitation of the representativeness of this analysis should also be acknowledged: because the selected studies were primarily focused on nursing journals, the findings may not similarly apply in other disciplines.

Although meta-analysis for research integration cannot take the place of primary studies to address causal relations, it may provide useful guidelines for the direction for new primary research[58]. Future study should focus on the synthesis to test a causal model and to explain interrelations among social support and significant outcome variables of well-being. A substantive intervention design may help verify the effectiveness of social support on adults' well-being.

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社會支持與安適的相關性之統合分析

王秀紅

本研究的目的在檢視社會支持與安適之間的相關性，以及檢視社會支持影響安適之成效估量值 (effect size)。本研究利用統合分析法(meta-analysis)來分析並整合原始之研究報告(primary studies)。初步先以電腦篩選找尋與社會支持與安適的相關性之研究 150 篇，之後，每篇逐一檢視以便選取符合本研究標準要件之原始研究做爲分析之樣本。最後，共有 21 篇原始研究符合本研究之選樣標準。在這 21 篇原始研究中共抽離出社會支持可造成其影響的 41 個結果變項。經由歸類出的 41 個結果變項再精簡爲 7 個結果變項，此 7 個變項命名爲正向情緒狀態、負向情緒狀態、沮喪、自覺健康狀況、功能程度、生理症狀以及生活品質。

本研究採用一項電腦統計軟體 (D-STAT) 做爲資料分析之工具。每篇原始研究之相關係數或機率值被採用以計算加權成效估量值。分析結果，在社會支持對各結果變項之加權成效估量值中發現，社會支持對正向情緒狀態、負向情緒狀態、沮喪、功能程度以及生活品質等五個結果變項具有統計學上的顯著意義 ($p < .001$)。本研究結果可提供將來欲探討社會支持與安適之相關性研究者，利用本研究計算出之加權成效估量值爲樣本數估算之依據，以加強統計學上之解釋力。同時，本研究可促進原始研究結果之外在效度與通則化，並提供日後社會支持介入之實驗研究法之參考，藉以探討社會支持對促進個人安適之成效與模式。

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