

# Testing the validity and reliability of the Depression Anxiety Stress Scale (DASS)-21 instrument for individuals with Psychodermatology

*by* Ike Herdiana

---

**Submission date:** 29-Dec-2022 10:54AM (UTC+0800)

**Submission ID:** 1987200318

**File name:** sting\_The\_Validity\_and\_Reliability\_of\_DASS\_Nada\_Ike\_Fitri\_1.pdf (235.6K)

**Word count:** 7432

**Character count:** 41561



## Testing the validity and reliability of the Depression Anxiety Stress Scale (DASS)-21 instrument for individuals with Psychodermatology

Qothrun Nada,<sup>1\*</sup> Ike Herdiana,<sup>2</sup> Fitri Andriani<sup>3</sup>

<sup>1</sup>Master's Program in Clinical Psychology Profession, Faculty of Psychology, Universitas Airlangga, Surabaya – Indonesia;

<sup>2</sup>Department of Clinical Psychology, Faculty of Psychology, Universitas Airlangga, Surabaya – Indonesia; <sup>3</sup>Department of Educational and Developmental Psychology, Faculty of Psychology, Universitas Airlangga, Surabaya – Indonesia

**Abstract:** Individual psychological health can be seen from the health of the skin. Some skin diseases such as psoriasis and atopic dermatitis can be exacerbated by psychological problems. Based on this, a collaboration between specialist doctors and psychologists is needed to screen for psychological disorders in sufferers. One psychological screening instrument is the Depression Anxiety Stress Scale (DASS)-21; this study aims to test its validity and reliability. Non-probability convenience sampling was employed, and 292 participants aged 18-54 were willing to take part in the study. An internal structure validity test was conducted using confirmatory factor analysis, while concurrent validity was assessed by correlating DASS-21 with PHQ-9, GAD-7 and PSS scores. The reliability test was analyzed using composite reliability. The results of the CFA analysis showed that the data matched Lovibond's theory and that all DASS-21 items were valid (RMSEA = .076, CFI = .961, TLI = .955, SRMR = .065). The results of the concurrent analysis showed that the three scales had a positive correlation with the dimensions of DASS-21, while the reliability results showed a satisfactory value (.850 – .923). The results of the study indicate that DASS-21 is a valid and reliable instrument and can be used to measure depression, anxiety and stress in individuals with psoriasis and atopic dermatitis.

**Keywords:** DASS-21; psychodermatology; reliability; validity

**Abstrak:** Kesehatan psikologis individu dapat dilihat dari kondisi kesehatan kulit. Beberapa penyakit kulit seperti psoriasis dan atopik dermatitis dapat diperburuk oleh permasalahan psikologis. Berdasarkan hal tersebut, diperlukannya kolaborasi antara dokter spesialis dan psikolog untuk melakukan skrining gangguan psikologis pada pengidapnya. Salah satu instrumen skrining psikologis adalah Depression Anxiety Stress Scale (DASS)-21. Penelitian ini bertujuan menguji validitas dan reliabilitas DASS-21. Pengambilan sampel menggunakan pendekatan nonprobability sampling convenience dan responden yang bersedia mengikuti penelitian ini terdiri dari 292 partisipan yang berusia 18-54 tahun. Uji validitas struktur internal dilakukan dengan analisis factor konfirmatori, sedangkan validitas konkuren dilakukan dengan mengkorelasikan DASS-21 dengan skor PHQ-9, GAD-7 dan PSS. Uji reliabilitas dianalisis dengan reliabilitas komposit. Hasil analisis CFA menunjukkan data memiliki kecocokan dengan teori milik Lovibond dan seluruh item dari DASS-21 adalah valid (RMSEA = 0,076, CFI = 0,961, TLI = 0,955, SRMR = 0,065). Hasil analisis konkuren menunjukkan ketiga skala memiliki korelasi positif dengan dimensi DASS-21. Hasil reliabilitas menunjukkan nilai memuaskan (0,850–0,923). Hasil penelitian ini menunjukkan DASS-21 merupakan instrumen yang valid dan reliabel dan dapat digunakan untuk mengukur depresi, cemas dan stres pada pengidap psoriasis dan atopik dermatitis.

**Kata Kunci:** DASS-21; psikodermatologi; validitas; reliabilitas

\*Corresponding Author: Qothrun Nada (qothrun.nada-2019@psikologi.unair.ac.id), Faculty of Psychology, Universitas Airlangga, Jl. Airlangga 4-6, Surabaya 60286 – Indonesia.

## Introduction

Individual mental health can be seen through the health condition of the skin. Indications include somatic symptoms such as redness, sweating, and itching (Bostoan et al., 2012). These conditions can indicate that those with skin disorders are possibly experiencing psychological disorders, with a prevalence of around 30-40% (Roberts et al., 2020). Based on this, clinicians such as dermatologists, psychiatrists, and psychologists, pay particular attention to the relationship between skin and mental health, which is referred to as psychodermatology (Roberts et al., 2020). The field is divided into three categories: psychophysiological, which relates to skin disease exacerbated by negative emotions, such as psoriasis and atopic dermatitis; skin disease whose main source is psychological disorders such as trichotillomania; and secondary psychiatric disorders, which are caused by skin diseases (Koo & Lebwohl, 2001).

This study will focus on the first category, psychophysiological skin diseases that are not directly caused by stress, but can be triggered or exacerbated by it (Koo & Lebwohl, 2001). Diseases often found in this group include psoriasis and atopic dermatitis (Koo & Lebwohl, 2001), both of which are categorized as visible skin diseases (VSDs), meaning sufferers are vulnerable to social stigma (Germain et al., 2021; Jankowiak et al., 2020; van Beugen et al., 2017). When the disease occurs, clinical symptoms include reddish, thickened lesions and an itching sensation (Egeberg et al., 2020). Such symptoms can cause a negative response from the society, such as disgust or fear of infection, which makes others keep their distance from sufferers, making them feel helpless and desperate to withdraw from their environment (Germain et al., 2021; Jankowiak et al., 2020; van Beugen et al., 2017). Sufferers can internalize the stigma, leading to feelings of guilt

and fear of being judged by others (Jankowiak et al., 2020). The impact of the stigma faced by those with psoriasis and atopic dermatitis means it can be a stressor (van Beugen et al., 2017).

Based on previous studies, it is known that stressors can trigger and even worsen the condition of those with psoriasis or atopic dermatitis (Kwon et al., 2018; Senra & Wollenberg, 2014; Wardhana, 2012). If stressful conditions are not handled appropriately, sufferers' quality of life can be affected (Jankowiak et al., 2020). Reduced quality of life is not only caused by stigma and the nature of the disease, but also by several other factors. A worsened quality of life can begin with a diagnosis, as sufferers must face and accept ones related to their disease (Mento et al., 2020). In addition, the treatment process, which lasts a lifetime, requires extra care (Bostoan et al., 2012). Reduced quality of life in sufferers is characterized by poorer sleep quality due to itching sensations, joint pain, and the risk of obesity (Egeberg et al., 2020). As a result, sufferers are vulnerable to loneliness, and lower self-esteem increases the risk of experiencing psychological disorders such as depression, anxiety, and suicidal tendencies (Kwon et al., 2018; Senra & Wollenberg, 2014; Wardhana, 2012).

In light of the above problems, the treatment process for those with skin diseases such as psoriasis and atopic dermatitis not only involves dermatologists, but also requires collaboration from psychiatrists or psychologists in the early detection or screening of psychological disorders (Roberts et al., 2020) such as depression, anxiety, and stress. The benefit of screening is that it can immediately provide prevention or psychological intervention to reduce symptoms or comorbidities (Roberts et al., 2020).

An instrument often used for the early detection of psychological disorders is the Depression Anxiety Stress Scale (DASS), developed by Lovibond and Lovibond in 1995 (Lovibond &

Lovibond, 1995). The scale initially included 42 items that measured three dimensions, namely depression (D), anxiety (A), and stress (S). Lovibond and Lovibond (1995) then developed a shortened version with 21 items (DASS-21) to save time when completing the process. This scale is often used to detect depression, anxiety, and stress in individuals diagnosed with such disorders (Lovibond & Lovibond, 1995). Advantages of DASS-21 include the fact that it is publicly accessible (free of charge), relatively short and its use is relatively easy in some situations as it is not time-consuming (Bottesi et al., 2015). Another advantage is that it has a clearer latent factor structure compared to the 42-item version (Henry & Crawford, 2005). This study is therefore based on DASS-21.

Several studies on the psychological health of individuals with psychodermatological problems have been conducted using DASS-21. The results of these show that DASS-21 can be used as screening for psychological disorders, as indicated by the findings on the risk of such disorders, such as depression and anxiety (Clarke et al., 2020; Pezirkianidis et al., 2018; Picchianti Diamanti et al., 2020; Soliman, 2021). In Indonesia, psychometric evaluation of DASS-21 has been made by Kinanthi et al., (2020) through the use of validity and reliability tests.

Kinanthi et al. (2020) conducted a construct validity test by correlating the DASS-21 with the gratitude scale, while their reliability test used Cronbach's alpha. The results of the validity testing based on discriminant testing showed a negative correlation between the gratitude scale and the anxiety and stress subscales of DASS-21. However, the depression subscale showed a positive correlation. The results of the DASS-21 reliability test had values ranging from .77 to .90 (Kinanthi et al., 2020). In addition to Kinanthi et al. (2020), psychometric evaluation has been conducted by Muttaqin and Ripa (2021), whose study showed

that DASS-21 has good validity and reliability after factor analysis, composite reliability, and measurement invariance were conducted (Muttaqin & Ripa, 2021).

However, the psychometric evaluation of DASS-21 conducted by Kinanthi et al. (2020) and Muttaqin and Ripa (2021) did not evaluate DASS-21 in clinical populations, although several studies outside Indonesia show that it can be used in clinical populations on the basis of good validity and reliability values (Antony et al., 1998; Bottesi et al., 2015; Ng et al., 2007; Page et al., 2007; Wood et al., 2010; Yildirim et al., 2018). For example, a study conducted in Turkey with a clinical population yielded good construct validity by achieving a model fit with the DASS-21 structure when Exploratory Factor Analysis (EFA) was conducted, together with strong alpha coefficient reliability values of .87, .85, and .81 for the depression, anxiety and stress subscales respectively (Yildirim et al., 2018). To the best of the researcher's knowledge, DASS-21 has not been psychometrically evaluated in relation to those with psychodermatological problems. Therefore, this study is based on a clinical population, namely individuals with psychodermatological condition, meaning that the results on the use of DASS will not only refer to the general population.

This research is important because several studies in Indonesia have used DASS-21 as an instrument to measure psychological conditions before conducting psychological interventions (Bakara et al., 2015; Hidayati et al., 2021; Malfasari & Erlin, 2017; Nurjanah, 2018; Priyanti et al., 2014; Wahyuliarmy, 2016). In addition, the results of several studies that conducted factor analysis of DASS-21 showed a factor structure that differed from Lovibond's original one. For example, González-Rivera et al. (2020) research indicated a low model fit between the data and the structure of DASS-21. Other findings show that the bifactor model, by adding a new factor termed "psycho-

logical distress," produces the best model fit value compared to Lovibond's original model (Bottesi et al., 2015; Henry & Crawford, 2005; Kia-Keating et al., 2018; Muttaqin & Ripa, 2021).

Differences in factor structure can affect the ability of the scale to identify symptoms and can raise questions of accuracy, especially when used in the clinical realm, as it will have an impact on intervention design and clinical decision-making (Paola, 2020). Therefore, in this study a psychometric evaluation of DASS-21 needs to be made because it is expected to be a reference instrument used in the clinical realm as is an instrument that can help individuals receive treatment according to their needs (Primasari & Hidayat, 2016). In addition, evidence of the validity and reliability of DASS-21 is required to assist in appropriate diagnosis, which has implications for the interventions conducted on patients (González-Rivera et al., 2020).

This study aims to conduct a psychometric evaluation of psychodermatological patients. The psychometric testing includes validity and reliability tests; the validity test is based on the internal structure and relationship with other variables (concurrent validity). Testing the source of internal structure validity is undertaken to evaluate the extent to which the internal structure components are in accordance with the predetermined constructs by conducting CFA analysis (AERA et al., 2014). To complement the information related to validity testing on DASS-21 in Indonesia, concurrent validity testing was also conducted in order to predict score of DASS-21 with other measuring instruments that measure the same construct and have already been validated, which are referred to as criteria and employed at the same time (McCoach et al., 2013). Concurrent validity testing was conducted by correlating the results of each DASS-21 dimension with other scales, namely GAD-7, PHQ-9, and PSS-10, while reliability testing was conducted using

composite reliability coefficients, based on the structural equation approach and factor analysis (Widhiarso & Ravand, 2014).

## Methods

The study aims to test the reliability and validity of DASS-21 for people with psoriasis and atopic dermatitis. The participants were individuals suffering from the two conditions, as diagnosed by a doctor, with an age range of 18-54. The criteria for the selection of the population was based on previous studies that found that those with psoriasis and atopic dermatitis have a risk of experiencing depression, anxiety, and stress (Golpour et al., 2012; Kim et al., 2015; Leibovici et al., 2010; Schut et al., 2013; Wardhana, 2012). In addition, the selection of the age range was based on a report from Kemenkes RI (2019) stating that the prevalence of mental disorders in Indonesia tends to increase with age, starting from the age of >15 years.

Non-probability sampling was used with a purposive sampling technique because the characteristics of the study subjects had been already determined (Coolican, 2018). The research data was collected by disseminating research information through social media. Participants who met the research criteria and were willing to participate in the study were given a questionnaire link and a statement of willingness (informed consent). Those who agreed to participate were directed to the research questionnaire for voluntary completion online via Google Forms. The participants totalled 242; 152 with psoriasis and 90 with atopic dermatitis. With regard to the duration of the conditions, 215 participants had had psoriasis for > 6 months, and 27 had had psoriasis and atopic dermatitis for < 6 months. The age range was 18-54 years ( $M = 26.01$ ). 229 female participants took part in the study, with 13 males. Approval to conduct the research was obtained from the university and it

was performed under the supervision of a lecturer.

Four measuring instruments were used, namely the Depression Anxiety Stress Scale (DASS)-21, the Patient Health Questionnaire (PHQ)-9, Generalized Anxiety Disorder (GAD-7), and Perceived Stress Scale (PSS). They were employed in the concurrent analysis, in which DASS-21 was correlated with measuring instruments that have the same scale.

#### *Depression Anxiety Stress Scale (DASS)-21*

The DASS-21 instrument used in the study was translated into Indonesian by Onie et al. (2020). The McDonalds Omega ( $\Omega$ ) DASS-21 reliability test results obtained by Onie et al. (2020) were .910 for the full DASS-21 scale; .794 for the depression subscale; and with reliability values for the anxiety and stress subscales of .785 and .800. The Indonesian version of DASS-21 consists of 21 items with three dimensions: depression, anxiety, and stress. Each of these has seven items with four available responses in the form of a four-point Likert scale, from 0 to 3 (0= "Does not apply at all", 1= "Never", 2= "Sometimes" and 3= "Quite often"). The questionnaire was completed by selecting the response that best described the participant during the previous week. The DASS-21 scale can be used in the age range of 14 to the elderly (Lovibond & Lovibond, 1995).

#### *Patient Health Questionnaire (PHQ-9)*

This measurement tool is a questionnaire containing nine question items designed to establish the level of individual depression with four response options, namely "not at all", "several days", "more than a week," and "almost every day" (Kroenke et al., 2001). PHQ-9 is based on DSM-IV criteria so that the results can be categorized from mild to severe depression, with a final score range of 0-27 (Urtasun et al., 2019). This study used the

Indonesian version of PHQ-9, which was tested for validity and reliability by Onie et al. (2020) with a McDonalds Omega ( $\Omega$ ) reliability value of .80 and strong predictive validity results between it and the Hopkins Self Checklist 25 (HSCL) questionnaire (Onie et al., 2020).

#### *Generalized Anxiety Disorder Scale (GAD-7)*

This measure is used to screen for a generalized anxiety disorder (GAD) in primary health care (Kroenke et al., 2007). Patients are instructed to complete seven items with four response categories, "not at all", "a few days", "more than a week" and "almost every day", based on complaints felt over the previous two weeks (Zhong et al., 2015). The results of GAD-7 will indicate the level of anxiety: low anxiety with a score range of 0 to 5; moderate anxiety with 6 to 10; and severe anxiety with scores >15 (Spitzer et al., 2006). This study used the Indonesian version of GAD-7, which passed the McDonalds Omega ( $\Omega$ ) validity and reliability test with a value of .80 for reliability, and with the predictive validity test showing a strong correlation between GAD-7 and the Hopkins Self Checklist 25 (HSCL) scale (Onie et al., 2020).

#### *Perceived Stress Scale (PSS)*

This measuring instrument was developed by Cohen, Kamarck, and Mermelstein to measure individual stress when facing situations that are considered stressful (Cohen et al., 1983). Patients answer 10 question items based on their condition over a period of one month by choosing one of five answer responses, namely "never", "almost never", "sometimes", "often" and "very often" (Pumami et al., 2019). The PSS results will indicate a person's stress level, with three classifications: a final score within the range of 0-13 showing an individual in the mild stress category; scores of 14-26 indicating moderate stress; and severe stress shown with a score between 27 and 40 (Cohen et

al., 1983). This study used the perceived stress scale (PSS) tested psychometrically by Purnami et al. (2019), with Cronbach's alpha reliability results above .07 (Purnami et al., 2019).

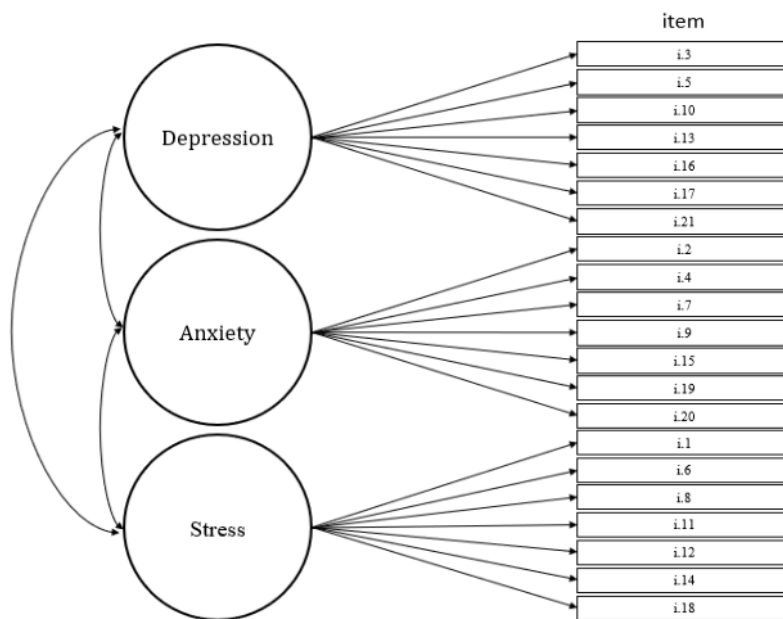
The analysis procedure involved the conducting of an internal consistency reliability test using composite reliability. The composite reliability estimate was based on the fact that the estimate has higher accuracy than the alpha coefficient and can be made out in the structural equation modeling approach with confirmatory factor analysis (Widhiarso & Ravand, 2014). According to Hair et al, the recommended value for the reliability coefficient should be >.7 (Hair Jr et al., 2009). Furthermore, the internal structure validity test was analyzed using the confirmatory factor analysis (CFA) method. This is an analytical

technique through which researchers can obtain the specific results of the number of factors and the relationship between dimensions or traits and factor loading (Brown, 2015).

This study tested the Indonesian version of DASS-21 based on the factor structure model of the original version of Lovibond and Lovibond (1995), based on participants with psychodermatological diseases, namely psoriasis and atopic dermatitis (Figure 1).

The CFA analysis was assisted by the R software program version 4.2.0 with the lavaan package, used to analyze the data previously obtained. Weighted least square mean and variance corrected (WLSMV) was used to estimate the model, but in the R program WLSMV is similar

**Figure 1**  
DASS-21 Model Test Results



to diagonally weighted least squares (DWLS). The WLSMV estimation method was used because DASS-21 employs an ordinal scale, meaning this method is preferable (Vinet & Zhedanov, 2011). Moreover, WLSMV also produces accurate scores on statistical calculations, parameter estimates, and standard errors of the CFA model, with several conditions such as the number of samples with a range between 100 and 1000, abnormal data, and the complexity of the model (Vinet & Zhedanov, 2011). In this study, the model fit test was measured using the criteria recommended by Hair Jr. et al. (2009), namely  $\geq .95$  for the comparative fit index (CFI) and Tucker-Lewis index (TLI);  $< .08$  for the root mean square error of approximation (RMSEA); and  $\leq .08$  for the standardized root mean square residual (SRMR). In addition to evaluating the value of model fit, the factor loading value or factor loading of the items on DASS-21 were also considered. The factor load value can determine the contribution of each item to the representation of the latent variables. The limitation value on acceptable factor loading is at least  $> .4$  using standardized analysis (Stevens, 2009).

The second validity test was through validity based on relationships with other variables (concurrent validity) through correlation analysis. DASS-21 has three dimensions, namely depression, anxiety, and stress. In this regard, the results of each DASS-21 dimension will be correlated with measuring instruments that test the same construct. The DASS-21 depression dimension will be correlated with the patient health questionnaire (PHQ)-9; the anxiety dimension with the generalized anxiety disorder scale (GAD-7); and the stress dimension with the perceived stress scale (PSS).

## Results

In this research, 242 respondents were identified who fitted the research criteria, namely

those with psoriasis and/or atopic dermatitis diagnosed by a doctor. The results of the DASS-21 reliability test with composite reliability resulted in reliability values shown in Table 1.

From Table 1, it can be seen that the overall DASS-21 results produced a value of .876. The reliability results in each dimension, namely depression, anxiety, and stress, were .923, .850, and .906 respectively. The DASS-21 reliability test results meet the recommended value according to Hair et al (2009) of above  $> .7$ . In addition, the validity test of the model fit test analysis with CFA using the R program can be seen in Table 2.

Based on the confirmatory factor analysis, the RMSEA score is .076, with .961 for CFI, .955 for TLI, and .065 for SRMR. These results show that there is a model fit because they meet the Hair's et al. (2009) criteria, namely,  $< .08$  for RMSEA,  $\geq .95$  for CFI and TLI, and  $\leq .08$  for SRMR. In addition, the factor load or factor loading was analyzed. Through the factor loading data, the contribution value of each item to the latent variable can be seen. The factor loading values of the dimensions of depression, anxiety, and stress on DASS-21 are shown in Table 3.

Based on Table 3, the cut-off value on acceptable factor loadings is at least  $> .4$  using standardized analysis (Stevens, 2009). When referring to the standard  $> .4$ , the 21 DASS-21 items can reflect the latent variables of depression, anxiety, and stress.

The next test was of the concurrent validity of the DASS-21 with the PHQ-9, GAD-7, and PSS measuring instruments (Table 4). DASS-21 employs an ordinal scale, so in testing concurrent validity it is more appropriate to use Spearman correlation analysis (Urbina, 2014). Table 5 shows the results of the correlation analysis between the DASS-21 dimensions and the PHQ-9, GAD-7, and PSS measures.



**Table 1***DASS-21 Reliability Scores*

| 14          | Number of items | Reliability |
|-------------|-----------------|-------------|
| DASS-21 (D) | 7               | .923        |
| DASS-21 (A) | 7               | .850        |
| DASS-21 (S) | 7               | .906        |

Notes: D = Depression; A = Anxiety; S = Stress

**Table 2***DASS-21 Model Fit Scores*

|         | RMSEA | CFI  | TLI  | SRMR |
|---------|-------|------|------|------|
| N = 242 | .076  | .961 | .955 | .065 |

**Table 3***DASS-21 Factor Loading Results*

| Factor          | Item    | Estimate | Remarks  |
|-----------------|---------|----------|----------|
| 6<br>Depression | Item 3  | .753     | Accepted |
|                 | Item 5  | .659     | Accepted |
|                 | Item 10 | .827     | Accepted |
|                 | Item 13 | .860     | Accepted |
|                 | Item 16 | .732     | Accepted |
|                 | Item 17 | .828     | Accepted |
|                 | Item 21 | .888     | Accepted |
| Anxiety         | Item 2  | .440     | Accepted |
|                 | Item 4  | .651     | Accepted |
|                 | Item 7  | .461     | Accepted |
|                 | Item 9  | .776     | Accepted |
|                 | Item 15 | .851     | Accepted |
|                 | Item 19 | .591     | Accepted |
|                 | Item 20 | .855     | Accepted |
| 6<br>Stress     | Item 1  | .536     | Accepted |
|                 | Item 6  | .709     | Accepted |
|                 | Item 8  | .852     | Accepted |
|                 | Item 11 | .881     | Accepted |
|                 | Item 12 | .798     | Accepted |
|                 | Item 14 | .748     | Accepted |
|                 | Item 18 | .779     | Accepted |

**Table 4***Spearman Correlation*

| Variable            | N   | Spearman | P-value |
|---------------------|-----|----------|---------|
| DASS-21 (D) ~ PHQ 9 | 242 | .738     | <.001   |
| DASS-21 (A) ~ GAD 7 | 242 | .652     | <.001   |
| DASS-21 (S) ~ PSS   | 242 | .619     | <.001   |

Notes: D = Depression; A = Anxiety; S = Stress

**Table 5**  
Correlation Value between DASS-21 Dimensions

|             | DASS-21 (D) | DASS-21 (K) | DASS-21 (S) |
|-------------|-------------|-------------|-------------|
| DASS-21 (D) | 1           |             |             |
| DASS-21 (A) | .766        | 1           |             |
| DASS-21 (S) | .865        | .940        | 1           |

Notes: D = Depression; A = Anxiety; S = Stress

The results of the concurrent validity analysis show that DASS-21 has a positive correlation with PHQ-9, GAD-7, and PSS. Furthermore, the study also considered the correlation between the depression, anxiety, and stress dimensions, the results of which can be seen in Table 5.

### Discussion

The study aims to test the validity and reliability of DASS-21. The DASS-21 reliability estimation results show that the instrument has good reliability, in line with Hair's et al (2009) guidelines. The reliability value of each dimension is  $>.7$ . The results correspond to those of several other studies conducted in Indonesia, in that the Indonesian version of DASS-21 has a good reliability value and tends to be consistent with the Indonesian population sample (Kinanth et al, 2020; Muttaqin & Ripa, 2021; Onie et al., 2020).

The reliability value in this study, when compared to that of the English version of DASS-21 and that of translations into other languages (Italian, Malaysian and Turkish), have the same results, namely above  $\geq .8$ . These results indicate that the Indonesian version of DASS-21 can be used in language contexts different from that of original language, namely English (Antony et al, 1998; Bottesi et al., 2015; Henry & Crawford, 2005; Thiyagarajan et al., 2022; Yildirim et al., 2018).

Furthermore, the results of testing the validity of the internal structure through confirmatory

factor analysis demonstrate that DASS-21 is proven to be valid for use as a psychological test tool for measuring depression, anxiety, and stress. This is evidenced by the results of the suitable or fit model, with an RMSEA value of .076, with .961 for CFI, .955 for TLI, and .065 for SRMR. Based on these results, and according to Brown (2015), when the RMSEA and SRMR scores are close to 0, the model being tested is more fit. Likewise, with regard to the CFI value of .961 and that of .955 for TLI, the model is said to be fit when these scores are closer to 1 (Brown, 2015). Similar DASS-21 CFA results have also been obtained for clinical samples (Bottesi et al., 2015; Musa et al., 2007; Randall et al., 2017; Wood et al., 2010). Some of these studies (Bottesi et al., 2015; Henry & Crawford, 2005; Musa et al., 2007; Muttaqin & Ripa, 2021; Tran et al., 2013; Yildirim et al., 2018) show that DASS-21 can be used to measure depression, anxiety and stress.

The DASS-21 factor load results support the factor analysis results. The values of the factor loadings listed in Table 4 provide evidence that DASS-21 items can represent latent variables, namely depression, anxiety, and stress, in accordance with the structure of Lovibond's DASS-21 model for people with psoriasis and atopic dermatitis. The factor load results ranged from .658 to .888 for the depression dimension, from .440 to .855 for the anxiety dimension, and from .536 - .852 for the stress dimension, indicating that the factor load value has met the standards recommended by (Stevens, 2009) of at least  $>.4$

The results of the concurrent validity test also support the psychometric evaluation of DASS-21, showing a strong correlation within a range of .619 to .738. They indicate that individuals who scored high on the depression, anxiety, and stress DASS-21 dimensions tended to score similarly when measured by PHQ-9, GAD-7, and PSS-10. To date, concurrent validity testing on the Indonesian version of the DASS-21 dimensions using GAD-7, PHQ-9, and PSS-10 has only been conducted in this study.

Another finding of this study is the strong correlation value between the DASS-21 dimensions, which is  $>.7$  has the met standards recommended by Coolican (2018). Similar results were also found in several other studies using clinical and non-clinical samples (Bottesi et al., 2015; Henry & Crawford, 2005; Oei et al., 2013; Pezirkianidis et al., 2018). Results of this study support the nature of the DASS-21 scale, which is multidimensional, with correlated dimensions; that is, each DASS-21 subscale is correlated (Lovibond & Lovibond, 1995). In addition to supporting the theory, these findings align with the model proposed by Clark and Watson (1991), that negative affect can be represented through common features of depression and anxiety symptoms (Clark & Watson, 1991). Therefore, the results of this study strengthen the benefits of the DASS-21 measurement tool, which can be used as

an instrument to measure negative emotions in general (Bottesi et al., 2015; Kia-Keating et al., 2018; Osman et al., 2012).

However, this study has limitations, such as the limited number of participants, so it is hoped that further research will be able to increase this number. In addition, researchers wishing to conduct similar research should use populations other than people with psychodermatological conditions so that the usefulness of DASS-21 can be applied to in a wider clinical population.

## Conclusion

The study aimed to determine the validity and reliability of DASS-21 in individuals suffering from psychodermatological conditions, namely psoriasis and atopic dermatitis. The results show that the Indonesian version of Lovibond's DASS-21 has good reliability. In addition, the results of testing the validity of the structure through factor analysis using CFA produced a model that is in accordance with Lovibond's theoretical model and is supported by items representing each DASS-21 dimension. Other evidence supporting the research is in the form of the concurrent validity results from the correlation tests of each DASS-21 subscale with the PHQ-9, GAD-7, and PSS-10 scales, which produced positive correlation values.[]

## References

- AERA, APA, & NCME. (2014). *Standards for educational and psychological testing: National Council on Measurement in Education*. American Educational Research Association.
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*(2), 176–181. <https://doi.org/10.1037/1040-3590.10.2.176>
- Bakara, D. M., Ibrahim, K., & Sriati, A. (2015). Efek Spiritual Emotional Freedom Technique terhadap cemas dan depresi, sindrom koroner akut. *Jurnal Keperawatan Padjadjaran, 1*(1), 1–8. <https://doi.org/10.24198/jkp.v1i1.51>

- Bostoen, J., Bracke, S., De Keyser, S., & Lambert, J. (2012). An educational programme for patients with psoriasis and atopic dermatitis: A prospective randomized controlled trial. *British Journal of Dermatology*, *167*(5), 1025–1031. <https://doi.org/10.1111/j.1365-2133.2012.11113.x>
- Bottesi, G., Ghisi, M., Altoè, G., Conforti, E., Melli, G., & Sica, C. (2015). The Italian version of the Depression Anxiety Stress Scales-21: Factor structure and psychometric properties on community and clinical samples. *Comprehensive Psychiatry*, *60*, 170–181. <https://doi.org/10.1016/j.comppsy.2015.04.005>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford Press.
- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, *100*(3), 316–336. <https://doi.org/10.1037/0021-843X.100.3.316>
- Clarke, E. N., Thompson, A. R., & Norman, P. (2020). Depression in people with skin conditions: The effects of disgust and self-compassion. *British Journal of Health Psychology*, *25*(3), 540–557. <https://doi.org/10.1111/bjhp.12421>
- 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>
- Coolican, H. (2018). *Research methods and statistics in psychology*. Routledge. <https://doi.org/10.4324/9781315201009>
- Egeberg, A., Griffiths, C. E. M., Williams, H. C., Andersen, Y. M. F., & Thyssen, J. P. (2020). Clinical characteristics, symptoms and burden of psoriasis and atopic dermatitis in adults. *British Journal of Dermatology*, *183*(1), 128–138. <https://doi.org/10.1111/bjd.18622>
- Germain, N., Augustin, M., François, C., Legau, K., Bogoeva, N., Desroches, M., Toumi, M., & Sommer, R. (2021). Stigma in visible skin diseases – a literature review and development of a conceptual model. *Journal of the European Academy of Dermatology and Venereology*, *35*(7), 1493–1504. <https://doi.org/10.1111/jdv.17110>
- Golpour, M., Hosseini, S. H., Khademloo, M., Ghasemi, M., Ebadi, A., Koohkan, F., & Shahmohammadi, S. (2012). Depression and anxiety disorders among patients with Psoriasis: A hospital-based case-control study. *Dermatology Research and Practice*, *2012*, 1–5. <https://doi.org/10.1155/2012/381905>
- González-Rivera, J. A., Pagán-Torres, O. M., & Pérez-Torres, E. M. (2020). Depression, Anxiety and Stress Scales (DASS-21): Construct validity problem in hispanics. *European Journal of Investigation in Health, Psychology and Education*, *10*(1), 375–389. <https://doi.org/10.3390/ejihpe10010028>
- Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis* (7th ed.). Prentice Hall International.
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227–239. <https://doi.org/10.1348/014466505X29657>
- Hidayati, R. W., Susilowati, L., & Utami, K. D. (2021). Pengaruh Terapi Hypnofivesic terhadap depresi, cemas, dan stres mahasiswa dalam menjalani proses belajar mengajar daring selama pandemi COVID-19. *Jurnal Kesehatan Mesencephalon*, *7*(1), 63–68. <https://doi.org/10.36053/mesencephalon.v7i1.253>
- Jankowiak, B., Kowalewska, B., Krajewska-Kułak, E., & Khvorik, D. F. (2020). Stigmatization and

- quality of life in patients with Psoriasis. *Dermatology and Therapy*, 10(2), 285–296.  
<https://doi.org/10.1007/s13555-020-00363-1>
- Kemendes RI. (2019). *Situasi kesehatan jiwa di Indonesia*. Pusat Data dan Informasi Kementerian Kesehatan Republik Indonesia.  
<https://pusdatin.kemkes.go.id/article/view/20031100001/situasi-kesehatan-jiwa-di-indonesia.html>
- Kia-Keating, M., No, U., Moore, S., Furlong, M. J., Liu, S., & You, S. (2018). Structural validity of the Depression, Anxiety, and Stress Scales-21 adapted for U.S. undergraduates. *Emerging Adulthood*, 6(6), 434–440. <https://doi.org/10.1177/2167696817745407>
- Kim, S.-H., Hur, J., Jang, J.-Y., Park, H.-S., Hong, C. H., Son, S. J., & Chang, K. J. (2015). Psychological distress in young adult males with atopic dermatitis. *Medicine*, 94(23), e949.  
<https://doi.org/10.1097/MD.0000000000000949>
- Kinanth, M. R., Listiyandini, R. A., Amaliah, U. S., & Ramadhanty, R. (2020). Adaptasi DASS 21 versi Indonesia pada populasi mahasiswa di Jakarta. *Seminar Nasional Psikologi dan Call for Paper UMB Yogyakarta 2020*.
- Koo, J., & Lebwohl, A. (2001). Psycho dermatology: The mind and skin connection. *American Family Physician*, 64(11), 1873–1878. <http://www.ncbi.nlm.nih.gov/pubmed/11764865>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613.  
<https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Kroenke, K., Spitzer, R. L., Williams, J. B. W., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine*, 146(5), 317–325. <https://doi.org/10.7326/0003-4819-146-5-200703060-00004>
- Kwon, C. W., Fried, R. G., Nousari, Y., Ritchlin, C., & Tausk, F. (2018). Psoriasis: Psychosomatic, somatopsychic, or both? *Clinics in Dermatology*, 36(6), 698–703.  
<https://doi.org/10.1016/j.clindermatol.2018.08.009>
- Leibovici, V., Canetti, L., Yahalomi, S., Cooper-Kazaz, R., Bonne, O., Ingber, A., & Bachar, E. (2010). Well being, psychopathology and coping strategies in psoriasis compared with atopic dermatitis: a controlled study. *Journal of the European Academy of Dermatology and Venereology*, 24(8), 897–903. <https://doi.org/10.1111/j.1468-3083.2009.03542.x>
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation.
- Malfasari, E., & Erlin, F. (2017). Terapi Thought Stopping (TS) untuk ansietas mahasiswa praktik kLinik di rumah sakit. *Jurnal Endurance*, 2(3), 444–450.  
<https://doi.org/10.22216/jen.v2i3.2460>
- McCoach, D. B., Gable, R. K., & Madura, J. P. (2013). *Instrument development in the affective domain*. Springer New York. <https://doi.org/10.1007/978-1-4614-7135-6>
- Mento, C., Rizzo, A., Muscatello, M. R. A., Zoccali, R. A., & Bruno, A. (2020). Negative emotions in skin disorders: A systematic review. *International Journal of Psychological Research*, 13(1), 71–86.  
<https://doi.org/10.21500/20112084.4078>
- Musa, R., Fadzil, M. A., & Zain, Z. (2007). Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). *ASEAN Journal of Psychiatry*, 8(2), 82–89.

- Muttaqin, D., & Ripa, S. (2021). Psychometric properties of the Indonesian version of the Depression Anxiety Stress Scale: Factor structure, reliability, gender, and age measurement invariance. *Psikohumaniora: Jurnal Penelitian Psikologi*, 6(1), 61–76. <https://doi.org/10.21580/pjpp.v6i1.7815>
- Ng, F., Trauer, T., Dodd, S., Callaly, T., Campbell, S., & Berk, M. (2007). The validity of the 21-item version of the Depression Anxiety Stress Scales as a routine clinical outcome measure. *Acta Neuropsychiatrica*, 19(5), 304–310. <https://doi.org/10.1111/j.1601-5215.2007.00217.x>
- Nurjanah, D. E. (2018). Pengaruh terapi kognitif terhadap tingkat kecemasan pada pasien gagal ginjal kronik yang menjalani hemodialisa. *Jurnal Media Kesehatan*, 7(1), 19–25. <https://doi.org/10.33088/jmk.v7i1.218>
- Oei, T. P. S., Sawang, S., Goh, Y. W., & Mukhtar, F. (2013). Using the Depression Anxiety Stress Scale 21 (DASS-21) across cultures. *International Journal of Psychology*, 48(6), 1018–1029. <https://doi.org/10.1080/00207594.2012.755535>
- Onie, S., Kirana, A. C., Adisya, A., Mustika, N. P., Adesla, V., & Ibrahim, R. (2020). *Assessing the predictive validity and reliability of the DASS-21*. PsyArXiv Preprint. <https://doi.org/10.31234/osf.io/eqcm9>
- Osman, A., Wong, J. L., Bagge, C. L., Freedenthal, S., Gutierrez, P. M., & Lozano, G. (2012). The Depression Anxiety Stress Scales-21 (DASS-21): Further examination of dimensions, scale reliability, and correlates. *Journal of Clinical Psychology*, 68(12), 1322–1338. <https://doi.org/10.1002/jclp.21908>
- Page, A. C., Hooke, G. R., & Morrison, D. L. (2007). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in depressed clinical samples. *British Journal of Clinical Psychology*, 46(3), 283–297. <https://doi.org/10.1348/014466506X158996>
- Paola, G. (2020). The importance of using valid and reliable measures in psychology and psychiatry. *Psychology and Psychiatry*, 9(4), 24–25.
- Pezirkianidis, C., Karakasidou, E., Lakioti, A., Stalikas, A., & Galanakis, M. (2018). Psychometric properties of the Depression, Anxiety, Stress Scales-21 (DASS-21) in a Greek sample. *Psychology*, 09(15), 2933–2950. <https://doi.org/10.4236/psych.2018.915170>
- Picchianti Diamanti, A., Cattaruzza, M. S., Di Rosa, R., Del Porto, F., Salemi, S., Sorgi, M. L., Martin Martin, L. S., Rai, A., Iacono, D., Sesti, G., Alessandri, G., & Laganà, B. (2020). Psychological distress in patients with autoimmune arthritis during the COVID-19 induced lockdown in Italy. *Microorganisms*, 8(11), 1818. <https://doi.org/10.3390/microorganisms8111818>
- Primasari, I., & Hidayat, R. (2016). General Health Questionnaire-12 (GHQ-12) sebagai instrumen skrining gangguan penyesuaian. *Jurnal Psikologi*, 43(2), 121–134. <https://doi.org/10.22146/jpsi.9155>
- Priyanti, D., Saputra, D., Haryanto, H. C., & Ghozali, G. (2014). Efektivitas intervensi psikoterapi Ilham terhadap tingkat stres yang dialami mahasiswa di Universitas Paramadina. *Inquiry: Jurnal Ilmiah Psikologi*, 12(01), 67–86. <https://doi.org/10.51353/inquiry.v12i01.504>
- Purnami, C. T., Suwondo, A., Sawitri, D. R., Sumarni, S., Hadisaputro, S., & Lazuardi, L. (2019). Psychometric measurement of perceived stress among midwives at primary health care Province of Central Java Indonesia. *Indian Journal of Public Health Research & Development*, 10(3), 804–809. <https://doi.org/10.5958/0976-5506.2019.00600.4>
- Randall, D., Thomas, M., Whiting, D., & McGrath, A. (2017). Depression Anxiety Stress Scales (DASS-21): Factor structure in traumatic brain injury rehabilitation. *Journal of Head Trauma Rehabilitation*, 32(2), 134–144. <https://doi.org/10.1097/HTR.0000000000000250>

- Roberts, J. E., Smith, A. M., Wilkerson, A. H., Chandra, A., Patel, V., Quadri, S. S. A., Mann, J. R., Brodell, R. T., & Nahar, V. K. (2020). "Psychodermatology" knowledge, attitudes, and practice among health care professionals. *Archives of Dermatological Research*, 312(8), 545–558. <https://doi.org/10.1007/s00403-020-02050-9>
- Schut, C., Weik, U., Tews, N., Gieler, U., Deinzer, R., & Kupfer, J. (2013). Psychophysiological effects of stress management in patients with atopic dermatitis: A randomized controlled trial. *Acta Dermato Venereologica*, 93(1), 57–61. <https://doi.org/10.2340/00015555-1415>
- Senra, M. S., & Wollenberg, A. (2014). Psychodermatological aspects of atopic dermatitis. *British Journal of Dermatology*, 170, 38–43. <https://doi.org/10.1111/bjd.13084>
- Soliman, M. (2021). Depressive, anxiety, stress, and insomnia symptoms in patients with psoriasis: A cross-sectional study. *Advances in Dermatology and Allergology*, 38(3), 510–519. <https://doi.org/10.5114/ada.2020.98726>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, 166(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). Routledge.
- Thiyagarajan, A., James, T. G., & Marzo, R. R. (2022). Psychometric properties of the 21-item Depression, Anxiety, and Stress Scale (DASS-21) among Malaysians during COVID-19: A methodological study. *Humanities and Social Sciences Communications*, 9, 220. <https://doi.org/10.1057/s41599-022-01229-x>
- Tran, T. D., Tran, T., & Fisher, J. (2013). Validation of the Depression Anxiety Stress Scales (DASS) 21 as a screening instrument for depression and anxiety in a rural community-based cohort of northern Vietnamese women. *BMC Psychiatry*, 13, 24. <https://doi.org/10.1186/1471-244X-13-24>
- Urbina, S. (2014). *Essentials of psychological testing*. John Wiley & Sons.
- Urtasun, M., Daray, F. M., Teti, G. L., Coppolillo, F., Herlax, G., Saba, G., Rubinstein, A., Araya, R., & Irazola, V. (2019). Validation and calibration of the Patient Health Questionnaire (PHQ-9) in Argentina. *BMC Psychiatry*, 19, 291. <https://doi.org/10.1186/s12888-019-2262-9>
- van Beugen, S., van Middendorp, H., Ferwerda, M., Smit, J. V., Zeeuwen-Franssen, M. E. J., Kroft, E. B. M., de Jong, E. M. G. J., Donders, A. R. T., van de Kerkhof, P. C. M., & Evers, A. W. M. (2017). Predictors of perceived stigmatization in patients with psoriasis. *British Journal of Dermatology*, 176(3), 687–694. <https://doi.org/10.1111/bjd.14875>
- Vinet, L., & Zhedanov, A. (2011). A 'missing' family of classical orthogonal polynomials. *Journal of Physics A: Mathematical and Theoretical*, 44(8), 085201. <https://doi.org/10.1088/1751-8113/44/8/085201>
- Wahyuliarmy, A. I. (2016). Efektifitas SEFT (Spiritual Emotional Freedom Technique) terhadap sindrom ketergantungan obat pada lansia. *Psikoislamika: Jurnal Psikologi Dan Psikologi Islam*, 13(1), 51–58. <https://doi.org/10.18860/psi.v13i1.6409>
- Wardhana, I. M. (2012). Stres psikologis pada pasien psoriasis: Suatu kajian psikoneuroimunologi. *Media Dermato-Venereologica Indonesiana*, 39(1), 10–14.
- Widhiarso, W., & Ravand, H. (2014). Estimating reliability coefficient for multidimensional measures: A pedagogical illustration. *Review of Psychology*, 21(2), 111–121.
- Wood, B. M., Nicholas, M. K., Blyth, F., Asghari, A., & Gibson, S. (2010). The utility of the short version

of the Depression Anxiety Stress Scales (DASS-21) in elderly patients with persistent pain: Does age make a difference? *Pain Medicine*, 11(12), 1780–1790.  
<https://doi.org/10.1111/j.1526-4637.2010.01005.x>

Yıldırım, A., Boysan, M., & Kefeli, M. C. (2018). Psychometric properties of the Turkish version of the Depression Anxiety Stress Scale-21 (DASS-21). *British Journal of Guidance & Counselling*, 46(5), 582–595. <https://doi.org/10.1080/03069885.2018.1442558>

Zhong, Q.-Y., Gelaye, B., Zaslavsky, A. M., Fann, J. R., Rondon, M. B., Sánchez, S. E., & Williams, M. A. (2015). Diagnostic validity of the Generalized Anxiety Disorder - 7 (GAD-7) among pregnant women. *Plos One*, 10(4), e0125096. <https://doi.org/10.1371/journal.pone.0125096>



This page has been intentionally left blank.

# Testing the validity and reliability of the Depression Anxiety Stress Scale (DASS)-21 instrument for individuals with Psychodermatology

## ORIGINALITY REPORT

15%

SIMILARITY INDEX

13%

INTERNET SOURCES

11%

PUBLICATIONS

0%

STUDENT PAPERS

## PRIMARY SOURCES

|   |  |    |
|---|--|----|
| 1 | <a href="http://www.sciedupress.com">www.sciedupress.com</a><br>Internet Source  | 1% |
| 2 | <a href="http://text-id.123dok.com">text-id.123dok.com</a><br>Internet Source  | 1% |
| 3 | S. Alfonsson, E. Wallin, P. Maathz. "Factor structure and validity of the Depression, Anxiety and Stress Scale-21 in Swedish translation", Journal of Psychiatric and Mental Health Nursing, 2017<br>Publication   | 1% |
| 4 | <a href="http://repository.ubaya.ac.id">repository.ubaya.ac.id</a><br>Internet Source  | 1% |
| 5 | Ricardo Sanmartín, Raquel Suria-Martínez, María de Lourdes López-López, María Vicent et al. "Validation, factorial invariance, and latent mean differences across sex of the Depression, Anxiety, and Stress Scales (DASS-21) in Ecuadorian university sample.", | 1% |

# Professional Psychology: Research and Practice, 2022

Publication

---

|    |  |      |
|----|--|------|
| 6  | <a href="https://scholar.sun.ac.za">scholar.sun.ac.za</a><br>Internet Source   | 1 %  |
| 7  | <a href="https://openresearch-repository.anu.edu.au">openresearch-repository.anu.edu.au</a><br>Internet Source   | 1 %  |
| 8  | Teofil Ciobanu, Fabrice Brodard, Jean-Philippe Antonietti, Philippe A. Genoud, Catherine Brandner. "Screening negative affectivity in young adults: Validation and psychometric evaluation of the French version of the Depression Anxiety Stress Scales.", Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement, 2018<br>Publication | <1 % |
| 9  | Gioia Bottesi, Marta Ghisi, Ilenia Caggiu, Marco Lauriola. "How is intolerance of uncertainty related to negative affect in individuals with substance use disorders? The role of the inability to control behaviors when experiencing emotional distress", Addictive Behaviors, 2021<br>Publication   | <1 % |
| 10 | <a href="https://espace.curtin.edu.au">espace.curtin.edu.au</a><br>Internet Source   | <1 % |

---

11

[researchbank.acu.edu.au](http://researchbank.acu.edu.au)

Internet Source

&lt;1 %

12

Pauline Rasset, Jessica Mange, Benoît Montalan, Sarah E. Stutterheim. "Towards a better understanding of the social stigma of facial difference", *Body Image*, 2022

Publication

&lt;1 %

13

[mail.palarch.nl](http://mail.palarch.nl)

Internet Source

&lt;1 %

14

Albert Feliu-Soler, Joaquim Soler, Juan V. Luciano, Ausiàs Cebolla, Matilde Elices, Marcelo Demarzo, Javier García-Campayo. "Psychometric Properties of the Spanish Version of the Nonattachment Scale (NAS) and Its Relationship with Mindfulness, Decentering, and Mental Health", *Mindfulness*, 2016

Publication

&lt;1 %

15

Felicity Ng. "The validity of the 21-item version of the Depression Anxiety Stress Scales as a routine clinical outcome measure", *Acta Neuropsychiatrica*, 7/27/2007

Publication

&lt;1 %

16

Luiz Fellipe Dias da ROCHA, José Augusto Evangelho HERNANDEZ, Eliane Mary de Oliveira FALCONE. "Latent structure evidence of the Depression, Anxiety and Stress Scales -

&lt;1 %

# Short Form", Estudos de Psicologia (Campinas), 2021

Publication

---

|    |  |      |
|----|--|------|
| 17 | <a href="https://core.ac.uk">core.ac.uk</a><br>Internet Source   | <1 % |
| 18 | <a href="https://eprints.utas.edu.au">eprints.utas.edu.au</a><br>Internet Source   | <1 % |
| 19 | <a href="https://journal.ugm.ac.id">journal.ugm.ac.id</a><br>Internet Source   | <1 % |
| 20 | <a href="https://eprints.tiu.edu.iq">eprints.tiu.edu.iq</a><br>Internet Source   | <1 % |
| 21 | <a href="https://ijels.com">ijels.com</a><br>Internet Source   | <1 % |
| 22 | Kui Wang, Hai-Song Shi, Fu-Lei Geng, Lai-Quan Zou et al. "Cross-cultural validation of the Depression Anxiety Stress Scale-21 in China.", <i>Psychological Assessment</i> , 2016<br>Publication  | <1 % |
| 23 | <a href="https://brain.unboundmedicine.com">brain.unboundmedicine.com</a><br>Internet Source   | <1 % |
| 24 | Mikaela Law, Paul Jarrett, Michel K. Nieuwoudt, Hannah Holtkamp, Cannon Giglio, Elizabeth Broadbent. "The Effects of Interacting With a Paro Robot After a Stressor in Patients With Psoriasis: A Randomised Pilot Study", <i>Frontiers in Psychology</i> , 2022 | <1 % |

25

Rina S. Fox, Teresa A. Lillis, James Gerhart, Michael Hoerger, Paul Duberstein. "Multiple Group Confirmatory Factor Analysis of the DASS-21 Depression and Anxiety Scales", *Psychological Reports*, 2017

Publication

---

<1 %

26

Tosin Tunrayo Olonisakin, Alphonso Yarseah, Sulaiman Olanrewaju Adebayo, Olasupo Augustine Ijabadeniyi. "Correlates of Psychological Distress among Liberian Migrants in Nigeria", *Smith College Studies in Social Work*, 2022

Publication

---

<1 %

27

[journal.uad.ac.id](http://journal.uad.ac.id)  
Internet Source

---

<1 %

28

[www.bumc.bu.edu](http://www.bumc.bu.edu)  
Internet Source

---

<1 %

29

Colin R. Martin, Adrian Bonner, Alexi Brook, Claire Luscombe. "Factor structure and use of the Hospital Anxiety and Depression Scale in the homeless and socially marginalized", *Psychology, Health & Medicine*, 2006

Publication

---

<1 %

30

[dokumen.pub](http://dokumen.pub)  
Internet Source

---

<1 %

31

M C Mitchell, N R Burns, D S Dorstyn.  
"Screening for depression and anxiety in  
spinal cord injury with DASS-21", Spinal Cord,  
2007

Publication

<1 %

32

Muna Al-Kalbani, Samir Al-Adawi, Widad  
Alshekaili, Muna Alshekaili, Walid Hassan.  
"Psychometric Properties of the Depression,  
Anxiety, Stress Scales-21 (DASS-21) in a  
Sample of Health Care Workers in Oman",  
Journal of Affective Disorders Reports, 2022

Publication

<1 %

33

Rick Harrington, Donald A. Loffredo. "Insight,  
Rumination, and Self-Reflection as Predictors  
of Well-Being", The Journal of Psychology,  
2010

Publication

<1 %

34

Zhen Tian, Yike Huang, Tao Yue, Jiaqing Zhou,  
Lu Tao, Ling Han, Kexiang Yan, Qiong Huang,  
Zhenghua Zhang, Chunhong Shao. "A Chinese  
cross-sectional study on depression and  
anxiety symptoms in patients with psoriasis  
vulgaris", Psychology, Health & Medicine,  
2018

Publication

<1 %

35

[jdsde.oxfordjournals.org](https://jdsde.oxfordjournals.org)

Internet Source

<1 %

36 journal.ubaya.ac.id <1 %  
Internet Source

---

37 margaretha-fpsi.web.unair.ac.id <1 %  
Internet Source

---

38 revistas.usil.edu.pe <1 %  
Internet Source

---

39 skemman.is <1 %  
Internet Source

---

40 ujcontent.uj.ac.za <1 %  
Internet Source

---

Exclude quotes On

Exclude matches < 10 words

Exclude bibliography On



# Testing the validity and reliability of the Depression Anxiety Stress Scale (DASS)-21 instrument for individuals with Psychodermatology

---

GRADEMARK REPORT

---

FINAL GRADE

**/100**

GENERAL COMMENTS

**Instructor**

---

PAGE 1

---

PAGE 2

---

PAGE 3

---

PAGE 4

---

PAGE 5

---

PAGE 6

---

PAGE 7

---

PAGE 8

---

PAGE 9

---

PAGE 10

---

PAGE 11

---

PAGE 12

---

PAGE 13

---

PAGE 14

---

PAGE 15

---

PAGE 16

---