

VALIDITY AND RELIABILITY OF CONNOR-DAVIDSON RESILIENCE SCALE (CD-RISC) 10 ITEMS ON PREGNANT WOMEN

Perwitasari¹, Risky Puji Wulandari²

¹Department of Midwifery, Faculty of Health Sciences, Universitas Singaperbangsa Karawang,

²Bachelor of Midwifery Study Program, STIKes Yogyakarta

Correspondence address: Universitas Singaperbangsa Karawang,

Email : perwitasari91@gmail.com

Abstract

Background: Pregnancy period trigger emotional challenges for women, not only due to hormonal changes but also due to physical, psychological, social, financial and cultural factors. Women's reaction to stress or difficult conditions is considered as resilience. Pregnant women who have low levels of resilience tend to report high perceptions of stress, so increasing resilience in pregnant women is important for building positive coping strategies to minimize the negative effects of stress on the mother and fetus. One of the tools that is often used to assess resilience is Connor-Davidson Resilience Scale (CD-RISC). This study aimed to test the validity and reliability of the 10-item CD-RISC on pregnant women sample. **Method:** This research was descriptive statistical to test the validity and reliability of the CD-RISC 10-items on 30 respondents in Magelang, Central Java. **Result:** The pearson correlation and cronbach alpha was used to assess validity and reliability. The statistical test results showed that the item correlation value for all items ranged from 0.711 to 0.906, r values from 10 items had score above the r table (0.361). The cronbach alpha value was 0.940. **Discussion:** Researchers assumed that apart from being valid and reliable, the resilience theory on the Connor-Davidson Resilience Scale (CD-RISC) shows relevance to culture and values adopted by pregnant women in Indonesia, therefore this tool can be employed to explore the level of resilience of pregnant women in quantitative or qualitative research. **Conclusion:** This study conclude that CD-RISC 10 items has good validity and reliability for assessing the resilience of pregnant women in Indonesia

Keywords: resilience, CD-RISC 10, validity, reliability, pregnant women

INTRODUCTION

The pregnancy period triggers emotional challenges for women, not only due to hormonal changes but also due to physical, psychological, social, financial and cultural factors. When women experience difficulties adapting during pregnancy, the risk of stress will increase. Women's reaction that arises due to stress or difficult conditions is named resilience. Resilience describes the way pregnant women face and overcome stress. Research revealed that pregnant women who have a

low level of resilience were more likely to report high perceptions of stress, therefore increasing resilience in pregnant women is important to advert the negative effects of stress on the mother and fetus.¹ The prevalence of psychological distress in pregnant women were quite high, reported by 63%², even during the Covid-19 pandemic, anxiety symptoms of pregnant women who were confirmed positive also increased to 73.1%.³ Regarding those issues, assessing resilience and prioritizing interventions are needed in order to improve pregnant women's skills in



managing stress and anxiety. Maternal psychological problems not only have negative impact the mother but also the child being born. A study in Bogor found that children of mothers with mental disorders were at risk of stunting (OR 9, 95% CI: 1.26 – 63.89).⁴

In general, resilience is an individual's ability to rise and respond positively and bounce back when dealing with stressful situation in life. According to Ahern et al, resilience is a personal characteristic that reflects an individual's ability to adapt to stress. Apart from that, Connor and Davidson defined resilience as a personal quality that makes a person able to develop in the face of adversity.⁵ From a psychological perspective, resilience focuses on an individual's ability to grow, develop and learn from traumatic events, adversity or life challenges. In this case, resilience is often related to vulnerable populations, for example abandoned children, women who experience domestic violence, and pregnant women who are at high risk of experiencing mental health problems.⁶ According to Bryan et al (2018), the scope of resilience needed to consider a deeper concept, such as self-regulation or the ability to understand one's own behavior and reactions.⁷

One instrument that is often used to measure the level of resilience is the Connor-Davidson Resilience Scale (CD-RISC) which was developed by Connor and Davidson (2003). This instrument was created with the concept of resilience as a therapeutic outcome for patients with mental health problems such as anxiety, depression, and stress reactions. The instrument contains 25 statement items that are filled in independently (self-rating scale) based on what the patient experience in the previous month. The particular situation might not arise in the present time when screening is carried out, however we might explore how the patient would have responded to the stress situation. The score calculation employ five-point Likert scale (0-5) with a score range from 0 to 100.⁸ The short version of CD-RISC has a total of 10 item statements containing statement number 1, 4, 6, 7, 8, 11, 14, 16, 17, and 19 of the original 25-item version. The validity test of the 10 item CD-RISC questionnaire on adolescent respondents in Indonesia was reported to have a reliability coefficient of 0.868⁹ while the validity of the CD RISC in the pregnant women population in Indonesia is not confirmed yet. Validity tests are carried out to determine the accuracy of a measuring instrument and show that the measuring

instrument is accurate and relevant. Reliability testing is needed to ensure that the measuring instrument is reliable and consistent.¹⁰ Based on this background, this study aimed to test the validity and reliability of the 10-item CD-RISC questionnaire in pregnant women samples.

MATERIAL AND METHOD

This research was statistical descriptive design to test the validity and reliability of Indonesian version of the Connor-Davidson Resilience (CD-RISC) 10 items. The number of respondents was 30 pregnant women who were recruited using purposive sampling technique which took place in the Magelang area, Central Java from March to April 2023. The inclusion criteria were being willing to be a respondent by filling out informed consent form, being pregnant in the first/second/third trimester, having a cellphone to access the questionnaire link, the exclusion criteria were non-pregnant women and disabilities. Out of 10 statements in CD-RISC were favorable items and answers were measured using a Likert scale with five answer choices for each statement, namely 0 = not true at all, 1 = rarely true, 2 = sometimes true, 3 =

often true, 4 = almost always true. Score range from minimum 0 to maximum 40.⁸

In this validity test, the answer choices were modified to make it easier for respondents to understand and choose answers. Modification of answer choices were 1=very unable, 2=unable, 3=able, 4=very capable with the highest score of 40. The resilience value is obtained from the sum of the ten statements, higher score represents a high level of resilience. Respondents who agreed to participate and met the criteria were asked to fill out a statement in the form of a google form. Respondents filled it out the questionnaire independently or assisted by the local midwife in clinic or primary health center. The pearson correlation test was used to test validity and the cronbach alpha test to assess the reliability of the questionnaire. The r value of the validity test table was determined from the formula $df=n-2$ so $df=28$ so the r table used was 0.316. In order for each item to be declared valid, the calculated r value must be more than the r table. Meanwhile, for the reliability test, the classification of reliable criteria was used as follow (1) ≥ 0.9 = very reliable (2) 0.8-0.89= reliable (3) 0.7-0.79= quite reliable (4) 0.6-0.69 less reliable, and (5) ≤ 0.6 = not reliable. Statistical analysis test was using SPSS version 29.

RESULT

1. Characteristic of Respondents (a) Distribution of Age

Table 1. Distribution of Respondent's Age

Variable	Mean	SD	Min - Max
Age	27,83	4,85	18 – 38

Based on table 1, it showed that the average age of respondents was 27.83 years with a minimum age of 18 years and a maximum age of 38 years.

(b) Distribution of Characteristic

Table 2. Distribution of Respondents Characteristic

Variable	N	Percentage (%)
Education		
Low level (SD, SMP)	4	13,3
Middle level (SMA)	16	53,3
High level (D3, S1)	10	33,3
Total	30	100
Occupation		
Housewife	22	73,3
Private sector	5	16,7
Self-employed	2	6,7
Civil servant	1	3,3
Total	30	100
Family Income		
Under UMP	8	26,7
Equivalent to UMP	18	60
Above UMP	4	13,3
Total	30	100
Pregnancy Age		
Trimester II	14	46,7
Trimester III	16	53,3
Total	30	100
Parity		
Primigravida	14	46,7
Multigravida	16	53,3
Total	30	100

Based on table 2, the majority of respondents had middle level education (53.3%) which mean they graduated from

senior high school and most of them were housewives (73.3%). More than half of the respondents have a family income in the category equivalent to the Central Java provincial minimum wage (UMP) in 2023, which were IDR 1,958.169,- (60%). In terms of the maternal characteristics, most of samples were in the third trimester (25 – 38 weeks) (53.3%) and were multigravida (53.3%).

(c) Validity Test

Tabel 3. Validity of Questionnaire CD-RISC 10 Indonesian Version

No	Item	R value	R Table	Validity
1	Saya mampu menyesuaikan diri dengan perubahan	0,724		Valid
2	Saya mampu mengatasi segala tantangan yang dihadapi	0,778		Valid
3	Saya berusaha mencari sisi humor dari masalah	0,778		Valid
4	Mampu mengatasi stress akan memperkuat saya	0,801		Valid
5	Saya cenderung bersemangat kembali setelah mengalami kesakitan, cedera, atau kesusahan	0,711		Valid
6	Saya percaya saya dapat mencapai tujuan meski menghadapi tantangan	0,880	0,361	Valid
7	Saya tetap fokus dan berpikir jernih meski dalam tekanan	0,880		Valid
8	Saya tidak mudah patah semangat setelah kegagalan	0,906		Valid
9	Saya menganggap diri saya sebagai orang yang kuat ketika menghadapi tantangan dan kesulitan	0,871		Valid
10	Saya dapat mengatasi perasaan tidak menyenangkan atau perasaan menyakitkan seperti sedih, takut, marah	0,806		Valid

Based on table 3 above, it showed the range of item correlation values with minimum r value of 0.711 and a maximum r value of 0.906. All calculated r values for the 10 items exceed the r table (0.361). This can be concluded that the 10 statements in the 10 item CD-RISC questionnaire were valid on pregnant women sample.

(d) Reliability Test

Tabel 4. Reliability of Questionnaire CD-RISC 10 Indonesian Version

Number of items	Cronbach's Alpha
10	0,940

Based on table 4, regarding the reliability test of the 10 item CD-RISC, it showed that the Cronbach alpha value was 0.940. Interpretating from the reliability score classification, if the value is ≥ 0.9 , the questionnaire is declared very reliable, so the 10-item CD-RISC questionnaire was very reliable for the pregnant women sample

DISCUSSION

Regarding the distribution of respondents' characteristics, the average age of respondents was 27.83 years, which implied that the majority of respondent were likely in ideal age for pregnancy. Most of the respondents were middle level education or senior high school graduates, were housewives, had an income equivalent to the Central Java UMP, were

in the third trimester of pregnancy and were multigravida pregnancies. All respondents in this research were living in Magelang region, Central Java, which administratively consists of 21 sub-districts and 372 villages, so it can be concluded that the respondents reflected the population of pregnant women from rural areas. According to Central Bureau of Statistics Magelang, in 2022 the average per capita expenditure in Magelang Regency was IDR 930,609.¹¹ This number indicated that respondents were in the middle-economic class with an expenditure range of IDR 532,000 – 1,200.00 per person in a month.¹² Researcher assumed that the validity and reliability test results of the 10 item CD-RISC instrument were suitable for the population of pregnant women from the middle economic class and rural area population. However, the results of this validity and reliability can be used as a reference for measuring the resilience of pregnant women in Indonesia. Overall, CD-RISC 10 items is understandable for respondents so that the result of assessing pregnant's women resilience can be referred to develop positive coping strategy.

From the results of the validity test in table 3, it was reported that the

calculated r results exceed the r table (0.361) for all statements after the researcher made modifications to the answer choices. It concluded that all statement items in the CD-RISC questionnaire were valid for pregnant women respondents. Even though the answer choices are slightly different from the original version, we determine the minimum score was 0 and maximum score was 40, the same as the original version. The reliability test results in table 4 show a Cronbach's Alpha value of 0.940, which implied it was very reliable because the value was ≥ 0.9 . The test results in this study were in accordance with the validity and reliability test of the German version of the 10-item CD-RISC, all items exceed the r table with a range of 0.38 to 0.60 and the reliability test is reported to be good with a Cronbach's Alpha value of 0.81.¹³ The 10-item CD-RISC instrument has also been widely used by research in Asian countries among respondents from pregnant women and postpartum mothers. For the Chinese version, a validity and reliability test value is reported 0.91, which was nearly same as this study.¹⁴ Research in China utilized the national average value to differentiate categories of resilience level, ≤ 32 for low resilience level and > 32 indicates high resilience.¹⁵

The 10 version of the CD-RISC questionnaire has also been used by research in Indonesia. The questionnaire consists of two dimensions, the first is psychological resilience when faced with pressure or change and the second is how a person is persistent in getting up and out of a stressful situation and efforts to achieve individual life goals. In a study of the resilience of women who experienced spontaneous abortion, the validity of the CD-RISC 10 questionnaire was reported in the range of 0.492 to 0.750 and the reliability value was 0.878.¹⁶ Qualitative research in Ambon analyzing the resilience of pregnant women with HIV after the Covid-19 pandemic also used the theoretical components of CD-RISC to explore maternal resilience data in depth. Five aspects to reflect resilience were (1) personal competence, high standards, tenacity, (2) believing in yourself, compromising with negative things, being strong and resilient when experiencing stress, (3) accepting change positively, being able to build relationships. good with others, (4) self-control, knowing how to help or accept help from others, (5) spiritual influence, belief in God or fate. The results of research report that pregnant women with HIV were able to build resilience through maintaining physical

and psychological health.¹⁷ Researchers assumed that apart from being valid and reliable, the resilience theory on the Connor-Davidson Resilience Scale (CD-RISC) shows relevance to culture and values adopted by pregnant women in Indonesia, therefore this tool can be employed to explore the level of resilience of pregnant women in quantitative or qualitative research.

CONCLUSION

This research concluded that Indonesian version of the Connor-Davidson Resilience Scale (CD-RISC) questionnaire 10-items is valid and reliable for assessing the level of resilience of Indonesian pregnant women. All items have calculated r value more than the r table (0.361) that implied 10 items were valid. Based on the reliability test, the Cronbach's Alpha value was 0.940, which indicated very reliable. Researchers suggest that this questionnaire can be alternative tool to assess the level of resilience of pregnant women, especially pregnant women who are at low-middle income class, high risk of experiencing mental health disorders, are in stressful conditions, or pregnant women with a high level of vulnerability. This study also

recommend this tool as indicators of maternal mental health intervention. Further study is required to explore the theory of CD-RISC in qualitative methods to confirm that this tool is culturally sensitive for Indonesian pregnant women.

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