

Validity of the Indonesian Version of the 10-Item Connor-Davidson Resilience Scale (CD-RISC) among First-Year Theological Students

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ABSTRAK

Resiliensi merupakan salah satu konsep penting dalam menghadapi stres. Skala Ketahanan Connor-Davidson (CD-RISC), yang dikembangkan oleh Connor dan Davidson, telah membuktikan keandalannya dalam menilai ketahanan di berbagai negara. Penelitian ini bertujuan untuk mengevaluasi validitas konstruk ketahanan CD-RISC versi bahasa Indonesia yang diadaptasi, yang terdiri dari 10 item. Penelitian ini melibatkan 59 mahasiswa teologi semester dua yang terdaftar di Institut Agama Kristen Negeri Tarutung, Tapanuli Utara. Analisis faktor konfirmatori, dibantu oleh perangkat lunak LISREL 8.8, digunakan untuk analisis data. Hasil uji validitas melalui analisis faktor konfirmatori menunjukkan bahwa seluruh item hanya mengukur faktor unidimensi yaitu resiliensi. Akibatnya, model ketahanan sejalan dengan data empiris, dan tidak ada item yang dikecualikan, karena semua nilai T item melebihi 1,96. Temuan ini menegaskan validitas dan reliabilitas 10 item CD-RISC versi bahasa Indonesia ketika diberikan kepada siswa tahun pertama di Indonesia. Penelitian selanjutnya diharapkan dapat menyelidiki validitas konstruksi ketahanan CD-RISC 10 item versi Indonesia di kalangan mahasiswa tahap lanjut atau mereka yang berada dalam tahap persiapan skripsi.

Keywords: validitas; resiliensi; mahasiswa tahun pertama; analisis faktor konfirmatori

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Resilience is one of the essential concepts in dealing with stress. The Connor-Davidson Resilience Scale (CD-RISC), developed by Connor and Davidson, has established its reliability in assessing resilience across various countries. This study aimed to evaluate the validity of the adapted Indonesian version of the CD-RISC resilience construct, comprising 10 items. The study involved 59 second-semester theological students enrolled at Institut Agama Kristen Negeri Tarutung, North Tapanuli. Confirmatory factor analysis, assisted by LISREL 8.8 software, was employed for data analysis. The results of the validity test through confirmatory factor analysis revealed that all items solely measure a unidimensional factor: resilience. Consequently, the resilience model aligns with empirical data, and no items were excluded, as all item T-values exceeded 1.96. These findings affirm the validity and reliability of the 10-item CD-RISC Indonesian version when administered to first-year students in Indonesia. Future research endeavors could investigate the validity of the Indonesian version of the 10-item CD-RISC resilience construct among advanced-stage students or those in the thesis preparation phase.

Keywords: *Validity; resilience; first-year students; confirmatory factor analysis*

Introduction

Stress has become a part of human life. Stress that is not successfully overcome will harm physical and mental health. Resilience is one of the essential concepts in dealing with stress. Resilience is seen as a measure of a person's ability to cope with stress, so it becomes an essential target for dealing with anxiety, depression, and other stress-related reactions¹. Resilience is a personal quality that needs to be developed and improved. In recent years, training and development of resilience skills have been introduced as an effective strategy for dealing with stress^{2,3,4,5,6}.

Higher Education administrators and educators have adopted many psychological approaches to improve well-being and develop student resilience⁷. Increasing resilience has become an important goal in academic life, especially for first-year students in college. It is because stress levels tend to increase in the first year⁸. Resilience is related to student adjustment, especially among first-year college students⁹. New or first-year students are required to adjust to a new culture with different norms, financial pressures, mental health problems, and interpersonal stress¹⁰. Recent research by Sk & Halder (2021) demonstrates the importance of resilience for first-year students to survive and thrive during college¹¹.

Every culture needs an instrument to measure mental health and emotional distress in a given population¹². The need for a resilience measure that is well-validated, easy to use, and has advantages has been fulfilled with the English version of the Connor-Davidson Resilience Scale

¹ Vicki Bitsika and Kylie Peters, "How Is Resilience Associated with Anxiety and Depression? Analysis of Factor Score Interactions within a Homogeneous Sample" (February 5, 2015).

² Judith P. Andersen et al., "Applying Resilience Promotion Training Among Special Forces Police Officers," *SAGE Open* 5, no. 2 (2015).

³ Abdulkadir Haktanir et al., "Resilience, Academic Self-Concept, and College Adjustment Among First-Year Students," *Journal of College Student Retention: Research, Theory and Practice* (2018): 1–18.

⁴ Sandra L. Ramey et al., "Testing a Resilience Training Program in Police Recruits: A Pilot Study," *Biological Research for Nursing* 19, no. 4 (2017): 440–449.

⁵ Jess P. Shatkin et al., "Effects of a Risk and Resilience Course on Stress, Coping Skills, and Cognitive Strategies in College Students," *Teaching of Psychology* 43, no. 3 (2016): 204–210.

⁶ Bryce E. Stoliker et al., "Building Personal Resilience Following an Online Resilience Training Program for BScN Students," *Western journal of nursing research* 44, no. 8 (August 1, 2022): 755–764, accessed October 18, 2023, <https://pubmed.ncbi.nlm.nih.gov/33998338/>.

⁷ Rebecca Anne Price, "A Review of Resilience in Higher Education: Toward the Emerging Concept of Designer Resilience," *Studies in Higher Education* 48, no. 1 (2023).

⁸ Selwyn Stanley and G. Mettilda Buvanewari, "Do Stress and Coping Influence Resilience in Social Work Students? A Longitudinal and Comparative Study from India," *International Social Work* (2020).

⁹ Haktanir et al., "Resilience, Academic Self-Concept, and College Adjustment Among First-Year Students."

¹⁰ Elizabeth Dorrance Hall and Kristina M. Scharp, "Communicative Predictors of Social Network Resilience Skills during the Transition to College:," <https://doi.org/10.1177/0265407520983467> 38, no. 4 (January 27, 2021): 1238–1258, accessed September 15, 2021, <https://journals.sagepub.com/doi/10.1177/0265407520983467>.

¹¹ Sahanowas Sk and Santoshi Halder, "Effect of Emotional Intelligence and Critical Thinking Disposition on Resilience of the Student in Transition to Higher Education Phase," *Journal of College Student Retention: Research, Theory & Practice* (2021), <https://doi.org/10.1177/15210251211037996>.

¹² Sofya Nartova-Bochaver, Aleksei Korneev, and Konstantin Bochaver, "Validation of the 10-Item Connor-Davidson Resilience Scale: The Case of Russian Youth," *Frontiers in Psychiatry* 12, no. February (2021): 1–7.

(CD-RISC) in developed countries¹³. The selection of a research instrument hinges on its validity, ensuring that the items accurately measure the intended attributes¹⁴. Recently, in South Italy, CD-RISC has been used to measure resilience¹⁵. In Indonesia, the measurement of resilience in first-year students has been carried out by several researchers in the last five years^{16,17,18,19,20,21}. However, these studies did not use CD-RISC as an instrument to measure the resilience of first-year students. Research conducted by Octaryani & Baidun (2018) indeed uses CD-RISC as an instrument to measure resilience²². However, the number of items used is quite large, namely 48 items and the characteristics of the subjects studied are not explained. Likewise, the number used by Tessitore et al. (2023) in CD-RISC is 25 items²³. Therefore, researchers are interested in testing the validity of the simpler CD-RISC construct with 10 items to measure the resilience of first-year students in Indonesia. This paper is intended to test the validation of the unique resilience construct for first-year students in the Indonesian version of the university, adapted from the CD-RISC. This research is essential because it makes a significant contribution to measuring and understanding resilience among theology students in Indonesia. This, in turn, can improve mental health interventions, educational policies, and student well-being. Validation of scales such as the CD-RISC also ensures that these measurement tools are accurate and relevant in the Indonesian cultural context, which is essential for effective diagnosis and intervention.

¹³ Olutayo Aloba, Oluseyi Olabisi, and Tolulope Aloba, "The 10-Item Connor–Davidson Resilience Scale: Factorial Structure, Reliability, Validity, and Correlates Among Student Nurses in Southwestern Nigeria," *Journal of the American Psychiatric Nurses Association* 22, no. 1 (2016): 43–51.

¹⁴ Adiyo Roebianto et al., "Content Validity: Definition And Procedure Of Content Validation In Psychological Research," *TPM - Testing, Psychometrics, Methodology in Applied Psychology* 30, no. 1 (March 1, 2023): 5–18.

¹⁵ Francesca Tessitore, Anna Parola, and Giorgia Margherita, "Mental Health Risk and Protective Factors of Nigerian Male Asylum Seekers Hosted in Southern Italy: A Culturally Sensitive Quantitative Investigation," *Journal of Racial and Ethnic Health Disparities* 10, no. 2 (April 1, 2023): 730–742.

¹⁶ Audita Kusuma Astuti and Diana Rusmawati, "Hubungan Antara Kecerdasan Emosional Dan Resiliensi Pada Mahasiswa Tahun Pertama Fakultas Psikologi Universitas Diponegoro Di Tengah Pandemi Covid-19," *Jurnal EMPATI* 10, no. 5 (2021): 328–333.

¹⁷ Feti Astuti and Triana Noor Edwina, "Resiliensi Pada Mahasiswa Tahun Pertama Program Kelas Karyawan Ditinjau Dari Konsep Diri," in *Penguatan Individu Di Era Revolusi Informasi*, ed. Aniq H B Haq et al., vol. 13 (Yogyakarta: Muhammadiyah University Press, 2017), 1576–1580.

¹⁸ Dimas Reza Narendra and Natris Indriyani, "The Effect Of Five-Factor Model Of personality And Religiosity Toward Adolescents's Resilience Whoose Parents Are Divorced," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia (JP3I)* 6, no. 1 (2018): 27–42.

¹⁹ Nadya Nurmalasari, "Resiliensi Quotionare Test (RQ-TEST) Analisis Faktor Variabel Resiliensi," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia (JP3I)* 7, no. 1 (2018): 33–40.

²⁰ Syska purnama Sari, Januar Eko Aryansah, and Kurnia Sari, "Resiliensi Mahasiswa Dalam Menghadapi Pandemi Covid-19 Dan Implikasinya Terhadap Proses Pembelajaran," *Indonesian Journal of Guidance and Counseling: Theory and Application* 9, no. 1 (2020): 17–22.

²¹ Fadila Hedyaty Zahra, Hutami Rachmat Nabilah, and Miryam Wedyaswari, "Resiliensi Mahasiswa Bidikmisi Tingkat Pertama Universitas Padjadjaran," *Journal An-Nafs: Kajian Penelitian Psikologi* 6, no. 1 (2021): 120–134.

²² Meggy Octaryani and Akhmad Baidun, "Uji Validitas Konstruk Resiliensi," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia (JP3I)* 6, no. 1 (2018): 43–52.

²³ Tessitore, Parola, and Margherita, "Mental Health Risk and Protective Factors of Nigerian Male Asylum Seekers Hosted in Southern Italy: A Culturally Sensitive Quantitative Investigation."

Methods

Participants in this study were active first-year students from the theology study program at Institut Agama Kristen Negeri (IAKN) Tarutung, with as many as 59 respondents, consisting of 22 male respondents (37.3%) and 37 female respondents (62.7%) aged between 17 and 21 years. According to Wolf et al. (2013), the number of research subjects is still tolerable²⁴. All respondents come from three different classes and have been studying for more than six months or one semester, so they can be called first-year students. The research data was obtained online through the Google Form link, which presents the resilience scale.

The researchers modified the translated version of the resilience measurement instrument developed by Connor & Davidson, comprising 10 CD-RISC items (Aloba et al., 2016). This scale uses a Likert scale with five answer options: strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA). The score given is 1 = SD to 5 = SA. The selection of the 10-item CD-RISC scale was based on its prior validation in multiple countries. For instance, Aloba et al. (2016) reported a Cronbach's alpha reliability value of 0.81 in Nigeria²⁵, while Nartova-Bochaver et al. (2021) demonstrated a Cronbach's alpha reliability value of 0.85 in Russia²⁶. Countries in Asia have also shown good reliability, with a Cronbach alpha value of 0.92 in China²⁷; 0.95 in South Korea²⁸; and 0.94 in Singapore²⁹.

Confirmatory Factor Analysis (CFA) is the analytical technique used in this study. CFA's advantages in the instrument construct validation process cannot be underestimated³⁰. The software used is LISREL 8.8. The method used to estimate the CFA is the Maximum Likelihood Estimation method. The evaluation of model fit (goodness of fit) in this study uses the criteria Chi-Square (χ^2) with p -value > 0.05 and Root Mean Square Error of Approximation (RMSEA) must be less than 0.05³¹. If it meets these criteria, it can be concluded that the model fits the data or that there is no discrepancy or mismatch between the model and the empirical data. In addition, the factor loading coefficient test is carried out to see whether there are items that must be eliminated or not. If the T-value for the factor load coefficient is more than 1.96 and

²⁴ Erika J. Wolf et al., "Sample Size Requirements for Structural Equation Models," <http://dx.doi.org/10.1177/0013164413495237> 73, no. 6 (July 9, 2013): 913–934, accessed November 7, 2022, <https://journals.sagepub.com/doi/10.1177/0013164413495237>.

²⁵ Aloba, Olabisi, and Aloba, "The 10-Item Connor-Davidson Resilience Scale: Factorial Structure, Reliability, Validity, and Correlates Among Student Nurses in Southwestern Nigeria."

²⁶ Nartova-Bochaver, Korneev, and Bochaver, "Validation of the 10-Item Connor-Davidson Resilience Scale: The Case of Russian Youth."

²⁷ Chang Cheng et al., "Psychometric Properties of the 10-Item Connor-Davidson Resilience Scale (CD-RISC-10) in Chinese Undergraduates and Depressive Patients," *Journal of Affective Disorders* 261 (January 15, 2019): 211–220.

²⁸ Gab Sik Shin et al., "Psychometric Properties of the 10-Item Connor-Davidson Resilience Scale on Toxic Chemical-Exposed Workers in South Korea," *Annals of occupational and environmental medicine* 30, no. 1 (August 13, 2018), accessed November 9, 2022, <https://pubmed.ncbi.nlm.nih.gov/30123513/>.

²⁹ Yu Heng Kwan et al., "Validity and Reliability of the Ten-Item Connor-Davidson Resilience Scale (CD-RISC10) Instrument in Patients with Axial Spondyloarthritis (AxSpA) in Singapore," *Rheumatology international* 39, no. 1 (January 18, 2019): 105–110, accessed November 9, 2022, <https://pubmed.ncbi.nlm.nih.gov/30523476/>.

³⁰ Todd F. Lewis, "Evidence Regarding the Internal Structure: Confirmatory Factor Analysis," *Measurement and Evaluation in Counseling and Development* 50, no. 4 (2017): 239–247, <http://dx.doi.org/10.1080/07481756.2017.1336929>.

³¹ Helly P Soetjpto, "Pengujian Validitas Konstruk Kriteria Kecanduan Internet," *Jurnal Psikologi* 32, no. 2 (2005): 74–91.

the factor load coefficient is positive, then the measured item is significant in measuring the construct to be measured. In other words, the item is not eliminated.

TABLE 1
CD-RISC Resilience English and Indonesian Version

No	CD-RISC Items English Version*	CD-RISC Items Indonesian Version
1	Think of self as strong person	Saya menganggap diri saya orang yang kuat ketika menghadapi tantangan-tantangan kehidupan
2	Not easily discouraged by failure	Saya tidak mudah putus asa, walaupun mengalami kegagalan.
3	Coping with stress strengthens	Stres membuat saya menjadi lebih kuat
4	Can deal with whatever comes	Saya mampu berhadapan dengan apapun yang terjadi
5	Tend to bounce back after illness or hardship	Saya mudah bangkit kembali, setelah mengalami sakit atau terluka
6	Can handle unpleasant feelings	Saya mampu mengatasi perasaan yang tidak menyenangkan
7	You can achieve your goals	Saya percaya, saya dapat mencapai tujuan meskipun ada hambatan
8	See the humorous side of things	Saya mampu melihat sisi humor dari suatu masalah
9	Able to adapt to change	Saya mudah beradaptasi dengan perubahan yang terjadi
10	Under pressure, focus and think clearly	Meskipun di bawah tekanan, saya bisa tetap fokus.

Sources: Aloba et al. (2016)³²

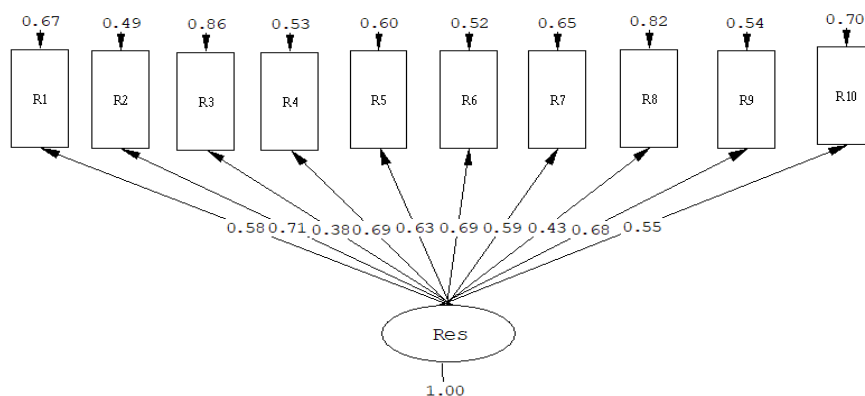
Results & Discussion

The study results were obtained from confirmatory factor analysis conducted on 10 CD-RISC items. This study wants to know whether the 10 items are unidimensional or true and only measure the resilience of first-year students. The analysis results in Figure 1 show that the Chi-square for this model is 36.01, degrees of freedom (df) is 35, p-value is 0.42, and RMSEA is 0.022. The Chi-square value produces a p-value of more than 0.05, or insignificant, and an RMSEA value of less than 0.05, which means a model with one factor (uni-dimensional). Thus, the 10-item CD-RISC measures only one factor, resilience, or whether the model fits the empirical data.

³² Aloba, Olabisi, and Aloba, "The 10-Item Connor–Davidson Resilience Scale: Factorial Structure, Reliability, Validity, and Correlates Among Student Nurses in Southwestern Nigeria."

Furthermore, the researcher wanted to know from the 10 items tested whether the factor to be measured was resilience and whether there were items that needed to be eliminated or not. Tests are carried out to obtain the item's T value and factor loading coefficient. Table 2 shows the factor loading coefficient, standard error, T value, and significance of the resilience model. Table 2 above shows that all factor load coefficient values are in the range of 0.43–0.70 and are positive, while the T value is in the range of 2.77–5.87, so that in each item, the T value is more than 1.96, which means significant. All items can measure resilience, and no items are eliminated or deleted. The existing items only measure one factor (unidimensional), namely resilience. The lowest factor load is item no. 9 (able to adapt to change), and the highest factor load is item no. 7 (you can achieve your goals).

This research was conducted to provide evidence of the validity of the Indonesian-translated version of the CD-RISC Scale. Specifically, this research involves first-year students who are still adapting to the higher education environment. The CD-RISC for first-year students, which contains 10 items, shows adequate validity. This research also uses a minimal number of subjects; it may show advantages and disadvantages. Even though the number of subjects is minimal, the validity coefficient on this scale shows reasonable results consistent with validity testing on previous CD-RISC with a more significant number of subjects.



Chi-Square=36.01, df=35, P-value=0.42098, RMSEA=0.022

Sources: personal data (2021).

Figure 1. Uni-dimensional Model Fits the Data with 10 Correlation Between Residuals

Conclusion

To the best of the researcher's knowledge, this research is the first study conducted on first-year students on the Indonesian version of resilience to test the construct validity of the 10-item CD-RISC. The Indonesian version of CD-RISC, modified and tested by the CFA method, shows that the resilience model matches the empirical data. The findings of this study indicate that the application of CD-RISC in Indonesian has been proven valid and reliable for first-year students in Indonesia. Future research may be able to test the validity of the Indonesian version of the CD-RISC resilience construct for final-stage students or those who are preparing a thesis.

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