Chapter 3

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# Chapter 3: Methodology

The primary motivation for conducting this research came from reviewing Boamah’s (2020) study on the risk of indirect trauma for direct support professionals (DSPs) assisting adults with intellectual and developmental disabilities (IDD) and other literature on the difficulties and working conditions facing these professionals. Singer et al. (2025) concluded that it was important to understand the relationship between the wellbeing of adult caregivers and their constructive coping. The problem statement of this research therefore is the psychological health issues among DSPs who work with adults with IDD in southern Minnesota. The purpose of this quantitative correlational study is to examine psychological health issues among DSPs in southern Minnesota, specifically those working in a community residential settings classified as Minnesota Home Community Based Services (HCBS).

Researchers have suggested that DSPs are exposed to a number of risks simply by virtue of their occupation. One such risk is secondary traumatic stress disorder (STD). According to Boamah's research, roughly 13% of DSPs who work with IDDs score at or above the suggested clinical cut-off of 38, of DSM-IV-TR (APA, 2000) criterion for PTSD. This is an indication of a clinical level of symptoms comparable to PTSD. This research will be guided by the following research question

**Research question:** What is the relationship between psychological health and psychological resilience among DSPs in southern Minnesota?

**Null Hypothesis**: No statistically significant relationship exists between psychological health and psychological resilience among DSPs in southern Minnesota**?**

**Alternative Hypothesis:** A statistically significant relationship exists between DSPs’ psychological health and psychological resilience among DSPs in southern Minnesota.

In this chapter, I will describe the methodology used to operationalize the research on this question. It includes the rationale for the design of the study, the selection of the population and the sample, the instruments, the methods of data collection, the analysis and synthesis of data, the reliability and validity of instruments utilized, and ethical considerations and the summary.

# Research Design and Rationale

A quantitative methodology will be used. In quantitative research, variables are defined and relationships between variables are proposed, whether the variables represent either tangible or intangible factors. A statistical analysis of data gathered from a population sample is then used to test and validate the suggested relationships (Powell, 2020). Additionally, hypotheses are tested using instruments or techniques for gathering and analyzing numerical data in order to generalize the results (McCusker and Gunaydin, 2015).

The use of validated and reliable instruments (DASS-42 and CD-RISC-25) for gathering numerical data, determining statistical correlations between them and addressing hypotheses make the quantitative approach ideal for this study. The purpose of this quantitative correlational research will be to examine the relationship between psychological health and psychological resilience among DSPs in southern Minnesota.

A correlational research design will be used. Curtis et al. (2016) stated that a correlational research design is a statistical analysis to determine the existence and strength of a relationship. Bettany Saltikov and Whittaker (2014) explained that a correlational design is used to study if a relationship exists between two or more variables but the reason for the relationship is not examined. Moreover, in a correlational design, both variables are continuous variables (i.e., ratio or interval) which is the case in this research. The purpose of this study is to examine if a relationship exists, but not to determine the cause of why a relationship exists or does not exist (Neuman, 2011).

A number of researchers examined the relationship between variables in their studies using Pearson correlations. Consider, for example, Mehmet et al. (2014) who used correlation analysis to find a potential link between psychological resilience and stress-coping skills in healthcare workers who experienced traumatic stress while working in hospitals following the Kahramanmaras earthquake. Nina and Paulina (2024) also carried out a study using Pearson correlation to identify the relationship between psychological resilience and secondary-traumatic stress in nurses working with terminally ill patients. Evidence from previous studies shows the use of DASS-42 and CD-RISC-25 for correlational studies. A correlational study by Alonazi et al. (2023) used CD-RISC-25 to investigate the relationship between psychological resilience and the quality of life among mental health nurses. Ali et al. (2024) also conducted a correlational study to investigate the relationship between depression, anxiety, stress levels and sleep quality in patients with diabetes using DASS-42. These previous findings underscore the appropriateness of using correlational design for the study presented here.

The research question is thus aligned to the correlational research design and the correlation analysis of the relationship between psychological health and psychological resilience among DSPs in southern Minnesota. Moreover, this approach is easy to apply, relatively inexpensive, and provides a useful starting point for researchers who are investigating a phenomenon for the first time. The Pearson correlation can also determine the strength and direction of the relationship between variables but not causal relationship (Polit and Beck 2012).

The two variables involved are identified here as psychological health and psychological resilience. DASS-42, a self-report Likert type scale of 42 items designed to measure negative emotional states of stress, anxiety and depression (Lovibond and Lovibond, 1995), will be used as a measure for psychological health. The CD-RISC-25, a self-report Likert type scale 25 items designed to measure resilience to adversity (Connor and Davidson, 2020), will be used to measure psychological resilience. These variables will not be manipulated or contrived but measured in their natural settings reinforcing the suitability of correlational design (Apuke, 2017)

The study instruments will be administered using a closed-loop online survey tool SurveyMonkey, to accommodate the demanding workload of study participants in order to collect as much data as possible (Curtis et al., 2016). Once data has been collected, the researcher will employ quantitative statistical analysis PPM correlation to determine the level of relationship between the two variables (Laerd Statistics, 2018).

# Research Procedures

This section examines whether the process applied in this study meets expectations for a quantitative correlational design. The components of the procedures include the selection of participants, data collection methods and analytical methods, all of which were selected in accordance with the purpose of the study.

## Population and Sampling

The population of this study will be DSPs aged 18 years and over in southern Minnesota, who work in community-based residential settings previously known as group homes. These DSPs will be those who serve people with IDD and must have worked for at least 3 months.

The 2020 US census counted the population of the southern county at 67,097, making it the 14th most populous of the 87 counties in Minnesota. It covers an area of 516 square miles, including seven cities and 14 municipalities. Its social services department provides community-based social services and financial assistance to eligible people to promote their dignity and independence.

G\*Power analysis is used to find a sample size that is sufficiently large to reach a predetermined level of statistical significance and reduce the possibility of reporting inaccurate or false results (Kang, 2021). The sample size for this study with N=37 has been calculated with the G\*Power software to have an alpha level of 0.05, a medium size effect 0.5 and a power level of .90 (see appendix A).

Convenience sampling will be used to gather data. According to Casteel and Bridier (2021), convenience sampling is a non-probability, non-random sampling technique in which study participants who fit the inclusion criteria are invited to participate because they are easily accessible or near the researcher. This method, which is undertaken far more frequently in psychological research than random sampling, typically involves selecting participants based on their pragmatic obtainability to the researcher (Howitt and Cramer, 2014). This technique is picked for the study due to its ease, cost effectiveness, time frame and availability of participants (Emerson, 2015).

In order to be included in the study, the DSP must be from southern Minnesota, be 18 years of age or older, work in a residential community setting previously known as a group home, have been employed for at least 3 months, and serve people with IDD and be able to read and understand English. Additionally, the employer may designate them as either full-time or part-time.

**Recruitment**

The researcher will contact the Adults Services Manager (gate keeper) of a county in Southern Minnesota region by e-mail to explain the purpose of the study, provide the necessary information and documentation, and ask for their cooperation (see Appendix B for email). If an affirmative response is received, the researcher will ask the gatekeeper to contact providers of Medicaid-funded home and community-based services employing DSPs in southern Minnesota.

Providers who wish to participate will be given the email address of the researcher to contact. A formal email (see Appendix C) will be sent to the providers who will get in touch with the researcher, asking them to participate, outlining the purpose of the study, and requesting site authorization to enable the researcher to recruit DSPs from that organization or provider.

After obtaining site permission (see Appendix D) and IRB approval (see Appendix E), the researcher will send an email with a link to the survey to prospective participants who meet the inclusion criteria. The survey will include a pre-screening form that participants will fill out to verify that they are eligible to take part in the research. Participants will be given the opportunity to read informed consent (see Appendix F) after eligibility has been determined. The box at the bottom of the informed consent form will read, "I understand that participation is voluntary, that my responses are confidential, and that I have the right to withdraw at any time,"

The complete survey package will include two instruments, the demographic questionnaire, and the informed consent form. Simple data like the number of years of service as a DSP, educational attainment, and gender dimension will be included in the demographic survey (see Appendix G). No personally identifiable information will be gathered in order to protect the survey's privacy.

## Instrumentation

The purpose of this quantitative correlational study is to examine psychological health issues among DSPs in southern Minnesota, specifically those working in a community residential settings classified as Minnesota Home Community Based Services (HCBS).

Two instruments will be used in the study to gather information on relevant variables and provide an answer to the research question. The first tool is the Connor-Davidson Resilience Scale (CD-RISC-25) (see Appendix H), which will be used to measure psychological resilience (Connor & Davidson, 2003), Permission request from the author to use the instrument is included in the appendices (see Appendix I). The second tool is the Depression Anxiety Stress Scales (DASS-42) (See Appendix J), that will be used to measure psychological health (Lovibond and Lovibond, 1995). The DASS instrument is available free of charge, is public domain and no permission is required to use it (<http://www.psy.unsw.edu.au/dass/>).

***Connor Davidson Resilience Scale***

The CD-RISC was developed by Kathryn M. Connor and Jonathan R.T. Davidson to complement existing resilience metrics (Connor and Davidson, 2003). They argued that existing resilience indices were inadequate because they lacked generalizability (Connor & Davidson, 2003). It is among the most popular instruments for evaluating psychological resilience (Zagalaz et al. in 2020).

Connor and Davidson (2003) originally developed a 25-item scale with 577 participants from the general population across United States and the scale consistently produced a Cronbach's alpha coefficient between 0.89 and 0.93 (Davidson & Connor, 2018; Debb, Colson, Hacker, & Park, 2016). Mealer et al. (2016) evaluated the reliability and known group differences of the CD-RISC on critical care nurses through a psychometric analysis that used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Two samples of participants in clinical trials for PTSD and generalized anxiety disorder were evaluated in order to calculate test-retest reliability. The instrument's long-term stability was demonstrated by the high degree of agreement between people across the two time periods.

It is a self-administered five-point Likert-type scale ranging from not true at all = 0 to true nearly all time = 4. The total score is obtained by adding together all 25 items, giving a summary score that can vary from 0 to 100. A higher score indicates a greater level of resilience and vice versa. Connor and Davidson assess overall personal resilience by considering the following seven constructs: hardiness(commitment/challenge/control), coping, adaptability/flexibility, meaningfulness/purpose, optimism, regulation of emotion and cognition, and self-efficacy. In some cases, an item overlaps more than one of these constructs (Connor & Davidson, 2020).

The internal consistency and test-retest reliability of the CD-RISC has been demonstrated in clinical trials and in the community, which has led to its being changed in different versions (Connor and Zhang, 2006). Windle et al. (2011) reviewed nineteen scales of resilience in the adult population and concluded that the CD-RISC was among the three scales of resilience that received the highest scores in terms of psychometric quality. Lamond et al. (2008) performed a study in a total of 1395 women over 60 years of age, in San Diego, using the CD-RISC to measure and predict resilience. The scale showed a high internal consistency (Cronbach's alpha = 0.92).

Scores on CD-RISC have been compared to several scales designed to measure the same or a similar construct. The scores have been significantly positively correlated with a measure of hardiness (Connor & Davidson, 2003). Convergent validity was assessed by correlating the CD-RISC-25 with measures of hardiness, perceived stress, stress vulnerability, measures of disability and social support, and all were found to be significantly correlated (Kobasa et al.1979; Cohen et al., 1983; Sheehan et al., 1990; Sheehan et al., 1983; Sheehan, 1990, Connor and Davidson 2003).

***DASS-42***

Lovibond and Lovibond (1995) created the DASS-42, a self-report instrument, to highlight the similarities between the symptoms of anxiety and depression as well as the differences between them. Transcultural validity has been demonstrated, and it has been translated into numerous languages (<http://www2.psy.unsw.edu.au/dass/>). Clark and Watson's (1991) tripartite model of anxiety and depression serves as the theoretical basis for the DASS-42.

DASS-42 has been tested for its reliability and validity in different contexts and has been empirically tested in a variety of cultures. Zawislak et al. (2020) showed construct validity and reliability among medical students in Poland but not in the general population. The validity of the DASS-42 has been examined in outpatient groups of people with anxiety and depression, myocardial infarction patients, insomnia patients, and patients receiving treatment for menopausal, sexual, and depressive disorders in the Polish population (Makara-Studzinska et al. 2022).

There are 14 items on each of the three DASS-42 scales, which are further subdivided into subscales of 2-5 items with comparable content. The items are presented to subjects in a random order, with a four point scale for each item labelled “Did not apply to me at all (0), “Applied to me in some degree, or some of the time”(1), “ Applied to me a considerable degree, or a good part of the time” (2), and “Applied to me very much or most of the time”(3) The 14-item scales in the normative sample have Cronbach's alpha values of 0.91 for depression, .084 for anxiety, and 0.90 for stress (Lovibond & Lovibond, 1995).

Participants are asked to rate the extent to which they were affected by the statement during the previous week. The sum of the scores of the 14 items in each of the three scales gives the scores for each scale. The DASS scores can be interpreted in relation to the mean and standard deviation of the sample (Lovibond & Lovibond, 2020).

**Data Collection**

As stated in the recruitment process, the survey will start after consent has been obtained, all participants have been appropriately informed, and anonymity and confidentiality have been guaranteed. Participants will be asked to fill out the entire questionnaire in order to minimize the amount of missing data; if they do not, a pop-up window will show that one or more questions have not been answered, and they will be unable to move on to the next page. The total time required for each participant to complete the informed consent, the demographic survey, and the two instruments is estimated to be between 30 and 45 minutes. Each instrument will be coded for the purpose of analyzing the data.

The survey responses will be reviewed regularly on SurveyMonkey to determine whether the minimum sample size requirement has been met as per the G\* Power analysis. A further 20 percent of the sample size will be added to compensate for attrition and other errors that may occur during the analysis of the data. After the survey is closed, the researcher will download all the data from SurveyMonkey to a Microsoft Excel file on a personal workstation. The workstation will be located in the researcher’s home. The researcher will use Microsoft’s encryption function to protect the Excel file with a password. Only the researcher will have the password to open the data file. The backup file of the data will be stored on an external drive in the researcher’s home.

The data collection storage for this proposed study will be a minimum of three years on a password-protected USB flash drive, computer, and external hard drive. At the end of the three-year period, all printed copies of collected data shall be destroyed using a shredder and deleted from the USB flash drive, computer, and external hard drive.

## Data Preparation

Data preparation involves organizing and modifying data before it is analyzed. Data preparation is usually an iterative process that involves transforming raw data which is frequently messy and unstructured into a more useful and structured format that is prepared for additional analysis. A number of significant activities (or tasks) comprise typical preparation processes, such as data transformation, integration, cleansing, and profiling (Abdallah et al, 2017).

Participants’ responses will be downloaded from a chosen software (SurveyMonkey) to Excel spreadsheet where data labelling, and overall data cleansing will take place. This will include compiling and reviewing all the information necessary to ensure appropriate completion of the survey. Incomplete surveys and respondents who will only complete one of the two surveys will be set aside, so that only complete surveys are included. Responses from participants that do not fulfil the inclusion criteria will also be excluded.

Raw data will be cleaned to detect outliers (Laerd Statistics, 2023). Cleansed data will later be exported to Practical Statistics for Social Research (PSSR) after the required number of surveys are obtained.

# Data Analysis

The data that will be obtained from this research will be analyzed with the Pearson product moment (PPM) correlation, using PSSR computer program. PPM is an appropriate statistical procedure since the researcher seeks to ascertain the magnitude and direction of the relationship between variables of interest (psychological health and psychological resilience) that are measured on a continuous scale (ratio). According to Aggarwal and Ranganathan (2016), correlation is viewed as a statistical tool that evaluates the degree of association between two quantitative variables measured in each group member. This supports the rationale for using PPM.

Notwithstanding, for Pearson correlation analysis to be performed specific assumptions on the data will have to be met (LAERD STATISTICS, 2017b). These assumptions are continuous variables, linearity, outliers, and bivariate normality, which must be tested. The variable psychological health as measured by DASS-42 and psychological resilience as measured by CD-RISC-25 both represent continuous scale meeting the assumption of continuous scale of measurement. The two variables will be plotted on a scatterplot with a fit line (see Appendix L) to test the linearity assumption. The pattern of data points surrounding the fit line for straightness will then be visually analyzed. The linearity assumption will be confirmed by a linear relationship between the variables. For every variable, box plots will be used to test the outlier assumption (see Appendix K). Outliers should be identified and eliminated because they have the potential to distort data analysis findings and produce false positives (Hoaglin, Iglewicz, and Turkey, 1986).

The data will be tested for normality using histograms (see Appendix) and Shapiro-Wilk test in PSSR. If the Pearson correlation analysis assumptions are not met in the assumption testing, the researcher shall substitute the parametric Pearson correlation analysis with a nonparametric Spearman correlation analysis or a Kendall tau-b correlation analysis. Both Spearman's rho and Kendall's tau-b are subject to the same two assumptions (LAERD STATISTICS, 2017a, 2017c). Under assumption number 1, variables should be measured on a scale of ordinal, interval or ratio scale. Assumption #2 a monotonic relationship, where the values of one variable increase and the values of the other variable either continuously increase or decrease between the two variables examined using scatterplots. Kendall's tau-b is less stringent on data that meet the monotonic relationship assumption than Spearman's rho correlation. Once the assumptions of the correlation analysis are met, the analysis of the raw data will be performed.

The results of the study will depend on the participation of the target population. The minimum size of the sample for the Pearson correlation analysis has been calculated using G\*Power 3.1.9.2 (Faul et al., 2007). The input will contain two tails, an expected medium effect size of 0.3, standard level of alpha 0.05 and a minimum power of 90 percent. The power analysis showed that 37 participants will be needed for the correlation analysis. Therefore, the researcher will attempt to recruit more in order to have sufficient sample size to accommodate a 15-20 percent attrition rate, even though the recommended G\* power is 37 DSPs.

The statistical analysis of the DASS-42 and CD-RISC-25 will be carried out after the downloaded raw data file of survey responses has been loaded into the PSSR software application. In order to identify missing data and data entry errors, frequency counts will be performed on the raw data file in PSSR as part of the data cleansing process (Pallant, 2013). Cases with incomplete data will not be included in subsequent analyses.

Descriptive statistics will be calculated for demographic variables to build a profile of the sample (Grant et al., 2016), as well as for variables to be examined in a correlation analysis. Since gender and educational attainment are both measured on a nominal scale, they will be summarized using frequencies and percentages. The mean and standard deviation will be used to summarize participant age and years of service because both are continuous scales.

For hypothesis testing, the threshold value for significance is set at .05 (Norman, 2010). To determine a correlation coefficient, paired scores will be correlated using the Pearson product-moment correlation coefficient.

The final step in the analysis of data will be the presentation and interpretation of the results. Tables and graphs (i.e. scatterplots) will be produced using PSSR and will serve as organizational tools for presenting the results of the analysis and demonstrating the correlation and the degree of association between the two variables of the research question.

The strength and direction of the association are indicated by the sign and magnitude of the coefficient. A relationship is said to be perfectly positive if it is +1, perfectly negative if it is -1, and not present if it is 0 (Warner, 2010). According to McKechnie and Fisher (2019), values between 0 and .2 indicate that there is no meaningful relationship between the variables, .2 to .4 indicates a weak association, .4 to .6 indicates a moderate association, .6 to .8 indicates a strong association, and .8 to 1 indicates a very strong association. Furthermore, a positive value means that one variable increases just as the other does. According to Warner (2010), a negative value denotes an inverse relationship between the two variables, meaning that when one increases the other decreases.

# Validity and Reliability

For researchers, the choice and use of valid measurement instruments is crucial to ensure the reliability of study results. Validity means that a measurement tool performs well and that conclusions can be drawn, and decisions can be taken on the basis of the resulting data (Clark & Watson, 2019). The domains of validity are both external and internal. Internal validity refers to the extent to which the study results reflect the actual condition of the population and can plausibly answer the question of hypotheses (Sargeant et al., 2022). External validity is related to the generalizability and transportability of the results (Degtiar & Rose, 2023).

This research, like all correlational research, is subject to threats to external validity. Some of these threats include the type of sampling procedure (convenience sampling method), self-report nature of the data collection instruments and general reliability issues. To counteract these threats and have confidence for a particular population or external validity, internal validity, statistical conclusion validity and construct validity of the study tools must be examined (Cook, Campbell, and Peracchio, 1990). Construct validity is addressed by citing previous studies that have reported agreement among multiple measures of the same construct (Campell and Fiske, 1959). The instrument chosen to measure psychological resilience is the CD-RISC-25. It has been tested in the general population as well as clinical samples across United States and has a good psychometric property and differentiates people who are resilient and those who are not (Derakhshanrad et al., 2014). During its development it showed good construct, concurrent, discriminant, and predictive validity (CD manual -2024 unpublished.). Lamond et al (2008) performed a study in a total of 1395 women over 60 years of age using the CD-RISC to measure and predict resilience. The scale showed a high internal consistency (Cronbach's alpha = 0.92) indicating validity of the instrument.

DASS is the tool to measure the psychological health of the participants in this study which was developed by Lovibond and Lovibond (1995). It has been tested for reliability and validity in various contexts and has been empirically evaluated in diverse cultures. Zawislak et al. (2020) showed construct validity and reliability among medical students in Poland not the general population. Guven et al. (2025) studied 452 patients with hematologic cancer in three different studies. The aim was to investigate the construct validity, convergent and discriminant validity, and reliability of the Depression Anxiety Stress Scales (DASS-42) in patients with hematologic cancer. The subscales showed strong internal consistency and test-retest reliability when used to measure stress, anxiety, and depression symptoms in patients with hematologic malignancies, according to reliability analyses. Additionally, discriminant and convergent validity were supported in the same study.

# Ethical Considerations

Ethical considerations will be applied throughout the study in accordance with the Institutional Review Board (IRB) of Omega Graduate School and the Belmont Report (Office for Human Research Predictions, 2018). The following approvals will be sought before data collection; IRB approval, agency site authorization, authorization to use the required instruments, and informed consent from participants. The Belmont Report principles of respect, justice and beneficence will be put into use during the data collection process as well (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). The researcher will ensure that all these are in place before initiating any contact with participants.

At every stage of the research process, care must be taken to guarantee that the study's guiding principles are upheld. Initially, the participants will be asked for their informed consent before they can access the survey in order to safeguard and reduce ethical concerns regarding respect for people. The consent email will contain information about the survey's purpose, the risks, the advantages of taking part, the security of the data collection techniques, the data storage secured by password-protected devices, and the intended use of the data and findings in order to make sure that participants are aware of the survey's risks and benefits. Participants can withdraw or end the study at any time without incurring penalties, according to the consent form. Staff members of the organization the researcher works with that offers services to people with IDD will not be included in the study in order to prevent selection bias and possible conflicts of interest. For privacy, confidentiality, and anonymity, data will be gathered through anonymous surveys devoid of personal information. The information gathered will be kept on a password-protected computer for three years before being permanently deleted. The researcher will take every possible precaution to ensure participant privacy and minimize any possible risks.

# Summary and Conclusion

A brief overview of the study was given at the beginning of the chapter, and then the methodology, design, population, data analysis, data management, and ethical considerations supporting the study were explained. The data analysis that will be carried out and the descriptive and inferential statistics that will be gathered to address the research questions will be reported in the next chapter

**References**

Abdallah, Z.S., Du, L., Webb, G.I. (2017). Data Preparation. In. Sammut, & G.I. Webb (Eds.), *Encyclopedia of Machine Learning and Data Mining* (pp. 318-327). Humana Press. https://doi.org/10.1007/978-1-4899-7502-7\_62-1

Aggarwal, R., & Ranganathan, P. (2016). Common pitfalls in statistical analysis: The use of correlation techniques. *Perspectives in Clinical Research*, *7*(4), 187–190. <https://doi.org/10.4103/2229-3485.192046>

Ali K, Mufti A, Raza N, Sharma G. (2024). The relationship between depression, anxiety, and stress levels and sleep quality in diabetic patients: A quantitative study utilizing DASS-42 and PSQI questionnaires. *Indian J Physiol Allied Sci;76(3*):61-65.

Apuke, O. D. (2017). Quantitative Research Methods: A Synopsis Approach. *Kuwait Chapter of Arabian Journal of Business & Management Review*, *6*(11), 40–47. https://doi.org/10.12816/0040336

Bettany-Saltikov, J., & Whittaker, V. J. (2014). Selecting the most appropriate inferential statistical test for your quantitative research study. *Journal of clinical nursing*, *23*(11-12), 1520–1531. <https://doi.org/10.1111/jocn.12343>

Cachón Zagalaz, J., López Manrique, I., San Pedro Veledo, M. B., Zagalaz Sánchez, M. L., & González González de Mesa, C. (2020). The Importance of the Phoenix Bird Technique (Resilience) in Teacher Training: CD-RISC Scale Validation. *Sustainability*, *12*(3), 1002-. <https://doi.org/10.3390/su12031002>

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81–105. [https://doi.org/10.1037/h0046016](https://psycnet.apa.org/doi/10.1037/h0046016)

Casteel, A., & Bridier, N. (2021). Describing Populations and Samples in Doctoral Student *Research. International Journal of Doctoral Studies*, *16*, 339–362. https://doi.org/10.28945/4766

Clark, L. A., & Watson, D. (1991). Tripartite Model of Anxiety and Depression: Psychometric Evidence and Taxonomic Implications.*Journal of Abnormal Psychology (1965), 100*(3), 316-336. https://doi.org/10.1037/0021-843X.100.3.316

Clark, L. A., & Watson, D. (2019). Constructing Validity: New Developments in Creating Objective Measuring Instruments. *Psychological Assessment*, *31*(12), 1412–1427. https://doi.org/10.1037/pas0000626

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. <https://doi.org/10.2307/2136404>

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. <https://doi.org/10.1002/da.10113>

Connor, K. M., & Zhang, W. (2006). Resilience: Determinants, Measurement, and Treatment Responsiveness. *CNS Spectrums, 11*(10, Suppl12), 5–12.

Cook, T. D., Campbell, D. T., & Peracchio, L. (1990). Quasi experimentation. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 491–576). Consulting Psychologists Press. (Reprinted in revised form from "Handbook of Industrial and Organizational Psychology," Wiley, 1982)

Curtis, E. A., Comiskey, C., & Dempsey, O. (2016). Importance and use of correlational research. *Nurse researcher*, *23*(6), 20–25. <https://doi.org/10.7748/nr.2016.e1382>

Davidson, J., & Connor, K. (2018). Connor-Davidson resilience scale (CD-RISC) manual. Unpublished and partly accessible at [www.cd-risc.com](http://www.cd-risc.com).

Degtiar, I., & Rose, S. (2023). A Review of Generalizability and Transportability. *Annual Review of Statistics and Its Application*, *10*(1), 501–524. https://doi.org/10.1146/annurev-statistics-042522-103837

Emerson, R. W. (2015). Causation and Pearson’s Correlation Coefficient. *Journal of Visual Impairment & Blindness*, *109*(3), 242–244. <https://doi.org/10.1177/0145482X1510900311>

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). GPower 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. https://doi.org/10.3758/bf03193146

Grant, A., Ries, R., & Thompson, C. (2016). Quantitative approaches in life cycle assessment--part 1--descriptive statistics and factor analysis.*The International Journal of Life Cycle Assessment, 21*(6), 903-911. <https://doi.org/10.1007/s11367-016-1099-4>

Gucciardi, D. F., Jackson, B., Coulter, T. J., & Mallett, C. J. (2011). The Connor-Davidson Resilience Scale (CD-RISC): Dimensionality and age-related measurement invariance with Australian cricketers. *Psychology of Sport and Exercise*, *12*(4), 423–433. <https://doi.org/10.1016/j.psychsport.2011.02.005>

Güven, S., Şahin, E., Topkaya, N., Aydın, Ö., Sude, H. A., & Turgut, M. (2025). Psychometric Properties of the Depression Anxiety Stress Scales (DASS-42 and DASS-21) in Patients with Hematologic Malignancies.*Journal of Clinical Medicine, 14*(6), 2097. <https://doi.org/10.3390/jcm14062097>

Hoaglin, D. C., Iglewicz, B., & Tukey, J. W. (1986). Performance of some resistant rules for outlier labeling. *Journal of the American Statistical Association, 81*(396), 991-999.

Howitt, D., & Cramer, D. (2014). Introduction to Statistics in Psychology (5th ed.). Harlow: Pearson Education Limited.

Igartua, J.-J., & Hayes, A. F. (2021). Mediation, Moderation, and Conditional Process Analysis: Concepts, Computations, and Some Common Confusions. *The Spanish Journal of Psychology*, *24*, e49–e49. <https://doi.org/10.1017/SJP.2021.46>

Kandemir, M., Ilhan, T., Ozpolat, A. R., & Palanci, M. (2014). Analysis of Academic Self-Efficacy, Self-Esteem and Coping with Stress Skills Predictive Power on Academic Procrastination. *Educational Research and Reviews*, *9*(5), 146–152. <https://doi.org/10.5897/ERR2014.1763>

Kang, H. (2021). Sample size determination and power analysis using the GPower software. *Journal of Educational Evaluation for Health Professions*, *18*, 17–17. <https://doi.org/10.3352/jeehp.2021.18.17>

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, *37*(1), 1–11. https://doi.org/10.1037/0022-3514.37.1.1

Laerd (2023). Laerd Statistics. Available at: https://statistics.laerd.com/ [Accessed 13 November 2023].

Laerd Statistics. (2018). Statistical tutorials and software guides. <https://statistics.laerd.com/>

Lamond, A. J., Depp, C. A., Allison, M., Langer, R., Reichstadt, J., Moore, D. J., Golshan, S., Ganiats, T. G., & Jeste, D. V. (2008). Measurement and predictors of resilience among community-dwelling older women. *Journal of psychiatric research*, *43*(2), 148–154. <https://doi.org/10.1016/j.jpsychires.2008.03.007>

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Makara-Studzińska, M., Tyburski, E., Załuski, M., Adamczyk, K., Mesterhazy, J., & Mesterhazy, A. (2022). Confirmatory Factor Analysis of Three Versions of the Depression Anxiety Stress Scale (DASS-42, DASS-21, and DASS-12) in Polish Adults. *Frontiers in Psychiatry*, *12*, 770532–770532. <https://doi.org/10.3389/fpsyt.2021.770532>

McCusker, K., & Gunaydin, S. (2015). Research using qualitative, quantitative or mixed methods and choice based on the research. *Perfusion*, *30*(7), 537–542. <https://doi.org/10.1177/0267659114559116>

McKechnie, D., & Fisher, M. (2020). Considerations when choosing a statistical method for data analysis. *JARNA : The Official Journal of the Australasian Rehabilitation Nurses’ Association*, *22*(3), 20–29. https://doi.org/10.33235/jarna.22.3.20-29

Mealer, M., Schmiege, S. J., & Meek, P. (2016). The Connor-Davidson Resilience Scale in Critical Care Nurses: A Psychometric Analysis. *Journal of nursing measurement*, *24*(1), 28–39. <https://doi.org/10.1891/1061-3749.24.1.28>

Neuman, W. Lawrence. (2014). *Social Research Methods : qualitative and quantitative approaches* (Ed. 7th). Harlow: Pearson Education Limited.

Ni, M. Y., Li, T. K., Yu, N. X., Pang, H., Chan, B. H. Y., Leung, G. M., & Stewart, S. M. (2016). Normative data and psychometric properties of the Connor-Davidson Resilience Scale (CD-RISC) and the abbreviated version (CD-RISC2) among the general population in Hong Kong. *Quality of Life Research*, *25*(1), 111–116. <https://doi.org/10.1007/s11136-015-1072-x>

Norman, G. (2010). Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education : Theory and Practice*, *15*(5), 625–632. <https://doi.org/10.1007/s10459-010-9222-y>

Ogińska-Bulik, N., & Michalska, P. (2021). Psychological Resilience and Secondary Traumatic Stress in Nurses Working With Terminally Ill Patients-The Mediating Role of Job Burnout. *Psychological Services*, *18*(3), 398–405. https://doi.org/10.1037/ser0000421

Pallant, J. (2013) SPSS Survival Manual. A Step-by-Step Guide to Data Analysis Using IBM SPSS. Open University Press, Berkshire.

Polit, D.F. and Beck, C.T. (2012) Nursing Research, Generating and Assessing Evidence for Nursing Practice. (9th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins, Philadelphia.

Powell, T. C. (2020). Can Quantitative Research Solve Social Problems? Pragmatism and the Ethics of Social Research. *Journal of Business Ethics*, *167*(1), 41–48. <https://doi.org/10.1007/s10551-019-04196-7>

Sargeant, J. M., Brennan, M. L., & O’Connor, A. M. (2022). Levels of Evidence, Quality Assessment, and Risk of Bias: Evaluating the Internal Validity of Primary Research. *Frontiers in Veterinary Science*, *9*, 960957–960957. https://doi.org/10.3389/fvets.2022.960957

Seyed Alireza Derakhshanrad, Emily Piven, Mehdi Rassafiani, Seyed Ali Hosseini, & Farahnaz Mohammadi Shahboulaghi. (2014). Standardization of Connor-Davidson Resilience Scale in Iranian subjects with Cerebrovascular Accident. *Journal of Rehabilitation Sciences and Research*, *1*(4), 73–77.

Singer, H., Clarke, E. B., Schiltz, H. K., & Lord, C. (2025). Caregivers and Coping: Well-Being, Depression, and Coping Strategies Among Caregivers of Young Adults With Developmental Disabilities. *American journal on intellectual and developmental disabilities*, *130*(1), 41–62. https://doi.org/10.1352/1944-7558-130.1.41

*The Belmont report : ethical principles and guidelines for the protection of human subjects of research*. (1978). The Commission.

Warner, P. (2010). Quantifying association in ordinal data. *BMJ Sexual & Reproductive Health*, *36*(2), 83-. https://doi.org/10.1783/147118910791069187

Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes*, *9*(1), 8–8. <https://doi.org/10.1186/1477-7525-9-8>

Wojujutari, A. K., Idemudia, E. S., & Ugwu, L. E. (2024). Evaluation of reliability generalization of Conner-Davison Resilience Scale (CD-RISC-10 and CD-RISC-25): A Meta-analysis. *PloS One*, *19*(11), e0297913-. https://doi.org/10.1371/journal.pone.0297913

Zawiślak, D., Żur-Wyrozumska, K., Habera, M., Skrzypiec, K., Pac, A., & Cebula, G. (2021). Evaluation of a Polish Version of the Dundee Ready Education Environment Measure. *Folia Medica Cracoviensia*, *61*(1), 81–93. https://doi.org/10.24425/fmc.2021.137215

**Appendix A**

A screenshot of a computer

AI-generated content may be incorrect.

**Appendix B**

A screenshot of a computer

AI-generated content may be incorrect.

**Appendix C: Email requesting site authorization,**

Greetings,

I am Richard Nti, a doctoral student studying social research at Omega Graduate School. The purpose of this email is to request site authorization for my research project, *"The relationship between psychological health and psychological resilience among direct support professionals (DSPs)."*

The research will involve gathering information from your DSPs who are at least 18 years old, have been employed for at least three months, exclusively assist individuals with IDD, and are literate in English. Either full-time or part-time employment is required of them.

If they consent, DSPs from your company will be asked to answer survey questions using Survey Monkey. Their written consent will be requested prior to the commencement of the study. Unless otherwise specified, their answers will be kept private, and their identities will remain anonymous.

Every published and written piece of work arising from the study will respect individual privacy. Participants will need to spend thirty to forty-five minutes filling out the survey packet. Since this will be done online, prospective participants can fill out the survey from the convenience of their own homes.

You will be informed of the survey's findings. There will be no benefits or drawbacks for the research participants. They will be assured that there will be no consequences if they decide to revoke their consent at any point while the study is underway.

There are no known risks associated with taking part in this research. After completing the survey, participants will receive $20 gas cards. After three years, all research data will be deleted.

As a result, I am writing to ask for permission to conduct my research at your company. The authorization letter should be signed, dated, and on the official letterhead of your organization. It should include my name and the title of my research. Kindly notify me if you need any additional details. As soon as it is convenient, I eagerly await your response.

Sincerely,

Richard Nti

7272528185

ntirich@yahoo.com.

**Appendix F: Informed Consent**

**Introduction**: As a research study participant, you should be informed about the proposed study in order to obtain your informed consent. You may decide not to participate in this survey after reading this information.

**Research**: I, Richard Nti, am asking you to participate in this study. I am completing this research as part of my doctoral degree.

**Purpose of the study:** The purpose of this research will be to examine the relationship between psychological health and psychological resilience among DSPs in southern Minnesota.

**Eligibility:** You can take part in this study if you; 1. 18 years of age or older 2. DSP 3. Have been employed for at least 3 months, and serve people with IDD and able to read and understand English

**Description of Research Activity**: If you decide to participate in the study, you will be asked for the following information: Age, gender, years of services as DSP, educational attainment.

These questions are asked to help the researcher to understand the general characteristics of the respondents. They will be presented as a group, and no individual information will be presented in the final analysis of the data. This survey will take approximately 30-45 minutes to complete. All the questions should be answered. Under 100 participants will participate in this research study.

**Risks:** There are minimal to no risks in this study.

**Benefits:** Indirect benefits of participating include allowing researchers to use different research designs to continue studying this topic, developing new interventions, policies, and strategies to protect you from psychopathology, and possibly serving as a wake-up call for human services organizations.

**Anonymity**: Unless disclosure is required by law, all information gathered for this study is kept private. Participants will not be linked to any of the survey's responses. The results of this study will be incorporated into publications, reports, and representations. The participant's name, address, and email address will not be collected by the researcher for this study. This will enable the researcher to protect the privacy of your personal data. No identifying information, including name, address, or email address, will be gathered by the researcher, and the study will not associate the responses with the participants' identities. Members of my dissertation committee and I are the parties responsible who will have access to your personal data. Your private data will be safeguarded by (a) password-protecting the computer file, (b) a password-protected USB flash drive, and (c) a password-protected external hard drive. I will retain your information for three years. I will then destroy all printed copies and erase any electronic data.

**Withdrawal Privilege**: You may decline to take part in this study. You can say “No” later and cease taking part at any moment, even if you say yes now. There will not be any consequences for you. You can click "No" if you would like to cease participating. At any point, you are free to leave the study.

**Costs and Rewards**: As a study participant, there is no financial cost to you. Those who finish the survey will get a gas card worth $20. You can also request a copy of the analysis of data and findings.

**Voluntary Consent**: Before or after you give your consent, I, Richard Nti, will respond to any inquiries you may have about taking part in this research study. Please feel free to contact me at ntirich@yahoo.com or with my advisor, Dr. Taladay, at sean.taladay1@gmail.com. If you feel that you are in danger both during and after taking part in this research study, or if you have concerns about your rights as a participant, please contact Omega Graduate School's Chair of the Human Subjects Institutional Review Board. The nature, eligibility, benefits and potential risks of the research study will all be covered in this informed consent form. By selecting "I Agree," you attest that you are at least eighteen years old, that you comprehend the information on this form, and that you consent to participate in this study.

----I Agree ---- I Do Not Agree

**Appendix G: Demographic Questions**

1. What is your age?
2. How many years of DSP experience do you have?
3. What is your highest earned academic degree?

1-High School Diploma

2-Associate

3-Bachelor’s

4-Master’s

5-other

1. How would you best describe your employment status in the last year?

1-Part time

2-Full time.

1. What is your gender?

**Appendix H: Connor-Davidson Resilience Scale**

The Connor-Davidson Resilience Scale (CD-RISC-25) was not included in the appendix as requested by the author due to copyright concerns

**Appendix I**

Richard Nti - Alumni

To:​mail@cd-risc.com​

Cc:​ntirich@yahoo.com​

Sat 2/10/2024 10:35 PM

Hello,

I am Richard Nti, a doctoral student at the Omega Graduate School completing a dissertation in social research methods. I am writing to request permission to use your instrument psychological resilience scale(CD-RISC-25) in my research study. The purpose of the study is to examine the relationship between direct support professionals’ psychological health and psychological resilience. The research is being supervised by Dr. Sean Taladay who is also my dissertation chair.

I plan to use the entire content of the instrument. When you give me your approval and consent, the instrument will be emailed to research participants for them to complete. The research will take place in Minnesota. A sample size of approximately three hundred direct support professionals is being anticipated.

I would also be grateful to receive copies of supplemental material that will help in administering the test and analyzing the results; for example, the test questionnaire, the standard instructions for administering the test, and scoring procedures or rubrics.

In addition to using the instrument, I also request your permission to reproduce it in my dissertation appendix.

Let me say that the instrument will be used under the following conditions.

·         The instrument will only be used for my research study and will not sell or use it for any other purposes.

·         Statement of attribution and copyright will be included on all copies of the instrument. If you have a specific statement of attribution that you would like me to include, please provide it in response.

·         At your request, I will make a copy of my completed research study available to you upon completion of the study.

Looking forward to hearing from you.

Sincerely,

Richard Nti, BCBA

**Appendix J**

|  |
| --- |
| DAS S Name: Date: |
| Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.  The rating scale is as follows:   1. Did not apply to me at all 2. Applied to me to some degree, or some of the time 3. Applied to me to a considerable degree, or a good part of time   3 Applied to me very much, or most of the time |
| 1. I found myself getting upset by quite trivial things 0 1 2 3 2. I was aware of dryness of my mouth 0 1 2 3 3. I couldn't seem to experience any positive feeling at all 0 1 2 3 4. I experienced breathing difficulty (eg, excessively rapid breathing, 0 1 2 3 breathlessness in the absence of physical exertion) 5. I just couldn't seem to get going 0 1 2 3 6. I tended to over-react to situations 0 1 2 3 7. I had a feeling of shakiness (eg, legs going to give way) 0 1 2 3 8. I found it difficult to relax 0 1 2 3 9. I found myself in situations that made me so anxious I was most 0 1 2 3 relieved when they ended 10. I felt that I had nothing to look forward to 0 1 2 3 11. I found myself getting upset rather easily 0 1 2 3 12. I felt that I was using a lot of nervous energy 0 1 2 3 13. I felt sad and depressed 0 1 2 3 14. I found myself getting impatient when I was delayed in any way 0 1 2 3   (eg, elevators, traffic lights, being kept waiting)   1. I had a feeling of faintness 0 1 2 3 2. I felt that I had lost interest in just about everything 0 1 2 3 3. I felt I wasn't worth much as a person 0 1 2 3 4. I felt that I was rather touchy 0 1 2 3 5. I perspired noticeably (eg, hands sweaty) in the absence of high 0 1 2 3 temperatures or physical exertion 6. I felt scared without any good reason 0 1 2 3 7. I felt that life wasn't worthwhile 0 1 2 3 |

Please turn the page 

|  |  |
| --- | --- |
| Reminder of rating scale:   1. Did not apply to me at all 2. Applied to me to some degree, or some of the time 3. Applied to me to a considerable degree, or a good part of time 4. Applied to me very much, or most of the time |  |
| 22 I found it hard to wind down | 0 1 2 3 |
| 23 I had difficulty in swallowing | 0 1 2 3 |
| 24 I couldn't seem to get any enjoyment out of the things I did | 0 1 2 3 |
| 25 I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat) | 0 1 2 3 |
| 26 I felt down-hearted and blue | 0 1 2 3 |
| 27 I found that I was very irritable | 0 1 2 3 |
| 28 I felt I was close to panic | 0 1 2 3 |
| 29 I found it hard to calm down after something upset me | 0 1 2 3 |
| 30 I feared that I would be "thrown" by some trivial but unfamiliar task | 0 1 2 3 |
| 31 I was unable to become enthusiastic about anything | 0 1 2 3 |
| 32 I found it difficult to tolerate interruptions to what I was doing | 0 1 2 3 |
| 33 I was in a state of nervous tension | 0 1 2 3 |
| 34 I felt I was pretty worthless | 0 1 2 3 |
| 35 I was intolerant of anything that kept me from getting on with what I was doing | 0 1 2 3 |
| 36 I felt terrified | 0 1 2 3 |
| 37 I could see nothing in the future to be hopeful about | 0 1 2 3 |
| 38 I felt that life was meaningless | 0 1 2 3 |
| 39 I found myself getting agitated | 0 1 2 3 |
| 40 I was worried about situations in which I might panic and make a fool of myself | 0 1 2 3 |
| 41 I experienced trembling (eg, in the hands) | 0 1 2 3 |
| 42 I found it difficult to work up the initiative to do things | 0 1 2 3 |