CONFIRMATORY FACTOR ANALYSIS OF THE SOCIAL SUPPORT FOR MENTAL FATIGUE RESTORATION

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Abstract - This research aimed to analyses the confirmatory factors of social support for mental fatigue restoration. The sample size was 400 medical students at pre-clinical level whose data were collected through questionnaires. Multi-stage sampling technique was implemented in the collected with the Item Objective Congruence (IOC) of 0.70. The reliability was evaluated with the Cronbach's alpha coefficient of 0.98 by analyzing the confirmatory component data. The results revealed five notable components: 1) Emotional Support, 2) Instrumental Support, 3) Information Support, and 4) Appraisal. The second order confirmation element analysis results included the relative Chi- square/DF=2.543, the Root Mean Square Error of Approximation (RMSEA) of .035, the Root Mean Square Residual (RMR) of .006, the Comparative Fit Index (CFI) of .999, the Tucker Lewis Index (TLI) of .998. This component analysis allowed for quality measurement of social support as reflected by the Composite Reliability (CR) of .941 and, the Average Variance Extracted (AVE) of .799.

Keywords - Confirmatory Factor Analysis, Social Support, Mental Fatigue, Restoration

I. INTRODUCTION

The World Health Organization defines mental health as a state of well-being, that in which the individual knows their capabilities and uses them effectively and productively that will be useful for their respective communities [1]. Considering that health is a concept influenced by a set of complex factors, i.e. biological, psychological, social, cultural, economic and spiritual, it should be acknowledged that health and mental illness do not simply have biological or psychological aspects, but also have concurrent social dimensions and nature. Social factors, which can play an important role in creating, maintaining, and promoting health, have been a major role in incidence, prevalence and persistence of the disease [2]. In this respect, it is very important to pay attention to social factors influencing mental health, and perceived social support is one of those factors. Social support represents the amount of support that a person perceives and reports receive it. Social support is a phenomenon that involves interactions of people so that when a person offers social interaction, it has an important role in his health [3]. Social support alone is not important, but what is important is the belief in the existence of social support [4]. Social support provides physical and psychological advantages for people faced with stressful physical and psychosocial events, and is considered as a factor reducing the psychological distress when faced with stressful events [5, 6].

Social support is an important factor that can affect mental health. In recent decades, many studies have been done on the impact of social support on mental health. Social support is generally associated with broad factors such as identity, support, ties, networks, and empathy. It can also protect and promote healthy, self-directed lifestyles. Further, social support has been shown to support better interpersonal functioning, which in turn facilitates physical and psychological wellbeing. Social support fosters self-esteem and inhibits feeling incompetent or helpless in coping with stress. There is a preponderance of evidence that suggests social support is linked with lower depression, lower anxiety, and lower hopelessness levels among depressed patients.

II. LITERATURE REVIEWS

A. Social Support

Social support has been described as "support accessible to an individual through social ties to other individuals, groups, and the larger community" [7]. Although social support can be measured in many ways, perceived social support is the most commonly measured index of social support [8], given its ease of measurement and evidence that it is a better predictor of mental health than other measures [9, 10]. A wealth of research has demonstrated the protective effect of perceived social support on mental health in stressful situations [11,12,13]. Although the distinction between perceived social support and received social support exists, from the perspective of the stress and coping on social support [14], it is believed that the relationship between perceived and received social support should be relatively high, especially when the support demand matches the type of support provided [15, 16].

Social support techniques allow for a person to connect, receive advice, seek suggestions or

encouragement when needed, and engage with other people who share similar interests. This support is more important for those with mental health conditions, or those from socio-economic backgrounds predisposed to the development of mental health disorders. Social support can come in many different forms:

Emotional support is a type of social support where the person provides emotional comfort to the person in distress. Close friends and family members provide hope and a listening ear. This technique is frequently used in social support for mental health that is important as it can impact the person's ability to cope and manage.

Instrumental Support. Instrumental support is defined by tangible aid and services. This could include a family member providing child-care while an individual goes to work or medical appointments.

Informational Support includes advice, suggestions, or information intentionally delivered for the benefit of the recipient. An example might include friends sharing personal experiences to inform another's decision-making, or a doctor providing information about a course of treatment.

Appraisal is similar to informational support, but is more specific and includes information that is specifically useful for self-evaluation. For example, a friend might remind you of all the successes you have found in the face of failure, or all the positive characteristics one possesses following a break-up.

B. Cognitive Behavioral Therapy

Cognitive behavioral therapy is a psychotherapeutic approach developed in the 1960s by Professor Ellen Baker at the University of Pennsylvania. Cognitive behavioral therapy was initially cognitive therapy. Over time, behavioral therapy and cognitive therapy combined came to be referred to as cognitive behavioral therapy. The cognitive behavioral therapy model mainly involves a process of cognitive reconstruction that helps individuals change "irrational cognition" into "rational cognition." The cognitive restructuring includes Baker's Cognitive Therapy (CT) and Iris's Rational Behavioral Therapy (REBT). Classical CBT techniques include psychoeducation, cognitive reconstruction, problem-solving, relaxation training, behavioral function analysis, emergency management, exposure, and relapse prevention. According to the type of therapy, it is divided into individual, group, family, and network cognitive behavioral therapy. Baker's cognitive therapy model has made the most significant contributions to the cognitive behavioral therapy model and its many variants and applications [17].

C. Confirmatory Factor Analysis *(CFA)*

This study utilized SPSS 27 combined by AMOS 23 to derive the CFA with Maximum Likelihood estimation approach. Maximum Likelihood estimation approach was selected since it could derive the parameter estimates in a model using the information in the sets of equations simultaneously [24].

Two sets of measurement model validity were selected to assess the goodness of the CFA: absolute fit measures and incremental fit measures [25]. Absolute fit measures were evaluated by goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and root means square error of approximation (RMSEA) while incremental fit measures were evaluated by normed fit index (NFI), incremental fit index (IFI), Tucker-Lewis index (TLI), and comparative fit index (CFI). Most of the validity measures required the higher the better, similar to the coefficient of determination (R2) in the multiple linear regression. For absolute fit measures, GFI and AGFI more than 0.95 and RMSEA lower than 0.07 indicated that the model was extremely good [25, 26].

For this study, the measurement model validity was selected to assess the goodness of the CFA; CFI, TLI, RMSEA, and RMR.

IV. METHODOLOGY

A. Participants

This study involved 400 medical students at pre-clinical level.

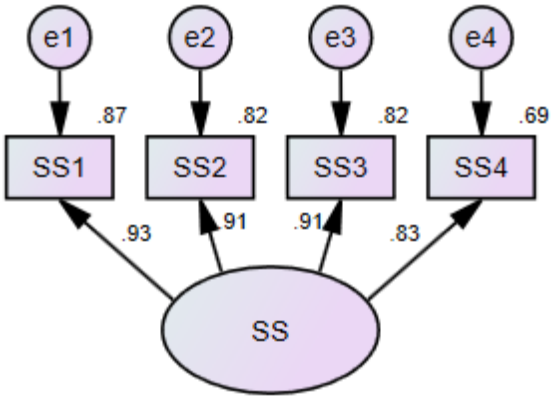
B. Data Analyses

Confirmatory Factor Analysis (CFA) was used to find the best factor structure of the scale.

V. FINDINGS

Hair [31] mentioned that all the standardized factor loadings should be statistically significant if the standardized factor loadings are higher than 0.7. The CFA model social support for mental fatigue restoration is shown in Fig. 1. In addition, Table 1 represents the factor loading with its p-value for each indicator. The finding of parameter estimates and goodness of fit measurement model. The results revealed five notable components: 1) Emotional Support, 2) Instrumental Support, 3) Information Support, and 4) Appraisal. The second order confirmation element analysis results included the relative Chi- square/DF=1.272, the Root Mean Square

Error of Approximation (RMSEA) of .035, the Root Mean Square Residual (RMR) of .006, the Comparative Fit Index (CFI) of .999, the Tucker Lewis Index (TLI) of .998. This component analysis allowed for quality measurement by the Composite Reliability (CR) of .941 and, the Average Variance Extracted (AVE) of .799.



Chi-square=2.543, DF=2,
Chi- square/DF=1.272,
CFI=.999, TLI=.998,
RMSEA=.035, RMR=.006

Figure 1 :the confirmatory factors of social supportfor mental fatigue restoration.

Items	Loadings	R^2	e	CR	AVE
Social Support (SS)				0.941	0.799
SS1	0.932	0.869	0.131		
SS2	0.906	0.821	0.179		
SS3	0.905	0.819	0.181		
SS4	0.829	0.687	0.313		
Sum	3.572	3.196	0.804		

Table 1 :Factor Loadings (n = 400)
Note: SS1 = Emotional Support, SS2 = Instrumental Support, SS3 = Information Support, SS4 = Appraisal

VI. CONCLUSION

The measurement model of social support for mental fatigue restoration had goodness of fit with empirical data. The most emotional support has explained variance of social support86.9%, the instrumental has explained variance of social support82.1%, the information support has explained variance of social support 81.9%, the music has explained variance of physical environment 75.9%, and the appraisal has explained variance of social support68.7%. The measurement model of social supportfor mental fatigue restoration had Composite Reliability (CR) are lower than 0.7 (CR = 0.941), and had Average Variance Extracted (AVE) are lower than 0.7 (AVE = 0.799).

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REFERENCES

[1] Garousi S. (2012). Shabestari SH. Social Capital and Mental Health among Household Head Women Surveying the Relationship in the City of Kerman. Iranian Social Studies. 5(1), pp.1–123.
[2] Cokrin R. (1997). In: social basics of mental deseases. Najarian Bahman., translator. Tehran: Roshd publication.
[3] Marmot M, Wilkinson R. (2008). In: Social Determinants of health. Montazeri Ali., translator. Tehran: Iranian Institute for Health Sciences Research.
[4] MorovatiSharifabad MA, RohaniTonekaboni N. (2008). Social support and self-care behaviors in diabetic patients referring to Yazd Diabetes Research Center.
[5] Brummett BH, Mark DB, Siegler IC, Williams RB, Babyak MA, Clapp-Channing NE, et al. (2005). Perceived social support as a predictor of mortality in coronary patients: effects of smoking, sedentary behavior, and depressive symptoms. Psychosom Med. 67(1), pp.40–5.
[6] Harandi TF, Taghinasab MM, Nayeri TD. (2007). The correlation of social support with mental health: A meta-analysis. Electron Physician. 9(9), pp.5212-5222.
[7] Lin N. S.R., Ensel WM, Kuo W. (1979). Social support, stressful life events, and illness a model and an empirical test. J Health SocBehav. 20, pp.108–119.
[8] Ibarra-Rovillard MS, Kuiper NA. (2011). Social support and social negativity findings in depression: perceived responsiveness to basic psychological needs. ClinPsychol Rev. 31, pp.342–352.
[9] Friedman HS, Taylor SE. (2011).0 Social Support: A Review; Oxford University Press. In: Friedman HS, editor. The Handbook of Health Psychology. pp. 189–214.
[10] Dour HJ, Wiley JF, Roy-Byrne P, Stein MB, Sullivan G, Sherbourne CD, Bystritsky A, Rose RD, Craske MG. (2014). Perceived social support mediates anxiety and depressive symptom changes following primary care intervention. Depress Anxiety. 31, pp.436–442.
[11] Ichiro KL, Berkman F. (2001). Social ties and mental health. J Urban Health. 78, pp.458–467.
[12] Khan A, Husain A. (2010). Social support as a moderator of positive psychological strengths and subjective well-being. Psychol Rep. 106, pp0534–538.
[13] Eisman AB, Stoddard SA, Heinze J, Caldwell CH, Zimmerman MA. (2015). Depressive symptoms, social support, and violence exposure among urban youth: a longitudinal study of resilience. Dev Psychol. 51, pp.1307–1316.
[14] Cohen S, Underwood LG, Gottlieb BH. (2000). Social support measurement and intervention: a guide for health and social scientists. New York: Oxford University Press.
[15] Cutrona CE, Russell DW. (1990). Type of social support and specific stress: Toward a theory of optimal matching. In: Sarason BR, Sarason IG, Pierce GR, editors. Wiley series on personality processes. Social support: An interactional view. pp. 319–366.
[16] Li, F., Luo, S., Mu, W. et al. (2021). Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. BMC Psychiatry.
[17] Wei, P. (2022). The impact of social support on students' mental health: A new perspective based on fine art majors. Frontiers in Psychology, 13, pp. 1-11.
[18] S. Hershberger. (2001). Book review of interaction and nonlinear effects in structural equation modeling, in: Randall E. Schumacker, George A. Marcoulides(Eds.), Structural Equation Modeling: A Multidisciplinary Journal, 8, pp. 490–492.
[19] J.F. Hair. (2010). Multivariate Data Analysis: a Global Perspective, Pearson, Upper Saddle River.
[20] J.W. Hoelter. (1983). The analysis of covariance structures, Socio. Methods Res. 11(3), pp. 325–344.

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