Trends
in Psychiatry and Psychotherapy

JOURNAL ARTICLE PRE-PROOF
(as accepted)

Trends

Validation of the Brazilian Portuguese version of the Quick Inventory of Depressive Symptomatology and Self-Report (QIDS-SR16) for the Brazilian population

Lucas Bandinelli, Julia Luiza Schäfer, Bruno Kluwe-Schiavon, Rodrigo Grassi-Oliveira

http://dx.doi.org/10.47626/2237-6089-2021-0378

Original submitted Date: 10-Aug-2021

Accepted Date: 06-Jan-2022

Validation of the Brazilian Portuguese version of the Quick Inventory of Depressive Symptomatology and Self-Report (QIDS-SR$_{16}$) for the Brazilian population

Short title: Validation of QIDS-SR$_{16}$ for Brazilian population

Lucas Bandinelli [1,2], Julia Luiza Schäfer[3], Bruno Kluwe-Schiavon[2,4], Rodrigo Grassi-Oliveira[2,5]

[1] Postgraduate Program in Psychology, Pontifical Catholic University of Rio Grande do Sul, Porto Alegre, Brazil
[2] Developmental Cognitive Neuroscience Lab (DCNL), Brain Institute, Pontifical Catholic University of Rio Grande do Sul (PUCRS), Porto Alegre, Brazil
[3]Psychiatry and Behavioral Sciences Postgraduate Program, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
[4] Psychology Research Centre, School of Psychology, University of Minho, Braga, Portugal
[5] Translational Neuropsychiatry Unit, Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

Corresponding authors:
Rodrigo Grassi-Oliveira
Pontifical Catholic University of Rio Grande do Sul
Ipiranga avenue, 6681, block 11, 926
Porto Alegre, 90619-900, Brazil
Phone-number: +55 (51) 3320-3500
e-mail: rodrigo.grassi@pucrs.br

Financial Support:
This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior-Brasil (CAPES)—Finance Code 001

Disclosure:
No conflicts of interest declared concerning the publication of this article.

Manuscript Characteristics
Number of words in the abstract: 206
Number of words in the text: 3042
Number of tables: 2
Number of figures: 1
Date of last literature review: 07/06/2021

Abstract

Objective: The aim of this study was to evaluate the psychometric properties of the Quick Inventory of Depressive Symptomatology (QID-SR16), a self-report instrument based on the DSM-IV criteria that assesses the severity of depression symptoms, in the Brazilian population. **Method:** Participants were 4.400 Brazilians over 15 years old recruited from an online survey assessing depressive symptoms during the early phase of COVID-19 pandemic in Brazil. Internal consistency, construct validity and convergent and discriminant validity of the QIDS-SR16 were evaluated. **Results:** The tested model was considered adequate to the data (CFI = 0.947, TLI = 0.927 and RMSEA = 0.051) and its internal consistency was good, with a cronbach's alpha of 0.71 and an average item correlation of 0.23. The correlations between the total score of the QIDS-SR16 and the total scores of the PHQ-9 instruments ($r = 0.67$, $p < 0.001$), PCL-5 ($r = 0.61$, $p < 0.001$) and PROMIS ($r = 0.60$, $p < 0.001$) demonstrate good indicators of concurrent and convergent validity. **Conclusion**: The psychometric properties of the QIDS-SR16 proved to be strong in terms of internal consistency, construct validity, and convergent and discriminant validity. The Portuguese version of QIDS-SR16 is an adequate instrument to assess depressive symptoms in the context of an online survey.

Keyword: Depressive Symptoms, Symptom Evaluation, Self Assessment, Clinical Psychology

Introduction

Estimated as the second leading cause of disability in the world in 2020 according to the World Health Organization (WHO), depression generates many losses in the functionality and quality of life of people [1]. It is a serious disorder, whose incidence increases year after year and that is associated with different morbidity and increased mortality in the general population [2, 3]. The total number of people living with depression in the world is 322 million, being more common among women (5.1%) than among men (3.6%) WHO, [4] . In Brazil, there are few population-based studies to estimate, precisely, the prevalence of depression. However, a national study with approximately 3,000 participants found the prevalence of depressive symptoms in 28.3% of the participants, with 15.3% of them being in depressive episodes considered severe [5].

The severity of the depressive symptoms is an important factor to be considered in the initial assessments, requiring them to be used brief and efficient instruments that can give that answer to the health professional as it is from this that the treatment guidelines can be established, leading to greater effectiveness [6]. Several of these assessments take place in primary care contexts, where the population often first accesses and contacts health professionals, with an estimated 19.5% of depression cases being diagnosed within this context [7]. A multicenter study carried out in 4 Brazilian cities (Rio de Janeiro, São Paulo, Fortaleza and Porto Alegre) found that, respectively, 25%, 25.3%, 31% and 21.4% of patients seen in basic health units had a diagnosis of depression, or significant symptoms of the disorder [8]. Despite the apparent high prevalence, it is emphasized that many false positives can occur due to the difficulty of the diagnosis made by general practitioners and with low training for mental health [9]. Therefore, it is observed the importance of access to simple and adequate instruments that can help health professionals who do not have specific training in mental health to carry out a more accurate assessment of depressive symptoms.

In this perspective, many scales and inventories have been widely used, such as the Beck Depression Inventory (BDI-II), the Center for Epidemiological Studies Depression (CES-D) [10], the Patient Health Questionnaire (PHQ-9) [11], the Depression, Anxiety, and Stress Scales (DASS) [12], the Hospital Anxiety and Depression Scale (HADS)[13] and the

Hamilton Depression Rating Scale (HAM-D6) [14] but they usually require trained professionals and consume more time. Thus, the Quick Inventory of Depressive Symptomatology and Self-Report (QIDS-SR_{16}), derived from the Inventory of Depressive Symptomatology-Self-Report (IDS-SR_{30}) [15], emerges as an alternative that makes it possible to carry out the initial assessment of depressive symptoms quickly and efficiently, as it focuses only on the nine criteria necessary for the diagnosis of Major Depressive Disorder contained in DSM-IV and is easy to understand for the general population.

In addition, QIDS-SR_{16} in relation to the other scales, seems to take some advantages. When compared with CES-D and DASS, it has a greater relationship with the DSM criteria for depression, greater sensitivity to change and better assessment of the risk of suicide [16]. In a study comparing the sensitivity and specificity of scales for depression in primary care, greater specificity was observed (84.7%) in the QIDS-SR_{16} when compared to PHQ-9 (72,2%) in the assessment of major depression and minor depression [17]. The HADS may be an appropriate scale for the assessment of depressive symptoms, however, it ends up excluding the somatic symptoms of the disorder, suppressing a dimension that may be important in this initial assessment and which ends up being covered by QIDS-SR_{16} [18]. The BDI-II, one of the main instruments in the evaluation of depression, has good correlations with the QIDS-SR_{16} [19], however, in Brazil cost ends up being high for it to be a tool used as an initial screening in the context of primary health care. In addition, it must be considered that, according to our legislation (Resolução CFP 009/2018) BDI-II can only be used by experienced professionals of psychology, of which not always are present in primary care units.

The scoring system of the QIDS-SR_{16} converts the responses of the 16 items contained in the scale into nine domains based on the DSM-IV diagnostic criteria for depression: 1) sleep disorders; 2) sadness; 3) changes in appetite and weight; 4) changes in concentration; 5) negative view of oneself; 6) suicidal ideation; 7) decreased interest; 8) decreased energy; and 9) psychomotor changes [19]. Each item can be scored in an interval from 0 to 3, in which the respondent fills in what best describes him in the last seven days. The total score of the QIDS-SR_{16} ranges from 0 to 27, with higher values indicating greater severity of depressive symptoms.

Thus, QIDS-SR_{16} comes as an important tool for screening measure to identify patients of primary care that can meet the diagnostic criteria for Major Depressive Disorder [20], more easily to health professionals [21], since it requires minimal training for its application as it is a self-applicable instrument [19]. However, considering that that there is no validation study for the Brazilian population, this study aims to evaluate the psychometric properties of construct validity, internal consistency, and validity of concurrent and convergent criteria of the Brazilian Portuguese version of the QIDS-SR_{16} scale.

Method

Data collect

This is a cross-sectional and observational study. The data used were collected between April 18 to May 11, 2020 through an online survey through the Qualtrics platform whose main objective was to collect information about the impact of COVID-19 on the stress, trauma and risk perception of the Brazilian population. Any Brazilian, over the age of 15, residing in Brazil or abroad could respond to the survey by accessing a link available on various social networks on the internet. Therefore, the data shown in this study originate from this primary study and are part of a more comprehensive research. For this study in particular were selected participants from 18 to 65 years who have completed filling in all scales used for the validation process and were presented to the participants in the following order: PHQ-

9, QIDS-SR$_{16}$, PROMIS and PCL-5. Only the participants who scored above the cutoff point of the PHQ-9 scale ($\geq$ 13), indicating the presence of depressive symptoms. All participants were recruited through electronic media (for example, social networks, websites, blogs, etc.) using the snowball sampling method, in which the researcher invites participants to share the survey with their contacts. The sample size was calculated using the public domain program OpenEpi (www.openepi.com), adopting a 95% confidence level, a 1% margin of error and a random sample. A set of criteria was applied to maximize data reliability. Initially, participants who took less than five minutes to complete the survey were excluded. Then, with regard to socioeconomic variables, participants who provided invalid information about age, zip code and the last four mobile numbers of the participants were excluded (only the last four numbers were asked to avoid identifying the participant). Subsequently, as in this study we were not interested in investigating the changes that occurred in the participants over time, possible repeated measures were excluded by checking both the repeated zip codes and the last four cell numbers of the participants.

Instruments

Quick Inventory of Depressive Symptomatology-Self-Report (QIDS-SR$_{16}$)

The QIDS-SR$_{16}$ is a brief scale to assess depressive symptoms based on the diagnostic criteria of the DSM-IV and it is derived from IDS-SR30 scale, originally built in English. IDS-SR30 was adapted to Brazilian Portuguese exhibiting good psychometric properties[22]. QIDS-SR$_{16}$ has been translated into 31 languages[23], including Brazilian Portuguese[24].It has 16 items in total that are grouped into nine domains (sleep disorder, sadness, changes in appetite and weight, changes in concentration, negative view of oneself, suicidal ideation, decreased interest, decresead energy and psychomotor changes). The scores for three domains (sleep disorder, appetite and weight, and psychomotor changes) are based upon the maximum score (most pathological) of two or more questions. Each of the remaining domains is rated by a single item. All domains are scored from 0 to 3, with higher scores varying greater psychopathology. Total QIDS scores range from 0 to 27, with scores of 5 or lower indicative of no depression, scores from 6 to 10 indicating mild depression, 11 to 15 indicating moderate depression, 16 to 20 reflecting severe depression, and total scores greater than 21 indicating very severe depression.

Patient Health Questionaire (PHQ-9)

The PHQ-9 scale (Patient Health Questionnaire-9), is an instrument to assess depression in primary care, and is available in Portuguese. It consists of nine questions, which correspond to the nine diagnostic criteria for depression. Each item can receive up to four responses (0-3 points), indicating the frequency of the presence of symptoms in the last two weeks. At the end of these nine questions, the impact of these symptoms on people's functionality is questioned. The total score ranges from 0 to 27 and represents the sum of the responses of the nine items.

Patient-Reported Outcomes Measurement Information System (PROMIS)

The PROMIS questionaire [25] it allows the assessment of anxiety aspects involving the dimension of fear (fear, panic), anxious anguish (worry, dread), hyperexcitation (tension, nervousness, restlessness) and somatic symptoms associated with arousal (fast heart, dizziness). The abbreviated form of 8 items was used, where it is necessary to indicate on a Likert scale from 1 (never) to 5 (always) the presence of symptoms related to anxiety.

Posttraumatic Symptoms Checklist (PCL-5)

The PCL-5 [26] is a self-report scale composed of 20 items on a Likert response scale ranging from 0 = nothing to 4 = a lot. The instrument aims to measure the severity of symptoms and provide a diagnosis of Post Traumatic Stress Disorder. Severity scores can be calculated for each symptom within each of the clusters: (B) intrusions, (C) avoidance, (D) negative changes in cognition and mood and (E) increased excitability; or for any disorder by the sum of the items. Individuals who score more than 44 points are considered to have high symptoms of post-traumatic stress and individuals who score 44 or less have low symptoms.

Ethical aspects

Research participants were invited to complete the online questionnaire anonymously and voluntarily and needed to indicate their consent by reading and accepting the Free and Informed Consent Form (ICF). Participants were not paid for their participation. This research was approved by the National Research Ethics Commission (CONEP, 30502620.4.0000.0008).

Data analysis

First, analyzes of central tendency and variability were performed to describe the sample and the variables of interest, and to evaluate the distribution of the data. As a way of testing construct validity as measured by QIDS-SR_{16}, a confirmatory factor analysis was performed by testing a single factor model of depressive symptoms. The adequacy of the model was assessed considering CFI (Comparative Fit Index) and TLI (Tucker-Lewis index) values above 0.90 and RMSEA (Root-mean-square error of approximation) below 0.06 [27, 28]. The evaluation of the instrument's internal consistency was performed through Cronbach's Alpha analyzes, considering values between 0.70 and 0.79 as acceptable, 0.80 and 0.89 as good and above 0.90 as excellent [29] and the analysis of the average correlation between items. Ideally, the average correlation between items should be between 0.20 and 0.40, suggesting reasonable homogeneity and significant single variance between items. [30].

Finally, concurrent and convergent validities were investigated through Spearman's correlation analyzes, considering correlation coefficients less than 0.30 as low, between 0.30 and 0.50 as moderate and above 0.50 as high [31] . Concurrent validity is determined by comparing the scores on an instrument of interest, in this case the QIDS-SR_{16}, with the scores on a reference instrument measuring the same construct, in this case the PHQ-9.Convergent validity is assessed by comparing the scores of the instrument of interest with another instrument measuring a related but different construct, in this case the PCL-5 and PROMIS [32]. Correlation coefficients above 0.40 were considered to be adequate indicators of validity. All analyzes were performed using the *R* software.

Results

In all, 8825 people answered the online survey and, of these, 49% (n = 4400) scored above the cutoff point of PHQ-9, totaling the sample used for the validation of the instrument. The average age found was 33.0 (sd = 10.93) years of age, among which 83% (n = 3644) are female, 49% (n = 2170) are single and 50% (n = 2213) have powders -University graduate. Details on the sample's sociodemographic data, as well as the mean scores on the instruments are described in **Table 1.**

Table 1. Sample description (N = 4400)

	N	%			
Sex: Female	3644	83%			
Marital Status					
Single	2170	49%			
Maries	1209	28%			
Divorced	306	7%			
Widower	30	0.7%			
Stable Union	685	16%			
Education					
Elementary School	11	0.2%			
High School	538	12%			
University education	1638	37%			
Postgraduation	2212	50%			
	Mean (sd)	**Min**	**Max**	**Skew**	**Kurtosis**
Age	33 (10.93)	18	65	0.67	-0.26
PHQ 9 total score	14.45 (4.69)	7	27	0.56	-0.54
QIDS total scpre	9.45 (4.12)	0	24	0.38	-0.16
PROMIS total score	21.1 (5.74)	7	35	-0.11	-0.57
PCL-5 total score	43.48 (13.75)	20	100	0.82	0.34
PCL Revival	9.91 (4.08)	5	25	1	0.52
PCL Avoidance	4.16 (1.94)	2	10	0.83	0.02
PCL Cognition / mood changes	15.55 (5.54)	7	35	0.77	0.09
PCL Excitability	13.86 (4.48)	6	30	0.67	0.07

Construct Validity

A single factor model of depressive symptoms composed of the nine symptoms measured by QIDS-SR$_{16}$ (**Figure 1**) was tested through confirmatory factor analysis using the estimation of *full maximum information likelihood.* The tested model was considered adequate to the data according to the indexes $x^2(26, N = 4400) = 325.376, p<0.001$, CFI = 0.947, TLI = 0.927 and RMSEA = 0.051. More information about the factorial loads of the items is presented in **Table 2**.

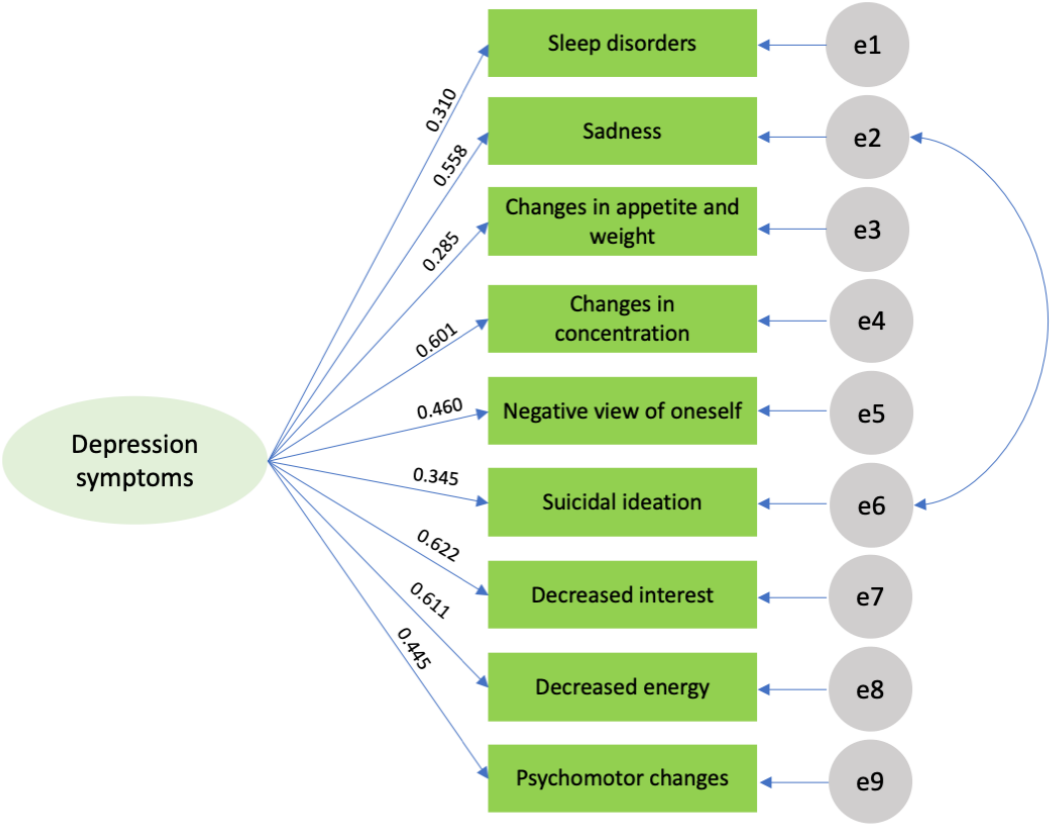
Depression symptoms
0.310
0.558
0.285
0.601
0.460
0.345
0.622
0.611
0.445
Sleep disorders
Sadness
Changes in appetite and weight
Changes in concentration
Negative view of oneself
Suicidal ideation
Decreased interest
Decreased energy
Psychomotor changes
e1
e2
e3
e4
e5
e6
e7
e8
e9

Table 2. QIDS-SR$_{16}$ Factorial load (N = 4400)

QIDS-SR$_{16}$ dimensions	β	S.E.	*p-value*	IC	
Sleep disorders	0.310	0.016	<0.001	0.278	0.341
Sadness	0.558	0.013	<0.001	0.532	0.584
Changes in appetite and weight	0.285	0.016	<0.001	0.253	0.317
Changes in concentration	0.601	0.013	<0.001	0.576	0.626
Negative view of oneself	0.460	0.015	<0.001	0.431	0.489
Suicidal ideation	0.345	0.016	<0.001	0.313	0.376
Decreased interest	0.622	0.012	<0.001	0.598	0.647
Decreased energy	0.611	0.013	<0.001	0.586	0.635
Psychomotor changes	0.445	0.015	<0.001	0.416	0.474

Internal consistency

The QIDS-SR$_{16}$ demonstrated good internal consistency with a cronbach's alpha of 0.71 and an average correlation coefficient between items of 0.23.

Concurrent and Converged Validity

The correlations between the total score of the QIDS-SR$_{16}$ and the total scores of the PHQ-9 instruments ($r = 0.67$, $p < 0.001$), PCL-5 ($r = 0.61$, $p < 0.001$) and PROMIS ($r = 0.60$, $p < 0.001$) demonstrate good indicators of concurrent and convergent validity. When assessing the correlations between the total score of QIDS-SR$_{16}$ and the dimensions of Posttraumatic Stress Disorder assessed by PCL-5, a greater correlation coefficient is perceived with the dimension of changes in cognition and mood ($r = 0.63$, $p < 0.001$) than with the dimension of revival ($r = 0.41$, $p < 0.001$), avoidance ($r = 0.31$, $p < 0.001$) and increased excitability ($r = 0.57$, $p < 0.001$).

Discussion

The original research of validation and construction of QIDS-SR$_{16}$ demonstrates its proven usefulness in the evaluation of depressive symptoms and its psychometric validity [15]. It is an instrument tested in different contexts to assess depressive symptoms, such as the assessment of young adult students at universities [33], in veteran military personnel with Posttraumatic Stress Disorder comorbidity [34] and in patients with Bipolar Mood Disorder [35]. Its usefulness in the screening of depressive symptoms in primary health care is emphasized [13, 17, 20, 36], it can be an important instrument within this context.

In this study we seek to validate the translation of the Brazilian version of QIDS-SR$_{16}$ and evaluate its psychometric properties in order to make this instrument accessible to health professionals who serve in primary care in the country and also in other contexts of mental health care in general. When comparing our results regarding the internal consistency process of the scale with the results of the original English version, we observe that our results show a lower Cronbach alpha (0.86 in the original and 0.71 in our study), but which is still within an acceptable result and not so far from the validation studies of the Chinese version (0.73) [37], german (0.77) [38] and korean (0.73) [39].

The differences in these values in relation to the original version and the other versions cited can be explained due to the sample size used in each of the translation validation processes. In our study, we counted a total of 4400 respondents, a much larger number than in the validation process of the original version (n = 596) [19] and in the others. We emphasize that in our study we analyzed a symptomatic population in the context of the pandemic, since people were directed to fill out the QIDS-SR$_{16}$ after an initial screening using the PHQ-9 scale, which differs from the other validation studies of the scale [19, 40, 41]. We could infer that the fact that the collection took place online and not face-to-face as in the other validation processes of the translations could interfere with our results, however, several studies have shown that there are no significant differences in quality of the data collected when comparing the applications in the two modalities. In addition, online research can be even more advantageous as it allows, in theory, more sincere responses from participants [42, 43].

All correlations between the total QIDS-SR$_{16}$ score and the instruments assessing depressive symptoms (PHQ-9), post-traumatic symptoms (PCL) and anxiety (PROMIS) are considered high, supporting the concurrent and convergent validity assessed. These results are related to findings in the literature in which QIDS-SR$_{16}$ has already shown high correlations with PHQ-9 (r=0.81; [39] and with symptoms of anxiety (r = 0.603) [38]. Still, when examining the relationship between the total score of the QIDS-SR$_{16}$ and the dimensions of the PCL, we noticed that the greatest correlation is with the group of symptoms related to mood and changes in cognition. Together, these results indicate that QIDS-SR$_{16}$ can also be a good tool for the assessment of depressive symptoms in screening processes.

Despite the satisfactory results, our study has some limitations that deserve to be mentioned. The first one concerns the fact that our sample comes from a survey that originally had the main objective of evaluating the traumatic and stress reaction of the Brazilian population during the COVID-19 pandemic, and this context may have some influence on the rate of positive responses. . However, it is believed that an efficient scale should have similar results in different contexts, with the possibility of varying only the intensity of the symptoms and not the constructs of the same. Still regarding the sample, there is a high level of education of the participants (50% have postgraduate degrees), which does not necessarily represent the Brazilian population in general. Another issue is that 83% of the participants were female, which makes it more difficult to generalize these data for both sexes. However, it is observed that there is an important difference related to gender in the diagnosis of depression, with a higher prevalence in women than in men[44].

Considering the great presence of diagnoses of depressive conditions in Brazil in primary care outpatient clinics [8], and the adequacy of the psychometric properties of the Brazilian Portuguese translation of QIDS-SR$_{16}$, it is concluded that this instrument may be able to assist health teams in the assessment and screening of depressive symptoms without requiring minimal preparation for this, since it is not always possible to count on the presence of a mental health professional in this health care sector.

Acknowledgment
This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior-Brasil (CAPES)—Finance Code 001

Disclosure:
No conflicts of interest declared concerning the publication of this article.

Reference

1. Lopez AD, Murray CC. The global burden of disease, 1990–2020. Nature medicine. 1998;4(11):1241-3.
2. Patel V, Chisholm D, Parikh R, Charlson FJ, Degenhardt L, Dua T, Ferrari AJ, Hyman S, Laxminarayan R, Levin C. Addressing the burden of mental, neurological, and substance use disorders: key messages from Disease Control Priorities. The Lancet. 2016;387(10028):1672-85.
3. Liu Q, He H, Yang J, Feng X, Zhao F, Lyu J. Changes in the global burden of depression from 1990 to 2017: Findings from the Global Burden of Disease study. Journal of psychiatric research. 2019.
4. Organization WH. Depression and other common mental disorders: global health estimates. World Health Organization, 2017.
5. Coelho CL, Crippa JAS, Santos JL, Pinsky I, Zaleski M, Caetano R, Laranjeira R. Higher prevalence of major depressive symptoms in Brazilians aged 14 and older. Brazilian Journal of Psychiatry. 2013;35(2):142-9.
6. Ormel J, Kessler RC, Schoevers R. Depression: more treatment but no drop in prevalence: how effective is treatment? And can we do better? Current opinion in psychiatry. 2019;32(4):348-54.
7. Gómez-Gómez I, Moreno-Peral P, López T, Clavería A, Oliván B, Marti R, Llobera J, Maderuelo-Fernández J-A, Motrico E. Multiple risk behaviour intervention to prevent depression in primary care. British Journal of General Practice. 2020;70(suppl 1).
8. Gonçalves DA, Mari JdJ, Bower P, Gask L, Dowrick C, Tófoli LF, Campos M, Portugal FB, Ballester D, Fortes S. Brazilian multicentre study of common mental disorders in primary care: rates and related social and demographic factors. Cadernos de saude publica. 2014;30:623-32.
9. Mitchell AJ, Vaze A, Rao S. Clinical diagnosis of depression in primary care: a meta-analysis. The Lancet. 2009;374(9690):609-19.
10. Sharp LK, Lipsky MS. Screening for depression across the lifespan: a review of measures for use in primary care settings. American family physician. 2002;66(6):1001.
11. Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. Psychiatric annals. 2002;32(9):509-15.
12. Sinclair SJ, Siefert CJ, Slavin-Mulford JM, Stein MB, Renna M, Blais MA. Psychometric evaluation and normative data for the depression, anxiety, and stress scales-21 (DASS-21) in a nonclinical sample of US adults. Evaluation & the Health Professions. 2012;35(3):259-79.
13. Cameron IM, Crawford JR, Lawton K, Reid IC. Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. British Journal of General Practice. 2008;58(546):32-6.

14. Timmerby N, Andersen J, Søndergaard S, Østergaard S, Bech P. A systematic review of the clinimetric properties of the 6-item version of the Hamilton Depression Rating Scale (HAM-D6). Psychotherapy and psychosomatics. 2017;86(3):141-9.
15. Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH. The Inventory of Depressive Symptomatology (IDS): psychometric properties. Psychol Med. 1996;26(3):477-86. doi: 10.1017/s0033291700035558. PubMed PMID: 8733206.
16. Weiss RB, Aderka IM, Lee J, Beard C, Björgvinsson T. A comparison of three brief depression measures in an acute psychiatric population: CES-D-10, QIDS-SR, and DASS-21-DEP. Journal of Psychopathology and Behavioral Assessment. 2015;37(2):217-30.
17. Sung SC, Low CCH, Fung DSS, Chan YH. Screening for major and minor depression in a multiethnic sample of A sian primary care patients: A comparison of the nine-item Patient Health Questionnaire (PHQ-9) and the 16-item Quick Inventory of Depressive Symptomatology–Self-Report (QIDS-SR16). Asia-Pacific Psychiatry. 2013;5(4):249-58.
18. Smarr KL, Keefer AL. Measures of depression and depressive symptoms: beck depression inventory-II (BDI-II), Center for Epidemiologic Studies Depression Scale (CES-D), geriatric depression scale (GDS), hospital anxiety and depression scale (HADS), and patient health Questionnaire-9 (PHQ-9). Arthritis care & research. 2011;63(S11):S454-S66.
19. Rush AJ, Trivedi MH, Ibrahim HM, Carmody TJ, Arnow B, Klein DN, Markowitz JC, Ninan PT, Kornstein S, Manber R, Thase ME, Kocsis JH, Keller MB. The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): a psychometric evaluation in patients with chronic major depression. Biol Psychiatry. 2003;54(5):573-83. doi: 10.1016/s0006-3223(02)01866-8. PubMed PMID: 12946886.
20. Lamoureux BE, Linardatos E, Fresco DM, Bartko D, Logue E, Milo L. Using the QIDS-SR16 to identify major depressive disorder in primary care medical patients. Behavior therapy. 2010;41(3):423-31.
21. Carmody TJ, Rush AJ, Bernstein IH, Brannan S, Husain MM, Trivedi MH. Making clinicians lives easier: guidance on use of the QIDS self-report in place of the MADRS. Journal of affective disorders. 2006;95(1-3):115-8.
22. Brunoni AR, Benute GR, Fráguas R, Santos NO, Francisco RP, de Lucia MC, Zugaib M. The self-rated Inventory of Depressive Symptomatology for screening prenatal depression. Int J Gynaecol Obstet. 2013;121(3):243-6. Epub 20130315. doi: 10.1016/j.ijgo.2013.01.011. PubMed PMID: 23499135.
23. Mapi Institute [internet] place unknown: publisher unknown; 2019 [cited 2021 Nov 12]. Available from: https://www.mapi-institute.com/.
24. Inventory of Depressive Symptomatology (IDS) and Quick Inventory of Depressive Symptomatology (QIDS) [internet] place unknown: publisher unknown; 2021 [cited 2021 Nov 12]. Available from: http://ids-qids.org/.
25. Cella D, Riley W, Stone A, Rothrock N, Reeve B, Yount S, Amtmann D, Bode R, Buysse D, Choi S. The Patient-Reported Outcomes Measurement Information System (PROMIS) developed and tested its first wave of adult self-reported health outcome item banks: 2005–2008. Journal of clinical epidemiology. 2010;63(11):1179-94.
26. Weathers FW, Marx BP, Friedman MJ, Schnurr PP. Posttraumatic stress disorder in DSM-5: New criteria, new measures, and implications for assessment. Psychological Injury and Law. 2014;7(2):93-107.
27. Hu Lt, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal. 1999;6(1):1-55.

28. Kline R. Exploratory and Confirmatory Factor Analysis, Y. Petscher ve C. Schatsschneider,(Ed.), Applied Quantitative Analysis in the Social Sciences içinde (171-207). New York: Routledge; 2013.
29. Cicchetti DV. Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psychological assessment. 1994;6(4):284.
30. Cohen RJ, Swerdlik ME, Phillips SM. Psychological testing and assessment: An introduction to tests and measurement: Mayfield Publishing Co; 1996.
31. Fishbein M, Ajzen A. Understanding Attitudes and Predicting Social Behaviour. Preventive-Hall. Inc, Englewood Cliffs. 1980.
32. Echevarría-Guanilo ME, Gonçalves N, Romanoski PJ. PSYCHOMETRIC PROPERTIES OF MEASUREMENT INSTRUMENTS: CONCEPTUAL BASIS AND EVALUATION METHODS-PART II. Texto & Contexto-Enfermagem. 2019;28.
33. Gonzalez DA, Boals A, Jenkins SR, Schuler ER, Taylor D. Psychometrics and latent structure of the IDS and QIDS with young adult students. Journal of affective disorders. 2013;149(1-3):217-20.
34. Surís A, Holder N, Holliday R, Clem M. Psychometric validation of the 16 item quick inventory of depressive symptomatology self-report version (QIDS-SR16) in military veterans with PTSD. Journal of affective disorders. 2016;202:16-22.
35. Bernstein IH, Rush AJ, Suppes T, Trivedi MH, Woo A, Kyutoku Y, Crismon ML, Dennehy E, Carmody TJ. A psychometric evaluation of the clinician-rated Quick Inventory of Depressive Symptomatology (QIDS-C16) in patients with bipolar disorder. International journal of methods in psychiatric research. 2009;18(2):138-46.
36. Cameron IM, Crawford JR, Cardy AH, du Toit SW, Lawton K, Hay S, Mitchell K, Sharma S, Shivaprasad S, Winning S. Psychometric properties of the Quick Inventory of Depressive Symptomatology (QIDS-SR) in UK primary care. Journal of psychiatric research. 2013;47(5):592-8.
37. Liu J, Xiang Y-T, Wang G, Zhu X-Z, Ungvari GS, Kilbourne AM, Lai KY, Zhong B-L, Zhang L, Zhang Q. Psychometric properties of the Chinese versions of the Quick Inventory of Depressive Symptomatology–clinician rating (C-QIDS-C) and self-report (C-QIDS-SR). Journal of affective disorders. 2013;147(1-3):421-4.
38. Roniger A, Späth C, Schweiger U, Klein J. A psychometric evaluation of the German version of the quick inventory of depressive symptomatology (QIDS-SR16) in outpatients with depression. Fortschritte der Neurologie· Psychiatrie. 2015;83(12):e17-e22.
39. Hong JP, Park S-J, Park S, Lim A. Reliability and Validity Study of the Korean Self Rating Version of Quick Inventory of Depressive Symptomatology (K-QIDS-SR). Mood Emot. 2013;11(1):44-50.
40. Feng Y, Huang W, Tian T-F, Wang G, Hu C, Chiu HF, Ungvari GS, Kilbourne AM, Xiang Y-T. The psychometric properties of the Quick Inventory of Depressive Symptomatology-Self-Report (QIDS-SR) and the Patient Health Questionnaire-9 (PHQ-9) in depressed inpatients in China. Psychiatry research. 2016;243:92-6.
41. Trujols J, de Diego-Adeliño J, Feliu-Soler A, Iraurgi I, Puigdemont D, Álvarez E, Pérez V, Portella MJ. The Spanish version of the quick inventory of depressive symptomatology-self-report (QIDS-SR16): a psychometric analysis in a clinical sample. Journal of affective disorders. 2014;169:189-96.
42. Heerwegh D. Mode differences between face-to-face and web surveys: an experimental investigation of data quality and social desirability effects. International Journal of Public Opinion Research. 2009;21(1):111-21.

43. Rada VDd, Domínguez-Álvarez JA. Response quality of self-administered questionnaires: A comparison between paper and web questionnaires. Social Science Computer Review. 2014;32(2):256-69.
44. Hyde JS, Mezulis AH. Gender differences in depression: biological, affective, cognitive, and sociocultural factors. Harvard review of psychiatry. 2020;28(1):4-13.