

Development and Validation of Peer Support for China University Students Using Exploratory and Confirmatory Factor Analysis

Zhang, K.

Faculty of Education, Language, Psychology and Music, SEGi University

Petaling Jaya, Selangor Darul Ehsan, Malaysia

Ling, Y. L.

Mathematics, Science and Computer Department, Politeknik Kuching Sarawak

Kuching, Sarawak, Malaysia

Received: January 22, 2025

Accepted: February 8, 2025

Published: February 10, 2025

doi: 10.5296/ire.v13i1.22633

URL: <https://doi.org/10.5296/ire.v13i1.22633>

Abstract

Peer support is crucial in the health care system. However, the implications of peer support have been reported to be unsatisfactory in the university context. The purpose of this study is to investigate the efficacy of peer support by creating and validating an instrument. A suitable theory is the Social Identity Theory, proposed by psychologists Tajfel and Turner in the 1970s, which examines how people define themselves in social groupings. The framework of the Peer Support Scale, developed by Kuo et al. (2007), was employed to develop and validate this instrument in order to obtain a more profound understanding of this problem. For the pilot study, 394 valid responses were gathered from this cross-sectional investigation. Using SPSS, 192 people underwent exploratory factor analysis (EFA), and AMOS was used to conduct confirmatory factor analysis (CFA) on 202 data. Experts' conclusions recommended that one item be removed and four items moved from the physical support dimension to the emotional support dimension. Subsequently, the results of the EFA concluded that all the remaining items fell only into one construct with higher loading factors, but to fulfil discriminant validity, construct validity, and convergent validity of the CFA, eight items were eliminated before the actual study. Despite the recognized importance of peer support in healthcare, its effectiveness in university settings is lacking, prompting the need for a comprehensive evaluation tool.

Keywords: peer support, confirmatory factor analysis, exploratory factor analysis, healthcare

1. Introduction

Although many authors have emphasized the utmost importance of incorporating peer support into the health care system to instill hope, improve engagement, quality of life, self-confidence, and integrity, and reduce the burden on the health care system, the effects of peer support are extensive and integrated into different fields, such as forensic peer support services, addiction, and mental health, and in different age groups and mental health condition severity (Shalaby & Agyapong, 2020). According to Kerr (2020), 75% of adults develop a mental disorder before the age of 25, and college students are even more likely to experience mental health problems (Grasdalsmoen, Eriksen, Lonning, & Sivertsen, 2020). College students are perceived as being at a challenging phase of their lives because of the many demands they must manage, such as being away from home, a demanding curriculum, and inadequate mentor-mentee and health education programs. Peer support in the university context appears to be especially crucial academically and psychologically, a developmental stage in which people frequently spend more time with peers than with family members. Peer support in academic settings can have significant positive effects on student learners (Latino & Unite, 2012).

Academically, McKeachie, Pintrich, Lin, and Smith (1986) concluded that "the best answer to the question of what is the most effective method of teaching is that it depends on the goal, the student, the content, and the teachers.... but the next best answer is students teaching other students." Examples of peer support of academic endeavors, most notably tutoring, date back to the colonial period of U.S. higher education and persist today (Newton & Ender 2010). However, over the years, peer education has evolved from being a marginal endeavor in which academic support educators were employed to help "at-risk students" to a mainstream enterprise that improves teaching and learning experiences for all students. In terms of "at-risk students," the results based on observations and a questionnaire from two groups of students in the Ndola district of Zambia indicated that special needs students benefit from having peer support from peers to help increase social interaction (Newa, 2022). It examined the effectiveness of positive peer support to increase social interaction among students with special needs, which is like Carter and Kennedy (2006), who take peer support interventions as an effective approach for engaging youth with severe disabilities more meaningfully in the general curriculum as well as promoting academic success for classmates serving. According to McCullers (2022), peers can also provide targeted social, behavioral, and academic support to students with moderate and severe disabilities. When implemented with fidelity, peer support arrangements provide numerous benefits to both students with and without disabilities.

In the face of stress-related problems, peer support, undeniably, can help university students who lack support from their families avoid mental health problems (Parra, Bell, Benibgui, Helm & Hastings, 2018) and adapt better to university. Similarly, results from 255 students at a public institution in Hong Kong revealed that depression symptoms were negatively impacted by the perceived availability of peer support (Sun, Lin, & Chung, 2020). Interestingly, there was strong evidence of peer support being a useful intervention for undergraduate students entering midwifery education in the Republic of Ireland,

strengthening collegiality for the participants, and enhancing a sense of belonging to higher education and the profession of midwifery (Carragher & McNeill, 2021). Another support was provided, particularly during off-campus work terms or when transitioning to the labor market after graduation, which were that peer support and a sense of belonging were essential protective factors for university students' mental health and well-being (McBeath, Drysdale, & Bohn, 2018). This view is also supported by Grubic, Badovinac, and Johri (2020), student-centered support programs and methods are urgently required and particularly invaluable to creating effective mental health services in low-resource environments (Puschner et al., 2019) and during the COVID-19 epidemic (Suresh, Alam, & Karkossa, 2021). A study done from October 2019 to March 2021 during the pandemic also explained that receiving peer support generally had a positive impact on the mental health of many of the receivers (Suresh et al., 2021). Another case study at a Further Education college in the UK analyzes whether being involved in a peer support program impacts the students' educational goals and social relations (Whitehead, 2021). The result is that a purposeful relationship between peers is formed, which is found to invert the usual dynamic of higher and lower capital. However, researchers have identified increases in mentees who are involved in peer mentoring programs in a school in terms of their school connectedness, social capital, and prosocial skill development (Karcher, 2005, 2007; Geddes, 2016).

Therefore, peer support is a system of providing and receiving help centered on the essential concepts of respect, shared accountability, and mutual agreement on what is beneficial (Mead, Hilton, & Curtis, 2001). The idea is similar to that of Solomon (2004) and Keyes et al. (2016), who also emphasized the value of both giving and receiving support, as well as mutual respect and clear understanding. An appropriate theory is Social Identity Theory, as proposed by psychologists Henri Tajfel and John Turner in the 1970s. It investigates how people identify with particular social groups. Social categorization, identification, and comparison are key ideas in social identity theory. Individuals assign themselves to particular social groups, identifying with the traits such groups have in common and assessing the standing, reputation, and status of their group in relation to others. Through these procedures, people improve their sense of value and self-worth. The Peer Support Scale (PSUSS), created by researchers Kuo et al. (2007) in Taiwan, China, was a suitable framework for gauging the level of peer support among college students. It was the first to quantify the extent to which nursing students helped their colleagues academically, emotionally, and physically. The 17 items in the PPS are graded on a 6-point Likert scale; higher scores correspond to higher levels of peer support. Numerous research have revealed that PSUSS has strong validity and reliability Dogan (2017). It has been modified for use with various people and environments (Caliskan & Cinar, 2012). The PPS is a helpful tool for program evaluation and quality improvement since it is simple to use and analyze. The term "academic assistance" in this study refers to the provision of learning and educational support, including academic counseling, tutoring, and resource access. Physical assistance is the providing of useful aid, such as seeking medical attention, meeting the demands of the business, and mediating conflicts. Giving the individual in need of help empathy, consideration, and care is a crucial part of providing emotional assistance. It involves actions like giving consolation, actively listening, and offering encouragement. Researchers postulated that it would be a helpful tool

as a kind of academic and mental health support during these trying times because it is an informal form of assistance that is widely available and effective.

2. Method

The research strategy used in this study was cross-sectional, meaning that data were gathered over a period of time at a single point in time (Sekaran & Bougie, 2016). Data were gathered from a college at a Chinese public institution for both the pilot and real research. To choose responders from among the second-year SJZIEI students in nine departments, simple random sampling was used. The resources for academic, emotional, and physical support were taken from the literature by Kuo et al. (2007).

Assuring the content validity, face validity, and criterion validity of peer support for the real fieldwork is the first step in a pilot project. Five doctorate-level topic experts with over five years of experience working in academic settings evaluated the content validity of peer help. An expert in statistics evaluated the criteria validity of peer support to make sure the scale was suitable. The disagreements were analyzed, discussed, and modified before reaching the final agreement. Results indicated that one item (Item: Classmates are concerned with each other's health) should be removed due to the ambiguity and that four items (6 items to 9 items) should be reclassified from the physical support dimension to the emotional support dimension considering expert reviews. After that, to ensure face validity, the peer support scale was sent to a competent translator for back-to-back translation from English into basic and general Chinese and back-to-back translated by two bilingual experts to minimize misunderstanding or ambiguity.

Following the completion of the validation process, five randomly chosen respondents were given the PSUSS for a pre-test in order to assess the consistency of their answers and obtain input on any unclear words, the questions' clarity, and the questionnaire's design. Prior to the pilot project and the real fieldwork, these problems were recognized and resolved (Zikmund & Babin, 2010). Following the revision of the instrument in response to feedback from the expert panel and the pre-test, an appropriate sample size should be determined, and a representative sample of participants should be selected based on the eligibility criteria for the full-scale study. For the pilot study, the research collected 394 valid responses, of which 192 were valid for the EFA, satisfying the minimum sample size requirement of 100 (Awang, 2015; Bahkia, Awang, Afthanorhan, Ghazali, & Foziah, 2019). Additionally, 202 valid responses were collected for the CFA analysis, meeting the minimum sample size requirement of 200. Prior to the survey, the data from the pilot study were the topic of confirmatory factor analysis (CFA) and exploratory factor analysis (EFA). Table 1 displays the outcomes of the EFA.

With the exception of inquiries concerning the demographic profile of the respondents, the finalized edition of the PSUSS instrument had 16 elements. For the instrument, an interval scale with six points, ranging from 1 (very strongly disagree) to 6 (very strongly agree), was used. Awang (2015) and Coelho and Esteves (2007) suggested using this interval scale to provide greater independence in the PSUSS data. The data was analyzed using the Statistical Package for Social Science and Analysis of Moment Structures. The EFA and data screening

were conducted using SPSS. Using confirmatory factor analysis (CFA), AMOS was utilized to evaluate the measurement model for the constructs of unidimensionality, validity, and reliability (Bahkia et al., 2019; Awang, 2015; Awang, Lim, & Zainudin, 2018; Mahfouz, Awang, & Muda, 2019; Mohamad, Mohammad, Azman, Ali, & Awang, 2016; Rahlin, Awang, Afthanorhan, & Aimran, 2019).

3. Results

3.1 Exploratory Factor Analysis on Peer Support Construct

By combining relevant factors, EFA aims to interpret and summarize data (Zikmund & Babin, 2010). The pilot research data was used to identify the underlying characteristics of academic, emotional, and physical support through EFA. Several criteria were considered with EFA. Firstly, the Measure of Sampling Adequacy (MSA) for Kaiser-Meyer-Olkin (KMO) needed to exceed .50. Secondly, in line with suggestions from Hair, Black, Babin, & Anderson (2014), Awang (2015), and Bahkia et al. (2019), Bartlett's Test of Sphericity was required to yield significant results at $p < .001$.

The sixteen items of the Peer Support questionnaire were subjected to an EFA employing Kaiser Normalization and the Varimax rotation approach. Principal component analysis was utilized in this instance to investigate the factor extraction process in order to ascertain the quantity of components that needed to be kept and removed. Consideration was given to criteria for item loadings of .4 or higher and eigenvalues larger than or equal to one. One factor emerged from the exploratory factor analysis results, as indicated in Table 1. The single factor that this study found to be important has eigenvalues of 12.8.

According to Table 1's findings, a single factor has emerged and is responsible for 79.7% of the variance. The Bartlett's Test of Sphericity's result ($X^2=4599.155$, $df=120$, $p < .05$), inter-item correlations (all items $r > .05$), matrix correlation indicators, and Kaiser-Meyer-Olkin test (.943) show that the results are significant. Consequently, it is verified that there are no consequences of singularity or multicollinearity. These results confirm the appropriateness of the sample for conducting factor analysis.

Turning to the change of peer support, it can be seen from Table 1, that there is only one factor after rotation. All figures for sixteen items with factor loadings greater than .4 are .934, .922, .919, .912, .909, .908, .907, .906, .896, .893, .884, .876, .871, .870, .849, and .823, respectively. Despite the changes in components, the researchers still named the new factor Peer support including all 16 items. Furthermore, one factor's Cronbach's Alpha reliability score is .983. The analysis also found that the KMO value for the peer support construct was .943, exceeding .5. Therefore, referred to Per Hair et al. (2014) and Bahkia et al. (2019), the Bartlett's Test of Sphericity results for the assessed constructs were significant ($p < .00$).

3.2 Confirmatory Factor Analysis on Peer Support Construct

The data obtained were analyzed using the AMOS 24 application to conduct Confirmatory Factor Analysis (CFA) to verify the latent construct measurement models for three key

aspects: (1) unidimensionality, (2) validity, and (3) reliability (Aimran, Ahmad, Afthanorhan, & Awang, 2017). CFA tests were employed for each factor to assess their compatibility. The primary criterion for assessing compatibility was the loading factor value, which should ideally be $\geq .50$, and < 1.00 . Additionally, three validity criteria were proposed for fit assessment: Fitness Index, Convergent Validity, and Construct Validity.

Table 1. The results of exploratory factor analysis loading for peer support construct

Item	Description	1
Factor 1: Peer Support		
34	For the good of a specific individual, classmates will offer suggestions.	.934
30	Classmates who perform well academically are willing to assist students who need help.	.922
28	If there is a conflict between classmates, other classmates help smooth things out.	.919
38	Classmates encourage each other.	.912
31	When a classmate encounters difficulty with assignments, other classmates offer suggestions.	.909
33	Classmates respect the different opinions of other classmates.	.908
35	Classmates are concerned with each other's needs.	.907
37	Classmates listen to each other's troubles and problems.	.906
27	When a classmate is lonely and needs company, other classmates are willing to keep her company.	.896
26	When a classmate is sick, other classmates accompany them to get medical help.	.893
25	When a classmate encounters difficulty, other classmates take the initiative to help.	.884
39	Classmates have someone to share feelings with.	.876
29	Classmates discuss assignments with each other.	.871
36	Classmates trust each other and do not lie.	.870
40	There is deep friendship among classmates.	.849
32	Classmates share notes and references.	.823
Eigenvalues		12.754
In Explained Variance Percentage		79.712
Kaiser-Meyer-Olkin = .943		
Bartlett's Test of Sphericity Approx. Chi-Square = 4599.155, $df = 120$, Sig. = .000		
Percentage of Total Variance = 79.712%		
Cronbach's Alpha		.983
The Cronbach's Alpha value for the 16 items is .983.		

3.2.1 Fitness Index

The Chi-square test (χ^2) and the RMSEA index were used to evaluate model fit, in which case Chi-Square values must be approximately <3.0 (Bentler, 1990), while RMSEA values less than .05 indicate good fit, and between .05 and .08 are considered an acceptable fit (Byrne, 2001; Kline, 2015). In addition, the Comparative Fit Index (CFI), and TLI were used, where values greater than .95 indicate a good fit and greater than .90 an acceptable fit (Awang, 2015; Awang et al., 2018). Even though all factor loadings are above .6, the fitness index does not achieve the required level. Then the research examined the Modification Index (MI) to look for redundant items. After deleting item PS1, PS2, PS3, PS5, PS6, PS7, PS9, PS15, only eight items remained. The findings show that the CFA analysis did meet the criteria of RMSEA = 0.079, Chi-Square/df (2.269), while CFI and TLI values did reach $\geq .90$, as indicated in Figure 1.

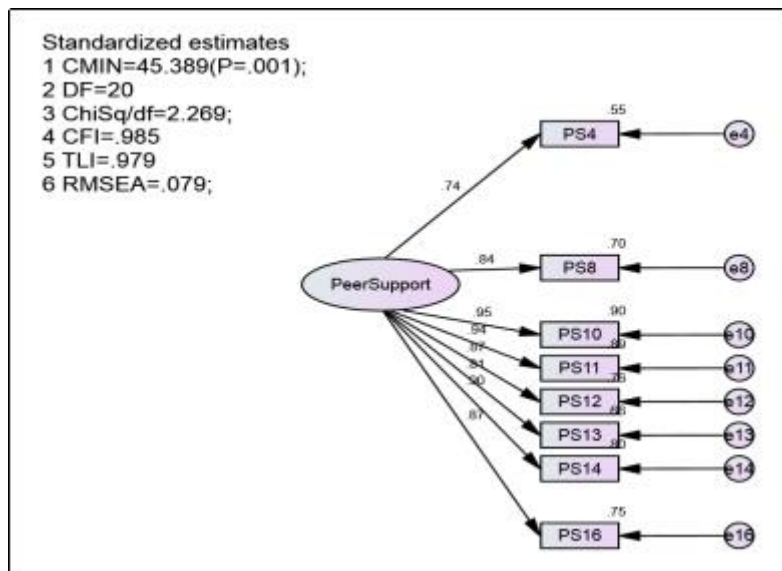


Figure1. CFA result of peer support

3.2.2 Convergent Validity

A set of indicators used to measure a certain construct is known as convergent validity (Hair et al., 2014; Awang et al., 2018). Convergent validity was defined by Brown (2006) as the degree of correlation between items intended to represent a single underlying construct. Validating a construct's convergent validity involves calculating the Average Variance Extracted (AVE). Kline (2005) suggests that an AVE value of at least .50 indicates adequacy, while Fornell and Larcker (1981) propose a threshold of $\geq .5$ for meeting the requirements of convergent validity measurement. The results demonstrate that the Confirmatory Factor Analysis (CFA) conducted on peer support successfully fulfills the criterion of $AVE \geq .5$ (with a value of .75), as outlined in Table 2. Consequently, it is reasonable to conclude that the model has attained convergent validity.

3.2.3 Composite Reliability

Composite reliability is used to measure the dependability of the structural equation model

(Awang et al., 2018; Awang, 2015; Hair et al., 2014). Composite reliability estimates of 0.7 or higher indicate good reliability, while values between 0.6 and 0.7 are considered acceptable (Awang, 2015; Hair et al., 2014). Based on the analysis of this part, the peer support construct's composite reliability (CR=.96) was higher than the required minimum score of .6 (Table 2). Reliability in composites is achieved.

Table 2. The results of exploratory factor analysis loading for peer support construct

Item	Dimension	Standardized regression weights estimate	AVE	CR
PS10	↔ Peersupport	.951		
PS11	↔ Peersupport	.942		
PS12	↔ Peersupport	.873		
PS13	↔ Peersupport	.814	.75	.96
PS14	↔ Peersupport	.896		
PS16	↔ Peersupport	.866		
PS8	↔ Peersupport	.838		
PS4	↔ Peersupport	.740		

3.2.4 Construct Validity

Construct validity refers to the degree to which a test accurately measures the intended concept. It is pivotal to establish the overall validity of a method. With only one construct at hand, all fitness indexes, including absolute fit (RMSEA), incremental fit (CFI and TLI), and parsimonious fit (Chisq/df), are essential to evaluate whether the model meets the criteria (see Figure 1). Thus, achieving construct validity is imperative. As suggested by Awang et al. (2018), commonly used indicators contain the normed Chi-Square (χ^2/df), the comparative fit index (CFI), and the root mean of approximation (RMSEA). Table 3 shows that the PSUSS satisfies the requirements for each of the three fitness index categories: (1) the absolute fit index is established when the RMSEA value is less than .08 (.079); (2) the incremental fit index is met when the PSUSS achieves a CFI value of .985, exceeding the suggested threshold of .90; and (3) the parsimonious fitness, as determined by Chisq/df, results in a value of 2.269, below the 3.0 threshold proposed by Bentler (1990). Consequently, this research substantiates the PSUSS's construct validity.

Table 3. Fitness indices

Name of category	Name of index	Level of acceptance	Result	Status
Absolute Fit Index	RMSEA	RMSEA < .08 (Brown & Cudeck, 1992)	.079	Fulfilled
Incremental Fit Index	CFI	CFI > .90 (Bentler, 1990)	.985	Fulfilled
Parsimonious Fit Index	Chisq/Fit	Chisq/df < 3.0 (Bentler, 1990)	2.269	Fulfilled

3.2.5 Discriminant Validity

The survey's discriminant validity was established to make sure the model didn't contain any redundant constructs. Any pair of highly associated constructs in the model is considered redundant. The discriminant validity index summary was created in order to evaluate the discriminant validity. According to Zainudin (2012), Table 4's diagonal value in bold, or the square root of AVE, is higher than its row and column.

Table 4. Discriminant validity index summary

	Peer Support	AVE
Peer Support	.87	.75

3.2.6 Normality Assessment

Following the achievement of the measurement model's goodness-of-fit, the data was examined for normality using the following criteria: skewness and kurtosis. If all of the item values for skewness do not deviate from normality (Asnawi, Awang, Afthanorhan, Mohamad, & Karim., 2019; Awang, 2015; Hair et al., 2014; Kashif, Samsi, Awang, & Mohamad, 2016; and Mohamad et al., 2016, 2018), skewness values falling between -1.5 and 1.5 are considered acceptable, which suggests that their distribution is typical (Awang, 2015; Kashif et al., 2016; Mohamad, Mohammad, Azman, Ali, & Awang, 2018; Asnawi et al., 2019). Thus, as shown in Table 5, the data distribution in the PSUSS complied with the normality distribution criteria.

Table 5. Assessments of normality for peer support construct

Item	Skewness	Kurtosis
PS4	.005	.525
PS8	.174	-.178
PS16	.004	-.253
PS14	.232	-.367
PS12	.298	-.293
PS11	.173	-.083
PS10	.189	.143

4. Conclusion

The purpose of this study was to create and verify a survey tool for gauging peer support among students in an academic setting. The instrument known as the peer support scale (PSUSS) was successfully constructed to explore the effectiveness of students' peer support in a university context, according to findings from the EFA and CFA. According to the experts' analysis, one item in the subjective norms construct should be removed: "Classmates are concerned with each other's health." The results of the EFA showed that, out of the 16 elements, only one factor—after rotation—fell into peer support. The CFA verified that after eliminating eight items (items PS1, PS2, PS3, PS5, PS6, PS7, PS9, PS15), the PSUSS satisfies the criteria for construct validity, convergent validity, and discriminant validity. The

results of the analyses of normality and unidimensionality further support the validity of the PSUSS instrument's items. As a result, the EFA and CFA results have demonstrated the validity of the PSUSS instrument in gauging student peer support. This study advises the application of PSUSS in several research contexts, including China, a collectivist society where kids will participate in an activity if an authority figure, like a parent or teacher, encourages them to do so (Hung & Jeng, 2012). Future studies may examine additional elements like self-efficacy and the learning environment that affect students' peer support. Scholars could also improve the PSUSS instrument's strength by gaining a deeper comprehension of the effects of moderating variables including income, ethnicity, and material format (online or offline).

References

- Aimran, A. N., Ahmad, S., Afthanorhan, A., & Awang, Z. (2017). The development of the comparative bias index. *AIP Conference Proceedings*, 1870(1), 060008. <https://doi.org/10.1063/1.4995935>
- Asnawi, A., Awang, Z., Afthanorhan, A., Mohamad, M., & Karim, F. (2019). The influence of hospital image and service quality on patients' satisfaction and loyalty. *Management Science Letters*, 9(6), 911-920. <https://doi.org/10.5267/j.msl.2019.2.011>
- Awang, Z. (2015). SEM made simple: A gentle approach to learning structural equation modeling. MPWS Rich Resources, Malaysia.
- Awang, Z., Lim, S. H., & Zainudin, N. (2018). Pendekatan mudah SEM – Structural equation modelling. MPWS Rich Resources, Malaysia.
- Bahkia, A. S., Awang, Z., Afthanorhan, A., Ghazali, P. L., & Foziah, H. (2019). Exploratory factor analysis on occupational stress in the context of Malaysian sewerage operations. *AIP Conference Proceedings*, 2138(1), 050006. <https://doi.org/10.1063/1.5121111>
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238. <https://psycnet.apa.org/doi/10.1037/0033-2909.107.2.238>
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. The Guilford Press, New York City.
- Brown, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, 21(2), 230-258. <https://doi.org/10.1177/0049124192021002005>
- Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing*, 1(1), 55-86. https://doi.org/10.1207/S15327574IJT0101_4
- Çalışkan, T., & Çınar, S. (2012). Akran desteği: Geçerlik güvenirlik çalışması. *Marmara Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi*, 2(1), 1-7.
- Carragher, J., & McNeill, J. (2021). The midwifery peer assisted learning and support (My PALS) Project: A mixed method evaluation of the impact of peer support in undergraduate

midwifery education in the Republic of Ireland (Unpublished Doctoral dissertation). Queen's University Belfast.

Carter, E. W., & Kennedy, C. H. (2006). Promoting access to the general curriculum using peer support strategies. *Research and Practice for Persons with Severe Disabilities*, 31(4), 284-292.

Coelho, P. S., Hsu, P., & Chou, W. (2012). The choice between a five-point and a ten-point scale in the framework of customer satisfaction measurement. *International Journal of Market Research*, 49(3), 313-339. <https://doi.org/10.1177/147078530704900305>

Dogan, E. S. (2017). Does emotional intelligence affect nursing students? *Medical Science*, 21(88), 336-347.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://psycnet.apa.org/doi/10.2307/3151312>

Geddes, D. (2016). A case study of the impact of peer-to-peer mentoring on mentors in a rural high school setting. Concordia University (Oregon). Retrieved from https://digitalcommons.csp.edu/cup_commons_grad_edd/48

Grasdalsmoen, M., Eriksen, H. R., Lønning, K. J., & Sivertsen, B. (2020). Physical exercise, mental health problems, and suicide attempts in university students. *BMC Psychiatry*, 20(175), 1-11. <https://doi.org/10.1186/s12888-020-02583-3>

Grubic, N., Badovinac, S., & Johri, A. M. (2020). Student mental health amid the COVID-19 Pandemic: A call for further research and immediate solutions. *International Journal of Social Psychiatry*, 66(5), 517-518. <https://doi.org/10.1177/0020764020925108>

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Harlow: Pearson Education Limited.

Hung, W. C., & Jeng, I. (2012). Factors influencing future educational technologists' intentions to participate in online teaching. *British Journal of Educational Technology*, 44(2), 255-272. <https://doi.org/10.1111/j.1467-8535.2012.01294.x>

Karcher M. J. (2005). Cross-age peer mentoring. In DuBois D.L., & Karcher M.J. (Eds.), *Handbook of Youth Mentoring* (pp. 266-285). Thousand Oaks, CA: Sage Publications.

Karcher M. J. (2007). Cross-age peer mentoring. *Youth mentoring: Research in Action*, 1(7), 3-17.

Kashif, M., Samsi, S. Z. M., Awang, Z., & Mohamad, M. (2016). EXQ: measurement of healthcare experience quality in Malaysian settings: A contextualist perspective. *International Journal of Pharmaceutical and Healthcare Marketing*, 10(1), 27-47. <http://dx.doi.org/10.1108/IJPHM-03-2015-0011>

Kerr, E. (2020). How college students manage coronavirus stress. US News and World Report, 27. Retrieved from

<https://www.usnews.com/education/best-colleges/articles/stress-in-college-students-what-to-know>

Keyes, S. E., Clarke, C. L., Wilkinson, H., Alexjuk, E. J., Wilcockson, J., Robinson, L., ... & Cattan, M. (2016). "We're all thrown in the same boat...": A qualitative analysis of peer support in Dementia Care. *Dementia*, *15*(4), 560-577. <https://doi.org/10.1177/1471301214529575>

Kline, T. J. (2005). *Psychological testing: A practical approach to design and evaluation*. Sage publications.

Kuo, C. L., Turton, M. A., Lee-Hsieh, J., Tseng, H. F., & Hsu, C. L. (2007). Measuring peer caring behaviors of nursing students: Scale development. *International Journal of Nursing Studies*, *44*(1), 105-114. <https://doi.org/10.1016/j.ijnurstu.2006.07.025>

Latino, J. A., & Unite, C. M. (2012). Providing academic support through peer education. *New Directions for Higher Education*, *157*(2012), 31-43. <http://dx.doi.org/10.1002/he.20004>

Mahfouz, S. A., Awang, Z., & Muda, H. (2019). The impact of transformational leadership on employee commitment in the construction industry. *International Journal of Innovation, Creativity and Change*, *7*(10), 151-167.

McBeath, M., Drysdale, M. T., & Bohn, N. (2018). Work-integrated learning and the importance of peer support and sense of belonging. *Education + Training*, *60*(1), 39-53. <http://dx.doi.org/10.1108/ET-05-2017-0070>

McCullers, L. (2022). Peer supports across inclusive environments. Theses and Dissertations--Early Childhood, Special Education, and Counselor Education. 110. https://uknowledge.uky.edu/edsrc_etds/110

McKeachie, W.J., Pintrich, P.R., Smith, D.A.F., Lin, Y., & Sharma, R. (1986). Teaching and learning in the college classroom: A review of the research literature. Ann Arbor, MI: NCRIPTAL, The University of Michigan.

Mead, S., Hilton, D., & Curtis, L. (2001). Peer support: A theoretical perspective. *Psychiatric Rehabilitation Journal*, *25*(2), 134. <https://doi.org/10.1037/h0095032>

Mohamad, M., Mohammad, M., Azman, N., Ali, M., & Awang, Z. (2016). Measuring positive youth development: Confirmatory factor analysis. *International Journal of Applied Business and Economic Research*, *14*(13), 9441-9451.

Mohamad, M., Mohammad, M., Mat Ali, N. A., & Awang, Z. (2018). The impact of life satisfaction on substance abuse: Delinquency as a mediator. *International Journal of Adolescence and Youth*, *23*(1), 25-35. <https://doi.org/10.1080/02673843.2016.1267021>

Newa, N. M. M. (2022). Effectiveness of peer support in enhancing interpersonal skills among learners with special needs: A case study of a selected combined school Ndola District of Zambia (Doctoral dissertation). The University of Zambia.

Newton, F. B., & Ender, S. C. (2010). *Students helping students: A guide for peer educators*

on college campuses. John Wiley & Sons.

Parra, L. A., Bell, T. S., Benibgui, M., Helm, J. L., & Hastings, P. D. (2018). The buffering effect of peer support on the links between family rejection and psychosocial adjustment in LGB emerging adults. *Journal of Social and Personal Relationships*, 35(6), 854-871. <https://doi.org/10.1177/0265407517699713>

Puschner, B., Repper, J., Mahlke, C., Nixdorf, R., Basangwa, D., Nakku, J., ... & Slade, M. (2019). Using peer support in developing empowering mental health services (UPSIDES): background, rationale and methodology. *Annals of Global Health*, 85(1),53.

Rahlin, N. A., Awang, Z., Afthanorhan, A., & Aimran, N. (2019). Antecedents and consequences of employee safety climate in small manufacturing enterprises:translation, validation and application of Generic Safety Climate Questionnaire. *International Journal of Innovation, Creativity and Change*, 7(10), 307-328.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building Approach* (6th ed.). United Kingdom: John Wiley and Sons Ltd.

Shalaby, R. A. H, Agyapong, V. I. O. (2020). Peer support in mental health: A literature review. *JMIR Ment Health*, 7(6), e15572. <https://doi.org/10.2196/15572>

Solomon, P. (2004). Peer support/peer-provided services underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal*, 27(4), 392. <https://doi.org/10.2975/27.2004.392.401>

Sun, Y., Lin, S. Y., & Chung, K. K. H. (2020). University students' perceived peer support and experienced depressive symptoms during the COVID-19 pandemic: The mediating role of emotional well-being. *International journal of environmental research and public health*, 17(24), 9308. <https://doi.org/10.3390/ijerph17249308>

Suresh, R., Alam, A., & Karkossa, Z. (2021). Using peer support to strengthen mental health during the COVID-19 pandemic: A review. *Frontiers in Psychiatry*, 12, 714181. <https://doi.org/10.3389/fpsy.2021.714181>

Whitehead, M. (2021). *Peer tutoring in future education: A study of the perceived experiences for a group of GCSE resit and a level student and their teachers* (Doctoral dissertation). University of Huddersfield.

Zainudin Awang. (2012). *Structural equation modelling using AMOS graphic*. UiTM Press.

Zikmund, W. G., & Babin, B. J. (2010). *Essentials of marketing research* (4th ed.). Nelson Education, Ltd, Canada.

Acknowledgments

Not Applicable.

Funding

Not Applicable.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

Open access

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.