

Review

Toward Digital Self-Monitoring of Mental Health in the General Population: Scoping Review of Existing Approaches to Self-Report Measurement

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Abstract

Background: With the ubiquity of smartphones, digital self-report instruments have enormous potential to support the general population in monitoring their mental health. A primary challenge for researchers committed to advancing this work is simply to scope the plethora of widely used candidate instruments. The overarching aim of this study was to address this challenge to support and guide future research in this burgeoning area.

Objective: This study aimed to conduct a literature review of self-report instruments used in empirical studies to measure mental health (1) in the general population, (2) delivered in a digital format, and (3) in longitudinal designs. Given the wide range of recognized “mental health” constructs, the review’s search strategies were guided by Keyes’ dual continua model of mental health, recognizing both deficits- and strengths-based constructs. This study’s primary objective was to develop a first-of-its-kind ranking and synthesis of the most frequently used instruments that are potentially suitable for mental health self-monitoring. It was not an objective of this study to evaluate psychometric properties of the identified instruments—we hope the present ranking and synthesis will provide the foundation for future research into optimal digital, prospective self-report of mental health.

Methods: Five major electronic databases were searched. Studies that administered digital mental health instruments (in English) repeatedly to community dwellers in the general adult population were eligible. The included studies were grouped by instruments for synthesis using a narrative approach.

Results: Preliminary screening of 95,849 records identified 8460 eligible records, among which 1000 records were randomly selected over 4 iterations for full-text screening. A total of 223 records were included. We found that the top 30 most commonly used instruments accounted for 78.4% (308/393) of the total usage across studies. These instruments predominantly measure deficits-based mental health constructs. The Patient Health Questionnaire 9 Items and Generalized Anxiety Disorder 7 Items were by far the most used instruments. The most commonly measured strengths-based constructs were life satisfaction and mental well-being.

Conclusions: The findings of this review strongly suggest that scientific investigation of mental health constructs across time on digital platforms still prioritizes deficits-focused instruments originally developed for pen-and-paper administration using classical test theory. These findings are discussed in light of evidence in the literature that deficits-focused instruments demonstrate inferior distributional properties (floor effects) in the general population and theory suggesting that both deficits- and strengths-focused measurements are required to holistically assess mental health. Limitations of the review include the restricted focus on English language instruments and the pragmatic approach to selecting records for full-text screening. It is concluded that, in the smartphone age, it would be timely to develop new digital instruments framed by holistic models of mental health and using contemporary test construction approaches.

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KEYWORDS

mental health; digital health; monitoring; repeated measurement; general adult population; self-report instrument; scoping review; mobile phone

Introduction

Background

As mental health researchers with a digital interest, we are increasingly approached by researchers and industry partners to recommend self-report instruments that can be offered to the general public for monitoring mental health digitally. A barrier to providing an evidence-based answer to this apparently simple question is the lack of an overview of instruments that have already been used for this or related purposes. The overarching aim of this review, consequently, was to scope existing instruments that could fulfill this role, as demonstrated by their use in published empirical research. Broadly, we sought to answer the question: which instruments have been most frequently used, and what are their characteristics? First, we briefly review evidence that digital technologies render self-monitoring more feasible than ever before, and introduce contemporary approaches to test construction. We then introduce the dual continua model of mental health that was used to guide the systematic search strategy and results synthesis of this study.

Self-Monitoring of Mental Health

Self-monitoring has proven effective and economical in managing many chronic illnesses [1-6], and is potentially a useful component of population-based approaches to managing mental health [7-10]. In the realm of mental health, self-monitoring via self-report inventories can raise emotional self-awareness [11] and promote positive health behavioral change over time [12]. Self-monitoring mental health can detect early symptoms of mental illness [13] while also providing a better understanding of factors that influence positive mental health [14-16], aligning with the goals of mental illness prevention and mental health promotion programs [17]. The focus here was on the full range of mental health constructs that have been measured by self-report, including general mental health measures (eg, the Kessler Psychological Distress Scale [K10] [13]), and instruments designed to screen for (eg, the Patient Health Questionnaire 9 Items [PHQ-9] [18]), or monitor severity of diagnosable disorders (eg, the Beck Depression Inventory II [19]).

Ubiquitous digital platforms have enormous potential to support self-monitoring of mental health in the general population. These opportunities are increasingly recognized in fields including digital monitoring [20], digital assessments [21], digital phenotyping [22], and self-management [3]. Remarkably, it is estimated that more than 10,000 mobile apps are available in the digital mental health market [23,24], and common mental illnesses such as anxiety and depression are measured in

numerous associated apps [25-28]. Importantly, these apps typically incorporate existing validated self-report instruments in a digital format for self-tracking purposes [11]. For example, the PHQ-9 is often used as a measure of depressive symptoms, despite being developed in the predigital era.

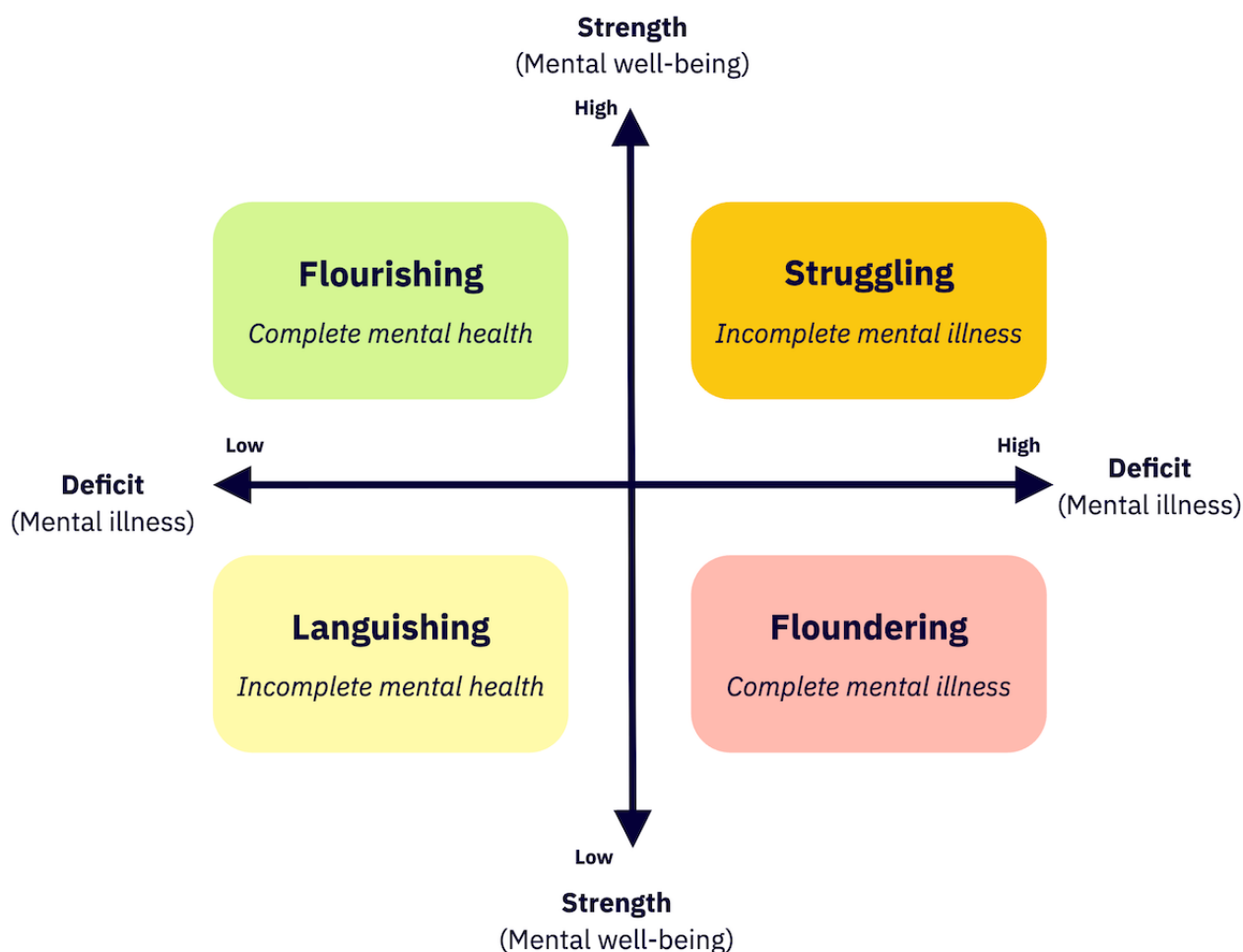
A shift toward digital modalities of data collection also supports a transition in survey development from classical test theory (CTT) to item response theory (IRT). CTT [29] has been the dominant approach to survey development for traditional paper-and-pen surveys. However, advances in measurement theories such as IRT [30,31] highlight several shortcomings of CTT and are starting to positively influence psychological test development through improved measurement precision [30,32,33]. One notable application of IRT, originating from educational assessments, is the Computerized Adaptive Test (CAT) [34], which harnesses the computational power of digital technologies to provide dynamic survey administration. CAT can maintain the precision of mental health measurement while significantly reducing the total number of questions and thereby alleviating the response burden [35,36]. A prominent example of this contemporary approach to measurement is the PROMIS (Patient Reported Outcome Measures Information System), a program initiated by the US National Institutes of Health [37]. PROMIS includes suites of mental health outcome measures designed with digital administration in mind, available in various formats such as fixed-length (eg, comprehensive long-form or equivalent short-form self-report assessments) and computerized adaptive testing assessments.

Dual Continuum Model of Mental Health

Although originally linked to mental illness diagnoses [38-41], contemporary theorizing [14,42-50] conceptualizes mental health as multifaceted, subsuming deficits-based constructs related to mental illness, but also strengths-based constructs such as subjective well-being [51], the mental health continuum [52], and flourishing (in positive psychology) [53].

The influential dual continua model of mental health [14] recognizes 2 correlated but separable dimensions, typically named “mental illness” and “mental well-being” (for clarity, we use the terms “deficit” and “strength” here [54], see Figure 1). This conceptual model explains more variance in diverse populations than an alternative model in which mental illness and mental well-being are placed at opposite ends of a single continuum [55]. As described in the protocol paper for this study, the dual continua model directly informed the present search strategy and the synthesis of findings (Multimedia Appendix 1 [56]).

Figure 1. Dual continua model of mental health [14] (adapted from Teng et al [57] with permission).



This Review

The present review is unique because it intends to advance understanding of the range of instruments that could function as mental health self-monitoring tools in the digital era. Specifically, we systematically searched for empirical studies that used instruments measuring mental health in (1) the general population, (2) digital format, and (3) longitudinal designs. While there is a growing body of research investigating measures of mental health in the nonclinical adult population [58-63], there is a lack of reviews that focus specifically on studies that meet the 3 aforementioned criteria. Consequently, this review has a narrow focus on instruments that have been applied in a manner comparable to digital self-monitoring of mental health. To the best of our knowledge, no review shares the specific focus of the present review. We anticipate that the review findings will be useful to the burgeoning number of researchers who share our interest in valid digital self-report measurements of mental health in the general population [59,64].

The aim of this scoping review was therefore to systematically identify empirical studies that used instruments measuring mental health (broadly defined) in (1) the general population, (2) digital format, and (3) longitudinal designs. This aim was addressed with the following research question (RQ):

RQ: Which self-report mental health instruments have been most frequently used in empirical studies via digital delivery to measure the mental health of the general adult population at more than 1 time point?

In this review, usage of the instrument is operationalized as the frequency of the instrument being administered in identified empirical studies over the number of years since the release of the instrument, bounded by the time frame of the review (ie, papers published between January 1, 2010, and December 31, 2021, inclusively).

The peer review process has led to some changes to study reporting that represent deviations from the original study protocol [56]. Most importantly, the study was originally designed as a systematic review, but through peer review, the authors learnt that it is easier to understand the study as a scoping review with a systematic literature review step. Second, we have reorganized the presentation of this study's RQs as described in the protocol. The primary RQ above is a more succinct wording of the erstwhile questions RQ1 and RQ4. To avoid misunderstanding about their status in the study design, ancillary questions about the characteristics of the most popular instruments (erstwhile RQ2, RQ3, and RQ5) have been removed from the main text (see [Multimedia Appendix 2](#)), and the findings now appear only in Section S2 in [Multimedia Appendix 3](#) [13,14,16,18,19,56,64-237].

Methods

Study Design

This scoping review adheres to the PRISMA-ScR (Preferred Reporting Items for Systematic Review and Meta-Analysis Extension for Scoping Reviews) 2018 guidelines [238]. Methods such as eligibility criteria, information sources, search strategy, selection process, data collection process, data extraction, risk of bias (quality) assessment, and data synthesis plan are described in our published protocol [56]. The following section elaborates on deviations from the original protocol and the execution of these methods. Section S1 in [Multimedia Appendix 3](#) presents the full search terms and strategies used for all databases in this review.

Selection Process

Eligibility Criteria

In the original protocol [56], eligibility criteria were defined in the Population, Intervention, Comparison, Outcome, and Time (PICOT) [239] format. For this scoping review, a mapping from the PICOT format to the population, concept, and context [240] format is detailed below. The population is identical to the protocol. The concept represents the types of empirical studies included and the scope of the mental health constructs considered, which were associated with the section “Intervention of Interest” of the protocol [56]. The context in this review represents the timeframe of the included published papers, which is between January 1, 2010 and December 31, 2021 (inclusive).

Preliminary Screening of Titles and Abstracts

In a preliminary scoping of the literature, a large number of search results (over 90,000 records) were returned, requiring the application of various tools to help screen records. One reviewer (ZHK) screened the titles and abstracts of the search records using text-mining techniques [241]. Subsequently, the screening effort was validated using a semiautomated screening tool (ASReview [242]). The details of this preliminary screening process are described elsewhere [243].

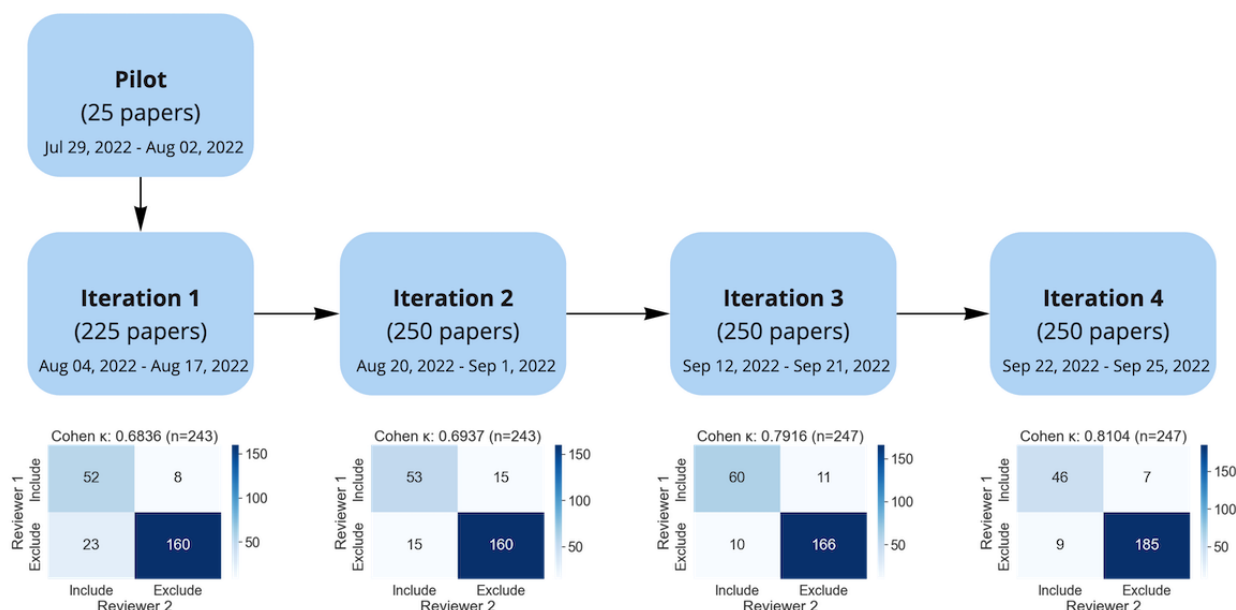
Full-Text Screening

A large number of eligible records (N=8460) were identified for full-text review after preliminary screening. This large record count is a result of our broad interest in the most frequently used mental health instruments being administered by past empirical studies. Furthermore, our three inclusion criteria (instruments being used in (1) the general population, (2) digital format, and (3) across multiple time points) are often not mentioned in the records’ title or abstract, as they relate more to methods than the substantive questions of the study.

Considering that a typical review takes, on average, 5 members and approximately 67.3 weeks to conduct and publish [244,245], full-text screening of 8460 records was not feasible with 2 reviewers and limited resources. This feasibility challenge has been acknowledged by COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) when reviews are conducted on patient-reported outcome measures [246]. The large return of eligible studies, therefore, forced us to develop a pragmatic approach to full-text screening. Previous systematic reviews facing similar challenges, for example, these studies [247-251] have screened a subset of the eligible records using either a random sampling strategy (eg, stratified sampling by time period) or a data saturation strategy to ensure the representativeness of the variables of interest.

Here, we also decided to screen a subset of eligible records, but adopted a statistical strategy to test whether or not the subset was representative of the entire population of eligible records. We randomly selected a subset of 1000 records from the 8460 records eligible for full-text screening in batches of 250 (no repeats) over 4 iterations of sampling. As the primary focus of the present review was instruments’ usage frequency (above), usage frequency was the variable used to statistically investigate the representativeness of the subset of n=1000 records. It was hypothesized that if the distribution of the usage frequency of instruments in each of the 4 batches was not statistically different, given the 4 batches were randomly selected from the same population of 8460 records, it could be inferred that the distribution of the usage frequency of instruments in each batch was likely to reflect in the full set of 8460 records [252-256]. The hypothesis was tested using statistical techniques (chi-square test of homogeneity [257] and Fisher exact test [258], significance level α of .05) once the 1000 records were screened in full-text and the data were extracted from the included records.

Informed by these approaches, 2 reviewers (ZHK and DS) screened the selected 1000 records in 4 iterative batches of 250 ([Figure 2](#)). To help manage the screening process, we developed a tool [259] to facilitate full-text screening and data extraction (hereafter referred to as “the custom tool”). Both reviewers pilot-tested the custom tool with 25 randomly selected records before commencing the full-text screening and data extraction. In each iteration, both reviewers independently screened 250 records in full text. If the record was still eligible, relevant data were extracted using the custom tool. If further information was required, ZHK contacted the researchers of the studies. After each iteration, both reviewers reconciled the review results and resolved any disagreements. The interrater agreement between reviewers was calculated using Cohen κ [260] ([Figure 2](#)). Suggestions to improve the custom tool were considered and implemented in subsequent iterations.

Figure 2. Full-text screening process of 1000 randomly sampled records in 4 iterations.

After 2 iterations, it became apparent that one of the main disagreements between reviewers was determining whether the instruments used in these records were in English, as not all records explicitly declared the language of the instruments. A decision flowchart was created ([Multimedia Appendix 4](#)) to facilitate the decision-making between reviewers after iteration 2. Since then, the interrater agreements were improved in iteration 3 and were maintained in iteration 4.

Data Extraction Process

Both reviewers (ZHK and DS) independently extracted data from each record using a separate copy of the custom tool. After completing each iteration, ZHK reconciled the instruments extracted from both reviewers. Then, both reviewers discussed any discrepancies and resolved disagreements before commencing the next iteration.

Quality Assessment

While the usage frequency of instruments is the main focus of the present scoping review, to ensure this review is useful to future researchers, similar to past reviews [64-66], we briefly commented on the quality assessment at the instrument level instead of individual studies, with a provisional evaluation of their core psychometric properties using studies from secondary searches (Section S2 in [Multimedia Appendix 3](#)).

Data Synthesis

Findings are summarized using a narrative synthesis approach [261] guided by the Synthesis Without Meta-Analysis (SWiM) reporting guideline [262] and framed by Keyes dual continua model (above). As described in our published protocol [56], the included studies were grouped by instruments and synthesized in tabular format, summarizing the properties of all studies associated with each instrument. The usage of instruments among the included studies is presented descriptively as figures.

Ancillary Information

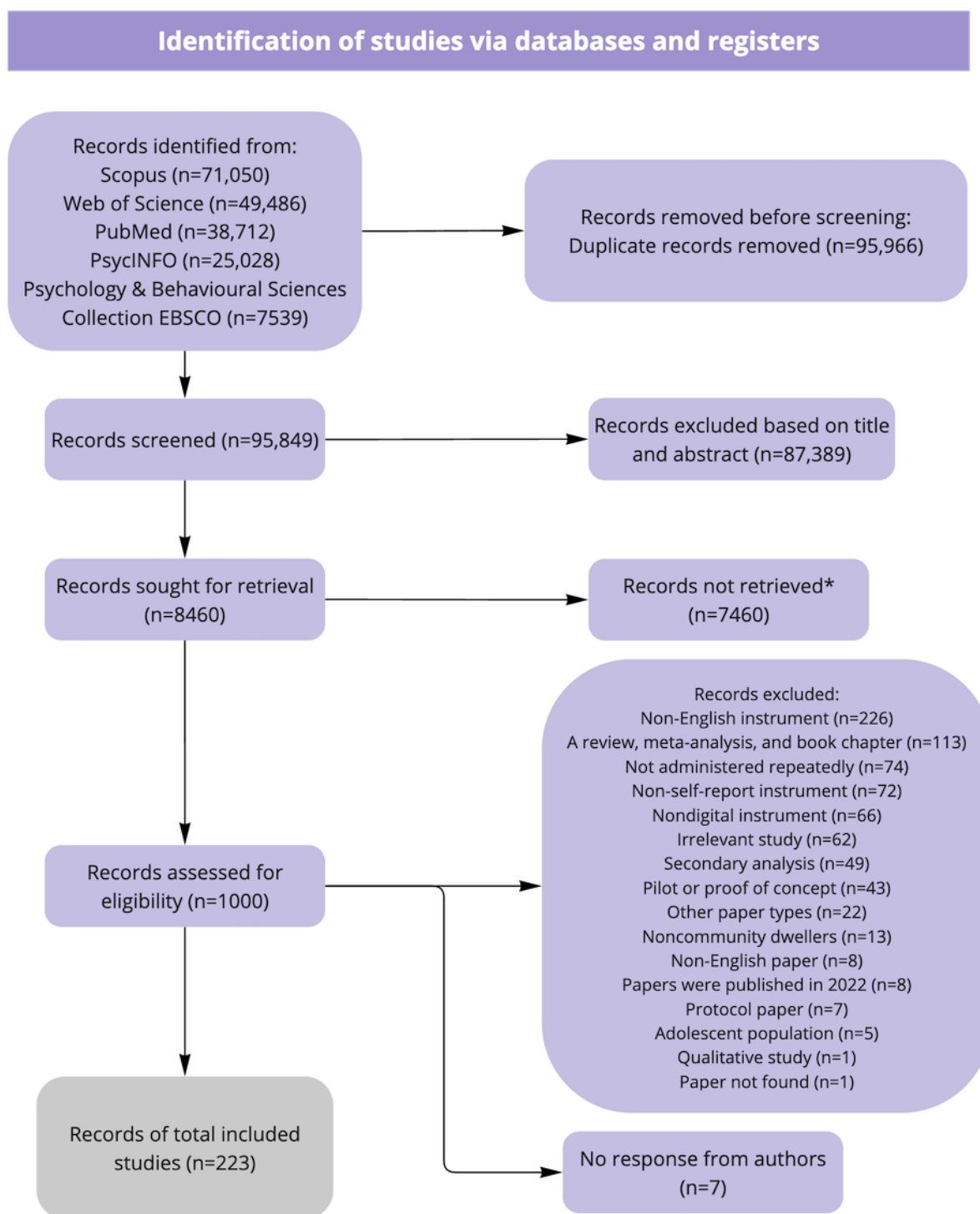
This study was not designed to rank identified instruments in terms of psychometric properties. It is expected that the present frequency-of-use ranking and synthesis will provide the foundation for future researchers to ask questions about the optimal approach to digital, prospective self-report of mental health (eg, selecting the best instrument for a particular population or building new adaptive instruments from item content in established instruments). For each instrument identified, ZHK manually searched the literature to elicit the ancillary information, such as the instrument's structure, format, and psychometric properties. The ancillary information was then synthesized in tabular format (Section S2 in [Multimedia Appendix 3](#)). The psychometric properties of each instrument were provisionally rated based on the quality criteria defined by Terwee et al [67].

Results

Overview

Searches on 5 databases (Scopus, Web of Science, PubMed, PsycINFO, and Psychology & Behavioral Sciences Collection [via EBSCOhost]) returned 191,815 records, of which 95,849 were unique records after deduplication ([Figure 3](#)). Preliminary screening of titles and abstracts resulted in 8460 eligible records for full-text screening. As noted above, 1000 of 8460 eligible records were randomly selected in batches of 250 for full-text screening over 4 iterations. Statistical tests were conducted to evaluate the representativeness of the instruments' usage distribution (the key variable of interest) within each iteration across the 1000 records, as described in the results below. Among these 1000 records, 770 were deemed ineligible, and 7 records were excluded through author nonresponse to queries from ZHK. A representative group of 223 records was included for data extraction and synthesis.

Figure 3. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart showing how records were identified from the initial search to the final decision. *: for pragmatic reasons, 1000 records were randomly sampled from 8460 records over 4 iterations for full-text screening. Statistical testing of the validity of this pragmatic strategy is described above and reported below.



Among the 770 records deemed ineligible during full-text screening, the most common reasons for excluding records were that the instrument was non-English [263-265], records were reviews, meta-analyses, or book chapters [25,266], the instrument had not been administered repeatedly [267,268], was not self-reported [269,270], or was nondigital [271,272].

The 223 included records (empirical studies) reported the usage of 278 eligible self-report mental health instruments, of which 68 were used in more than 1 record. To ensure our synthesis was manageable, we selected instruments that were most commonly used across studies, resulting in 30 of 68 instruments, which accounted for approximately 78.4% (308/393) of the

total instruments’ usage across studies (see Figure 4 for details about the selection).

Six instruments in Figure 4 were excluded from the 30 instruments to narrow the measurement construct more precisely onto states of mental health. Specifically, instruments were excluded for the following reasons: first, the Penn State Worry Questionnaire, Brief Resilience Scale, and Rosenberg Self-Esteem Scale were excluded because they measure traits, which are not the focus of this review. These instruments were not excluded during screening and data extraction because it was unclear that they measured trait-like constructs based on their repeated usage in the included empirical studies. It became apparent that subsequent secondary searches that obtained the original publication of these instruments have illuminated the ineligibility of these instruments in this review (n=3). Second, the MOS Social Support Survey measures social support rather than mental states (n=1). Third, custom questions on mood or affect and stress were excluded because they were

nonstandardized instruments, with question items varying from study to study (n=2). The synthesis from here on will focus only on the remaining 24 instruments (Table 1) among 147 studies.

The statistical investigation of our pragmatic strategy for reducing the number of records for full-text review involved, first, a chi-square test of the distribution of instruments’ usage across the 4 iterations of sampling. As expected, the test was not significant ($\chi^2_{69}=60.98, P=.74$). However, one of the assumptions (80% of the expected values >5) of the chi-square test was not met. Hence, a Fisher Exact Test was subsequently conducted, which was also not significant ($P=.74$). Therefore, we could not reject the null hypothesis of no difference, indicating that the usage distribution of instruments across batches was not significantly different. Given that each batch of records was randomly sampled from a population of 8460 records, this finding suggests that the usage distribution of instruments presented in these batches most likely approximates the overall instrument usage of all eligible records.

Figure 4. Cumulative percentage of the 68 instruments’ usage across studies. Thirty instruments were selected for synthesis (left of the red dotted line) and accounted for 78.4% (308/393) of the total instruments’ usage across studies. Instruments with names prefixed with “custom:” are groups of custom questions created by researchers to measure similar mental health constructs commonly used in ecological momentary assessment studies. For example, the instrument named “custom: mood or affect” includes custom questions measuring mood or affect.

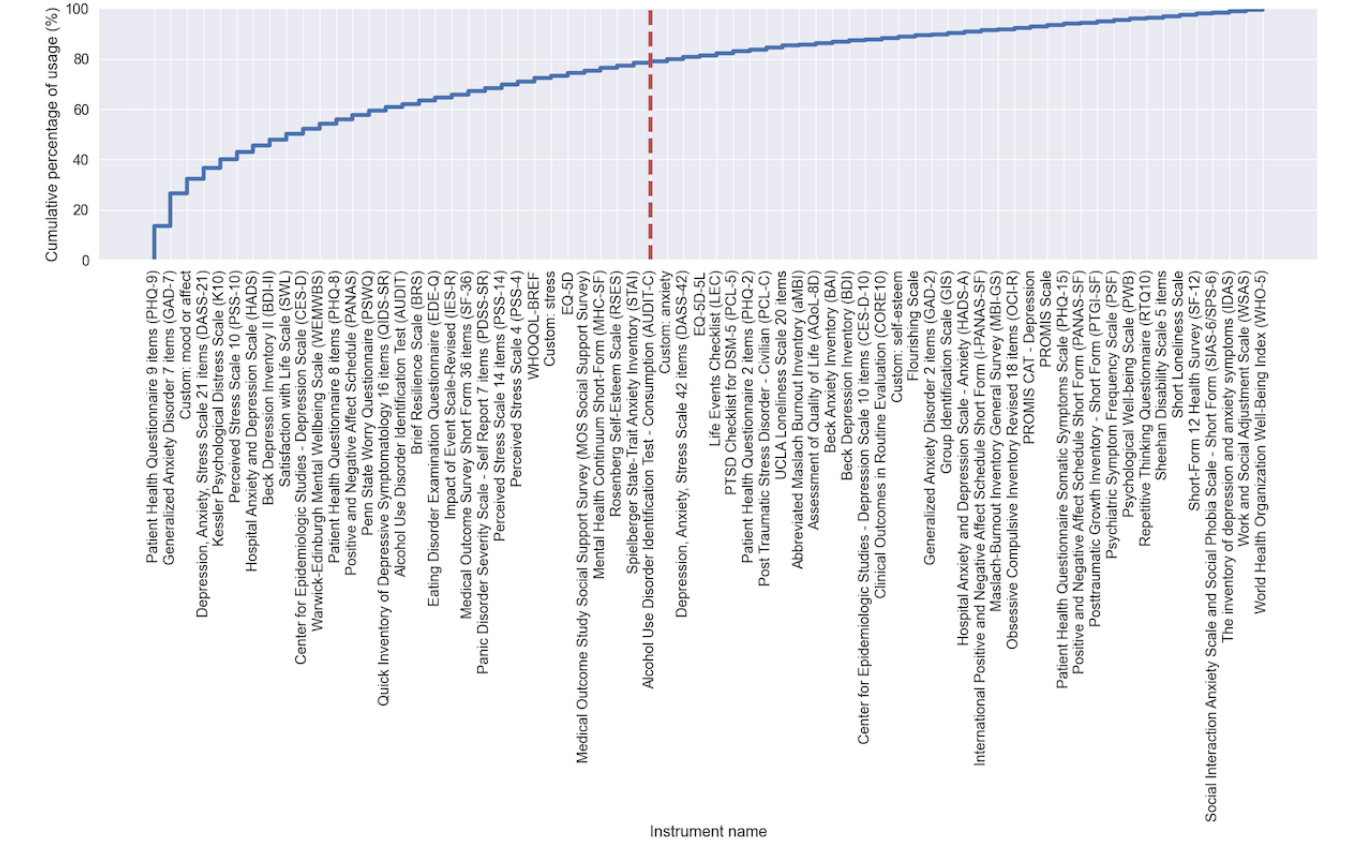


Table 1. The 24 instruments selected for synthesis, sorted by descending usage frequency.

Instrument	Mental health constructs measured	Deficits- or strengths-focused
Patient Health Questionnaire 9 Items (PHQ-9) [18]	Depression	Deficits
Generalized Anxiety Disorder 7 Items (GAD-7) [68]	Anxiety (generalized anxiety disorder)	Deficits
Depression, Anxiety, Stress Scale 21 Items (DASS-21) [69]	Depression, anxiety, and stress	Deficits
Kessler Psychological Distress Scale (K10) ^a [13]	Psychological distress	Deficits
Perceived Stress Scale 10 Items (PSS-10) [70,71]	Stress	Deficits
Hospital Anxiety and Depression Scale (HADS) [72]	Anxiety and depression	Deficits
Beck Depression Inventory II (BDI-II) [19]	Depression	Deficits
Satisfaction With Life Scale (SWL) [73]	Life satisfaction	Strengths
Center for Epidemiologic Studies-Depression Scale (CES-D) [74]	Depression	Deficits
Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) [16]	Mental well-being	Strengths
Patient Health Questionnaire 8 Items (PHQ-8) [75]	Depression	Deficits
Positive and Negative Affect Schedule (PANAS) [76]	Positive affect and negative affect	Deficits and strengths
Quick Inventory of Depressive Symptomatology 16 Items (QIDS-SR) ^a [77]	Depression	Deficits
Alcohol Use Disorder Identification Test (AUDIT) [78]	Alcohol use	Deficits
Eating Disorder Examination Questionnaire (EDE-Q) [79]	Eating disorder	Deficits
Impact of Event Scale-Revised (IES-R) [80] (first edition) [273]	Posttraumatic stress disorder	Deficits
Medical Outcome Survey Short Form 36 Items (SF-36) ^b [81,82,274]	Vitality, social functioning, role-emotional, and mental health	Deficits and strengths
Panic Disorder Severity Scale-Self Report 7 Items (PDSS-SR) [83,84]	Panic disorder	Deficits
Perceived Stress Scale 14 Items (PSS-14) [70,71]	Stress	Deficits
Perceived Stress Scale 4 Items (PSS-4) [71]	Stress	Deficits
WHOQOL-BREF ^{b,c} [85]	Psychological (positive feelings, cognitions, self-esteem, body image, negative feelings, and spirituality)	Deficits and strengths
EQ-5D (also known as EQ-5D-3L) ^b [86]	Anxiety or depression	Deficits
Mental Health Continuum Short-Form (MHC-SF) [14,15]	Mental well-being (emotional well-being, psychological well-being, and social well-being)	Strengths
Spielberger State-Trait Anxiety Inventory (STAI) [87]	Anxiety (state and trait)	Deficits

^aThese instruments were developed or psychometrically evaluated using item response theory during the first publication of the instruments.

^bThese are instruments measuring quality-of-life domains; only relevant mental health constructs are listed.

^cWHOQOL-BREF: The World Health Organization Quality of Life (abbreviated version).

Instrument Synthesis

Some instruments in Table 1 are shorter versions of the same instruments, which are listed separately due to usage differences. For example, Patient Health Questionnaire 8 Items [75] is identical to PHQ-9 [18] except without the item measuring suicidal thoughts or self-harm. Likewise, the Perceived Stress Scale 10 Items (PSS-10) and Perceived Stress Scale 4 Items are shorter versions of the Perceived Stress Scale 14 Items [70,71]. The 24 instruments that were included for synthesis in Table 1 can be loosely categorized into 3 groups: deficits-focused (18 instruments, 75%), strengths-focused (3 instruments, 12.5%), and “holistic” (deficit and strength, 3 instruments, 12.5%). The

top 7 most commonly used instruments were deficits-focused, measuring perceived stress (eg, Perceived Stress Scale 14 Items), psychological distress (eg, K10), and early symptoms of anxiety (eg, Generalized Anxiety Disorder 7 Items [GAD-7]) and depression (eg, PHQ-9). In contrast, among the 3 strengths-focused instruments, the Satisfaction With Life Scale (SWL) measures life satisfaction while the other 2 (Warwick-Edinburgh Mental Well-Being Scale [WEMWBS] and Mental Health Continuum Short-Form [MHC-SF]) measure broad mental well-being constructs. SWL has the highest usage compared to the other 2 strengths-focused instruments. Among the 3 instruments measuring deficits- and strengths-based constructs, 2 measure health-related quality-of-life (HRQoL)

instruments (Medical Outcome Survey Short Form 36 Items [SF-36] and The World Health Organization Quality of Life [abbreviated version, WHOQOL-BREF]), which typically subsume multiple constructs in different domains apart from mental health, such as physical health and functioning. EQ-5D is an HRQoL instrument, but was categorized as a deficits-focused instrument here because it measures only symptoms of anxiety or depression within the mental health domain. The final “holistic” measure was the Positive and Negative Affect Schedule, which measures positive and negative affect.

It is noteworthy that the original versions of all 24 instruments were developed and published before the year 2008 (Table 1 and RQ2 under Section S2 in Multimedia Appendix 3). Indeed, the Center for Epidemiologic Studies-Depression Scale (CES-D), PSS (14-item, 10-item, and 4-item), Hospital Anxiety and Depression Scale, Spielberger State-Trait Anxiety Inventory, SWL, and Positive and Negative Affect Schedule were published before the year 1990. Between the years 1990 and 2000, instruments measuring symptoms of mental illness other than anxiety and depression emerged such as Alcohol Use Disorder Identification Test (measuring alcohol use), Eating Disorder Examination Questionnaire (measuring symptoms of eating disorders), Impact of Event Scale-Revised (measuring symptoms of posttraumatic stress disorder) and Panic Disorder Severity Scale-Self Report 7 Items (measuring symptoms of panic disorder). During this period, SF-36, an HRQoL instrument, was also being developed. From the year 2000 onward, instruments screening symptoms of anxiety and depression, and measuring multifaceted mental well-being began to arise, such as PHQ-9, GAD-7, K10, MHC-SF, and WEMWBS. The HRQoL instrument WHOQOL-BREF was also developed after the year 2000.

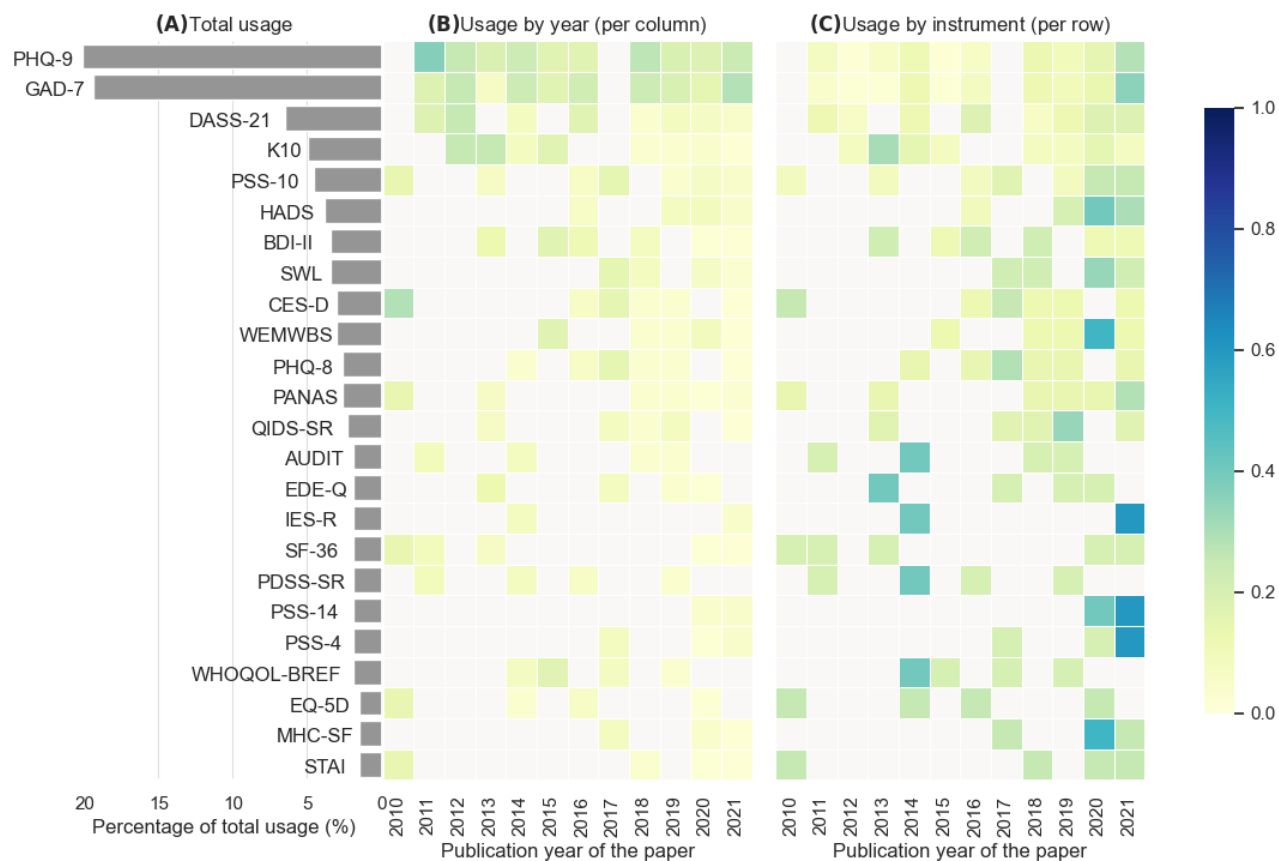
Only 2 instruments (K10 and QIDS-SR) used IRT in the original publication (annotated ^a in Table 1 and RQ2 under Section S2

in Multimedia Appendix 3). The remaining instruments were typically developed using the factor analytical approach of CTT. It is noteworthy that the emerging PROMIS instruments, which were developed with digital administration in mind using contemporary test construction approaches such as IRT and CAT, have lower usage (less than 4/393, 1% of the total usage in Figure 4) compared to other instruments that were originally developed in paper-and-pen format.

Instrument Usages

Figure 5 presents the 24 instruments' usage from different perspectives across 147 studies. Figure 5A shows the distribution of the usage percentage of instruments. The top 3 instruments, which are deficits-focused, collectively contributed 46.2% (121/262) of the total usage of the 24 instruments (N=262): PHQ-9 (53/262, 20.2%), GAD-7 (51/262, 19.5%), and Depression, Anxiety, Stress Scale 21 Items (DASS-21; 17/262, 6.5%). Figure 5B breaks down the instrument's usage by the record's publication year. For each instrument, the usage pattern each year appeared to mimic its total usage pattern (Figure 5A), with the top 2 instruments (PHQ-9 and GAD-7) showing consistently high usage patterns across years since 2010. All included instruments were developed and released before 2010, so there is no need to consider the creation year when calculating usage frequency, as defined in our protocol [56]. Figure 5C presents a different perspective on each instrument. This figure shows the usage frequency by instrument (between 2010-2021), in which most instruments have higher usage toward the years 2020 and 2021, most likely influenced by the number of published records in 2020 and 2021 (Multimedia Appendix 5). Nonetheless, some top instruments (eg, PHQ-9, GAD-7, DASS-21, K10, and PSS-10) have been used almost consistently since 2010 among the included studies. In contrast, instruments measuring mental well-being, such as the SWL, WEMWBS, and MHC-SF, have only been used since 2015.

Figure 5. (A) Total usage of each instrument. (B) The usage percentage of each instrument per publication year of the record. (C) The usage percentage per instrument across years. AUDIT: Alcohol Use Disorder Identification Test; BDI-II: Beck Depression Inventory II; CES-D: Center for Epidemiologic Studies-Depression Scale; DASS-21: Depression, Anxiety, Stress Scale 21 Items; EDE-Q: Eating Disorder Examination Questionnaire; GAD-7: Generalized Anxiety Disorder 7 Items; HADS: Hospital Anxiety and Depression Scale; IES-R: Impact of Event Scale-Revised; K10: Kessler Psychological Distress Scale; MHC-SF: Mental Health Continuum Short-Form; PANAS: Positive and Negative Affect Schedule; PDSS-SR: Panic Disorder Severity Scale-Self Report 7 Items; PHQ-8: Patient Health Questionnaire 8 Items; PHQ-9: Patient Health Questionnaire 9 Items; PSS-4: Perceived Stress Scale 4 Items; PSS-10: Perceived Stress Scale 10 Items; PSS-14: Perceived Stress Scale 14 Items; QID-SR: Quick Inventory of Depressive Symptomatology 16 Items; SF-36: Medical Outcome Survey Short Form 36 Items; STAI: Spielberger State-Trait Anxiety Inventory; SWL: Satisfaction With Life Scale; WEMWBS: Warwick-Edinburgh Mental Well-Being Scale; WHOQOL-BREF: The World Health Organization Quality of Life (abbreviated version).



Study Characteristics

Table 2 summarizes how the 24 instruments were administered in the studies identified (n=147). Among the included studies (grouped by instruments) in Table 2, each instrument was administered in various digital modalities and frequencies to the general population. The most common digital modalities for administering these instruments were through web applications accessible by any internet-connected device and

mobile apps. The frequency of administration of the included instruments varies from multiple times a day [275,276] to yearly [277,278]. Studies that administered the same instrument multiple times per day typically used an experience sampling design such as ecological momentary assessment (EMA) [279]. The response time frame of instruments was typically adapted by including studies despite the original scales having a default recommended duration (eg, past 2 weeks and past 4 weeks).

Table 2. The attributes of the included studies are grouped by selected instruments.

Instrument and associated studies	Administration mode	Administration frequency	Response time frame	Study design	Country
PHQ-9 ^a [88,89,280-330]	Laptop or computer, mobile app, web application, or tablet or phone	1 day, 1 week, 12 months, 6 months, >1 month, >1 year, every 6 days, fortnightly, monthly, on-demand, or weekly	Past 2 weeks, past 4 weeks, past 6 days, or past week	EMA ^b , RCT ^c , cohort study, internet survey, or pre-post	UK, Ireland, USA, Canada, Australia, or New Zealand
GAD-7 ^d [88,89,280,282-286,288, 289,292,294,295,297,299-306,309, 311,313,317,318,320-327, 329-344]	Laptop or computer; mobile app; web application; SMS, text or email; or tablet or phone	1 day, 1 month, 1 week, 11 months, 3 weeks, >1 month, >1 year, every 6 days, fortnightly, monthly, on-demand, or weekly	Past 2 weeks, past 4 weeks, past 6 days, past 7 days	EMA, RCT, cohort study, internet survey, pre-post, or repeated cross-sectional	UK, Ireland, USA, Canada, Australia, New Zealand, or Singapore
DASS-21 ^e [90,283,324,345-358]	Mobile app and web application	1 month, 2 weeks, >1 month, >1 year, or weekly	Past 6 months or past week	EMA, RCT, case series, cohort study, or pre-post	Canada, Australia, USA, New Zealand, or UK
K10 ^f [88,89,277,278,289, 291,302,303,312,315,323, 330,359]	Web application	1 month, 1 week, 3 weeks, 4 times over 90 days, >1 month, 6 times over 10 weeks, or yearly	Past 2 weeks, past 28 days, past 30 days, past 4 weeks, or past month or last month	EMA, RCT, cohort study, internet survey, or pre-post	Canada, Australia, UK, Ireland, USA, New Zealand, or UK
PSS-10 ^g [277,311,343,351,360-367]	Mobile app and web application	2 weeks, 3 weeks, >1 month, or yearly	Past month or last month, or past week or last week	EMA, RCT, cohort study, internet survey, or pre-post	USA, Australia, UK, or Canada
HADS ^h [312,368-376]	ACASI ⁱ , mobile app, or web application	1 month, 1 year, 6 months, >1 month, every 6 months, or on-demand	Past week or last week	RCT or cohort study	Australia, UK, USA, Singapore, or Canada
BDI-II ^j [291,312,331,334,353,377-380] ^k	Web application	1 month or >1 month	Past 2 weeks	RCT, cohort study, or pre-post	Australia, Ireland, USA, or Hong Kong
SWL ^l [90,91,275,288,357,365,381-383]	Mobile app or web application	1 month, 1 week, 30 days, >1 month, multiple times per day, on-demand, or same day	Now	EMA, RCT, cohort study, or pre-post	UK, Australia, New Zealand, or USA
CES-D ^m [91,338,366,381,384-387]	Laptop or computer, or web application	1 month, 1 week, 3 weeks, 6 months, or >1 month	Past week or last week	RCT, cohort study, or repeated cross-sectional	Canada, USA, Australia, UK, or non-specified countries from Asia and Europe
WEMWBS ⁿ [276,278,295,306,373,388-390]	Mobile app or web application	1 month, 4 weeks, >1 month, multiple times per day, or yearly	Now or past 2 weeks	EMA, RCT, cohort study, or internet survey	UK or USA
PHQ-8 ^o [92,339,360,391-394]	Mobile app, web application, or tablet or phone	1 year, 2 weeks, 4 weeks, 6 months, >1 month, or on-demand	Past 2 weeks	EMA, RCT, cohort study, or pre-post	UK, USA, or Australia
PANAS ^p [327,351,358,364,386,395,396]	Web application	1 week, 2 weeks, 4 weeks, 6 months, >1 month, or daily	General, moment, past few days, past few weeks, today, week, or year	EMA, RCT, cohort study, or pre-post	USA, Canada, UK, or Australia
QIDS-SR ^q [93,333,397-400]	Mobile app; web application; SMS, text, or email; or tablet or phone	1 year, 2 weeks, >1 month, daily, or weekly	Past 7 days	EMA, RCT, or cohort study	Canada, UK, or USA
AUDIT ^r [318,345,346,368,401]	ACASI or web application	1 year, >1 month, >1 year, or every 6 months	Past year or last year	RCT, cohort study, or pre-post	UK, Australia, or Canada
EDE-Q ^s [277,347,378,402,403]	Web application	1 month, 6 months, >1 month, >1 year, or yearly	Past 28 days	RCT, cohort study, or pre-post	UK, Australia, Hong Kong, or USA

Instrument and associated studies	Administration mode	Administration frequency	Response time frame	Study design	Country
IES-R ^t [292,301,374,404,405]	Web application	1 year, 6 months, or >1 month	Past 7 days	RCT, cohort study, or internet survey	Ireland, Australia, or USA
SF-36 ^u [357,363,378,395,406]	Web application	1 month, 2 weeks, >1 month, or biannually	Past 4 weeks	RCT, cohort study, or pre-post	Australia, New Zealand, USA, or Hong Kong
PDSS-SR ^v [88,283,284,323,324]	Web application	6 months, >1 month, monthly, or weekly	Past week	RCT, cohort study, or pre-post	Canada or Australia
PSS-4 ^w [336,340,402,407,408]	Mobile app or web application	12 months, 6 months, >1 month, monthly, or weekly	Last 30 days, or past month or last month	RCT or cohort study	USA, Singapore, or UK
PSS-14 ^x [94,358,389,390,409]	Web application	1 month, >1 month, or daily	Past month or last month, or today	RCT, cohort study, or pre-post	USA, Canada, or UK
WHOQOL-BREF ^y [286,318,324,397,410]	Web application	1 year, 2 weeks, or >1 month	Past 4 weeks	RCT or pre-post	UK, Canada, or USA
EQ-5D [313,322,411,412]	Web application	1 month, 12 months, or >1 month	Today	RCT or pre-post	Australia, UK, or Canada
MHC-SF ^z [90,95,352,413]	Web application; or SMS, text, or email	1 month, >1 month, or multiple times per day	Since the last prompt or beep	EMA, RCT, or pre-post	Australia or USA
STAI ^{aa} [340,363,380,414]	Web application	2 weeks, >1 month, or weekly	Now	Cohort study or pre-post	USA

^aPHQ-9: Patient Health Questionnaire 9 Items.

^bEMA: ecological momentary assessment.

^cRCT: randomized controlled trial.

^dGAD-7: Generalized Anxiety Disorder 7 Items.

^eDASS-21: Depression, Anxiety, Stress Scale 21 Items.

^fK10: Kessler Psychological Distress Scale.

^gPSS-10: Perceived Stress Scale 10 Items.

^hHADS: Hospital Anxiety and Depression Scale.

ⁱACASI: audio computer-assisted self-interview.

^jBDI-II: Beck Depression Inventory II.

^kThis was administered only to the general public who were at risk or diagnosed with a physical or mental illness, not to the healthy general population.

^lSWL: Satisfaction With Life Scale.

^mCES-D: Center for Epidemiologic Studies-Depression Scale.

ⁿWEMWBS: Warwick-Edinburgh Mental Well-Being Scale.

^oPHQ-8: Patient Health Questionnaire 8 Items.

^pPANAS: Positive and Negative Affect Schedule.

^qQID-SR: Quick Inventory of Depressive Symptomatology 16 Items.

^rAUDIT: Alcohol Use Disorder Identification Test.

^sEDE-Q: Eating Disorder Examination Questionnaire.

^tIES-R: Impact of Event Scale-Revised.

^uSF-36: Medical Outcome Survey Short Form 36 Items.

^vPDSS-SR: Panic Disorder Severity Scale-Self Report 7 Items.

^wPSS-4: Perceived Stress Scale 4 Items.

^xPSS-14: Perceived Stress Scale 14 Items.

^yWHOQOL-BREF: The World Health Organization Quality of Life (abbreviated version).

^zMHC-SF: Mental Health Continuum Short-Form.

^{aa}STAI: Spielberger State-Trait Anxiety Inventory.

Comparison With Existing Literature

The set of frequently used instruments identified here broadly aligns with findings of past reviews examining outcome measurements. Points of difference are likely due to the unique

focus of this review on digital and longitudinal applications of the instruments. The commonly used measurement instruments that Breedvelt et al [66] found were included in the initial 68 instruments in the present review, except for the Edinburgh Postnatal Depression Scale [415] and General Health

Questionnaire-12 [416]. The Edinburgh Postnatal Depression Scale was excluded because it is outside the scope of the present review. It is noteworthy that Breedvelt et al [66] found that the CES-D was the most commonly used instrument in measuring depression, followed by the Beck Depression Inventory II and the PHQ-9, whereas in the present review, we found that the usage of the PHQ-9 is substantially higher than that of any other instrument. This difference may be due to the present focus on digital, repeated measures application, especially given that the PHQ-9 is commonly used in mobile apps for EMA studies [417,418].

Most instruments measuring mental well-being and HRQoL found in the present review were also identified in an earlier review by Lindert et al [61] of well-being measurement scales. An exception, however, is the MHC-SF. The difference in review timeframes between Lindert et al (2007-2012) [61] and the present review (2010-2021) may explain this discrepancy. Another plausible explanation is that Lindert et al [61] focused on subjective well-being, whereas MHC-SF is conceptually broader than subjective well-being. In contrast, a recent scoping review focusing on the dual-continua model of mental health [55] found SWL and MHC-SF to be the most used measurements for positive mental health—both instruments appear in Table 1 here. Beidas et al [96] found 29 validated mental health screening instruments for the general adult population that are free and brief. Some instruments found in the present review, such as the DASS-21, CES-D, K10, and PSS-10, were not included in their review, most likely due to differences in search scopes and review aims.

Discussion

Overview

The present scoping review aimed to advance our understanding of the range of instruments that could function as mental health self-monitoring tools in the digital era. This was achieved by identifying empirical studies that administered instruments in (1) the general population, (2) digital format, and (3) longitudinal designs. To the best of our knowledge, this is the first review that focuses on studies that administered instruments meeting these 3 criteria. The primary outcome was an ordered list of commonly used instruments that measure mental health longitudinally using digital technologies in the general population.

Principal Findings

The literature review and synthesis generated 2 major findings. First, among the 24 most commonly used instruments, the majority (18/24, 75%) were deficits-focused. PHQ-9 and GAD-7 were by far the most used instruments, with consistent yearly usage between the years 2010 and 2021, measuring symptoms of depression and generalized anxiety, correspondingly. In the present review, the considerably higher usage of PHQ-9 and GAD-7 (Figure 5) was unsurprising because they have been used extensively as longitudinal measures for mental health, from web-based applications to mobile apps for EMA studies [417,418]. These 2 instruments are also nominated for use in a recent global effort to standardize mental health measures [419].

The list of commonly used instruments also included strengths-focused instruments (eg, SWL, WEMWBS, and MHC-SF). Instruments measuring HRQoL (eg, SF-36 and WHOQOL-BREF) are a different type of commonly used instrument—from Keyes' framework, they can be understood as measuring aspects of deficits-based (eg, anxiety or depression) and strengths-based (eg, positive effects or energy level) mental health constructs in conjunction with ratings of physical health domains and functioning. Among the strengths-focused instruments, SWL, WEMWBS, and MHC-SF, measuring life satisfaction and mental well-being, were found to be the most used instruments.

The predominance of deficits-focused instruments found here is at least partly due to the traditional elevation of illness-focused constructs in psychology and mental health research and practice (not to mention medicine and psychiatry [420]). The granularity of the deficits-based constructs measured by these instruments may also contribute to their disproportionate usage. For example, deficits-focused instruments are typically unidimensional and high-fidelity [421,422] as these instruments emphasize the accuracy and specificity of screening for or diagnosing specific mental disorders. In contrast, strengths-focused instruments and HRQoL instruments are typically multidimensional, containing broad constructs of measurement (also known as high bandwidth), addressing the complexity and variability of the domain of mental health or general health [62,423].

It is important to note that, used in isolation, the population deficits-focused instruments identified here may have limited utility as longitudinal mental health self-monitoring tools in the general population. The prevalence of mental disorders in the general population is relatively low, so deficits-focused instruments measuring symptoms of mental illnesses tend to exhibit floor effects [97,424,425]. While these screening instruments play a role in potentially detecting early symptoms of mental illnesses, they may not be so helpful in providing a general picture of individuals' mental health over time. The dual continua model of mental health suggests that measuring strengths-based constructs could complement deficits-focused measurement and consequently provide more ecologically valid and statistically sensitive assessments for the general population.

Second, while the 24 instruments synthesized in this review have been frequently administered in digital modalities (1 of the review's 3 inclusion criteria), they were all developed at least 2 decades ago, and most followed CTT and were designed for paper-and-pen format. Since then, we have seen substantial work using IRT to revalidate the psychometric properties of these instruments [426-428], but (except for the PROMIS project) less attention has been devoted to new instrument development.

Next-generation mental health assessments could harness the computational power offered by digital technologies, coupled with contemporary psychometric practices such as IRT and computerized adaptive testing, to advance evidence-based assessments. Undoubtedly, a holistic instrument that measures both deficits- and strengths-based constructs may contain a larger number of self-report items compared to deficits- or strengths-based instruments alone. However, the combination

of IRT and computerized adaptive testing can significantly reduce the number of questions asked in a survey [35], which reduces respondent fatigue burden [429], a common phenomenon where participants lose motivation when completing long or repeated surveys, affecting the data quality. This phenomenon is particularly prominent in self-monitoring instruments, which are typically administered multiple times over a period [430]. Therefore, there is a golden opportunity to lift the capability of evidence-based assessments through digital technologies, which provide an excellent launching platform for a digital tool that encourages people to monitor their mental health.

Limitations

Due to the sheer volume of eligible records for full-text screening, for pragmatic reasons, we randomly selected 4 batches of 250 records (a total of 1000 records) of the 8460 eligible records for full-text screening and synthesis after the preliminary screening. Although we demonstrated that the distributions of instruments' usages were statistically indicative of the full records, we cannot definitively exclude the possibility that this pragmatic strategy biased our findings. However, given the prominence of a few commonly used instruments at the top of the list (eg, PHQ-9 and GAD-7) and previous studies in the literature, it seems unlikely that we missed any instruments that would have warranted inclusion in the top 30 (Figure 4). Our primary objective is to develop a novel ranking of the most frequently used instruments that are potentially suitable for mental health self-monitoring in the general population. Future studies can elaborate on and update the results presented in the present study by considering records that were not selected for full-text screening. Additionally, the restriction on English-only instruments in this review may limit the generalizability of the results.

Implications

This study has several implications for future research. First, the finding that deficits-focused instruments predominate the ranking of usage frequency despite their known distributional problems in the general population (floor effects) calls for serious consideration of more holistic instruments. As positive psychology, recovery, and mental health promotion and prevention gain traction [420], future research studies should work toward the development of more holistic measures, potentially informed by the dual continua model [431-434]. Such measures for general population use would adequately capture both deficits (constructs relevant to a significant minority of the population, and of great interest clinically) and strengths (constructs that have the potential to support the majority of the population to advance their positive mental health).

Second, the 24 instruments included in the final synthesis of measures, while commonly used, were originally designed more than a decade ago for use in paper-and-pen format without taking advantage of the great possibilities of digital measurement, such as computerized adaptive testing. Although these instruments have been translated into digital format, we observed that the implications of such direct translation may not have been fully investigated, especially when these instruments were administered in repeated measurements with short intervals (eg, multiple times per day), such as EMA studies.

Finally, we highlight that advances in technology's power and reach (eg, smartphones [435-437]) and developments in psychometric practice (eg, IRT and computerized adaptive testing [34,35]) provide exciting opportunities for optimizing digital delivery of psychological measures. While existing deficits-focused instruments could be (and often are) used alongside a strengths-focused measure (eg, HRQoL [438] or SWL [439]), this strategy has some significant limitations. Specifically, it does not recognize the overlap between the 2 dimensions of mental health as proposed in the dual continua model, generates unnecessary response burden, and limits construct validity. Given that the intercorrelated relationship between deficits- and strengths-based mental health constructs is well-established in the literature [14,55], measuring both of them in a single instrument, as we argued, has the optimal construct validity. Theoretically, with the advances in digital technologies, a next-generation low-burden mental health monitoring tool that can measure both deficits and strengths of individuals' mental health that is relevant and engaging is entirely feasible. Indeed, findings from the present review suggest that a novel computerized adaptive testing instrument could be purposely built to achieve this aim [440].

Conclusions

Although the last decade has seen a shift in the conceptualization of mental health to recognize strengths-focused concepts alongside traditional deficits-focused constructs, our review found that when it comes to an important translational opportunity—measuring mental health digitally and longitudinally in the general population, as is required for mental health monitoring, the literature remains skewed toward illness- and deficits-based constructs. The review also found that this legacy conceptualization of mental health comes along with a legacy approach to test development. We conclude that the computational power and ubiquity of digital technologies have untapped potential to advance mental health measurement by supporting a more holistic characterization of the complexity intrinsic to the mental health construct. Specifically, IRT-based development of a dual-continua mental health instrument to be delivered via CAT is an exciting possibility for the near future.

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Data Availability

Data, code, and other materials generated or analyzed during this review are available from the corresponding author on reasonable request.

Authors' Contributions

GM is the guarantor. ZHK preliminarily screened the papers. After that, ZHK and DS screened the eligible papers in full-text and extracted data from the final included papers. ZHK analyzed and synthesized the data before drafting this paper. GM and JS reviewed this paper. All authors contributed to the selection criteria, the risk of bias assessment strategy, and the data extraction criteria. ZHK developed the search strategy with a librarian (acknowledged above). GM and JS reviewed the search strategy. All authors read, provided feedback, and approved this final paper.

Conflicts of Interest

None declared.

Multimedia Appendix 1

The conceptualization of mental health in this review. This diagram depicts our conceptualization of mental health to guide our search strategy and formulation of search terms. A copy of this figure is also available in our protocol [1].

[\[PNG File , 448 KB-Multimedia Appendix 1\]](#)

Multimedia Appendix 2

Mapping of the research questions between the protocol and the present scoping review.

[\[PNG File , 259 KB-Multimedia Appendix 2\]](#)

Multimedia Appendix 3

Search protocols and ancillary information on instruments.

[\[DOCX File , 78 KB-Multimedia Appendix 3\]](#)

Multimedia Appendix 4

The decision flowchart to determine if an instrument used in a paper is in English.

[\[PNG File , 222 KB-Multimedia Appendix 4\]](#)

Multimedia Appendix 5

The distribution of the publication years of the included studies.

[\[PNG File , 25 KB-Multimedia Appendix 5\]](#)

Multimedia Appendix 6

PRISMA 2020 Checklist.

[\[PDF File \(Adobe PDF File\), 1441 KB-Multimedia Appendix 6\]](#)

References

1. Schulman-Green D, Jaser S, Martin F, Alonzo A, Grey M, McCorkle R, et al. Processes of self-management in chronic illness. *J Nurs Scholarsh*. Jun 2012;44(2):136-144. [[FREE Full text](#)] [doi: [10.1111/j.1547-5069.2012.01444.x](https://doi.org/10.1111/j.1547-5069.2012.01444.x)] [Medline: [22551013](#)]
2. Lorig KR, Mazonson PD, Holman HR. Evidence suggesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs. *Arthritis Rheum*. 1993;36(4):439-446. [doi: [10.1002/art.1780360403](https://doi.org/10.1002/art.1780360403)] [Medline: [8457219](#)]
3. Lupton D. The digitally engaged patient: self-monitoring and self-care in the digital health era. *Soc Theory Health*. 2013;11(3):256-270. [doi: [10.1057/sth.2013.10](https://doi.org/10.1057/sth.2013.10)]
4. Cahn A, Akirov A, Raz I. Digital health technology and diabetes management. *J Diabetes*. 2018;10(1):10-17. [doi: [10.1111/1753-0407.12606](https://doi.org/10.1111/1753-0407.12606)] [Medline: [28872765](#)]

5. Grady PA, Gough LL. Self-management: a comprehensive approach to management of chronic conditions. *Am J Public Health*. 2014;104(8):e25-e31. [doi: [10.2105/AJPH.2014.302041](https://doi.org/10.2105/AJPH.2014.302041)] [Medline: [24922170](https://pubmed.ncbi.nlm.nih.gov/24922170/)]
6. Panagioti M, Richardson G, Small N, Murray E, Rogers A, Kennedy A, et al. Self-management support interventions to reduce health care utilisation without compromising outcomes: a systematic review and meta-analysis. *BMC Health Serv Res*. 2014;14:356. [doi: [10.1186/1472-6963-14-356](https://doi.org/10.1186/1472-6963-14-356)] [Medline: [25164529](https://pubmed.ncbi.nlm.nih.gov/25164529/)]
7. Doran CM, Kinchin I. A review of the economic impact of mental illness. *Aust Health Rev*. 2019;43(1):43-48. [doi: [10.1071/AH16115](https://doi.org/10.1071/AH16115)] [Medline: [29129189](https://pubmed.ncbi.nlm.nih.gov/29129189/)]
8. Mental health - productivity commission inquiry report. Australian Government Productivity Commission. 2020. URL: <https://www.pc.gov.au/inquiries/completed/mental-health/report/mental-health.pdf> [accessed 2025-09-03]
9. Australian Institute of Health and Welfare. Expenditure on mental health services. Australian Institute of Health and Welfare. 2024. URL: <https://www.aihw.gov.au/mental-health/topic-areas/expenditure> [accessed 2025-09-03]
10. Australian Institute of Health and Welfare. Mental Health Services in Australia. 2020. URL: <https://www.aihw.gov.au/reports/mental-health-services/mental-health-services-in-australia/report-contents/expenditure-on-mental-health-related-services> [accessed 2025-09-03]
11. Goodings L, Ellis D, Tucker I. Self-tracking in mental health apps. In: *Understanding Mental Health apps* Palgrave Studies in Cyberpsychology Cham. Switzerland. Springer Nature; 2024:23-42.
12. Abraham C, Michie S. A taxonomy of behavior change techniques used in interventions. *Health Psychol*. 2008;27(3):379-387. [doi: [10.1037/0278-6133.27.3.379](https://doi.org/10.1037/0278-6133.27.3.379)] [Medline: [18624603](https://pubmed.ncbi.nlm.nih.gov/18624603/)]
13. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SLT, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med*. 2002;32(6):959-976. [doi: [10.1017/s0033291702006074](https://doi.org/10.1017/s0033291702006074)] [Medline: [12214795](https://pubmed.ncbi.nlm.nih.gov/12214795/)]
14. Keyes CLM. Mental illness and/or mental health? Investigating axioms of the complete state model of health. *J Consult Clin Psychol*. 2005;73(3):539-548. [FREE Full text] [doi: [10.1037/0022-006X.73.3.539](https://doi.org/10.1037/0022-006X.73.3.539)] [Medline: [15982151](https://pubmed.ncbi.nlm.nih.gov/15982151/)]
15. Lamers SMA, Westerhof GJ, Bohlmeijer ET, ten Klooster PM, Keyes CLM. Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *J Clin Psychol*. 2011;67(1):99-110. [doi: [10.1002/jclp.20741](https://doi.org/10.1002/jclp.20741)] [Medline: [20973032](https://pubmed.ncbi.nlm.nih.gov/20973032/)]
16. Tennant R, Hiller L, Fishwick R, Platt S, Joseph S, Weich S, et al. The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): development and UK validation. *Health Qual Life Outcomes*. 2007;5:63. [doi: [10.1186/1477-7525-5-63](https://doi.org/10.1186/1477-7525-5-63)] [Medline: [18042300](https://pubmed.ncbi.nlm.nih.gov/18042300/)]
17. Barry MM. Promoting positive mental health: theoretical frameworks for practice. *Int J Ment Health Promot*. 2001;3(1):25-34. [FREE Full text] [doi: [10.13025/22199](https://doi.org/10.13025/22199)]
18. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606-613. [FREE Full text] [doi: [10.1046/j.1525-1497.2001.016009606.x](https://doi.org/10.1046/j.1525-1497.2001.016009606.x)] [Medline: [11556941](https://pubmed.ncbi.nlm.nih.gov/11556941/)]
19. Beck AT, Steer RA, Brown G. Beck Depression Inventory-II. American Psychological Association. 1996. URL: <https://doi.org/10.1037/t00742-000> [accessed 2025-09-04]
20. Alqahtani F, Al Khalifah G, Oyeboode O, Orji R. Apps for mental health: an evaluation of behavior change strategies and recommendations for future development. *Front Artif Intell*. 2019;2:30. [doi: [10.3389/frai.2019.00030](https://doi.org/10.3389/frai.2019.00030)] [Medline: [33733119](https://pubmed.ncbi.nlm.nih.gov/33733119/)]
21. Richter MF, Storck M, Blitz R, Goltermann J, Seipp J, Dannlowski U, et al. Repeated digitized assessment of risk and symptom profiles during inpatient treatment of affective disorder: observational study. *JMIR Ment Health*. 2020;7(12):e24066. [FREE Full text] [doi: [10.2196/24066](https://doi.org/10.2196/24066)] [Medline: [33258791](https://pubmed.ncbi.nlm.nih.gov/33258791/)]
22. Insel TR. Digital phenotyping: a global tool for psychiatry. *World Psychiatry*. 2018;17(3):276-277. [FREE Full text] [doi: [10.1002/wps.20550](https://doi.org/10.1002/wps.20550)] [Medline: [30192103](https://pubmed.ncbi.nlm.nih.gov/30192103/)]
23. Torous J, Roberts LW. Needed innovation in digital health and smartphone applications for mental health: transparency and trust. *JAMA Psychiatry*. 2017;74(5):437-438. [doi: [10.1001/jamapsychiatry.2017.0262](https://doi.org/10.1001/jamapsychiatry.2017.0262)] [Medline: [28384700](https://pubmed.ncbi.nlm.nih.gov/28384700/)]
24. Torous J, Wisniewski H, Bird B, Carpenter E, David G, Elejalde E, et al. Creating a digital health smartphone app and digital phenotyping platform for mental health and diverse healthcare needs: an interdisciplinary and collaborative approach. *J Technol Behav Sci*. 2019;4(2):73-85. [FREE Full text] [doi: [10.1007/s41347-019-00095-w](https://doi.org/10.1007/s41347-019-00095-w)]
25. Van Ameringen M, Turna J, Khalesi Z, Pullia K, Patterson B. There is an app for that! The current state of mobile applications (apps) for DSM-5 obsessive-compulsive disorder, posttraumatic stress disorder, anxiety and mood disorders. *Depress Anxiety*. 2017;34(6):526-539. [doi: [10.1002/da.22657](https://doi.org/10.1002/da.22657)] [Medline: [28569409](https://pubmed.ncbi.nlm.nih.gov/28569409/)]
26. Anthes E. Mental health: there's an app for that. *Nature*. 2016;532(7597):20-23. [doi: [10.1038/532020a](https://doi.org/10.1038/532020a)] [Medline: [27078548](https://pubmed.ncbi.nlm.nih.gov/27078548/)]
27. Sucala M, Cuijpers P, Muench F, Cardo R, Soflau R, Dobrean A, et al. Anxiety: there is an app for that. A systematic review of anxiety apps. *Depress Anxiety*. 2017;34(6):518-525. [doi: [10.1002/da.22654](https://doi.org/10.1002/da.22654)] [Medline: [28504859](https://pubmed.ncbi.nlm.nih.gov/28504859/)]
28. Wasil AR, Palermo EH, Lorenzo-Luaces L, DeRubeis RJ. Is there an app for that? A review of popular apps for depression, anxiety, and well-being. *Cognit Behav Pract*. 2022;29(4):883-901. [FREE Full text] [doi: [10.1016/j.cbpra.2021.07.001](https://doi.org/10.1016/j.cbpra.2021.07.001)]
29. Allen MJ, Yen WM. *Introduction to Measurement Theory*. United States. Waveland Press; 2001.
30. Embretson SE, Reise SP. *Item Response Theory for Psychologists*. England, United Kingdom. Psychology Press; 2014.
31. Lord FMN. *Statistical Theories of Mental Test Scores*. Boston, Massachusetts. Addison-Wesley; 1966.

32. Zanon C, Hutz CS, Yoo H, Hambleton RK. An application of item response theory to psychological test development. *Psicol Refl Crit.* 2016;29(1):18. [doi: [10.1186/s41155-016-0040-x](https://doi.org/10.1186/s41155-016-0040-x)]
33. Hambleton RK, Jones RW. Comparison of classical test theory and item response theory and their applications to test development. *Educ Meas: Issues Pract.* 1993;12(3):38-47. [doi: [10.1111/j.1745-3992.1993.tb00543.x](https://doi.org/10.1111/j.1745-3992.1993.tb00543.x)]
34. Gibbons RD, Weiss DJ, Kupfer DJ, Frank E, Fagiolini A, Grochocinski VJ, et al. Using computerized adaptive testing to reduce the burden of mental health assessment. *Psychiatr Serv.* 2008;59(4):361-368. [FREE Full text] [doi: [10.1176/ps.2008.59.4.361](https://doi.org/10.1176/ps.2008.59.4.361)] [Medline: [18378832](https://pubmed.ncbi.nlm.nih.gov/18378832/)]
35. Gibbons RD, Weiss DJ, Frank E, Kupfer D. Computerized adaptive diagnosis and testing of mental health disorders. *Annu Rev Clin Psychol.* 2016;12:83-104. [doi: [10.1146/annurev-clinpsy-021815-093634](https://doi.org/10.1146/annurev-clinpsy-021815-093634)] [Medline: [26651865](https://pubmed.ncbi.nlm.nih.gov/26651865/)]
36. Carlo AD, Barnett BS, Cella D. Computerized adaptive testing (CAT) and the future of measurement-based mental health care. *Adm Policy Ment Health.* 2021;48(5):729-731. [FREE Full text] [doi: [10.1007/s10488-021-01123-9](https://doi.org/10.1007/s10488-021-01123-9)] [Medline: [33655462](https://pubmed.ncbi.nlm.nih.gov/33655462/)]
37. Intro to PROMIS. Health Measures. 2021. URL: <https://www.healthmeasures.net/explore-measurement-systems/promis/intro-to-promis> [accessed 2025-09-03]
38. Pavlova A, Berkers P. "Mental Health" as defined by Twitter: frames, emotions, stigma. *Health Commun.* 2022;37(5):637-647. [FREE Full text] [doi: [10.1080/10410236.2020.1862396](https://doi.org/10.1080/10410236.2020.1862396)] [Medline: [33356604](https://pubmed.ncbi.nlm.nih.gov/33356604/)]
39. Stuart H. Media portrayal of mental illness and its treatments: what effect does it have on people with mental illness? *CNS Drugs.* 2006;20(2):99-106. [doi: [10.2165/00023210-200620020-00002](https://doi.org/10.2165/00023210-200620020-00002)] [Medline: [16478286](https://pubmed.ncbi.nlm.nih.gov/16478286/)]
40. Whitley R, Berry S. Trends in newspaper coverage of mental illness in Canada: 2005-2010. *Can J Psychiatry.* 2013;58(2):107-112. [doi: [10.1177/070674371305800208](https://doi.org/10.1177/070674371305800208)] [Medline: [23442898](https://pubmed.ncbi.nlm.nih.gov/23442898/)]
41. Payton AR. Mental health, mental illness, and psychological distress: same continuum or distinct phenomena? *J Health Soc Behav.* 2009;50(2):213-227. [doi: [10.1177/002214650905000207](https://doi.org/10.1177/002214650905000207)] [Medline: [19537461](https://pubmed.ncbi.nlm.nih.gov/19537461/)]
42. Mental health: facing the challenges, building solutions: report from the WHO European Ministerial Conference. World Health Organization. 2005. URL: <https://iris.who.int/handle/10665/326566> [accessed 2025-09-03]
43. Manderscheid RW, Ryff CD, Freeman EJ, McKnight-Eily LR, Dhingra S, Strine TW. Evolving definitions of mental illness and wellness. *Prev Chronic Dis.* 2010;7(1):A19. [FREE Full text] [Medline: [20040234](https://pubmed.ncbi.nlm.nih.gov/20040234/)]
44. Mechanic D. The murky challenge of mental health. In: *The Truth about Health Care: Why Reform Is Not Working*. America New Brunswick, NJ. Rutgers University Press; 2006:67-83.
45. Huber M, Knottnerus JA, Green L, van der Horst H, Jadad AR, Kromhout D, et al. How should we define health? *BMJ.* 2011;343:d4163. [doi: [10.1136/bmj.d4163](https://doi.org/10.1136/bmj.d4163)] [Medline: [21791490](https://pubmed.ncbi.nlm.nih.gov/21791490/)]
46. Galderisi S, Heinz A, Kastrup M, Beezhold J, Sartorius N. A proposed new definition of mental health. *Psychiatr Pol.* 2017;51(3):407-411. [FREE Full text] [doi: [10.12740/PP/74145](https://doi.org/10.12740/PP/74145)] [Medline: [28866712](https://pubmed.ncbi.nlm.nih.gov/28866712/)]
47. Manwell LA, Barbic SP, Roberts K, Durisko Z, Lee C, Ware E, et al. What is mental health? Evidence towards a new definition from a mixed methods multidisciplinary international survey. *BMJ Open.* 2015;5(6):e007079. [FREE Full text] [doi: [10.1136/bmjopen-2014-007079](https://doi.org/10.1136/bmjopen-2014-007079)] [Medline: [26038353](https://pubmed.ncbi.nlm.nih.gov/26038353/)]
48. Cyranka K. Controversial issues in current definitions of mental health. *Arch Psych Psych.* 2020;22(1):7-11. [doi: [10.12740/app/118064](https://doi.org/10.12740/app/118064)]
49. Granlund M, Imms C, King G, Andersson AK, Augustine L, Brooks R, et al. Definitions and operationalization of mental health problems, wellbeing and participation constructs in children with NDD: distinctions and clarifications. *Int J Environ Res Public Health.* 2021;18(4):1656. [FREE Full text] [doi: [10.3390/ijerph18041656](https://doi.org/10.3390/ijerph18041656)] [Medline: [33572339](https://pubmed.ncbi.nlm.nih.gov/33572339/)]
50. Lundqvist C, Andersson G. Let's talk about mental health and mental disorders in elite sports: a narrative review of theoretical perspectives. *Front Psychol.* 2021;12:700829. [FREE Full text] [doi: [10.3389/fpsyg.2021.700829](https://doi.org/10.3389/fpsyg.2021.700829)] [Medline: [34267715](https://pubmed.ncbi.nlm.nih.gov/34267715/)]
51. Diener E. Subjective well-being. *Psychol Bull.* 1984;95(3):542-575. [Medline: [6399758](https://pubmed.ncbi.nlm.nih.gov/6399758/)]
52. Keyes CLM. The mental health continuum: from languishing to flourishing in life. *J Health Soc Behav.* 2002;43(2):207. [doi: [10.2307/3090197](https://doi.org/10.2307/3090197)]
53. Seligman M. *Flourish: A Visionary New Understanding of Happiness and Well-Being*. Flourish. Simon; Schuster; 2012.
54. A national framework for recovery-oriented mental health services: guide for practitioners and providers. Australian Government Department of Health, Disability and Ageing. 2024. URL: <https://www.health.gov.au/resources/publications/a-national-framework-for-recovery-oriented-mental-health-services-guide-for-practitioners-and-providers?language=en>; [accessed 2025-09-03]
55. Iasiello M, van Agteren J, Cochrane EM. Mental health and/or mental illness: a scoping review of the evidence and implications of the dual-continua model of mental health. *Evidence Base J.* 2020;2020(1):1-45. [doi: [10.21307/eb-2020-001](https://doi.org/10.21307/eb-2020-001)]
56. Koh ZH, Skues J, Murray G. Digital self-report instruments for repeated measurement of mental health in the general adult population: a protocol for a systematic review. *BMJ Open.* 2023;13(1):e065162. [FREE Full text] [doi: [10.1136/bmjopen-2022-065162](https://doi.org/10.1136/bmjopen-2022-065162)] [Medline: [36693693](https://pubmed.ncbi.nlm.nih.gov/36693693/)]
57. Teng E, Venning A, Winefield H, Crabb S. Half full or half Empty: the measurement of mental health and mental illness in emerging Australian adults. *Soc Inquiry Well-Being, Mykolas Romeris Univ.* 2015;1(1):1-12. [doi: [10.13165/siww-15-1-1-01](https://doi.org/10.13165/siww-15-1-1-01)]

58. Newson JJ, Hunter D, Thiagarajan TC. The heterogeneity of mental health assessment. *Front Psychiatry*. 2020;11:76. [FREE Full text] [doi: [10.3389/fpsyt.2020.00076](https://doi.org/10.3389/fpsyt.2020.00076)] [Medline: [32174852](https://pubmed.ncbi.nlm.nih.gov/32174852/)]
59. van Ballegooijen W, Riper H, Cuijpers P, van Oppen P, Smit JH. Validation of online psychometric instruments for common mental health disorders: a systematic review. *BMC Psychiatry*. 2016;16:45. [FREE Full text] [doi: [10.1186/s12888-016-0735-7](https://doi.org/10.1186/s12888-016-0735-7)] [Medline: [26915661](https://pubmed.ncbi.nlm.nih.gov/26915661/)]
60. Martín-María N, Lara E, Cresswell-Smith J, Forsman AK, Kalseth J, Donisi V, et al. Instruments to evaluate mental well-being in old age: a systematic review. *Aging Ment Health*. 2021;25(7):1191-1205. [doi: [10.1080/13607863.2020.1774742](https://doi.org/10.1080/13607863.2020.1774742)] [Medline: [32496810](https://pubmed.ncbi.nlm.nih.gov/32496810/)]
61. Lindert J, Bain PA, Kubzansky LD, Stein C. Well-being measurement and the WHO health policy health 2010: systematic review of measurement scales. *Eur J Public Health*. 2015;25(4):731-740. [doi: [10.1093/eurpub/cku193](https://doi.org/10.1093/eurpub/cku193)] [Medline: [25616594](https://pubmed.ncbi.nlm.nih.gov/25616594/)]
62. Linton MJ, Dieppe P, Medina-Lara A. Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time. *BMJ Open*. 2016;6(7):e010641. [FREE Full text] [doi: [10.1136/bmjopen-2015-010641](https://doi.org/10.1136/bmjopen-2015-010641)] [Medline: [27388349](https://pubmed.ncbi.nlm.nih.gov/27388349/)]
63. Ong ZX, Douthwaite L, Perez Vallejos E, Rawsthorne M, Long Y. Measuring online wellbeing: a scoping review of subjective wellbeing measures. *Front Psychol*. 2021;12:616637. [doi: [10.3389/fpsyg.2021.616637](https://doi.org/10.3389/fpsyg.2021.616637)]
64. Martin-Key NA, Spadaro B, Funnell E, Barker EJ, Schei TS, Tomasik J, et al. The current state and validity of digital assessment tools for psychiatry: systematic review. *JMIR Ment Health*. 2022;9(3):e32824. [FREE Full text] [doi: [10.2196/32824](https://doi.org/10.2196/32824)] [Medline: [35353053](https://pubmed.ncbi.nlm.nih.gov/35353053/)]
65. Zamperoni V, Breedvelt J, Kousoulis A, South E, Uphoff E, Gilbody S, et al. A systematic review of mental health measurement scales for the assessment of the effects of mental health prevention interventions. PROSPERO. 2018. URL: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=95519 [accessed 2025-09-03]
66. Breedvelt JF, Zamperoni V, South E, Uphoff EP, Gilbody S, Bockting CLH, et al. A systematic review of mental health measurement scales for evaluating the effects of mental health prevention interventions. *Eur J Public Health*. 2020;30(3):510-516. [doi: [10.1093/eurpub/ckz233](https://doi.org/10.1093/eurpub/ckz233)] [Medline: [32236548](https://pubmed.ncbi.nlm.nih.gov/32236548/)]
67. Terwee CB, Bot SDM, de Boer MR, van der Windt DAWM, Knol DL, Dekker J, et al. Quality criteria were proposed for measurement properties of health status questionnaires. *J Clin Epidemiol*. 2007;60(1):34-42. [doi: [10.1016/j.jclinepi.2006.03.012](https://doi.org/10.1016/j.jclinepi.2006.03.012)] [Medline: [17161752](https://pubmed.ncbi.nlm.nih.gov/17161752/)]
68. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med*. 2006;166(10):1092-1097. [doi: [10.1001/archinte.166.10.1092](https://doi.org/10.1001/archinte.166.10.1092)] [Medline: [16717171](https://pubmed.ncbi.nlm.nih.gov/16717171/)]
69. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behav Res Ther*. 1995;33(3):335-343. [doi: [10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)] [Medline: [7726811](https://pubmed.ncbi.nlm.nih.gov/7726811/)]
70. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24(4):385-396. [Medline: [6668417](https://pubmed.ncbi.nlm.nih.gov/6668417/)]
71. Cohen S. Perceived stress in a probability sample of the United States. *Soc Psychol Health*. 1988;251:31-67. [FREE Full text]
72. Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatr Scand*. 1983;67(6):361-370. [doi: [10.1111/j.1600-0447.1983.tb09716.x](https://doi.org/10.1111/j.1600-0447.1983.tb09716.x)] [Medline: [6880820](https://pubmed.ncbi.nlm.nih.gov/6880820/)]
73. Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfaction With Life Scale. *J Pers Assess*. 1985;49(1):71-75. [doi: [10.1207/s15327752jpa4901_13](https://doi.org/10.1207/s15327752jpa4901_13)] [Medline: [16367493](https://pubmed.ncbi.nlm.nih.gov/16367493/)]
74. Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl Psychol Meas*. 1977;1(3):385-401. [doi: [10.1177/014662167700100306](https://doi.org/10.1177/014662167700100306)]
75. Kroenke K, Strine TW, Spitzer RL, Williams JBW, Berry JT, Mokdad AH. The PHQ-8 as a measure of current depression in the general population. *J Affect Disord*. 2009;114(1-3):163-173. [doi: [10.1016/j.jad.2008.06.026](https://doi.org/10.1016/j.jad.2008.06.026)] [Medline: [18752852](https://pubmed.ncbi.nlm.nih.gov/18752852/)]
76. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: the PANAS scales. *J Pers Soc Psychol*. 1988;54(6):1063-1070. [doi: [10.1037//0022-3514.54.6.1063](https://doi.org/10.1037//0022-3514.54.6.1063)] [Medline: [3397865](https://pubmed.ncbi.nlm.nih.gov/3397865/)]
77. Rush AJ, Trivedi MH, Ibrahim HM, Carmody TJ, Arnow B, Klein DN, et al. 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):573-583. [doi: [10.1016/s0006-3223\(02\)01866-8](https://doi.org/10.1016/s0006-3223(02)01866-8)] [Medline: [12946886](https://pubmed.ncbi.nlm.nih.gov/12946886/)]
78. Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption--II. *Addiction*. 1993;88(6):791-804. [doi: [10.1111/j.1360-0443.1993.tb02093.x](https://doi.org/10.1111/j.1360-0443.1993.tb02093.x)] [Medline: [8329970](https://pubmed.ncbi.nlm.nih.gov/8329970/)]
79. Fairburn CG, Beglin SJ. Assessment of eating disorders: interview or self-report questionnaire? *Int J Eat Disord*. 1994;16(4):363-370. [Medline: [7866415](https://pubmed.ncbi.nlm.nih.gov/7866415/)]
80. Weiss DS, Marmar CR, Wilson JP, editor. The Impact of Event Scale-Revised. New York, NY, US. The Guilford Press; 1997:399-411.
81. Ware JE. SF-36 Physical and Mental Health Summary Scores. Boston. The Health Institute; 1994.

82. Brazier JE, Harper R, Jones NM, O'Cathain A, Thomas KJ, Usherwood T, et al. Validating the SF-36 health survey questionnaire: new outcome measure for primary care. *BMJ*. 1992;305(6846):160-164. [FREE Full text] [Medline: [1285753](#)]
83. Houck PR, Spiegel DA, Shear MK, Rucci P. Reliability of the self-report version of the panic disorder severity scale. *Depress Anxiety*. 2002;15(4):183-185. [doi: [10.1002/da.10049](#)] [Medline: [12112724](#)]
84. Shear MK, Brown TA, Barlow DH, Money R, Sholomskas DE, Woods SW, et al. Multicenter collaborative panic disorder severity scale. *Am J Psychiatry*. 1997;154(11):1571-1575. [doi: [10.1176/ajp.154.11.1571](#)] [Medline: [9356566](#)]
85. Skevington SM, Lotfy M, O'Connell KA, WHOQOL Group. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual Life Res*. 2004;13(2):299-310. [doi: [10.1023/B:QURE.0000018486.91360.00](#)] [Medline: [15085902](#)]
86. Brooks R. EuroQol: the current state of play. *Health Policy*. 1996;37(1):53-72. [doi: [10.1016/0168-8510\(96\)00822-6](#)] [Medline: [10158943](#)]
87. Spielberg CD. State-trait anxiety inventory for adults. Our Products. 1983. [doi: [10.1037/t06496-000](#)]
88. Hadjistavropoulos HD, Schneider LH, Mehta S, Karin E, Dear BF, Titov N. Preference trial of internet-delivered cognitive behaviour therapy comparing standard weekly versus optional weekly therapist support. *J Anxiety Disord*. 2019;63:51-60. [FREE Full text] [doi: [10.1016/j.janxdis.2019.02.002](#)] [Medline: [30844613](#)]
89. Newby JM, Williams AD, Andrews G. Reductions in negative repetitive thinking and metacognitive beliefs during transdiagnostic internet cognitive behavioural therapy (iCBT) for mixed anxiety and depression. *Behav Res Ther*. 2014;59:52-60. [doi: [10.1016/j.brat.2014.05.009](#)] [Medline: [24997439](#)]
90. van Ageren J, Ali K, Fassnacht DB, Iasiello M, Furber G, Howard A, et al. Testing the differential impact of an internet-based mental health intervention on outcomes of well-being and psychological distress during COVID-19: uncontrolled intervention study. *JMIR Ment Health*. 2021;8(9):e28044. [FREE Full text] [doi: [10.2196/28044](#)] [Medline: [34357876](#)]
91. Mongrain M, Barnes C, Barnhart R, Zalan LB. Acts of kindness reduce depression in individuals low on agreeableness. *Transl Issues Psychol Sci*. 2018;4(3):323-334. [doi: [10.1037/tps0000168](#)]
92. Thakur E, Recober A, Turvey C, Dindo LN. Benefits of an on-line migraine education video for patients with co-occurring migraine and depression. *J Psychosom Res*. 2018;112:47-52. [doi: [10.1016/j.jpsychores.2018.06.012](#)] [Medline: [30097135](#)]
93. Jordan DG, Collins AC, Dunaway MG, Kilgore J, Winer ES. Negative affect interference and fear of happiness are independently associated with depressive symptoms. *J Clin Psychol*. 2021;77(3):646-660. [FREE Full text] [doi: [10.1002/jclp.23066](#)] [Medline: [33078847](#)]
94. Goldberg SB, Imhoff-Smith T, Bolt DM, Wilson-Mendenhall CD, Dahl CJ, Davidson RJ, et al. Testing the efficacy of a multicomponent, self-guided, smartphone-based meditation app: three-armed randomized controlled trial. *JMIR Ment Health*. 2020;7(11):e23825. [FREE Full text] [doi: [10.2196/23825](#)] [Medline: [33245288](#)]
95. Levin ME, Haeger JA, Pierce BG, Twohig MP. Web-based acceptance and commitment therapy for mental health problems in college students: a randomized controlled trial. *Behav Modif*. 2017;41(1):141-162. [doi: [10.1177/0145445516659645](#)] [Medline: [27440189](#)]
96. Beidas RS, Stewart RE, Walsh L, Lucas S, Downey MM, Jackson K, et al. Free, brief, and validated: standardized instruments for low-resource mental health settings. *Cogn Behav Pract*. 2015;22(1):5-19. [FREE Full text] [doi: [10.1016/j.cbpra.2014.02.002](#)] [Medline: [25642130](#)]
97. 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 U.S. adults. *Eval Health Prof*. 2012;35(3):259-279. [doi: [10.1177/0163278711424282](#)] [Medline: [22008979](#)]
98. Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL, et al. The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. *Qual Life Res*. 2010;19(4):539-549. [FREE Full text] [doi: [10.1007/s11136-010-9606-8](#)] [Medline: [20169472](#)]
99. Hyland ME. A brief guide to the selection of quality of life instrument. *Health Qual Life Outcomes*. 2003;1:24. [FREE Full text] [doi: [10.1186/1477-7525-1-24](#)] [Medline: [12848895](#)]
100. Guyatt G, Walter S, Norman G. Measuring change over time: assessing the usefulness of evaluative instruments. *J Chronic Dis*. 1987;40(2):171-178. [doi: [10.1016/0021-9681\(87\)90069-5](#)] [Medline: [3818871](#)]
101. Berchtold A. Test-retest: Agreement or reliability? *Methodol Innovations*. 2016;9:205979911667287. [doi: [10.1177/2059799116672875](#)]
102. Patten SB, Schopflocher D. Longitudinal epidemiology of major depression as assessed by the brief patient health questionnaire (PHQ-9). *Compr Psychiatry*. 2009;50(1):26-33. [doi: [10.1016/j.comppsy.2008.05.012](#)] [Medline: [19059510](#)]
103. Adewuya AO, Ola BA, Afolabi OO. Validity of the patient health questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *J Affect Disord*. 2006;96(1-2):89-93. [doi: [10.1016/j.jad.2006.05.021](#)] [Medline: [16857265](#)]
104. Manea L, Gilbody S, McMillan D. A diagnostic meta-analysis of the patient health questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. *Gen Hosp Psychiatry*. 2015;37(1):67-75. [doi: [10.1016/j.genhosppsy.2014.09.009](#)] [Medline: [25439733](#)]

105. Kroenke K, Spitzer RL, Williams JBW, Löwe B. The patient health questionnaire somatic, anxiety, and depressive symptom scales: a systematic review. *Gen Hosp Psychiatry*. 2010;32(4):345-359. [doi: [10.1016/j.genhosppsych.2010.03.006](https://doi.org/10.1016/j.genhosppsych.2010.03.006)] [Medline: [20633738](https://pubmed.ncbi.nlm.nih.gov/20633738/)]
106. Williams LS, Kroenke K, Bakas T, Plue LD, Brizendine E, Tu W, et al. Care management of poststroke depression: a randomized, controlled trial. *Stroke*. 2007;38(3):998-1003. [doi: [10.1161/01.STR.0000257319.14023.61](https://doi.org/10.1161/01.STR.0000257319.14023.61)] [Medline: [17303771](https://pubmed.ncbi.nlm.nih.gov/17303771/)]
107. Löwe B, Unützer J, Callahan CM, Perkins AJ, Kroenke K. Monitoring depression treatment outcomes with the patient health questionnaire-9. *Med Care*. 2004;42(12):1194-1201. [doi: [10.1097/00005650-200412000-00006](https://doi.org/10.1097/00005650-200412000-00006)] [Medline: [15550799](https://pubmed.ncbi.nlm.nih.gov/15550799/)]
108. Löwe B, Kroenke K, Herzog W, Gräfe K. Measuring depression outcome with a brief self-report instrument: sensitivity to change of the patient health questionnaire (PHQ-9). *J Affect Disord*. 2004;81(1):61-66. [doi: [10.1016/S0165-0327\(03\)00198-8](https://doi.org/10.1016/S0165-0327(03)00198-8)] [Medline: [15183601](https://pubmed.ncbi.nlm.nih.gov/15183601/)]
109. Amtmann D, Kim J, Chung H, Bamer AM, Askew RL, Wu S, et al. Comparing CESD-10, PHQ-9, and PROMIS depression instruments in individuals with multiple sclerosis. *Rehabil Psychol*. 2014;59(2):220-229. [FREE Full text] [doi: [10.1037/a0035919](https://doi.org/10.1037/a0035919)] [Medline: [24661030](https://pubmed.ncbi.nlm.nih.gov/24661030/)]
110. Marrie RA, Fisk JD, Dolovich C, Lix LM, Graff LA, Patten SB, et al. Psychometric performance of fatigue scales in inflammatory bowel disease. *Inflamm Bowel Dis*. 2024;30(1):53-63. [FREE Full text] [doi: [10.1093/ibd/izad038](https://doi.org/10.1093/ibd/izad038)] [Medline: [36917218](https://pubmed.ncbi.nlm.nih.gov/36917218/)]
111. Cannon DS, Tiffany ST, Coon H, Scholand MB, McMahon WM, Leppert MF. The PHQ-9 as a brief assessment of lifetime major depression. *Psychol Assess*. 2007;19(2):247-251. [doi: [10.1037/1040-3590.19.2.247](https://doi.org/10.1037/1040-3590.19.2.247)] [Medline: [17563207](https://pubmed.ncbi.nlm.nih.gov/17563207/)]
112. Gilbody S, Richards D, Barkham M. Diagnosing depression in primary care using self-completed instruments: UK validation of PHQ-9 and CORE-OM. *Br J Gen Pract*. 2007;57(541):650-652. [FREE Full text] [Medline: [17688760](https://pubmed.ncbi.nlm.nih.gov/17688760/)]
113. Stafford L, Berk M, Jackson HJ. Validity of the hospital anxiety and depression scale and patient health questionnaire-9 to screen for depression in patients with coronary artery disease. *Gen Hosp Psychiatry*. 2007;29(5):417-424. [doi: [10.1016/j.genhosppsych.2007.06.005](https://doi.org/10.1016/j.genhosppsych.2007.06.005)] [Medline: [17888808](https://pubmed.ncbi.nlm.nih.gov/17888808/)]
114. Stocker R, Tran T, Hammarberg K, Nguyen H, Rowe H, Fisher J. Patient health questionnaire 9 (PHQ-9) and general anxiety disorder 7 (GAD-7) data contributed by 13,829 respondents to a national survey about COVID-19 restrictions in Australia. *Psychiatry Res*. 2021;298:113792. [FREE Full text] [doi: [10.1016/j.psychres.2021.113792](https://doi.org/10.1016/j.psychres.2021.113792)] [Medline: [33592399](https://pubmed.ncbi.nlm.nih.gov/33592399/)]
115. Kiely KM, Butterworth P. Validation of four measures of mental health against depression and generalized anxiety in a community based sample. *Psychiatry Res*. 2015;225(3):291-298. [doi: [10.1016/j.psychres.2014.12.023](https://doi.org/10.1016/j.psychres.2014.12.023)] [Medline: [25578983](https://pubmed.ncbi.nlm.nih.gov/25578983/)]
116. Pirkis J, Pfaff J, Williamson M, Tyson O, Stocks N, Goldney R, et al. The community prevalence of depression in older Australians. *J Affect Disord*. 2009;115(1-2):54-61. [doi: [10.1016/j.jad.2008.08.014](https://doi.org/10.1016/j.jad.2008.08.014)] [Medline: [18817976](https://pubmed.ncbi.nlm.nih.gov/18817976/)]
117. Thombs BD, Ziegelstein RC, Whooley MA. Optimizing detection of major depression among patients with coronary artery disease using the patient health questionnaire: data from the heart and soul study. *J Gen Intern Med*. 2008;23(12):2014-2017. [FREE Full text] [doi: [10.1007/s11606-008-0802-y](https://doi.org/10.1007/s11606-008-0802-y)] [Medline: [18815842](https://pubmed.ncbi.nlm.nih.gov/18815842/)]
118. Williams LS, Brizendine EJ, Plue L, Bakas T, Tu W, Hendrie H, et al. Performance of the PHQ-9 as a screening tool for depression after stroke. *Stroke*. 2005;36(3):635-638. [doi: [10.1161/01.STR.0000155688.18207.33](https://doi.org/10.1161/01.STR.0000155688.18207.33)] [Medline: [15677576](https://pubmed.ncbi.nlm.nih.gov/15677576/)]
119. Plummer F, Manea L, Trepel D, McMillan D. Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic metaanalysis. *Gen Hosp Psychiatry*. 2016;39:24-31. [doi: [10.1016/j.genhosppsych.2015.11.005](https://doi.org/10.1016/j.genhosppsych.2015.11.005)] [Medline: [26719105](https://pubmed.ncbi.nlm.nih.gov/26719105/)]
120. Kroenke K, Bair MJ, Damush TM, Wu J, Hoke S, Sutherland J, et al. Optimized antidepressant therapy and pain self-management in primary care patients with depression and musculoskeletal pain: a randomized controlled trial. *JAMA*. 2009;301(20):2099-2110. [FREE Full text] [doi: [10.1001/jama.2009.723](https://doi.org/10.1001/jama.2009.723)] [Medline: [19470987](https://pubmed.ncbi.nlm.nih.gov/19470987/)]
121. Kroenke K, Spitzer RL, Williams JBW, Monahan PO, Löwe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Ann Intern Med*. 2007;146(5):317-325. [doi: [10.7326/0003-4819-146-5-200703060-00004](https://doi.org/10.7326/0003-4819-146-5-200703060-00004)] [Medline: [17339617](https://pubmed.ncbi.nlm.nih.gov/17339617/)]
122. Richardson T, Wrightman M, Yeebo M, Lisicka A. Reliability and score ranges of the PHQ-9 and GAD-7 in a primary and secondary care mental health service. *J Psychosoc Rehabil Ment Health*. 2017;4(2):237-240. [doi: [10.1007/s40737-017-0090-0](https://doi.org/10.1007/s40737-017-0090-0)]
123. Tomitaka S, Furukawa TA. The GAD-7 and the PHQ-8 exhibit the same mathematical pattern of item responses in the general population: analysis of data from the national health interview survey. *BMC Psychol*. 2021;9(1):149. [FREE Full text] [doi: [10.1186/s40359-021-00657-9](https://doi.org/10.1186/s40359-021-00657-9)] [Medline: [34556185](https://pubmed.ncbi.nlm.nih.gov/34556185/)]
124. Stochl J, Fried EI, Fritz J, Croudace TJ, Russo DA, Knight C, et al. On dimensionality, measurement invariance, and suitability of sum scores for the PHQ-9 and the GAD-7. *Assessment*. 2022;29(3):355-366. [doi: [10.1177/1073191120976863](https://doi.org/10.1177/1073191120976863)] [Medline: [33269612](https://pubmed.ncbi.nlm.nih.gov/33269612/)]
125. Antony MM, Bieling PJ, Cox BJ, Enns MW, Swinson RP. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychol Assess*. 1998;10(2):176-181. [doi: [10.1037/1040-3590.10.2.176](https://doi.org/10.1037/1040-3590.10.2.176)]

126. Henry JD, Crawford JR. The short-form version of the depression anxiety stress scales (DASS-21): construct validity and normative data in a large non-clinical sample. *Br J Clin Psychol*. 2005;44(Pt 2):227-239. [doi: [10.1348/014466505X29657](https://doi.org/10.1348/014466505X29657)] [Medline: [16004657](https://pubmed.ncbi.nlm.nih.gov/16004657/)]
127. Osman A, Wong JL, Bagge CL, Freedenthal S, Gutierrez PM, Lozano G. The depression anxiety stress scales-21 (DASS-21): further examination of dimensions, scale reliability, and correlates. *J Clin Psychol*. 2012;68(12):1322-1338. [doi: [10.1002/jclp.21908](https://doi.org/10.1002/jclp.21908)] [Medline: [22930477](https://pubmed.ncbi.nlm.nih.gov/22930477/)]
128. Zlomke KR. Psychometric properties of internet administered versions of Penn State Worry Questionnaire (PSWQ) and Depression, Anxiety, and Stress Scale (DASS). *Comput Hum Behav*. 2009;25(4):841-843. [doi: [10.1016/j.chb.2008.06.003](https://doi.org/10.1016/j.chb.2008.06.003)]
129. Norton PJ. Depression Anxiety and Stress Scales (DASS-21): psychometric analysis across four racial groups. *Anxiety Stress Coping*. 2007;20(3):253-265. [doi: [10.1080/10615800701309279](https://doi.org/10.1080/10615800701309279)] [Medline: [17999228](https://pubmed.ncbi.nlm.nih.gov/17999228/)]
130. Gloster AT, Rhoades HM, Novy D, Klotzsch J, Senior A, Kunik M, et al. Psychometric properties of the Depression Anxiety and Stress Scale-21 in older primary care patients. *J Affect Disord*. 2008;110(3):248-259. [FREE Full text] [doi: [10.1016/j.jad.2008.01.023](https://doi.org/10.1016/j.jad.2008.01.023)] [Medline: [18304648](https://pubmed.ncbi.nlm.nih.gov/18304648/)]
131. Yohannes AM, Dryden S, Hanania NA. Validity and responsiveness of the Depression Anxiety Stress Scales-21 (DASS-21) in COPD. *Chest*. 2019;155(6):1166-1177. [doi: [10.1016/j.chest.2018.12.010](https://doi.org/10.1016/j.chest.2018.12.010)] [Medline: [30594559](https://pubmed.ncbi.nlm.nih.gov/30594559/)]
132. Park SH, Song YJC, Demetriou EA, Pepper KL, Thomas EE, Hickie IB, et al. Validation of the 21-item depression, anxiety, and stress scales (DASS-21) in individuals with autism spectrum disorder. *Psychiatry Res*. 2020;291:113300. [doi: [10.1016/j.psychres.2020.113300](https://doi.org/10.1016/j.psychres.2020.113300)] [Medline: [32763554](https://pubmed.ncbi.nlm.nih.gov/32763554/)]
133. Crawford J, Cayley C, Lovibond PF, Wilson PH, Hartley C. Percentile norms and accompanying interval estimates from an Australian general adult population sample for self-report mood scales (BAI, BDI, CRS, CES-D, DASS, DASS-21, STAI-X, STAI-Y, SRDS, and SRAS). *Aust Psychol*. 2020;46(1):3-14. [doi: [10.1111/j.1742-9544.2010.00003.x](https://doi.org/10.1111/j.1742-9544.2010.00003.x)]
134. Crawford JR, Garthwaite PH, Lawrie CJ, Henry JD, MacDonald MA, Sutherland J, et al. A convenient method of obtaining percentile norms and accompanying interval estimates for self-report mood scales (DASS, DASS-21, HADS, PANAS, and sAD). *Br J Clin Psychol*. 2009;48(Pt 2):163-180. [doi: [10.1348/014466508X377757](https://doi.org/10.1348/014466508X377757)] [Medline: [19054433](https://pubmed.ncbi.nlm.nih.gov/19054433/)]
135. Hides L, Lubman DI, Devlin H, Cotton S, Aitken C, Gibbie T, et al. Reliability and validity of the Kessler 10 and patient health questionnaire among injecting drug users. *Aust N Z J Psychiatry*. 2007;41(2):166-168. [doi: [10.1080/00048670601109949](https://doi.org/10.1080/00048670601109949)] [Medline: [17464695](https://pubmed.ncbi.nlm.nih.gov/17464695/)]
136. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry*. 2003;60(2):184-189. [doi: [10.1001/archpsyc.60.2.184](https://doi.org/10.1001/archpsyc.60.2.184)] [Medline: [12578436](https://pubmed.ncbi.nlm.nih.gov/12578436/)]
137. Furukawa TA, Kessler RC, Slade T, Andrews G. The performance of the K6 and K10 screening scales for psychological distress in the Australian national survey of mental health and well-being. *Psychol Med*. 2003;33(2):357-262. [doi: [10.1017/s0033291702006700](https://doi.org/10.1017/s0033291702006700)] [Medline: [12622315](https://pubmed.ncbi.nlm.nih.gov/12622315/)]
138. Merson F, Newby J, Shires A, Millard M, Mahoney A. The temporal stability of the Kessler psychological distress scale. *Aust Psychol*. 2021;56(1):38-45. [doi: [10.1080/00050067.2021.1893603](https://doi.org/10.1080/00050067.2021.1893603)]
139. Perini SJ, Slade T, Andrews G. Generic effectiveness measures: sensitivity to symptom change in anxiety disorders. *J Affect Disord*. 2006;90(2-3):123-130. [doi: [10.1016/j.jad.2005.10.011](https://doi.org/10.1016/j.jad.2005.10.011)] [Medline: [16337690](https://pubmed.ncbi.nlm.nih.gov/16337690/)]
140. Andrews G, Slade T. Interpreting scores on the Kessler psychological distress scale (K10). *Aust N Z J Public Health*. 2001;25(6):494-497. [FREE Full text] [doi: [10.1111/j.1467-842x.2001.tb00310.x](https://doi.org/10.1111/j.1467-842x.2001.tb00310.x)] [Medline: [11824981](https://pubmed.ncbi.nlm.nih.gov/11824981/)]
141. Rahman MA, Salehin M, Islam SMS, Alif SM, Sultana F, Sharif A, et al. Reliability of the tools used to examine psychological distress, fear of COVID-19 and coping amongst migrants and non-migrants in Australia. *Int J Ment Health Nurs*. 2021;30(3):747-758. [FREE Full text] [doi: [10.1111/inm.12845](https://doi.org/10.1111/inm.12845)] [Medline: [33555128](https://pubmed.ncbi.nlm.nih.gov/33555128/)]
142. Slade T, Grove R, Burgess P. Kessler psychological distress scale: normative data from the 2007 Australian national survey of mental health and wellbeing. *Aust N Z J Psychiatry*. 2011;45(4):308-316. [doi: [10.3109/00048674.2010.543653](https://doi.org/10.3109/00048674.2010.543653)] [Medline: [21332432](https://pubmed.ncbi.nlm.nih.gov/21332432/)]
143. Sunderland M, Mahoney A, Andrews G. Investigating the factor structure of the Kessler psychological distress scale in community and clinical samples of the Australian population. *J Psychopathol Behav Assess*. 2012;34(2):253-259. [doi: [10.1007/s10862-012-9276-7](https://doi.org/10.1007/s10862-012-9276-7)]
144. Stallman HM. Psychological distress in university students: a comparison with general population data. *Aust Psychol*. 2010;45(4):249-257. [doi: [10.1080/00050067.2010.482109](https://doi.org/10.1080/00050067.2010.482109)]
145. Ezzati A, Jiang J, Katz MJ, Sliwinski MJ, Zimmerman ME, Lipton RB. Validation of the perceived stress scale in a community sample of older adults. *Int J Geriatr Psychiatry*. 2014;29(6):645-652. [FREE Full text] [doi: [10.1002/gps.4049](https://doi.org/10.1002/gps.4049)] [Medline: [24302253](https://pubmed.ncbi.nlm.nih.gov/24302253/)]
146. Lee EH. Review of the psychometric evidence of the perceived stress scale. *Asian Nurs Res (Korean Soc Nurs Sci)*. 2012;6(4):121-127. [FREE Full text] [doi: [10.1016/j.anr.2012.08.004](https://doi.org/10.1016/j.anr.2012.08.004)] [Medline: [25031113](https://pubmed.ncbi.nlm.nih.gov/25031113/)]
147. Mitchell AM, Crane PA, Kim Y. Perceived stress in survivors of suicide: psychometric properties of the perceived stress scale. *Res Nurs Health*. 2008;31(6):576-585. [doi: [10.1002/nur.20284](https://doi.org/10.1002/nur.20284)] [Medline: [18449942](https://pubmed.ncbi.nlm.nih.gov/18449942/)]
148. Wiriyakijja P, Porter S, Fedele S, Hodgson T, McMillan R, Shephard M, et al. Validation of the HADS and PSS-10 and psychological status in patients with oral lichen planus. *Oral Dis*. 2020;26(1):96-110. [doi: [10.1111/odi.13220](https://doi.org/10.1111/odi.13220)] [Medline: [31650646](https://pubmed.ncbi.nlm.nih.gov/31650646/)]

149. Anwer S, Manzar MD, Alghadir AH, Salahuddin M, Abdul Hameed U. Psychometric analysis of the perceived stress scale among healthy university students. *Neuropsychiatr Dis Treat*. 2020;16:2389-2396. [FREE Full text] [doi: [10.2147/NDT.S268582](https://doi.org/10.2147/NDT.S268582)] [Medline: [33116538](https://pubmed.ncbi.nlm.nih.gov/33116538/)]
150. Chapman CB, Wilson SG, Wilson DI, Dunkley MK. National survey of pharmacists, intern pharmacists and pharmacy students in Australia: the nature and extent of stress and well-being. *Int J Pharm Pract*. 2020;28(4):355-361. [doi: [10.1111/ijpp.12604](https://doi.org/10.1111/ijpp.12604)] [Medline: [32101362](https://pubmed.ncbi.nlm.nih.gov/32101362/)]
151. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the hospital anxiety and depression scale. An updated literature review. *J Psychosom Res*. 2002;52(2):69-77. [doi: [10.1016/s0022-3999\(01\)00296-3](https://doi.org/10.1016/s0022-3999(01)00296-3)] [Medline: [11832252](https://pubmed.ncbi.nlm.nih.gov/11832252/)]
152. Crawford JR, Henry JD, Crombie C, Taylor EP. Normative data for the HADS from a large non-clinical sample. *Br J Clin Psychol*. 2001;40(4):429-434. [doi: [10.1348/014466501163904](https://doi.org/10.1348/014466501163904)] [Medline: [11760618](https://pubmed.ncbi.nlm.nih.gov/11760618/)]
153. McPherson A, Martin CR. Is the hospital anxiety and depression scale (HADS) an appropriate screening tool for use in an alcohol-dependent population? *J Clin Nurs*. 2011;20(11-12):1507-1517. [doi: [10.1111/j.1365-2702.2010.03514.x](https://doi.org/10.1111/j.1365-2702.2010.03514.x)] [Medline: [20955485](https://pubmed.ncbi.nlm.nih.gov/20955485/)]
154. Karimova GK, Martin CR. A psychometric evaluation of the hospital anxiety and depression scale during pregnancy. *Psychol Health Med*. 2003;8(1):89-103. [doi: [10.1080/1354850021000059296](https://doi.org/10.1080/1354850021000059296)] [Medline: [21888492](https://pubmed.ncbi.nlm.nih.gov/21888492/)]
155. Herrmann C. International experiences with the hospital anxiety and depression scale--a review of validation data and clinical results. *J Psychosom Res*. 1997;42(1):17-41. [doi: [10.1016/s0022-3999\(96\)00216-4](https://doi.org/10.1016/s0022-3999(96)00216-4)] [Medline: [9055211](https://pubmed.ncbi.nlm.nih.gov/9055211/)]
156. Cameron IM, Crawford JR, Lawton K, Reid IC. Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. *Br J Gen Pract*. 2008;58(546):32-36. [FREE Full text] [doi: [10.3399/bjgp08X263794](https://doi.org/10.3399/bjgp08X263794)] [Medline: [18186994](https://pubmed.ncbi.nlm.nih.gov/18186994/)]
157. Dozois DJA, Dobson KS, Ahnberg JL. A psychometric evaluation of the beck depression inventory--II. *Psychol Assess*. 1998;10(2):83-89. [doi: [10.1037/1040-3590.10.2.83](https://doi.org/10.1037/1040-3590.10.2.83)]
158. Wang YP, Gorenstein C. Psychometric properties of the beck depression inventory-II: a comprehensive review. *Braz J Psychiatry*. 2013;35(4):416-431. [FREE Full text] [doi: [10.1590/1516-4446-2012-1048](https://doi.org/10.1590/1516-4446-2012-1048)] [Medline: [24402217](https://pubmed.ncbi.nlm.nih.gov/24402217/)]
159. Carmody DP. Psychometric characteristics of the beck depression inventory-II with college students of diverse ethnicity. *Int J Psychiatry Clin Pract*. 2005;9(1):22-28. [doi: [10.1080/13651500510014800](https://doi.org/10.1080/13651500510014800)] [Medline: [24945333](https://pubmed.ncbi.nlm.nih.gov/24945333/)]
160. Whisman MA, Richardson ED. Normative data on the beck depression inventory--second edition (BDI-II) in college students. *J Clin Psychol*. 2015;71(9):898-907. [doi: [10.1002/jclp.22188](https://doi.org/10.1002/jclp.22188)] [Medline: [25950150](https://pubmed.ncbi.nlm.nih.gov/25950150/)]
161. Beuningen JV. The Satisfaction With Life Scale Examining Construct Validity. Henri Faasdreef. Statistics Netherlands; 2012.
162. Pavot W, Diener E. Review of the satisfaction with life scale. *Psychol Assess*. 1993;5(2):164-172. [doi: [10.1037/1040-3590.5.2.164](https://doi.org/10.1037/1040-3590.5.2.164)]
163. Pavot W, Diener E, Colvin CR, Sandvik E. Further validation of the satisfaction with life scale: evidence for the cross-method convergence of well-being measures. *J Pers Assess*. 1991;57(1):149-161. [doi: [10.1207/s15327752jpa5701_17](https://doi.org/10.1207/s15327752jpa5701_17)] [Medline: [1920028](https://pubmed.ncbi.nlm.nih.gov/1920028/)]
164. Pavot W, Diener E. The satisfaction with life scale and the emerging construct of life satisfaction. *J Positive Psychol*. 2008;3(2):137-152. [doi: [10.1080/17439760701756946](https://doi.org/10.1080/17439760701756946)]
165. Hagell P, Smith S. A psychometric comparison of two carer quality of life questionnaires in Huntington's disease: implications for neurodegenerative disorders. *J Huntingtons Dis*. 2013;2(3):315-322. [doi: [10.3233/JHD-130065](https://doi.org/10.3233/JHD-130065)] [Medline: [25062679](https://pubmed.ncbi.nlm.nih.gov/25062679/)]
166. Rosengren L, Jonasson SB, Brogårdh C, Lexell J. Psychometric properties of the satisfaction with life scale in Parkinson's disease. *Acta Neurol Scand*. 2015;132(3):164-170. [doi: [10.1111/ane.12380](https://doi.org/10.1111/ane.12380)] [Medline: [25639961](https://pubmed.ncbi.nlm.nih.gov/25639961/)]
167. Cheung F, Lucas RE. Assessing the validity of single-item life satisfaction measures: results from three large samples. *Qual Life Res*. 2014;23(10):2809-2818. [FREE Full text] [doi: [10.1007/s11136-014-0726-4](https://doi.org/10.1007/s11136-014-0726-4)] [Medline: [24890827](https://pubmed.ncbi.nlm.nih.gov/24890827/)]
168. Vilagut G, Forero CG, Barbaglia G, Alonso J. Screening for depression in the general population with the center for epidemiologic studies depression (CES-D): a systematic review with meta-analysis. *PLoS One*. 2016;11(5):e0155431. [FREE Full text] [doi: [10.1371/journal.pone.0155431](https://doi.org/10.1371/journal.pone.0155431)] [Medline: [27182821](https://pubmed.ncbi.nlm.nih.gov/27182821/)]
169. Hann D, Winter K, Jacobsen P. Measurement of depressive symptoms in cancer patients: evaluation of the center for epidemiological studies depression scale (CES-D). *J Psychosom Res*. 1999;46(5):437-443. [doi: [10.1016/s0022-3999\(99\)00004-5](https://doi.org/10.1016/s0022-3999(99)00004-5)] [Medline: [10404478](https://pubmed.ncbi.nlm.nih.gov/10404478/)]
170. Wilson RS, Mendes De Leon CF, Bennett DA, Bienias JL, Evans DA. Depressive symptoms and cognitive decline in a community population of older persons. *J Neurol Neurosurg Psychiatry*. 2004;75(1):126-129. [FREE Full text] [Medline: [14707321](https://pubmed.ncbi.nlm.nih.gov/14707321/)]
171. Christensen H, Batterham PJ, Grant JB, Griffiths KM, Mackinnon AJ. A population study comparing screening performance of prototypes for depression and anxiety with standard scales. *BMC Med Res Methodol*. 2011;11:154. [FREE Full text] [doi: [10.1186/1471-2288-11-154](https://doi.org/10.1186/1471-2288-11-154)] [Medline: [22103584](https://pubmed.ncbi.nlm.nih.gov/22103584/)]
172. Lloyd K, Devine P. Psychometric properties of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) in Northern Ireland. *J Ment Health*. 2012;21(3):257-263. [doi: [10.3109/09638237.2012.670883](https://doi.org/10.3109/09638237.2012.670883)] [Medline: [22574955](https://pubmed.ncbi.nlm.nih.gov/22574955/)]

173. Maheswaran H, Weich S, Powell J, Stewart-Brown S. Evaluating the responsiveness of the Warwick Edinburgh Mental Well-Being Scale (WEMWBS): group and individual level analysis. *Health Qual Life Outcomes*. 2012;10:156. [FREE Full text] [doi: [10.1186/1477-7525-10-156](https://doi.org/10.1186/1477-7525-10-156)] [Medline: [23270465](https://pubmed.ncbi.nlm.nih.gov/23270465/)]
174. Dancyger C, Kelleher K, Barrington M. A patient centred approach to measuring outcomes in psycho-oncology services: the PHQ-8 as a viable alternative to the PHQ-9. *Psychooncology*. 2022;31(3):548-550. [doi: [10.1002/pon.5842](https://doi.org/10.1002/pon.5842)] [Medline: [34792261](https://pubmed.ncbi.nlm.nih.gov/34792261/)]
175. Wu Y, Levis B, Riehm KE, Saadat N, Levis AW, Azar M, et al. Equivalency of the diagnostic accuracy of the PHQ-8 and PHQ-9: a systematic review and individual participant data meta-analysis. *Psychol Med*. 2020;50(8):1368-1380. [FREE Full text] [doi: [10.1017/S0033291719001314](https://doi.org/10.1017/S0033291719001314)] [Medline: [31298180](https://pubmed.ncbi.nlm.nih.gov/31298180/)]
176. Crawford JR, Henry JD. The positive and negative affect schedule (PANAS): construct validity, measurement properties and normative data in a large non-clinical sample. *Br J Clin Psychol*. 2004;43(Pt 3):245-265. [doi: [10.1348/0144665031752934](https://doi.org/10.1348/0144665031752934)] [Medline: [15333231](https://pubmed.ncbi.nlm.nih.gov/15333231/)]
177. Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH. The inventory of depressive symptomatology (IDS): psychometric properties. *Psychol Med*. 1996;26(3):477-486. [doi: [10.1017/s0033291700035558](https://doi.org/10.1017/s0033291700035558)] [Medline: [8733206](https://pubmed.ncbi.nlm.nih.gov/8733206/)]
178. Reilly TJ, MacGillivray SA, Reid IC, Cameron IM. Psychometric properties of the 16-item quick inventory of depressive symptomatology: a systematic review and meta-analysis. *J Psychiatr Res*. 2015;60:132-140. [doi: [10.1016/j.jpsychires.2014.09.008](https://doi.org/10.1016/j.jpsychires.2014.09.008)] [Medline: [25300442](https://pubmed.ncbi.nlm.nih.gov/25300442/)]
179. Trivedi MH, Rush AJ, Ibrahim HM, Carmody TJ, Biggs MM, Suppes T, et al. The Inventory of Depressive Symptomatology, clinician rating (IDS-C) and self-report (IDS-SR), and the Quick Inventory of Depressive Symptomatology, clinician rating (QIDS-C) and self-report (QIDS-SR) in public sector patients with mood disorders: a psychometric evaluation. *Psychol Med*. 2004;34(1):73-82. [doi: [10.1017/s0033291703001107](https://doi.org/10.1017/s0033291703001107)] [Medline: [14971628](https://pubmed.ncbi.nlm.nih.gov/14971628/)]
180. 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. *Behav Ther*. 2010;41(3):423-431. [doi: [10.1016/j.beth.2009.12.002](https://doi.org/10.1016/j.beth.2009.12.002)] [Medline: [20569790](https://pubmed.ncbi.nlm.nih.gov/20569790/)]
181. Cameron IM, Crawford JR, Cardy AH, du Toit SW, Lawton K, Hay S, et al. Psychometric properties of the quick inventory of depressive symptomatology (QIDS-SR) in UK primary care. *J Psychiatr Res*. 2013;47(5):592-598. [doi: [10.1016/j.jpsychires.2013.01.019](https://doi.org/10.1016/j.jpsychires.2013.01.019)] [Medline: [23419617](https://pubmed.ncbi.nlm.nih.gov/23419617/)]
182. Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. The alcohol use disorders identification test. World Health Organization. 2001. URL: http://www.psiholocator.com/images/who_msd_msb_016a.pdf [accessed 2025-09-03]
183. Reinert DF, Allen JP. The Alcohol Use Disorders Identification Test (AUDIT): a review of recent research. *Alcohol Clin Exp Res*. 2006;26(2):272-279. [doi: [10.1111/j.1530-0277.2002.tb02534.x](https://doi.org/10.1111/j.1530-0277.2002.tb02534.x)]
184. Maisto SA, Conigliaro J, McNeil M, Kraemer K, Kelley ME. An empirical investigation of the factor structure of the AUDIT. *Psychol Assess*. 2000;12(3):346-353. [doi: [10.1037/1040-3590.12.3.346](https://doi.org/10.1037/1040-3590.12.3.346)]
185. Allen JP, Litten RZ, Fertig JB, Babor T. A review of research on the Alcohol Use Disorders Identification Test (AUDIT). *Alcoholism Clin Exp Res*. 2006;21(4):613-619. [doi: [10.1111/j.1530-0277.1997.tb03811.x](https://doi.org/10.1111/j.1530-0277.1997.tb03811.x)]
186. Clements R. A critical evaluation of several alcohol screening instruments using the CIDI-SAM as a criterion measure. *Alcohol Clin Exp Res*. 1998;22(5):985-993. [doi: [10.1111/j.1530-0277.1998.tb03693.x](https://doi.org/10.1111/j.1530-0277.1998.tb03693.x)] [Medline: [9726267](https://pubmed.ncbi.nlm.nih.gov/9726267/)]
187. Peng CZ, Wilsnack RW, Kristjanson AF, Benson P, Wilsnack SC. Gender differences in the factor structure of the alcohol use disorders identification test in multinational general population surveys. *Drug Alcohol Depend*. 2012;124(1-2):50-56. [FREE Full text] [doi: [10.1016/j.drugalcdep.2011.12.002](https://doi.org/10.1016/j.drugalcdep.2011.12.002)] [Medline: [22236536](https://pubmed.ncbi.nlm.nih.gov/22236536/)]
188. Mond JM, Hay PJ, Rodgers B, Owen C. Eating disorder examination questionnaire (EDE-Q): norms for young adult women. *Behav Res Ther*. 2006;44(1):53-62. [doi: [10.1016/j.brat.2004.12.003](https://doi.org/10.1016/j.brat.2004.12.003)] [Medline: [16301014](https://pubmed.ncbi.nlm.nih.gov/16301014/)]
189. Luce KH, Crowther JH. The reliability of the eating disorder examination-self-report questionnaire version (EDE-Q). *Int J Eat Disord*. 1999;25(3):349-351. [doi: [10.1002/\(sici\)1098-108x\(199904\)25:3<349::aid-eat15>3.0.co;2-m](https://doi.org/10.1002/(sici)1098-108x(199904)25:3<349::aid-eat15>3.0.co;2-m)] [Medline: [10192002](https://pubmed.ncbi.nlm.nih.gov/10192002/)]
190. Berg KC, Peterson CB, Frazier P, Crow SJ. Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: a systematic review of the literature. *Int J Eat Disord*. 2012;45(3):428-438. [FREE Full text] [doi: [10.1002/eat.20931](https://doi.org/10.1002/eat.20931)] [Medline: [21744375](https://pubmed.ncbi.nlm.nih.gov/21744375/)]
191. Mond JM, Hay PJ, Rodgers B, Owen C, Beumont PJV. Validity of the eating disorder examination questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behav Res Ther*. 2004;42(5):551-567. [doi: [10.1016/S0005-7967\(03\)00161-X](https://doi.org/10.1016/S0005-7967(03)00161-X)] [Medline: [15033501](https://pubmed.ncbi.nlm.nih.gov/15033501/)]
192. Rosen JC, Vara L, Wendt S, Leitenberg H. Validity studies of the eating disorder examination. *Int J Eat Disord*. 1990;9(5):519-528. [doi: [10.1002/1098-108X\(199009\)9:5<519::AID-EAT2260090507>3.0.CO;2-K](https://doi.org/10.1002/1098-108X(199009)9:5<519::AID-EAT2260090507>3.0.CO;2-K)]
193. Jennings KM, Phillips KE. Eating disorder examination-questionnaire (EDE-Q): norms for clinical sample of female adolescents with anorexia nervosa. *Arch Psychiatr Nurs*. 2017;31(6):578-581. [FREE Full text] [doi: [10.1016/j.apnu.2017.08.002](https://doi.org/10.1016/j.apnu.2017.08.002)] [Medline: [29179824](https://pubmed.ncbi.nlm.nih.gov/29179824/)]
194. Weiss D, Wilson JP, Keane TM, editors. *Assessing Psychological Trauma and PTSD*. New York, London. The Guilford Press; 2004.

195. Creamer M, Bell R, Failla S. Psychometric properties of the impact of event scale - revised. *Behav Res Ther*. 2003;41(12):1489-1496. [doi: [10.1016/j.brat.2003.07.010](https://doi.org/10.1016/j.brat.2003.07.010)] [Medline: [14705607](#)]
196. Adkins JW, Weathers FW, McDevitt-Murphy M, Daniels JB. Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *J Anxiety Disord*. 2008;22(8):1393-1402. [doi: [10.1016/j.janxdis.2008.02.002](https://doi.org/10.1016/j.janxdis.2008.02.002)] [Medline: [18436427](#)]
197. Beck JG, Grant DM, Read JP, Clapp JD, Coffey SF, Miller LM, et al. The impact of event scale-revised: psychometric properties in a sample of motor vehicle accident survivors. *J Anxiety Disord*. 2008;22(2):187-198. [FREE Full text] [doi: [10.1016/j.janxdis.2007.02.007](https://doi.org/10.1016/j.janxdis.2007.02.007)] [Medline: [17369016](#)]
198. Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med Care*. 1992;30(6):473-483. [Medline: [1593914](#)]
199. Butterworth P, Crosier T. The validity of the SF-36 in an Australian National Household Survey: demonstrating the applicability of the household income and labour dynamics in Australia (HILDA) Survey to examination of health inequalities. *BMC Public Health*. 2004;4:44. [FREE Full text] [doi: [10.1186/1471-2458-4-44](https://doi.org/10.1186/1471-2458-4-44)] [Medline: [15469617](#)]
200. Jenkinson C, Wright L, Coulter A. Criterion validity and reliability of the SF-36 in a population sample. *Qual Life Res*. 1994;3(1):7-12. [doi: [10.1007/BF00647843](https://doi.org/10.1007/BF00647843)] [Medline: [8142947](#)]
201. Stansfeld SA, Roberts R, Foot SP. Assessing the validity of the SF-36 general health survey. *Qual Life Res*. 1997;6(3):217-224. [doi: [10.1023/a:1026406620756](https://doi.org/10.1023/a:1026406620756)] [Medline: [9226979](#)]
202. Garratt AM, Ruta DA, Abdalla MI, Russell IT. SF 36 health survey questionnaire: II. Responsiveness to changes in health status in four common clinical conditions. *Qual Health Care*. 1994;3(4):186-192. [FREE Full text] [doi: [10.1136/qshc.3.4.186](https://doi.org/10.1136/qshc.3.4.186)] [Medline: [10140232](#)]
203. Katz JN, Larson MG, Phillips CB, Fossel AH, Liang MH. Comparative measurement sensitivity of short and longer health status instruments. *Med Care*. 1992;30(10):917-925. [doi: [10.1097/00005650-199210000-00004](https://doi.org/10.1097/00005650-199210000-00004)] [Medline: [1405797](#)]
204. Thumboo J, Fong KY, Machin D, Chan SP, Leon KH, Feng PH, et al. A community-based study of scaling assumptions and construct validity of the English (UK) and Chinese (HK) SF-36 in Singapore. *Qual Life Res*. 2001;10(2):175-188. [doi: [10.1023/a:1016701514299](https://doi.org/10.1023/a:1016701514299)] [Medline: [11642688](#)]
205. Jenkinson C, Coulter A, Wright L. Short form 36 (SF36) health survey questionnaire: normative data for adults of working age. *BMJ*. 1993;306(6890):1437-1440. [FREE Full text] [doi: [10.1136/bmj.306.6890.1437](https://doi.org/10.1136/bmj.306.6890.1437)] [Medline: [8518639](#)]
206. Warrtig SL, Forshaw MJ, South J, White AK. New, normative, English-sample data for the short form perceived stress scale (PSS-4). *J Health Psychol*. 2013;18(12):1617-1628. [doi: [10.1177/1359105313508346](https://doi.org/10.1177/1359105313508346)] [Medline: [24155195](#)]
207. Wu SM, Ammann D. Psychometric evaluation of the perceived stress scale in multiple sclerosis. *ISRN Rehabil*. 2013;2013:1-9. [doi: [10.1155/2013/608356](https://doi.org/10.1155/2013/608356)]
208. Ribeiro Santiago PH, Nielsen T, Smithers LG, Roberts R, Jamieson L. Measuring stress in Australia: validation of the perceived stress scale (PSS-14) in a national sample. *Health Qual Life Outcomes*. 2020;18(1):100. [FREE Full text] [doi: [10.1186/s12955-020-01343-x](https://doi.org/10.1186/s12955-020-01343-x)] [Medline: [32295596](#)]
209. Ribeiro Santiago PH. Psychometric properties of the Perceived Stress Scale (PSS), Social Support Scale (SSS) and Sense of Personal Control Scale (SPCS) in Aboriginal Australian populations [dissertation]. The University of Adelaide. 2020. URL: <https://digital.library.adelaide.edu.au/dspace/handle/2440/124410> [accessed 2025-09-03]
210. Skevington SM, McCrate FM. Expecting a good quality of life in health: assessing people with diverse diseases and conditions using the WHOQOL-BREF. *Health Expect*. 2012;15(1):49-62. [doi: [10.1111/j.1369-7625.2010.00650.x](https://doi.org/10.1111/j.1369-7625.2010.00650.x)] [Medline: [21281412](#)]
211. Suárez L, Tay B, Abdullah F. Psychometric properties of the World Health Organization WHOQOL-BREF Quality of Life assessment in Singapore. *Qual Life Res*. 2018;27(11):2945-2952. [doi: [10.1007/s11136-018-1947-8](https://doi.org/10.1007/s11136-018-1947-8)] [Medline: [30046975](#)]
212. EuroQol Group. EuroQol--a new facility for the measurement of health-related quality of life. *Health Policy*. 1990;16(3):199-208. [doi: [10.1016/0168-8510\(90\)90421-9](https://doi.org/10.1016/0168-8510(90)90421-9)] [Medline: [10109801](#)]
213. Khanna R, Jariwala K, Bentley JP. Psychometric properties of the EuroQol five dimensional questionnaire (EQ-5D-3L) in caregivers of autistic children. *Qual Life Res*. 2013;22(10):2909-2920. [doi: [10.1007/s11136-013-0423-8](https://doi.org/10.1007/s11136-013-0423-8)] [Medline: [23615959](#)]
214. Zakershahak M, Ribeiro Santiago PH, Sethi S, Haag D, Jamieson L, Brennan D. Psychometric properties of the EQ-5D-3L in South Australia: a multi-method non-preference-based validation study. *Curr Med Res Opin*. 2022;38(5):673-685. [doi: [10.1080/03007995.2022.2031941](https://doi.org/10.1080/03007995.2022.2031941)] [Medline: [35060425](#)]
215. Dolan P, Grudex C, Kind P, Williams A. The measurement and valuation of health: first report on the main survey. The MVH Group. 1994. URL: <https://www.york.ac.uk/media/che/documents/reports/MVH%20First%20Report.pdf> [accessed 2025-09-03]
216. Brazier J, Jones N, Kind P. Testing the validity of the Euroqol and comparing it with the SF-36 health survey questionnaire. *Qual Life Res*. 1993;2(3):169-180. [doi: [10.1007/BF00435221](https://doi.org/10.1007/BF00435221)] [Medline: [8401453](#)]
217. Janssen MF, Pickard AS, Golicki D, Gudex C, Niewada M, Scalone L, et al. Measurement properties of the EQ-5D-5L compared to the EQ-5D-3L across eight patient groups: a multi-country study. *Qual Life Res*. 2013;22(7):1717-1727. [FREE Full text] [doi: [10.1007/s11136-012-0322-4](https://doi.org/10.1007/s11136-012-0322-4)] [Medline: [23184421](#)]

218. Pir S, Hashemi L, Gulliver P, Fanslow J. Psychometric evaluation of the mental health continuum-short form (MHC-SF) in a New Zealand context – a confirmatory factor analysis. *Curr Psychol*. 2021;42(13):11170-11183. [doi: [10.1007/s12144-021-02401-3](https://doi.org/10.1007/s12144-021-02401-3)]
219. Orpana H, Vachon J, Dykxhoorn J, Jayaraman G. Measuring positive mental health in Canada: construct validation of the mental health continuum-short form. *Health Promot Chronic Dis Prev Can*. 2017;37(4):123-130. [FREE Full text] [doi: [10.24095/hpcdp.37.4.03](https://doi.org/10.24095/hpcdp.37.4.03)] [Medline: [28402801](https://pubmed.ncbi.nlm.nih.gov/28402801/)]
220. Iasiello M, van Agteren J, Schotanus-Dijkstra M, Lo L, Fassnacht DB, Westerhof GJ. Assessing mental wellbeing using the mental health continuum—short form: a systematic review and meta-analytic structural equation modelling. *Clin Psychol: Sci Pract*. 2022;29(4):442-456. [doi: [10.1037/cps0000074](https://doi.org/10.1037/cps0000074)]
221. Weiss LA, Westerhof GJ, Bohlmeijer ET. Can we increase psychological well-being? The effects of interventions on psychological well-being: a meta-analysis of randomized controlled trials. *PLoS One*. 2016;11(6):e0158092. [FREE Full text] [doi: [10.1371/journal.pone.0158092](https://doi.org/10.1371/journal.pone.0158092)] [Medline: [27328124](https://pubmed.ncbi.nlm.nih.gov/27328124/)]
222. Hides L, Quinn C, Stoyanov S, Cockshaw W, Mitchell T, Kavanagh DJ. Is the mental wellbeing of young Australians best represented by a single, multidimensional or bifactor model? *Psychiatry Res*. 2016;241:1-7. [doi: [10.1016/j.psychres.2016.04.077](https://doi.org/10.1016/j.psychres.2016.04.077)] [Medline: [27152903](https://pubmed.ncbi.nlm.nih.gov/27152903/)]
223. The State-Trait Anxiety Inventory (STAI). American Psychological Association. 2011. URL: <https://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/trait-state> [accessed 2025-09-03]
224. Barnes LLB, Harp D, Jung WS. Reliability generalization of scores on the Spielberger State-Trait Anxiety Inventory. *Educ Psychol Meas*. 2002;62(4):603-618. [doi: [10.1177/0013164402062004005](https://doi.org/10.1177/0013164402062004005)]
225. Shahid A, Wilkinson K, Marcu S, Shapiro CM. STOP, THAT and one hundred other sleep scales. In: Springer Science & Business Media. New York, NY. Springer New York, NY; 2021.
226. Balsamo M, Romanelli R, Innamorati M, Ciccarese G, Carlucci L, Saggino A. The State-Trait Anxiety Inventory: shadows and lights on its construct validity. *J Psychopathol Behav Assess*. 2013;35(4):475-486. [doi: [10.1007/s10862-013-9354-5](https://doi.org/10.1007/s10862-013-9354-5)]
227. Julian LJ. Measures of anxiety: State-Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), and Hospital Anxiety And Depression Scale-Anxiety (HADS-A). *Arthritis Care Res (Hoboken)*. 2011;63 Suppl 11(0 11):S467-S472. [FREE Full text] [doi: [10.1002/acr.20561](https://doi.org/10.1002/acr.20561)] [Medline: [22588767](https://pubmed.ncbi.nlm.nih.gov/22588767/)]
228. Santangelo G, Sacco R, Siciliano M, Bisecco A, Muzzo G, Docimo R, et al. Anxiety in multiple sclerosis: psychometric properties of the state-trait anxiety inventory. *Acta Neurol Scand*. 2016;134(6):458-466. [doi: [10.1111/ane.12564](https://doi.org/10.1111/ane.12564)] [Medline: [27219913](https://pubmed.ncbi.nlm.nih.gov/27219913/)]
229. Elsmann EBM, Mokkink LB, Terwee CB, Beaton D, Gagnier JJ, Tricco AC, et al. Guideline for reporting systematic reviews of outcome measurement instruments (OMIs): PRISMA-COSMIN for OMIs 2024. *Qual Life Res*. 2024;33(8):2029-2046. [doi: [10.1007/s11136-024-03634-y](https://doi.org/10.1007/s11136-024-03634-y)] [Medline: [38980635](https://pubmed.ncbi.nlm.nih.gov/38980635/)]
230. Coulacoglou C, Saklofske DH. *Psychometrics and Psychological Assessment: Principles and Applications*. Netherlands. Academic Press; 2017.
231. Schmitter-Edgecombe M, Sumida C, Cook DJ. Bridging the gap between performance-based assessment and self-reported everyday functioning: an ecological momentary assessment approach. *Clin Neuropsychol*. 2020;34(4):678-699. [FREE Full text] [doi: [10.1080/13854046.2020.1733097](https://doi.org/10.1080/13854046.2020.1733097)] [Medline: [32189568](https://pubmed.ncbi.nlm.nih.gov/32189568/)]
232. Collie A, Maruff P, Darby DG, McStephen M. The effects of practice on the cognitive test performance of neurologically normal individuals assessed at brief test-retest intervals. *J Int Neuropsychol Soc*. 2003;9(3):419-428. [doi: [10.1017/S1355617703930074](https://doi.org/10.1017/S1355617703930074)] [Medline: [12666766](https://pubmed.ncbi.nlm.nih.gov/12666766/)]
233. Hausknecht JP, Halpert JA, Di Paolo NT, Moriarty Gerrard MO. Retesting in selection: a meta-analysis of coaching and practice effects for tests of cognitive ability. *J Appl Psychol*. 2007;92(2):373-385. [doi: [10.1037/0021-9010.92.2.373](https://doi.org/10.1037/0021-9010.92.2.373)] [Medline: [17371085](https://pubmed.ncbi.nlm.nih.gov/17371085/)]
234. Chen R, Calmasini C, Swinnerton K, Wang J, Haneuse S, Ackley SF, et al. Pragmatic approaches to handling practice effects in longitudinal cognitive aging research. *Alzheimers Dement*. 2023;19(9):4028-4036. [FREE Full text] [doi: [10.1002/alz.13067](https://doi.org/10.1002/alz.13067)] [Medline: [37199336](https://pubmed.ncbi.nlm.nih.gov/37199336/)]
235. Achtyes ED, Halstead S, Smart LA, Moore T, Frank E, Kupfer DJ, et al. Validation of computerized adaptive testing in an outpatient nonacademic setting: The VOCATIONS trial. *Psychiatr Serv*. 2015;66(10):1091-1096. [FREE Full text] [doi: [10.1176/appi.ps.201400390](https://doi.org/10.1176/appi.ps.201400390)] [Medline: [26030317](https://pubmed.ncbi.nlm.nih.gov/26030317/)]
236. McAleavey AA. When (not) to rely on the reliable change index: a critical appraisal and alternatives to consider in clinical psychology. *Clin Psychol: Sci Pract*. 2024;31(3):351-366. [doi: [10.1037/cps0000203](https://doi.org/10.1037/cps0000203)]
237. Jin H, Wu S. Text messaging as a screening tool for depression and related conditions in underserved, predominantly minority safety net primary care patients: validity study. *J Med Internet Res*. Mar 26, 2020;22(3):e17282. [FREE Full text] [doi: [10.2196/17282](https://doi.org/10.2196/17282)] [Medline: [32213473](https://pubmed.ncbi.nlm.nih.gov/32213473/)]
238. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169(7):467-473. [FREE Full text] [doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850)] [Medline: [30178033](https://pubmed.ncbi.nlm.nih.gov/30178033/)]
239. Riva JJ, Malik KMP, Burnie SJ, Endicott AR, Busse JW. What is your research question? An introduction to the PICOT format for clinicians. *J Can Chiropr Assoc*. 2012;56(3):167-171. [FREE Full text] [Medline: [22997465](https://pubmed.ncbi.nlm.nih.gov/22997465/)]

240. Peters MDJ, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc*. 2015;13(3):141-146. [doi: [10.1097/XEB.0000000000000050](https://doi.org/10.1097/XEB.0000000000000050)] [Medline: [26134548](#)]
241. Shemilt I, Simon A, Hollands GJ, Marteau TM, Ogilvie D, O'Mara-Eves A, et al. Pinpointing needles in giant haystacks: use of text mining to reduce impractical screening workload in extremely large scoping reviews. *Res Synth Methods*. 2014;5(1):31-49. [doi: [10.1002/jrsm.1093](https://doi.org/10.1002/jrsm.1093)] [Medline: [26054024](#)]
242. ASReview. URL: <https://asreview.nl/> [accessed 2025-09-03]
243. Koh ZH, Zarnegar A, Skues J, Murray G. Complementing semi-automated tools with text-mining techniques for a large-scale systematic review: A hybrid approach. *PsyArXiv*; 2024. URL: https://osf.io/preprints/psyarxiv/e25tn_v1
244. Belur J, Tompson L, Thornton A, Simon M. Interrater reliability in systematic review methodology: exploring variation in coder decision-making. *Sociol Methods Res*. 2018;50(2):837-865. [doi: [10.1177/0049124118799372](https://doi.org/10.1177/0049124118799372)]
245. Borah R, Brown AW, Capers PL, Kaiser KA. Analysis of the time and workers needed to conduct systematic reviews of medical interventions using data from the PROSPERO registry. *BMJ Open*. 2017;7(2):e012545. [FREE Full text] [doi: [10.1136/bmjopen-2016-012545](https://doi.org/10.1136/bmjopen-2016-012545)] [Medline: [28242767](#)]
246. Mokkink LB, de Vet HCW, Prinsen CAC, Patrick DL, Alonso J, Bouter LM, et al. COSMIN risk of bias checklist for systematic reviews of patient-reported outcome measures. *Qual Life Res*. 2018;27(5):1171-1179. [FREE Full text] [doi: [10.1007/s11136-017-1765-4](https://doi.org/10.1007/s11136-017-1765-4)] [Medline: [29260445](#)]
247. Stoll CRT, Izadi S, Fowler S, Philpott-Streiff S, Green P, Suls J, et al. Multimorbidity in randomized controlled trials of behavioral interventions: a systematic review. *Health Psychol*. 2019;38(9):831-839. [FREE Full text] [doi: [10.1037/hea0000726](https://doi.org/10.1037/hea0000726)] [Medline: [31045382](#)]
248. Diamond IR, Grant RC, Feldman BM, Pencharz PB, Ling SC, Moore AM, et al. Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *J Clin Epidemiol*. 2014;67(4):401-409. [doi: [10.1016/j.jclinepi.2013.12.002](https://doi.org/10.1016/j.jclinepi.2013.12.002)] [Medline: [24581294](#)]
249. Howick J, Koletsis D, Ioannidis JPA, Madigan C, Pandis N, Loefer M, et al. Most healthcare interventions tested in Cochrane reviews are not effective according to high quality evidence: a systematic review and meta-analysis. *J Clin Epidemiol*. 2022;148:160-169. [FREE Full text] [doi: [10.1016/j.jclinepi.2022.04.017](https://doi.org/10.1016/j.jclinepi.2022.04.017)] [Medline: [35447356](#)]
250. Hoffmann C, Macefield RC, Wilson N, Blazeby JM, Avery KNL, Potter S, et al. A systematic review and in-depth analysis of outcome reporting in early phase studies of colorectal cancer surgical innovation. *Colorectal Dis*. 2020;22(12):1862-1873. [doi: [10.1111/codi.15347](https://doi.org/10.1111/codi.15347)] [Medline: [32882087](#)]
251. Rizzo RRN, Cashin AG, Bagg MK, Gustin SM, Lee H, McAuley JH. A systematic review of the reporting quality of observational studies that use mediation analyses. *Prev Sci*. 2022;23(6):1041-1052. [FREE Full text] [doi: [10.1007/s11121-022-01349-5](https://doi.org/10.1007/s11121-022-01349-5)] [Medline: [35167030](#)]
252. Dijkers M, Bryce T, Zanca J. Prevalence of chronic pain after traumatic spinal cord injury: a systematic review. *J Rehabil Res Dev*. 2009;46(1):13. [doi: [10.1682/jrrd.2008.04.0053](https://doi.org/10.1682/jrrd.2008.04.0053)]
253. Martins DDJ, Matos GC, Loiola RS, D'Annibale V, Corvelo T. Relationship of vitamin D receptor gene polymorphisms in gastric patients. *Clin Exp Gastroenterol*. 2018;11:19-27. [FREE Full text] [doi: [10.2147/CEG.S143332](https://doi.org/10.2147/CEG.S143332)] [Medline: [29391820](#)]
254. Kaewthamasorn M, Yahata K, Alexandre JSF, Xangsayarath P, Nakazawa S, Torii M, et al. Stable allele frequency distribution of the polymorphic region of SURFIN(4.2) in *Plasmodium falciparum* isolates from Thailand. *Parasitol Int*. 2012;61(2):317-323. [doi: [10.1016/j.parint.2011.12.003](https://doi.org/10.1016/j.parint.2011.12.003)] [Medline: [22212242](#)]
255. Baillie AJ, Mattick RP, Hall W, Webster P. Meta-analytic review of the efficacy of smoking cessation interventions. *Drug Alcohol Rev*. 1994;13(2):157-170. [doi: [10.1080/09595239400185231](https://doi.org/10.1080/09595239400185231)] [Medline: [16818403](#)]
256. Lee CC, Huang RY, Wu YL, Yeh WC, Chang HC. The impact of living arrangements and social capital on the well-being of the elderly. *Healthcare (Basel)*. 2023;11(14):2050. [FREE Full text] [doi: [10.3390/healthcare11142050](https://doi.org/10.3390/healthcare11142050)] [Medline: [37510491](#)]
257. Stigler SM. *Statistics on the Table: the History of Statistical Concepts and Methods*. London, England. Harvard University Press; 2002.
258. Fisher RA. The logic of inductive inference. *J R Stat Soc*. 1935;98(1):39-54. [doi: [10.2307/2342435](https://doi.org/10.2307/2342435)]
259. Koh ZH. Systematic review custom tool. OSFHome. 2024. URL: <https://osf.io/gu3by> [accessed 2025-09-03]
260. Cohen J. A coefficient of agreement for nominal scales. *Educ Psychol Meas*. 1960;20(1):37-46. [doi: [10.1177/001316446002000104](https://doi.org/10.1177/001316446002000104)]
261. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the conduct of narrative synthesis in systematic reviews: a product from the ESRC Methods Programme. ResearchGate. 2006. URL: https://www.researchgate.net/publication/233866356_Guidance_on_the_conduct_of_narrative_synthesis_in_systematic_reviews_A_product_from_the_ESRC_Methods_Programme [accessed 2025-09-03]
262. Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, et al. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. *BMJ*. 2020;368:l6890. [FREE Full text] [doi: [10.1136/bmj.l6890](https://doi.org/10.1136/bmj.l6890)] [Medline: [31948937](#)]

263. Wong VWH, Ho FYY, Shi NK, Tong JTY, Chung KF, Yeung WF, et al. Smartphone-delivered multicomponent lifestyle medicine intervention for depressive symptoms: a randomized controlled trial. *J Consult Clin Psychol*. 2021;89(12):970-984. [doi: [10.1037/ccp0000695](https://doi.org/10.1037/ccp0000695)] [Medline: [35025538](https://pubmed.ncbi.nlm.nih.gov/35025538/)]
264. Braun L, Titzler I, Terhorst Y, Freund J, Thielecke J, Ebert DD, et al. Effectiveness of guided internet-based interventions in the indicated prevention of depression in green professions (PROD-A): results of a pragmatic randomized controlled trial. *J Affect Disord*. 2021;278:658-671. [doi: [10.1016/j.jad.2020.09.066](https://doi.org/10.1016/j.jad.2020.09.066)] [Medline: [33096333](https://pubmed.ncbi.nlm.nih.gov/33096333/)]
265. Proyer RT, Gander F, Wellenzohn S, Ruch W. Positive psychology interventions in people aged 50-79 years: long-term effects of placebo-controlled online interventions on well-being and depression. *Aging Ment Health*. 2014;18(8):997-1005. [FREE Full text] [doi: [10.1080/13607863.2014.899978](https://doi.org/10.1080/13607863.2014.899978)] [Medline: [24712501](https://pubmed.ncbi.nlm.nih.gov/24712501/)]
266. Castagnini AC, Fusar-Poli P. Diagnostic validity of ICD-10 acute and transient psychotic disorders and DSM-5 brief psychotic disorder. *Eur Psychiatry*. 2017;45:104-113. [doi: [10.1016/j.eurpsy.2017.05.028](https://doi.org/10.1016/j.eurpsy.2017.05.028)] [Medline: [28756108](https://pubmed.ncbi.nlm.nih.gov/28756108/)]
267. Stafford O, Berry A, Taylor LK, Wearen S, Prendergast C, Murphy E, et al. Comorbidity and COVID-19: investigating the relationship between medical and psychological well-being. *Ir J Psychol Med*. 2021;38(4):272-277. [FREE Full text] [doi: [10.1017/ipm.2021.37](https://doi.org/10.1017/ipm.2021.37)] [Medline: [33858542](https://pubmed.ncbi.nlm.nih.gov/33858542/)]
268. Tyser AR, Gaffney CJ, Zhang C, Presson AP. The association of patient satisfaction with pain, anxiety, and self-reported physical function. *J Bone Joint Surg Am*. 2018;100(21):1811-1818. [doi: [10.2106/JBJS.17.00372](https://doi.org/10.2106/JBJS.17.00372)] [Medline: [30399075](https://pubmed.ncbi.nlm.nih.gov/30399075/)]
269. Uysal N, Bağçivan G, Özkaraman A, Karaaslan Eşer A, Çetin F, Çalışkan BB, et al. Empowering caregivers in the radiotherapy process: the results of a randomized controlled trial. *Support Care Cancer*. 2021;29(5):2395-2404. [doi: [10.1007/s00520-020-05743-z](https://doi.org/10.1007/s00520-020-05743-z)] [Medline: [32918607](https://pubmed.ncbi.nlm.nih.gov/32918607/)]
270. Kyrios M, Ahern C, Fassnacht DB, Nedeljkovic M, Moulding R, Meyer D. Therapist-assisted internet-based cognitive behavioral therapy versus progressive relaxation in obsessive-compulsive disorder: randomized controlled trial. *J Med Internet Res*. 2018;20(8):e242. [FREE Full text] [doi: [10.2196/jmir.9566](https://doi.org/10.2196/jmir.9566)] [Medline: [30089607](https://pubmed.ncbi.nlm.nih.gov/30089607/)]
271. Wang HZ, Yang TT, Gaskin J, Wang JL. The longitudinal association between passive social networking site usage and depressive symptoms: the mediating role of envy and moderating role of life satisfaction. *J Soc Clin Psychol*. 2019;38(3):181-199. [doi: [10.1521/jscp.2019.38.2.181](https://doi.org/10.1521/jscp.2019.38.2.181)]
272. Klevebro F, Kauppila JH, Markar S, Johar A, Lagergren P. Health-related quality of life following total minimally invasive, hybrid minimally invasive or open oesophagectomy: a population-based cohort study. *Br J Surg*. 2021;108(6):702-708. [FREE Full text] [doi: [10.1002/bjs.11998](https://doi.org/10.1002/bjs.11998)] [Medline: [34157084](https://pubmed.ncbi.nlm.nih.gov/34157084/)]
273. Weiss DS, Wilson JP, Tang CSK, editors. *The Impact of Event Scale: Revised*. Boston, MA. Springer US; 2007:219-238.
274. McHorney CA, Ware JE, Lu JF, Sherbourne CD. The MOS 36-item short-form health survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Med Care*. 1994;32(1):40-66. [doi: [10.1097/00005650-199401000-00004](https://doi.org/10.1097/00005650-199401000-00004)] [Medline: [8277801](https://pubmed.ncbi.nlm.nih.gov/8277801/)]
275. Lathia N, Sandstrom GM, Mascolo C, Rentfrow PJ. Happier people live more active lives: using smartphones to link happiness and physical activity. *PLoS One*. 2017;12(1):e0160589. [FREE Full text] [doi: [10.1371/journal.pone.0160589](https://doi.org/10.1371/journal.pone.0160589)] [Medline: [28052069](https://pubmed.ncbi.nlm.nih.gov/28052069/)]
276. Bakolis I, Hammoud R, Smythe M, Gibbons J, Davidson N, Tognin S, et al. Urban mind: using smartphone technologies to investigate the impact of nature on mental well-being in real time. *Bioscience*. 2018;68(2):134-145. [FREE Full text] [doi: [10.1093/biosci/bix149](https://doi.org/10.1093/biosci/bix149)] [Medline: [29599549](https://pubmed.ncbi.nlm.nih.gov/29599549/)]
277. Hay P, Williams SE. Exploring relationships over time between psychological distress, perceived stress, life events and immature defense style on disordered eating pathology. *BMC Psychol*. 2013;1(1):27. [FREE Full text] [doi: [10.1186/2050-7283-1-27](https://doi.org/10.1186/2050-7283-1-27)] [Medline: [25566375](https://pubmed.ncbi.nlm.nih.gov/25566375/)]
278. Gray NS, O'Connor C, Knowles J, Pink J, Simkiss NJ, Williams SD, et al. The influence of the COVID-19 pandemic on mental well-being and psychological distress: impact upon a single country. *Front Psychiatry*. 2020;11:594115. [FREE Full text] [doi: [10.3389/fpsy.2020.594115](https://doi.org/10.3389/fpsy.2020.594115)] [Medline: [33262714](https://pubmed.ncbi.nlm.nih.gov/33262714/)]
279. Shiffman S, Stone AA, Hufford MR. Ecological momentary assessment. *Annu Rev Clin Psychol*. 2008;4(1):1-32. [doi: [10.1146/annurev.clinpsy.3.022806.091415](https://doi.org/10.1146/annurev.clinpsy.3.022806.091415)] [Medline: [18509902](https://pubmed.ncbi.nlm.nih.gov/18509902/)]
280. Batterham PJ, Calear AL, Sunderland M, Kay-Lambkin F, Farrer LM, Christensen H, et al. A brief intervention to increase uptake and adherence of an internet-based program for depression and anxiety (enhancing engagement with psychosocial interventions): randomized controlled trial. *J Med Internet Res*. 2021;23(7):e23029. [FREE Full text] [doi: [10.2196/23029](https://doi.org/10.2196/23029)] [Medline: [34313595](https://pubmed.ncbi.nlm.nih.gov/34313595/)]
281. Mills L, Meiser B, Ahmad R, Schofield PR, Peate M, Levitan C, et al. A cluster randomized controlled trial of an online psychoeducational intervention for people with a family history of depression. *BMC Psychiatry*. 2019;19(1):29. [FREE Full text] [doi: [10.1186/s12888-018-1994-2](https://doi.org/10.1186/s12888-018-1994-2)] [Medline: [30654777](https://pubmed.ncbi.nlm.nih.gov/30654777/)]
282. Jaya ES, Ascone L, Lincoln TM. A longitudinal mediation analysis of the effect of negative-self-schemas on positive symptoms via negative affect. *Psychol Med*. 2018;48(8):1299-1307. [doi: [10.1017/S003329171700277X](https://doi.org/10.1017/S003329171700277X)] [Medline: [28956520](https://pubmed.ncbi.nlm.nih.gov/28956520/)]
283. Johnston L, Titov N, Andrews G, Spence J, Dear BF. A RCT of a transdiagnostic internet-delivered treatment for three anxiety disorders: examination of support roles and disorder-specific outcomes. *PLoS One*. 2011;6(11):e28079. [FREE Full text] [doi: [10.1371/journal.pone.0028079](https://doi.org/10.1371/journal.pone.0028079)] [Medline: [22132216](https://pubmed.ncbi.nlm.nih.gov/22132216/)]

284. Forbes MK, Baillie AJ, Schniering CA. A structural equation modeling analysis of the relationships between depression, anxiety, and sexual problems over time. *J Sex Res.* 2016;53(8):942-954. [doi: [10.1080/00224499.2015.1063576](https://doi.org/10.1080/00224499.2015.1063576)] [Medline: [26488460](https://pubmed.ncbi.nlm.nih.gov/26488460/)]
285. Hadjistavropoulos HD, Peynenburg V, Mehta S, Adlam K, Nugent M, Gullickson KM, et al. An internet-delivered cognitive behavioral therapy for depression and anxiety among clients referred and funded by insurance companies compared with those who are publicly funded: longitudinal observational study. *JMIR Ment Health.* 2020;7(2):e16005. [FREE Full text] [doi: [10.2196/16005](https://doi.org/10.2196/16005)] [Medline: [32014840](https://pubmed.ncbi.nlm.nih.gov/32014840/)]
286. Elison S, Davies G, Ward J. An outcomes evaluation of computerized treatment for problem drinking using breaking free online. *Alcohol Treat Q.* 2015;33(2):185-196. [doi: [10.1080/07347324.2015.1023057](https://doi.org/10.1080/07347324.2015.1023057)]
287. Perlis RH, Green J, Simonson M, Ognyanova K, Santillana M, Lin J, et al. Association between social media use and self-reported symptoms of depression in US adults. *JAMA Netw Open.* 2021;4(11):e2136113. [FREE Full text] [doi: [10.1001/jamanetworkopen.2021.36113](https://doi.org/10.1001/jamanetworkopen.2021.36113)] [Medline: [34812844](https://pubmed.ncbi.nlm.nih.gov/34812844/)]
288. Beukes EW, Baguley DM, Allen PM, Manchaiah V, Andersson G. Audiologist-guided internet-based cognitive behavior therapy for adults with tinnitus in the United Kingdom: a randomized controlled trial. *Ear Hear.* 2018;39(3):423-433. [doi: [10.1097/AUD.0000000000000505](https://doi.org/10.1097/AUD.0000000000000505)] [Medline: [29095725](https://pubmed.ncbi.nlm.nih.gov/29095725/)]
289. Lorian CN, Titov N, Grisham JR. Changes in risk-taking over the course of an internet-delivered cognitive behavioral therapy treatment for generalized anxiety disorder. *J Anxiety Disord.* 2012;26(1):140-149. [doi: [10.1016/j.janxdis.2011.10.003](https://doi.org/10.1016/j.janxdis.2011.10.003)] [Medline: [22079215](https://pubmed.ncbi.nlm.nih.gov/22079215/)]
290. Kinney AR, Schmid AA, Henry KL, Douglas Coatsworth J, Eakman AM. Combat exposure undermines student veterans' achievement of a meaningful life through its association with health-related symptoms: a longitudinal study. *J Am Coll Health.* 2021;69(2):142-150. [doi: [10.1080/07448481.2019.1656637](https://doi.org/10.1080/07448481.2019.1656637)] [Medline: [31765275](https://pubmed.ncbi.nlm.nih.gov/31765275/)]
291. Williams AD, Blackwell SE, Mackenzie A, Holmes EA, Andrews G. Combining imagination and reason in the treatment of depression: a randomized controlled trial of internet-based cognitive-bias modification and internet-CBT for depression. *J Consult Clin Psychol.* 2013;81(5):793-799. [FREE Full text] [doi: [10.1037/a0033247](https://doi.org/10.1037/a0033247)] [Medline: [23750459](https://pubmed.ncbi.nlm.nih.gov/23750459/)]
292. Jordan JA, Shannon C, Browne D, Carroll E, Maguire J, Kerrigan K, et al. COVID-19 Staff wellbeing survey: longitudinal survey of psychological well-being among health and social care staff in Northern Ireland during the COVID-19 pandemic. *BJPsych Open.* 2021;7(5):e159. [FREE Full text] [doi: [10.1192/bjo.2021.988](https://doi.org/10.1192/bjo.2021.988)] [Medline: [34493960](https://pubmed.ncbi.nlm.nih.gov/34493960/)]
293. Fang Y, Forger DB, Frank E, Sen S, Goldstein C. Day-to-day variability in sleep parameters and depression risk: a prospective cohort study of training physicians. *NPJ Digit Med.* 2021;4(1):28. [FREE Full text] [doi: [10.1038/s41746-021-00400-z](https://doi.org/10.1038/s41746-021-00400-z)] [Medline: [33603132](https://pubmed.ncbi.nlm.nih.gov/33603132/)]
294. Christensen H, Batterham PJ, Gosling JA, Ritterband LM, Griffiths KM, Thorndike FP, et al. Effectiveness of an online insomnia program (SHUTi) for prevention of depressive episodes (the GoodNight Study): a randomised controlled trial. *Lancet Psychiatry.* 2016;3(4):333-341. [doi: [10.1016/S2215-0366\(15\)00536-2](https://doi.org/10.1016/S2215-0366(15)00536-2)] [Medline: [26827250](https://pubmed.ncbi.nlm.nih.gov/26827250/)]
295. Carl JR, Miller CB, Henry AL, Davis ML, Stott R, Smits JAJ, et al. Efficacy of digital cognitive behavioral therapy for moderate-to-severe symptoms of generalized anxiety disorder: a randomized controlled trial. *Depress Anxiety.* 2020;37(12):1168-1178. [doi: [10.1002/da.23079](https://doi.org/10.1002/da.23079)] [Medline: [32725848](https://pubmed.ncbi.nlm.nih.gov/32725848/)]
296. Hunt M, Miguez S, Dukas B, Onwude O, White S. Efficacy of Zemedy, a mobile digital therapeutic for the self-management of irritable bowel syndrome: crossover randomized controlled trial. *JMIR mHealth uHealth.* 2021;9(5):e26152. [FREE Full text] [doi: [10.2196/26152](https://doi.org/10.2196/26152)] [Medline: [33872182](https://pubmed.ncbi.nlm.nih.gov/33872182/)]
297. Hensel JM, Shaw J, Ivers NM, Desveaux L, Vigod SN, Bouck Z, et al. Extending access to a web-based mental health intervention: who wants more, what happens to use over time, and is it helpful? Results of a concealed, randomized controlled extension study. *BMC Psychiatry.* 2019;19(1):39. [FREE Full text] [doi: [10.1186/s12888-019-2030-x](https://doi.org/10.1186/s12888-019-2030-x)] [Medline: [30678676](https://pubmed.ncbi.nlm.nih.gov/30678676/)]
298. Williams E, Martin SL, Fabrikant A. Factors associated with depressive symptoms in pharmacy residents. *Am J Health Syst Pharm.* 2018;75(24):1973-1981. [doi: [10.2146/ajhp180211](https://doi.org/10.2146/ajhp180211)] [Medline: [30377166](https://pubmed.ncbi.nlm.nih.gov/30377166/)]
299. Proudfoot J, Gale N, O'Moore K, Faraj M, Gieng C, Anderson J. Implementation of an augmented stepped mental health care service in Australian primary care: a mixed method study. *Adv Ment Health.* 2019;19(1):75-93. [doi: [10.1080/18387357.2019.1662318](https://doi.org/10.1080/18387357.2019.1662318)]
300. Zebley B, Wolk D, McAllister M, Lynch CJ, Mikofsky R, Liston C. Individual differences in the affective response to pandemic-related stressors in COVID-19 health care workers. *Biol Psychiatry Glob Open Sci.* 2021;1(4):336-344. [FREE Full text] [doi: [10.1016/j.bpsgos.2021.08.008](https://doi.org/10.1016/j.bpsgos.2021.08.008)] [Medline: [34704087](https://pubmed.ncbi.nlm.nih.gov/34704087/)]
301. Spence J, Titov N, Johnston L, Jones MP, Dear BF, Solley K. Internet-based trauma-focused cognitive behavioural therapy for PTSD with and without exposure components: a randomised controlled trial. *J Affect Disord.* 2014;162:73-80. [doi: [10.1016/j.jad.2014.03.009](https://doi.org/10.1016/j.jad.2014.03.009)] [Medline: [24767009](https://pubmed.ncbi.nlm.nih.gov/24767009/)]
302. Wootton BM, Karin E, Dear BF, Staples L, Nielssen O, Kayrouz R, et al. Internet-delivered cognitive-behaviour therapy (ICBT) for obsessive-compulsive disorder when delivered as routine clinical care: a phase IV clinical trial. *J Anxiety Disord.* 2021;82:102444. [FREE Full text] [doi: [10.1016/j.janxdis.2021.102444](https://doi.org/10.1016/j.janxdis.2021.102444)] [Medline: [34273871](https://pubmed.ncbi.nlm.nih.gov/34273871/)]
303. Spence J, Titov N, Johnston L, Dear BF, Wootton B, Terides M, et al. Internet-delivered eye movement desensitization and reprocessing (iEMDR): an open trial. *F1000Res.* 2013;2:79. [FREE Full text] [doi: [10.12688/f1000research.2-79.v2](https://doi.org/10.12688/f1000research.2-79.v2)] [Medline: [24555047](https://pubmed.ncbi.nlm.nih.gov/24555047/)]

304. Hirsch CR, Krahé C, Whyte J, Krzyzanowski H, Meeten F, Norton S, et al. Internet-delivered interpretation training reduces worry and anxiety in individuals with generalized anxiety disorder: a randomized controlled experiment. *J Consult Clin Psychol*. 2021;89(7):575-589. [doi: [10.1037/ccp0000660](https://doi.org/10.1037/ccp0000660)] [Medline: [34383532](https://pubmed.ncbi.nlm.nih.gov/34383532/)]
305. Henson P, Rodriguez-Villa E, Torous J. Investigating associations between screen time and symptomatology in individuals with serious mental illness: longitudinal observational study. *J Med Internet Res*. 2021;23(3):e23144. [FREE Full text] [doi: [10.2196/23144](https://doi.org/10.2196/23144)] [Medline: [33688835](https://pubmed.ncbi.nlm.nih.gov/33688835/)]
306. Luik AI, Marsden A, Emsley R, Henry AL, Stott R, Miller CB, et al. Long-term benefits of digital cognitive behavioural therapy for insomnia: follow-up report from a randomized clinical trial. *J Sleep Res*. 2020;29(4):e13018. [doi: [10.1111/jsr.13018](https://doi.org/10.1111/jsr.13018)] [Medline: [32112507](https://pubmed.ncbi.nlm.nih.gov/32112507/)]
307. Eisenberg D, Hunt J, Speer N, Zivin K. Mental health service utilization among college students in the United States. *J Nerv Ment Dis*. 2011;199(5):301-308. [doi: [10.1097/NMD.0b013e3182175123](https://doi.org/10.1097/NMD.0b013e3182175123)] [Medline: [21543948](https://pubmed.ncbi.nlm.nih.gov/21543948/)]
308. Marske C, Shah S, Chavira A, Hedberg C, Fullmer R, Clark CJ, et al. Mindfulness-based stress reduction in the management of chronic pain and its comorbid depression. *J Am Osteopath Assoc*. 2020;120(9):575-581. [doi: [10.7556/jaoa.2020.xxx](https://doi.org/10.7556/jaoa.2020.xxx)] [Medline: [32789483](https://pubmed.ncbi.nlm.nih.gov/32789483/)]
309. Parker M, Duran B, Rhew I, Magarati M, Egashira L, Larimer M, et al. Prevalence of moderate and acute suicidal ideation among a national sample of tribal college and university students 2014-2015. *Arch Suicide Res*. 2021;25(3):406-423. [FREE Full text] [doi: [10.1080/13811118.2019.1691691](https://doi.org/10.1080/13811118.2019.1691691)] [Medline: [31769351](https://pubmed.ncbi.nlm.nih.gov/31769351/)]
310. Hatzenbuehler ML, O'Cleirigh C, Mayer KH, Mimiaga MJ, Safren SA. Prospective associations between HIV-related stigma, transmission risk behaviors, and adverse mental health outcomes in men who have sex with men. *Ann Behav Med*. 2011;42(2):227-234. [FREE Full text] [doi: [10.1007/s12160-011-9275-z](https://doi.org/10.1007/s12160-011-9275-z)] [Medline: [21533623](https://pubmed.ncbi.nlm.nih.gov/21533623/)]
311. Davis EB, McElroy-Heltzel SE, Lemke AW, Cowden RG, VanderWeele TJ, Worthington EL, et al. Psychological and spiritual outcomes during the COVID-19 pandemic: a prospective longitudinal study of adults with chronic disease. *Health Psychol*. 2021;40(6):347-356. [doi: [10.1037/hea0001079](https://doi.org/10.1037/hea0001079)] [Medline: [34323537](https://pubmed.ncbi.nlm.nih.gov/34323537/)]
312. Murphy MJ, Newby JM, Butow P, Loughnan SA, Joubert AE, Kirsten L, et al. Randomised controlled trial of internet-delivered cognitive behaviour therapy for clinical depression and/or anxiety in cancer survivors (iCanADAPT Early). *Psychooncology*. 2020;29(1):76-85. [doi: [10.1002/pon.5267](https://doi.org/10.1002/pon.5267)] [Medline: [31659822](https://pubmed.ncbi.nlm.nih.gov/31659822/)]
313. Phillips R, Schneider J, Molosankwe I, Leese M, Foroushani PS, Grime P, et al. Randomized controlled trial of computerized cognitive behavioural therapy for depressive symptoms: effectiveness and costs of a workplace intervention. *Psychol Med*. 2014;44(4):741-752. [FREE Full text] [doi: [10.1017/S0033291713001323](https://doi.org/10.1017/S0033291713001323)] [Medline: [23795621](https://pubmed.ncbi.nlm.nih.gov/23795621/)]
314. Pereira-Lima K, Gupta RR, Guille C, Sen S. Residency program factors associated with depressive symptoms in internal medicine interns: a prospective cohort study. *Acad Med*. 2019;94(6):869-875. [FREE Full text] [doi: [10.1097/ACM.0000000000002567](https://doi.org/10.1097/ACM.0000000000002567)] [Medline: [30570500](https://pubmed.ncbi.nlm.nih.gov/30570500/)]
315. Morgan AJ, Jorm AF, Mackinnon AJ. Self-help for depression via e-mail: a randomised controlled trial of effects on depression and self-help behaviour. *PLoS One*. 2013;8(6):e66537. [FREE Full text] [doi: [10.1371/journal.pone.0066537](https://doi.org/10.1371/journal.pone.0066537)] [Medline: [23805231](https://pubmed.ncbi.nlm.nih.gov/23805231/)]
316. Sommerlad A, Marston L, Huntley J, Livingston G, Lewis G, Steptoe A, et al. Social relationships and depression during the COVID-19 lockdown: longitudinal analysis of the COVID-19 social study. *Psychol Med*. 2022;52(15):3381-3390. [FREE Full text] [doi: [10.1017/S0033291721000039](https://doi.org/10.1017/S0033291721000039)] [Medline: [33436126](https://pubmed.ncbi.nlm.nih.gov/33436126/)]
317. Allott K, Gao C, Hetrick SE, Filia KM, Mensink JM, Fisher C, et al. Subjective cognitive functioning in relation to changes in levels of depression and anxiety in youth over 3 months of treatment. *BJPsych Open*. 2020;6(5):e84. [FREE Full text] [doi: [10.1192/bjo.2020.68](https://doi.org/10.1192/bjo.2020.68)] [Medline: [32753079](https://pubmed.ncbi.nlm.nih.gov/32753079/)]
318. Musiat P, Conrod P, Treasure J, Tylee A, Williams C, Schmidt U. Targeted prevention of common mental health disorders in university students: randomised controlled trial of a transdiagnostic trait-focused web-based intervention. *PLoS One*. 2014;9(4):e93621. [FREE Full text] [doi: [10.1371/journal.pone.0093621](https://doi.org/10.1371/journal.pone.0093621)] [Medline: [24736388](https://pubmed.ncbi.nlm.nih.gov/24736388/)]
319. Desai R, Charlesworth GM, Brooker HJ, Potts HWW, Corbett A, Aarsland D, et al. Temporal relationship between depressive symptoms and cognition in mid and late life: a longitudinal cohort study. *J Am Med Dir Assoc*. 2020;21(8):1108-1113. [doi: [10.1016/j.jamda.2020.01.106](https://doi.org/10.1016/j.jamda.2020.01.106)] [Medline: [32151550](https://pubmed.ncbi.nlm.nih.gov/32151550/)]
320. Cavanagh K, Secombe N, Lidbetter N. The implementation of computerized cognitive behavioural therapies in a service user-led, third sector self help clinic. *Behav Cogn Psychother*. 2011;39(4):427-442. [doi: [10.1017/S1352465810000858](https://doi.org/10.1017/S1352465810000858)] [Medline: [21338531](https://pubmed.ncbi.nlm.nih.gov/21338531/)]
321. Dear BF, Gandy M, Karin E, Fogliati R, Fogliati VJ, Staples LG, et al. The pain course: 12- and 24-month outcomes from a randomized controlled trial of an internet-delivered pain management program provided with different levels of clinician support. *J Pain*. 2018;19(12):1491-1503. [FREE Full text] [doi: [10.1016/j.jpain.2018.07.005](https://doi.org/10.1016/j.jpain.2018.07.005)] [Medline: [30099209](https://pubmed.ncbi.nlm.nih.gov/30099209/)]
322. Brabyn S, Araya R, Barkham M, Bower P, Cooper C, Duarte A, et al. The second randomised evaluation of the effectiveness, cost-effectiveness and acceptability of computerised therapy (REEACT-2) trial: does the provision of telephone support enhance the effectiveness of computer-delivered cognitive behaviour therapy? A randomised controlled trial. *Health Technol Assess*. 2016;20(89):1-64. [FREE Full text] [doi: [10.3310/hta20890](https://doi.org/10.3310/hta20890)] [Medline: [27922448](https://pubmed.ncbi.nlm.nih.gov/27922448/)]
323. Mason EC, Andrews G. The use of automated assessments in internet-based CBT: the computer will be with you shortly. *Internet Interventions*. 2014;1(4):216-224. [doi: [10.1016/j.invent.2014.10.003](https://doi.org/10.1016/j.invent.2014.10.003)]

324. Hadjistavropoulos HD, Pugh NE, Nugent MM, Hesser H, Andersson G, Ivanov M, et al. Therapist-assisted internet-delivered cognitive behavior therapy for depression and anxiety: translating evidence into clinical practice. *J Anxiety Disord.* 2014;28(8):884-893. [FREE Full text] [doi: [10.1016/j.janxdis.2014.09.018](https://doi.org/10.1016/j.janxdis.2014.09.018)] [Medline: [25445078](https://pubmed.ncbi.nlm.nih.gov/25445078/)]
325. Batterham PJ, Calear AL, McCallum SM, Morse AR, Banfield M, Farrer LM, et al. Trajectories of depression and anxiety symptoms during the COVID-19 pandemic in a representative Australian adult cohort. *Med J Aust.* 2021;214(10):462-468. [FREE Full text] [doi: [10.5694/mja2.51043](https://doi.org/10.5694/mja2.51043)] [Medline: [33899939](https://pubmed.ncbi.nlm.nih.gov/33899939/)]
326. Shafraan R, Gyani A, Rostron J, Allen S, Myles-Hooton P, Allcott-Watson H, et al. Translating the intention to seek treatment into action: does symptom monitoring make a difference? Results from a randomized controlled trial. *Behav Cogn Psychother.* 2019;47(1):114-128. [doi: [10.1017/S1352465818000498](https://doi.org/10.1017/S1352465818000498)] [Medline: [30136644](https://pubmed.ncbi.nlm.nih.gov/30136644/)]
327. Fulmer R, Joerin A, Gentile B, Lakerink L, Rauws M. Using psychological artificial intelligence (Tess) to relieve symptoms of depression and anxiety: Randomized controlled trial. *JMIR Ment Health.* 2018;5(4):e64. [FREE Full text] [doi: [10.2196/mental.9782](https://doi.org/10.2196/mental.9782)] [Medline: [30545815](https://pubmed.ncbi.nlm.nih.gov/30545815/)]
328. Hatcher S, Whittaker R, Patton M, Miles WS, Ralph N, Kercher K, et al. Web-based therapy plus support by a coach in depressed patients referred to secondary mental health care: randomized controlled trial. *JMIR Ment Health.* 2018;5(1):e5. [FREE Full text] [doi: [10.2196/mental.8510](https://doi.org/10.2196/mental.8510)] [Medline: [29362207](https://pubmed.ncbi.nlm.nih.gov/29362207/)]
329. Rolin D, Fox I, Jain R, Cole SP, Tran C, Jain S. Wellness interventions in psychiatrically ill patients: Impact of WILD 5 wellness, a five-domain mental health wellness intervention on depression, anxiety, and wellness. *J Am Psychiatr Nurses Assoc.* 2020;26(5):493-502. [doi: [10.1177/1078390319886883](https://doi.org/10.1177/1078390319886883)] [Medline: [31738111](https://pubmed.ncbi.nlm.nih.gov/31738111/)]
330. Edmonds M, Hadjistavropoulos HD, Schneider LH, Dear BF, Titov N. Who benefits most from therapist-assisted internet-delivered cognitive behaviour therapy in clinical practice? Predictors of symptom change and dropout. *J Anxiety Disord.* 2018;54:24-32. [FREE Full text] [doi: [10.1016/j.janxdis.2018.01.003](https://doi.org/10.1016/j.janxdis.2018.01.003)] [Medline: [29421369](https://pubmed.ncbi.nlm.nih.gov/29421369/)]
331. Ben-Zeev D, Chander A, Tauscher J, Buck B, Nepal S, Campbell A, et al. A smartphone intervention for people with serious mental illness: fully remote randomized controlled trial of CORE. *J Med Internet Res.* 2021;23(11):e29201. [FREE Full text] [doi: [10.2196/29201](https://doi.org/10.2196/29201)] [Medline: [34766913](https://pubmed.ncbi.nlm.nih.gov/34766913/)]
332. Roy A, Hoge EA, Abrante P, Druker S, Liu T, Brewer JA. Clinical efficacy and psychological mechanisms of an app-based digital therapeutic for generalized anxiety disorder: Randomized controlled trial. *J Med Internet Res.* 2021;23(12):e26987. [FREE Full text] [doi: [10.2196/26987](https://doi.org/10.2196/26987)] [Medline: [34860673](https://pubmed.ncbi.nlm.nih.gov/34860673/)]
333. Duffy A, Keown-Stoneman CD, Goodday SM, Saunders K, Horrocks J, Grof P, et al. Daily and weekly mood ratings using a remote capture method in high-risk offspring of bipolar parents: compliance and symptom monitoring. *Bipolar Disord.* 2019;21(2):159-167. [doi: [10.1111/bdi.12721](https://doi.org/10.1111/bdi.12721)] [Medline: [30422376](https://pubmed.ncbi.nlm.nih.gov/30422376/)]
334. Richards D, Timulak L, Rashleigh C, McLoughlin O, Colla A, Joyce C, et al. Effectiveness of an internet-delivered intervention for generalized anxiety disorder in routine care: a randomised controlled trial in a student population. *Internet Interventions.* 2016;6:80-88. [FREE Full text] [doi: [10.1016/j.invent.2016.10.003](https://doi.org/10.1016/j.invent.2016.10.003)] [Medline: [30135817](https://pubmed.ncbi.nlm.nih.gov/30135817/)]
335. Felder JN, Epel ES, Neuhaus J, Krystal AD, Prather AA. Efficacy of digital cognitive behavioral therapy for the treatment of insomnia symptoms among pregnant women: a randomized clinical trial. *JAMA Psychiatry.* 2020;77(5):484-492. [FREE Full text] [doi: [10.1001/jamapsychiatry.2019.4491](https://doi.org/10.1001/jamapsychiatry.2019.4491)] [Medline: [31968068](https://pubmed.ncbi.nlm.nih.gov/31968068/)]
336. Teo I, Chay J, Cheung YB, Sung SC, Tewani KG, Yeo LF, et al. Healthcare worker stress, anxiety and burnout during the COVID-19 pandemic in Singapore: a 6-month multi-centre prospective study. *PLoS One.* 2021;16(10):e0258866. [FREE Full text] [doi: [10.1371/journal.pone.0258866](https://doi.org/10.1371/journal.pone.0258866)] [Medline: [34679110](https://pubmed.ncbi.nlm.nih.gov/34679110/)]
337. Layton H, Owais S, Savoy CD, Van Lieshout RJ. Depression, anxiety, and mother-infant bonding in women seeking treatment for postpartum depression before and during the COVID-19 pandemic. *J Clin Psychiatry.* 2021;82(4):21m13874. [doi: [10.4088/JCP.21m13874](https://doi.org/10.4088/JCP.21m13874)] [Medline: [34232578](https://pubmed.ncbi.nlm.nih.gov/34232578/)]
338. Hueniken K, Somé NH, Abdelhack M, Taylor G, Elton Marshall T, Wickens CM, et al. Machine learning-based predictive modeling of anxiety and depressive symptoms during 8 months of the COVID-19 global pandemic: repeated cross-sectional survey study. *JMIR Ment Health.* 2021;8(11):e32876. [FREE Full text] [doi: [10.2196/32876](https://doi.org/10.2196/32876)] [Medline: [34705663](https://pubmed.ncbi.nlm.nih.gov/34705663/)]
339. Whelan ME, Velardo C, Rutter H, Tarassenko L, Farmer AJ. Mood monitoring over one year for people with chronic obstructive pulmonary disease using a mobile health system: retrospective analysis of a randomized controlled trial. *JMIR mHealth uHealth.* 2019;7(11):e14946. [FREE Full text] [doi: [10.2196/14946](https://doi.org/10.2196/14946)] [Medline: [31755872](https://pubmed.ncbi.nlm.nih.gov/31755872/)]
340. Wilcox M, McGee BA, Ionescu DF, Leonte M, LaCross L, Reps J, et al. Perinatal depressive symptoms often start in the prenatal rather than postpartum period: results from a longitudinal study. *Arch Womens Ment Health.* 2021;24(1):119-131. [FREE Full text] [doi: [10.1007/s00737-020-01017-z](https://doi.org/10.1007/s00737-020-01017-z)] [Medline: [32016551](https://pubmed.ncbi.nlm.nih.gov/32016551/)]
341. Vargas-Salfate S, Paez D, Khan SS, Liu JH, Gil de Zúñiga H. System justification enhances well-being: a longitudinal analysis of the palliative function of system justification in 18 countries. *Br J Soc Psychol.* 2018;57(3):567-590. [doi: [10.1111/bjso.12254](https://doi.org/10.1111/bjso.12254)] [Medline: [29577342](https://pubmed.ncbi.nlm.nih.gov/29577342/)]
342. Nigatu YT, Elton-Marshall T, Wells S, Jankowicz D, Wickens CM, Hamilton HA. The association between COVID-19 diagnosis or having symptoms and anxiety among Canadians: a repeated cross-sectional study. *Anxiety Stress Coping.* 2021;34(5):503-512. [doi: [10.1080/10615806.2021.1932837](https://doi.org/10.1080/10615806.2021.1932837)] [Medline: [34032525](https://pubmed.ncbi.nlm.nih.gov/34032525/)]
343. Beerse ME, Van Lith T, Stanwood G. Therapeutic psychological and biological responses to mindfulness-based art therapy. *Stress Health.* 2020;36(4):419-432. [doi: [10.1002/smi.2937](https://doi.org/10.1002/smi.2937)] [Medline: [32073202](https://pubmed.ncbi.nlm.nih.gov/32073202/)]

344. Sedov ID, Tomfohr-Madsen LM. Trajectories of insomnia symptoms and associations with mood and anxiety from early pregnancy to the postpartum. *Behav Sleep Med*. 2021;19(3):395-406. [doi: [10.1080/15402002.2020.1771339](https://doi.org/10.1080/15402002.2020.1771339)] [Medline: [32496138](https://pubmed.ncbi.nlm.nih.gov/32496138/)]
345. Carleton RN, Korol S, Mason JE, Hozempa K, Anderson GS, Jones NA, et al. A longitudinal assessment of the road to mental readiness training among municipal police. *Cogn Behav Ther*. 2018;47(6):508-528. [FREE Full text] [doi: [10.1080/16506073.2018.1475504](https://doi.org/10.1080/16506073.2018.1475504)] [Medline: [29912631](https://pubmed.ncbi.nlm.nih.gov/29912631/)]
346. Reid SC, Kauer SD, Hearps SJC, Crooke AHD, Khor AS, Sancu LA, et al. A mobile phone application for the assessment and management of youth mental health problems in primary care: a randomised controlled trial. *BMC Fam Pract*. 2011;12:131. [FREE Full text] [doi: [10.1186/1471-2296-12-131](https://doi.org/10.1186/1471-2296-12-131)] [Medline: [22123031](https://pubmed.ncbi.nlm.nih.gov/22123031/)]
347. Cardi V, Albano G, Ambwani S, Cao L, Crosby RD, Macdonald P, et al. A randomised clinical trial to evaluate the acceptability and efficacy of an early phase, online, guided augmentation of outpatient care for adults with anorexia nervosa. *Psychol Med*. 2020;50(15):2610-2621. [doi: [10.1017/S0033291719002824](https://doi.org/10.1017/S0033291719002824)] [Medline: [31615581](https://pubmed.ncbi.nlm.nih.gov/31615581/)]
348. Bromberg J, Wood ME, Black RA, Surette DA, Zacharoff KL, Chiauuzzi EJ. A randomized trial of a web-based intervention to improve migraine self-management and coping. *Headache*. 2012;52(2):244-261. [FREE Full text] [doi: [10.1111/j.1526-4610.2011.02031.x](https://doi.org/10.1111/j.1526-4610.2011.02031.x)] [Medline: [22413151](https://pubmed.ncbi.nlm.nih.gov/22413151/)]
349. Al-Refae M, Al-Refae A, Munroe M, Sardella NA, Ferrari M. A self-compassion and mindfulness-based cognitive mobile intervention (Serene) for depression, anxiety, and stress: promoting adaptive emotional regulation and wisdom. *Front Psychol*. 2021;12:648087. [FREE Full text] [doi: [10.3389/fpsyg.2021.648087](https://doi.org/10.3389/fpsyg.2021.648087)] [Medline: [33828514](https://pubmed.ncbi.nlm.nih.gov/33828514/)]
350. Enock PM, Hofmann SG, McNally RJ. Attention bias modification training via smartphone to reduce social anxiety: a randomized, controlled multi-session experiment. *Cogn Ther Res*. 2014;38(2):200-216. [doi: [10.1007/s10608-014-9606-z](https://doi.org/10.1007/s10608-014-9606-z)]
351. Nguyen-Feng VN, Romano FN, Frazier P. Emotional abuse moderates efficacy of an ecological momentary stress management intervention for college students. *J Couns Psychol*. 2019;66(4):461-472. [doi: [10.1037/cou0000332](https://doi.org/10.1037/cou0000332)] [Medline: [30640484](https://pubmed.ncbi.nlm.nih.gov/30640484/)]
352. Levin ME, An W, Davis CH, Twohig MP. Evaluating acceptance and commitment therapy and mindfulness-based stress reduction self-help books for college student mental health. *Mindfulness*. 2020;11(5):1275-1285. [doi: [10.1007/s12671-020-01344-3](https://doi.org/10.1007/s12671-020-01344-3)]
353. Milgrom J, Danaher BG, Gemmill AW, Holt C, Holt CJ, Seeley JR, et al. Internet cognitive behavioral therapy for women with postnatal depression: a randomized controlled trial of mumMoodBooster. *J Med Internet Res*. 2016;18(3):e54. [FREE Full text] [doi: [10.2196/jmir.4993](https://doi.org/10.2196/jmir.4993)] [Medline: [26952645](https://pubmed.ncbi.nlm.nih.gov/26952645/)]
354. Johnson S, Egan SJ, Andersson G, Carlbring P, Shafan R, Wade TD. Internet-delivered cognitive behavioural therapy for perfectionism: targeting dysmorphic concern. *Body Image*. 2019;30:44-55. [doi: [10.1016/j.bodyim.2019.05.002](https://doi.org/10.1016/j.bodyim.2019.05.002)] [Medline: [31128427](https://pubmed.ncbi.nlm.nih.gov/31128427/)]
355. Hartley E, McPhie S, Fuller-Tyszkiewicz M, Hill B, Skouteris H. Psychosocial factors and excessive gestational weight gain: the effect of parity in an Australian cohort. *Midwifery*. 2016;32:30-37. [doi: [10.1016/j.midw.2015.09.009](https://doi.org/10.1016/j.midw.2015.09.009)] [Medline: [26476510](https://pubmed.ncbi.nlm.nih.gov/26476510/)]
356. Stallman HM, Kavanagh DJ, Arklay AR, Bennett - levy J. Randomised control trial of a low - intensity cognitive - behaviour therapy intervention to improve mental health in university students. *Aust Psychol*. 2020;51(2):145-153. [doi: [10.1111/ap.12113](https://doi.org/10.1111/ap.12113)]
357. Renfrew ME, Morton DP, Morton JK, Hinze JS, Przybylko G, Craig BA. The influence of three modes of human support on attrition and adherence to a web- and mobile app-based mental health promotion intervention in a nonclinical cohort: randomized comparative study. *J Med Internet Res*. 2020;22(9):e19945. [FREE Full text] [doi: [10.2196/19945](https://doi.org/10.2196/19945)] [Medline: [32990633](https://pubmed.ncbi.nlm.nih.gov/32990633/)]
358. Nielsen EG, Minda JP. The mindful lawyer: investigating the effects of two online mindfulness programs on self-reported well-being in the legal profession. *J Occup Environ Med*. 2021;63(12):e871-e882. [doi: [10.1097/JOM.0000000000002393](https://doi.org/10.1097/JOM.0000000000002393)] [Medline: [34860207](https://pubmed.ncbi.nlm.nih.gov/34860207/)]
359. Zordan R, Butow P, Kirsten L, Charles M, Hobbs K, Batterby E, et al. Supporting the supporters: a randomized controlled trial of interventions to assist the leaders of cancer support groups. *J Community Psychol*. 2015;43(3):261-277. [doi: [10.1002/jcop.21677](https://doi.org/10.1002/jcop.21677)]
360. Proeschold-Bell RJ, Turner EL, Bennett GG, Yao J, Li X, Eagle DE, et al. A 2-year holistic health and stress intervention: results of an RCT in clergy. *Am J Prev Med*. 2017;53(3):290-299. [doi: [10.1016/j.amepre.2017.04.009](https://doi.org/10.1016/j.amepre.2017.04.009)] [Medline: [28641912](https://pubmed.ncbi.nlm.nih.gov/28641912/)]
361. Iyer L, Iyer RB, Kumar V. A relaxation app (HeartBot) for stress and emotional well-being over a 21-day challenge: randomized survey study. *JMIR Form Res*. 2021;5(1):e22041. [FREE Full text] [doi: [10.2196/22041](https://doi.org/10.2196/22041)] [Medline: [33455902](https://pubmed.ncbi.nlm.nih.gov/33455902/)]
362. Kinman G, Grant L. Building resilience in early-career social workers: evaluating a multi-modal intervention. *Br J Soc Work*. 2016;47(7):1979-1998. [doi: [10.1093/bjsw/bcw164](https://doi.org/10.1093/bjsw/bcw164)]
363. Wiegand B, Luedtke K, Friscia D, Nair M, Aleles M, McCloskey R. Efficacy of a comprehensive program for reducing stress in women: a prospective, randomized trial. *Curr Med Res Opin*. 2010;26(4):991-1002. [doi: [10.1185/03007991003688193](https://doi.org/10.1185/03007991003688193)] [Medline: [20201624](https://pubmed.ncbi.nlm.nih.gov/20201624/)]
364. Novak BK, Gebhardt A, Pallerla H, McDonald SB, Haramati A, Cotton S. Impact of a university-wide interdisciplinary mind-body skills program on student mental and emotional well-being. *Glob Adv Health Med*. 2020;9:2164956120973983. [FREE Full text] [doi: [10.1177/2164956120973983](https://doi.org/10.1177/2164956120973983)] [Medline: [33282546](https://pubmed.ncbi.nlm.nih.gov/33282546/)]

365. Varela SM, Hanrahan SJ, DeCano P, Cook CR, Barrett PM. Promoting positive development: coaches as trainers in sports-based resilience programs. *Aust J Rural Health*. 2020;28(2):209-214. [doi: [10.1111/ajr.12626](https://doi.org/10.1111/ajr.12626)] [Medline: [32390201](https://pubmed.ncbi.nlm.nih.gov/32390201/)]
366. Hartin PJ, Nugent CD, McClean SI, Cleland I, Tschanz JT, Clark CJ, et al. The empowering role of mobile apps in behavior change interventions: the gray matters randomized controlled trial. *JMIR mHealth uHealth*. 2016;4(3):e93. [FREE Full text] [doi: [10.2196/mhealth.4878](https://doi.org/10.2196/mhealth.4878)] [Medline: [27485822](https://pubmed.ncbi.nlm.nih.gov/27485822/)]
367. Carullo PC, Ungerman EA, Metro DG, Adams PS. The impact of a smartphone meditation application on anesthesia trainee well-being. *J Clin Anesth*. 2021;75:110525. [doi: [10.1016/j.jclinane.2021.110525](https://doi.org/10.1016/j.jclinane.2021.110525)] [Medline: [34583313](https://pubmed.ncbi.nlm.nih.gov/34583313/)]
368. Chou FY, Armstrong HL, Wang L, Bacani N, Lachowsky NJ, Patterson TL, et al. A longitudinal analysis of cannabis use and mental health symptoms among gay, bisexual, and other men who have sex with men in Vancouver, Canada. *J Affect Disord*. 2019;247:125-133. [FREE Full text] [doi: [10.1016/j.jad.2019.01.015](https://doi.org/10.1016/j.jad.2019.01.015)] [Medline: [30665075](https://pubmed.ncbi.nlm.nih.gov/30665075/)]
369. Jones HV, Smith H, Cooksley T, Jones P, Woolley T, Gwyn Murdoch D, et al. Checklists for complications during systemic cancer treatment shared by patients, friends, and health care professionals: prospective interventional cohort study. *JMIR mHealth uHealth*. 2020;8(9):e19225. [FREE Full text] [doi: [10.2196/19225](https://doi.org/10.2196/19225)] [Medline: [32975526](https://pubmed.ncbi.nlm.nih.gov/32975526/)]
370. Stevenson C, Wakefield JRH. Financial distress and suicidal behaviour during COVID-19: family identification attenuates the negative relationship between COVID-related financial distress and mental ill-health. *J Health Psychol*. 2021;26(14):2665-2675. [FREE Full text] [doi: [10.1177/13591053211014597](https://doi.org/10.1177/13591053211014597)] [Medline: [34259082](https://pubmed.ncbi.nlm.nih.gov/34259082/)]
371. Wakefield JRH, Bowe M, Kellezi B, Butcher A, Groeger JA. Longitudinal associations between family identification, loneliness, depression, and sleep quality. *Br J Health Psychol*. 2020;25(1):1-16. [doi: [10.1111/bjhp.12391](https://doi.org/10.1111/bjhp.12391)] [Medline: [31609514](https://pubmed.ncbi.nlm.nih.gov/31609514/)]
372. Garjani A, Hunter R, Law GR, Middleton RM, Tuite-Dalton KA, Dobson R, et al. Mental health of people with multiple sclerosis during the COVID-19 outbreak: a prospective cohort and cross-sectional case-control study of the UK MS Register. *Mult Scler*. 2022;28(7):1060-1071. [doi: [10.1177/13524585211020435](https://doi.org/10.1177/13524585211020435)] [Medline: [34080892](https://pubmed.ncbi.nlm.nih.gov/34080892/)]
373. Bostock S, Crosswell AD, Prather AA, Steptoe A. Mindfulness on-the-go: effects of a mindfulness meditation app on work stress and well-being. *J Occup Health Psychol*. 2019;24(1):127-138. [FREE Full text] [doi: [10.1037/ocp0000118](https://doi.org/10.1037/ocp0000118)] [Medline: [29723001](https://pubmed.ncbi.nlm.nih.gov/29723001/)]
374. Wong HZ, Brusseleers M, Hall KA, Maiden MJ, Chapple LS, Chapman MJ, et al. Mixed-mode versus paper surveys for patient-reported outcomes after critical illness: a randomised controlled trial. *Aust Crit Care*. 2022;35(3):286-293. [doi: [10.1016/j.aucc.2021.04.006](https://doi.org/10.1016/j.aucc.2021.04.006)] [Medline: [34176735](https://pubmed.ncbi.nlm.nih.gov/34176735/)]
375. Gong E, Baptista S, Russell A, Scuffham P, Riddell M, Speight J, et al. My diabetes coach, a mobile app-based interactive conversational agent to support type 2 diabetes self-management: randomized effectiveness-implementation trial. *J Med Internet Res*. 2020;22(11):e20322. [FREE Full text] [doi: [10.2196/20322](https://doi.org/10.2196/20322)] [Medline: [33151154](https://pubmed.ncbi.nlm.nih.gov/33151154/)]
376. de la Loge C, Dimova S, Mueller K, Phillips G, Durgin TL, Wicks P, et al. PatientsLikeMe® online epilepsy community: patient characteristics and predictors of poor health-related quality of life. *Epilepsy Behav*. 2016;63:20-28. [FREE Full text] [doi: [10.1016/j.yebeh.2016.07.035](https://doi.org/10.1016/j.yebeh.2016.07.035)] [Medline: [27544877](https://pubmed.ncbi.nlm.nih.gov/27544877/)]
377. Barnes CW, Hadzi-Pavlovic D, Wilhelm K, Mitchell PB. A web-based preventive intervention program for bipolar disorder: outcome of a 12-months randomized controlled trial. *J Affect Disord*. 2015;174:485-492. [doi: [10.1016/j.jad.2014.11.038](https://doi.org/10.1016/j.jad.2014.11.038)] [Medline: [25554993](https://pubmed.ncbi.nlm.nih.gov/25554993/)]
378. Leung SF, Ma LCJ, Russell J. An open trial of self-help behaviours of clients with eating disorders in an online programme. *J Adv Nurs*. 2013;69(1):66-76. [doi: [10.1111/j.1365-2648.2012.05988.x](https://doi.org/10.1111/j.1365-2648.2012.05988.x)] [Medline: [22448710](https://pubmed.ncbi.nlm.nih.gov/22448710/)]
379. Schlosser DA, Campellone TR, Truong B, Etter K, Vergani S, Komaiko K, et al. Efficacy of PRIME, a mobile app intervention designed to improve motivation in young people with schizophrenia. *Schizophr Bull*. 2018;44(5):1010-1020. [FREE Full text] [doi: [10.1093/schbul/sby078](https://doi.org/10.1093/schbul/sby078)] [Medline: [29939367](https://pubmed.ncbi.nlm.nih.gov/29939367/)]
380. Hunt MG, Marx R, Lipson C, Young J. No more FOMO: limiting social media decreases loneliness and depression. *J Soc Clin Psychol*. 2018;37(10):751-768. [doi: [10.1521/jscp.2018.37.10.751](https://doi.org/10.1521/jscp.2018.37.10.751)]
381. Booker JA, Dunsmore JC. Expressive writing and well-being during the transition to college: comparison of emotion-disclosing and gratitude-focused writing. *J Soc Clin Psychol*. 2017;36(7):580-606. [doi: [10.1521/jscp.2017.36.7.580](https://doi.org/10.1521/jscp.2017.36.7.580)]
382. Pearson Ba AD, Young Phd CM, Shank Ma F, Neighbors Phd C. Flow mediates the relationship between problematic smartphone use and satisfaction with life among college students. *J Am Coll Health*. 2021;71(4):1018-1026. [doi: [10.1080/07448481.2021.1910274](https://doi.org/10.1080/07448481.2021.1910274)] [Medline: [34242121](https://pubmed.ncbi.nlm.nih.gov/34242121/)]
383. Crosby RG, Ritt B, Slunaker J. Motives for religious sacrifice: classification, measurement, and longitudinal association with psychospiritual well-being. *Psychol Religion Spirituality*. 2020;12(1):1-12. [doi: [10.1037/rel0000162](https://doi.org/10.1037/rel0000162)]
384. Williams DA, Kuper D, Segar M, Mohan N, Sheth M, Clauw DJ. Internet-enhanced management of fibromyalgia: a randomized controlled trial. *Pain*. 2010;151(3):694-702. [FREE Full text] [doi: [10.1016/j.pain.2010.08.034](https://doi.org/10.1016/j.pain.2010.08.034)] [Medline: [20855168](https://pubmed.ncbi.nlm.nih.gov/20855168/)]
385. Young DR, Sidell MA, Koebnick C, Saksvig BI, Mohan Y, Cohen DA, et al. Longitudinal sedentary time among females aged 17 to 23 years. *Am J Prev Med*. 2019;56(4):540-547. [FREE Full text] [doi: [10.1016/j.amepre.2018.11.021](https://doi.org/10.1016/j.amepre.2018.11.021)] [Medline: [30773232](https://pubmed.ncbi.nlm.nih.gov/30773232/)]
386. van der Houwen K, Schut H, van den Bout J, Stroebe M, Stroebe W. The efficacy of a brief internet-based self-help intervention for the bereaved. *Behav Res Ther*. 2010;48(5):359-367. [doi: [10.1016/j.brat.2009.12.009](https://doi.org/10.1016/j.brat.2009.12.009)] [Medline: [20070953](https://pubmed.ncbi.nlm.nih.gov/20070953/)]

387. Woodworth RJ, O'Brien-Malone A, Diamond MR, Schüz B. Web-based positive psychology interventions: a reexamination of effectiveness. *J Clin Psychol*. 2017;73(3):218-232. [doi: [10.1002/jclp.22328](https://doi.org/10.1002/jclp.22328)] [Medline: [27377826](https://pubmed.ncbi.nlm.nih.gov/27377826/)]
388. Flanagan S, Patterson TG, Hume IR, Joseph S. A longitudinal investigation of the relationship between unconditional positive self-regard and posttraumatic growth. *Person-Cent Experiential Psychotherapies*. 2015;14(3):191-200. [doi: [10.1080/14779757.2015.1047960](https://doi.org/10.1080/14779757.2015.1047960)]
389. Savage MJ, James R, Magistro D, Donaldson J, Healy LC, Nevill M, et al. Mental health and movement behaviour during the COVID-19 pandemic in UK university students: prospective cohort study. *Ment Health Phys Act*. 2020;19:100357. [doi: [10.1016/j.mhpa.2020.100357](https://doi.org/10.1016/j.mhpa.2020.100357)]
390. Savage MJ, Hennis PJ, Magistro D, Donaldson J, Healy LC, James RM. Nine months into the COVID-19 pandemic: a longitudinal study showing mental health and movement behaviours are impaired in UK students. *Int J Environ Res Public Health*. 2021;18(6):2930. [FREE Full text] [doi: [10.3390/ijerph18062930](https://doi.org/10.3390/ijerph18062930)] [Medline: [33809313](https://pubmed.ncbi.nlm.nih.gov/33809313/)]
391. Lorig K, Ritter PL, Turner RM, English K, Laurent DD, Greenberg J. A diabetes self-management program: 12-month outcome sustainability from a nonreinforced pragmatic trial. *J Med Internet Res*. 2016;18(12):e322. [FREE Full text] [doi: [10.2196/jmir.6484](https://doi.org/10.2196/jmir.6484)] [Medline: [27979790](https://pubmed.ncbi.nlm.nih.gov/27979790/)]
392. Schopp LH, Clark MJ, Lamberson WR, Uhr DJ, Minor MA. A randomized controlled trial to evaluate outcomes of a workplace self-management intervention and an intensive monitoring intervention. *Health Educ Res*. 2017;32(3):219-232. [doi: [10.1093/her/cyx042](https://doi.org/10.1093/her/cyx042)] [Medline: [28486643](https://pubmed.ncbi.nlm.nih.gov/28486643/)]
393. Young CL, Mohebbi M, Staudacher HM, Kay-Lambkin F, Berk M, Jacka FN, et al. *JMIR Ment Health*. 2021;8(3):e24871. [FREE Full text] [doi: [10.2196/24871](https://doi.org/10.2196/24871)] [Medline: [33787501](https://pubmed.ncbi.nlm.nih.gov/33787501/)]
394. Bantum EO, Albright CL, White KK, Berenberg JL, Layi G, Ritter PL, et al. Surviving and thriving with cancer using a web-based health behavior change intervention: randomized controlled trial. *J Med Internet Res*. 2014;16(2):e54. [FREE Full text] [doi: [10.2196/jmir.3020](https://doi.org/10.2196/jmir.3020)] [Medline: [24566820](https://pubmed.ncbi.nlm.nih.gov/24566820/)]
395. Lopresti AL, Smith SJ. An investigation into the anxiety-relieving and mood-enhancing effects of *Echinacea angustifolia* (EP107™): a randomised, double-blind, placebo-controlled study. *J Affect Disord*. 2021;293:229-237. [doi: [10.1016/j.jad.2021.06.054](https://doi.org/10.1016/j.jad.2021.06.054)] [Medline: [34217960](https://pubmed.ncbi.nlm.nih.gov/34217960/)]
396. Davis MC, Zautra AJ. An online mindfulness intervention targeting socioemotional regulation in fibromyalgia: results of a randomized controlled trial. *Ann Behav Med*. 2013;46(3):273-284. [doi: [10.1007/s12160-013-9513-7](https://doi.org/10.1007/s12160-013-9513-7)] [Medline: [23670111](https://pubmed.ncbi.nlm.nih.gov/23670111/)]
397. Hum KM, Chan CJ, Gane J, Conway L, McAndrews MP, Smith ML. Do distance-delivery group interventions improve depression in people with epilepsy? *Epilepsy Behav*. 2019;98(Pt A):153-160. [doi: [10.1016/j.yebeh.2019.06.037](https://doi.org/10.1016/j.yebeh.2019.06.037)] [Medline: [31374471](https://pubmed.ncbi.nlm.nih.gov/31374471/)]
398. Beevers CG, Pearson R, Hoffman JS, Foulser AA, Shumake J, Meyer B. Effectiveness of an internet intervention (Deprexis) for depression in a United States adult sample: a parallel-group pragmatic randomized controlled trial. *J Consult Clin Psychol*. 2017;85(4):367-380. [doi: [10.1037/ccp0000171](https://doi.org/10.1037/ccp0000171)] [Medline: [28230390](https://pubmed.ncbi.nlm.nih.gov/28230390/)]
399. Palmius N, Saunders KEA, Carr O, Geddes JR, Goodwin GM, De Vos M. Group-personalized regression models for predicting mental health scores from objective mobile phone data streams: observational study. *J Med Internet Res*. 2018;20(10):e10194. [doi: [10.2196/10194](https://doi.org/10.2196/10194)] [Medline: [30348626](https://pubmed.ncbi.nlm.nih.gov/30348626/)]
400. Schaffer A, Kreindler D, Reis C, Levitt AJ. Use of mental health telemetry to enhance identification and predictive value of early changes during augmentation treatment of major depression. *J Clin Psychopharmacol*. 2013;33(6):775-781. [doi: [10.1097/JCP.0b013e31829e8359](https://doi.org/10.1097/JCP.0b013e31829e8359)] [Medline: [24100787](https://pubmed.ncbi.nlm.nih.gov/24100787/)]
401. Shakeshaft A, Doran C, Petrie D, Breen C, Havard A, Abudeen A, et al. The effectiveness of community action in reducing risky alcohol consumption and harm: a cluster randomised controlled trial. *PLoS Med*. 2014;11(3):e1001617. [FREE Full text] [doi: [10.1371/journal.pmed.1001617](https://doi.org/10.1371/journal.pmed.1001617)] [Medline: [24618831](https://pubmed.ncbi.nlm.nih.gov/24618831/)]
402. Kupeli N, Norton S, Chilcot J, Campbell IC, Schmidt UH, Troop NA. Affect systems, changes in body mass index, disordered eating and stress: an 18-month longitudinal study in women. *Health Psychol Behav Med*. 2017;5(1):214-228. [FREE Full text] [doi: [10.1080/21642850.2017.1316667](https://doi.org/10.1080/21642850.2017.1316667)] [Medline: [28553564](https://pubmed.ncbi.nlm.nih.gov/28553564/)]
403. Kilpela LS, Calogero R, Wilfred SA, Verzijl CL, Hale WJ, Becker CB. Self-objectification and eating disorder pathology in an ethnically diverse sample of adult women: cross-sectional and short-term longitudinal associations. *J Eat Disord*. 2019;7:45. [FREE Full text] [doi: [10.1186/s40337-019-0273-z](https://doi.org/10.1186/s40337-019-0273-z)] [Medline: [31890208](https://pubmed.ncbi.nlm.nih.gov/31890208/)]
404. Carpenter KM, Stoner SA, Schmitz K, McGregor BA, Doorenbos AZ. An online stress management workbook for breast cancer. *J Behav Med*. 2014;37(3):458-468. [FREE Full text] [doi: [10.1007/s10865-012-9481-6](https://doi.org/10.1007/s10865-012-9481-6)] [Medline: [23212928](https://pubmed.ncbi.nlm.nih.gov/23212928/)]
405. Aafjes-van Doorn K, Békés V, Luo X. COVID-19 related traumatic distress in psychotherapy patients during the pandemic: the role of attachment, working alliance, and therapeutic agency. *Brain Sci*. 2021;11(10):1288. [FREE Full text] [doi: [10.3390/brainsci11101288](https://doi.org/10.3390/brainsci11101288)] [Medline: [34679353](https://pubmed.ncbi.nlm.nih.gov/34679353/)]
406. Schluter PJ, Turner C, Huntington AD, Bain CJ, McClure RJ. Work/life balance and health: the nurses and midwives e-cohort study. *Int Nurs Rev*. 2011;58(1):28-36. [doi: [10.1111/j.1466-7657.2010.00849.x](https://doi.org/10.1111/j.1466-7657.2010.00849.x)] [Medline: [21281290](https://pubmed.ncbi.nlm.nih.gov/21281290/)]
407. Ridner SH, Dietrich MS, Davis AJ, Sinclair V. A randomized clinical trial comparing the impact of a web-based multimedia intervention versus an educational pamphlet on patient outcomes in breast cancer survivors with chronic secondary lymphedema. *J Womens Health (Larchmt)*. 2020;29(5):734-744. [FREE Full text] [doi: [10.1089/jwh.2019.7676](https://doi.org/10.1089/jwh.2019.7676)] [Medline: [31314661](https://pubmed.ncbi.nlm.nih.gov/31314661/)]

408. Hirten RP, Danieleto M, Tomalin L, Choi KH, Zweig M, Golden E, et al. Factors associated with longitudinal psychological and physiological stress in health care workers during the COVID-19 pandemic: observational study using Apple watch data. *J Med Internet Res*. 2021;23(9):e31295. [FREE Full text] [doi: [10.2196/31295](https://doi.org/10.2196/31295)] [Medline: [34379602](https://pubmed.ncbi.nlm.nih.gov/34379602/)]
409. Ford MB. Social distancing during the COVID-19 pandemic as a predictor of daily psychological, social, and health-related outcomes. *J Gen Psychol*. 2021;148(3):249-271. [doi: [10.1080/00221309.2020.1860890](https://doi.org/10.1080/00221309.2020.1860890)] [Medline: [33355034](https://pubmed.ncbi.nlm.nih.gov/33355034/)]
410. Acosta MC, Possemato K, Maisto SA, Marsch LA, Barrie K, Lantinga L, et al. Web-delivered CBT reduces heavy drinking in OEF-OIF veterans in primary care with symptomatic substance use and PTSD. *Behav Ther*. 2017;48(2):262-276. [FREE Full text] [doi: [10.1016/j.beth.2016.09.001](https://doi.org/10.1016/j.beth.2016.09.001)] [Medline: [28270335](https://pubmed.ncbi.nlm.nih.gov/28270335/)]
411. Hollinghurst S, Peters TJ, Kaur S, Wiles N, Lewis G, Kessler D. Cost-effectiveness of therapist-delivered online cognitive-behavioural therapy for depression: randomised controlled trial. *Br J Psychiatry*. 2010;197(4):297-304. [doi: [10.1192/bjp.bp.109.073080](https://doi.org/10.1192/bjp.bp.109.073080)] [Medline: [20884953](https://pubmed.ncbi.nlm.nih.gov/20884953/)]
412. Beauchet O, Bastien T, Mittelman M, Hayashi Y, Hau Yan Ho A. Participatory art-based activity, community-dwelling older adults and changes in health condition: results from a pre-post intervention, single-arm, prospective and longitudinal study. *Maturitas*. 2020;134:8-14. [doi: [10.1016/j.maturitas.2020.01.006](https://doi.org/10.1016/j.maturitas.2020.01.006)] [Medline: [32143777](https://pubmed.ncbi.nlm.nih.gov/32143777/)]
413. Kent BV, Henderson WM, Bradshaw M, Ellison CG, Wright BR. Do daily spiritual experiences moderate the effect of stressors on psychological well-being? A smartphone-based experience sampling study of depressive symptoms and flourishing. *Int J Psychol Religion*. 2020;31(2):57-78. [doi: [10.1080/10508619.2020.1777766](https://doi.org/10.1080/10508619.2020.1777766)]
414. Kenny LT, Gaston T, Powers K, Isaac-Dockery A. Anxiety in nursing students: the impact of using mobile technology with quick response codes. *Nurse Educ Today*. 2020;89:104382. [doi: [10.1016/j.nedt.2020.104382](https://doi.org/10.1016/j.nedt.2020.104382)] [Medline: [32200133](https://pubmed.ncbi.nlm.nih.gov/32200133/)]
415. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh postnatal depression scale. *Br J Psychiatry*. 1987;150:782-786. [doi: [10.1192/bjp.150.6.782](https://doi.org/10.1192/bjp.150.6.782)] [Medline: [3651732](https://pubmed.ncbi.nlm.nih.gov/3651732/)]
416. Goldberg D, Williams P. User's guide to the general health questionnaire. CiNii. 1988. URL: <https://ci.nii.ac.jp/naid/10016919943/> [accessed 2025-09-03]
417. Krohn H, Guintivano J, Frische R, Steed J, Rackers H, Meltzer-Brody S. App-based ecological momentary assessment to enhance clinical care for postpartum depression: pilot acceptability study. *JMIR Form Res*. 2022;6(3):e28081. [FREE Full text] [doi: [10.2196/28081](https://doi.org/10.2196/28081)] [Medline: [35319483](https://pubmed.ncbi.nlm.nih.gov/35319483/)]
418. Torous J, Staples P, Shanahan M, Lin C, Peck P, Keshavan M, et al. Utilizing a personal smartphone custom app to assess the patient health questionnaire-9 (PHQ-9) depressive symptoms in patients with major depressive disorder. *JMIR Ment Health*. 2015;2(1):e8. [FREE Full text] [doi: [10.2196/mental.3889](https://doi.org/10.2196/mental.3889)] [Medline: [26543914](https://pubmed.ncbi.nlm.nih.gov/26543914/)]
419. Farber GK, Wolpert M, Kemmer D. Common measures for mental health science laying the foundations. National Institutes of Mental Health. 2020. URL: <https://wellcome.org/sites/default/files/CMB-and-CMA-July-2020-pdf.pdf> [accessed 2025-09-06]
420. World mental health report. World Health Organization. 2022. URL: <https://iris.who.int/bitstream/handle/10665/356119/9789240049338-eng.pdf?sequence=1> [accessed 2025-09-03]
421. Cronbach LJ, Gleser GC. Psychological Tests and Personnel Decisions. Champaign, IL, US. University of Illinois Press; 1965.
422. Salgado JF. Bandwidth-fidelity dilemma. In: *Encyclopedia of Personality and Individual Differences*. Cham. Springer International Publishing; 2017:1-4.
423. Iasiello M, Ali K, van Agteren J, Kolovos E, Kyrios M, Kashdan TB, et al. What's the difference between measures of wellbeing, quality of life, resilience, and coping? An umbrella review and concept map of 155 measures of positive mental health. *Int J Wellbeing*. 2024;14(2):1-25. [doi: [10.5502/ijw.v14i2.3621](https://doi.org/10.5502/ijw.v14i2.3621)]
424. National primary health networks guidance: initial assessment and referral for mental healthcare. Australian Government Department of Health, Disability and Ageing. 2020. URL: <https://www.health.gov.au/resources/collections/primary-health-networks-phn-collection-of-primary-mental-health-care-resources> [accessed 2025-09-06]
425. Counsell N, Cortina-Borja M, Lehtonen A, Stein A. Modelling psychiatric measures using skew-normal distributions. *Eur Psychiatry*. 2011;26(2):112-114. [FREE Full text] [doi: [10.1016/j.eurpsy.2010.08.006](https://doi.org/10.1016/j.eurpsy.2010.08.006)] [Medline: [21036551](https://pubmed.ncbi.nlm.nih.gov/21036551/)]
426. Nima AA, Cloninger KM, Persson BN, Sikström S, Garcia D. Validation of subjective well-being measures using item response theory. *Front Psychol*. 2019;10:3036. [FREE Full text] [doi: [10.3389/fpsyg.2019.03036](https://doi.org/10.3389/fpsyg.2019.03036)] [Medline: [32038401](https://pubmed.ncbi.nlm.nih.gov/32038401/)]
427. Reise SP, Waller NG. Item response theory and clinical measurement. *Annu Rev Clin Psychol*. 2009;5:27-48. [doi: [10.1146/annurev.clinpsy.032408.153553](https://doi.org/10.1146/annurev.clinpsy.032408.153553)] [Medline: [18976138](https://pubmed.ncbi.nlm.nih.gov/18976138/)]
428. Jiraniramai S, Wongpakaran T, Angkurawaranon C, Jiraporncharoen W, Wongpakaran N. Construct validity and differential item functioning of the PHQ-9 among health care workers: Rasch analysis approach. *Neuropsychiatr Dis Treat*. 2021;17:1035-1045. [FREE Full text] [doi: [10.2147/NDT.S271987](https://doi.org/10.2147/NDT.S271987)] [Medline: [33854319](https://pubmed.ncbi.nlm.nih.gov/33854319/)]
429. Lavrakas P. *Encyclopedia of Survey Research Methods*. Thousand Oaks California. Sage Publications, Inc; 2008.
430. Yan T, Williams D. Response burden - review and conceptual framework. *J Off Stat*. 2022;38(4):939-961. [doi: [10.2478/jos-2022-0041](https://doi.org/10.2478/jos-2022-0041)]
431. Peitz D, Kersjes C, Thom J, Hoelling H, Mauz E. Indicators for public mental health: a scoping review. *Front Public Health*. 2021;9:714497. [FREE Full text] [doi: [10.3389/fpubh.2021.714497](https://doi.org/10.3389/fpubh.2021.714497)] [Medline: [34646802](https://pubmed.ncbi.nlm.nih.gov/34646802/)]

432. Orpana H, Vachon J, Dykxhoorn J, McRae L, Jayaraman G. Monitoring positive mental health and its determinants in Canada: the development of the positive mental health surveillance indicator framework. *Health Promot Chronic Dis Prev Can.* 2016;36(1):1-10. [FREE Full text] [doi: [10.24095/hpcdp.36.1.01](https://doi.org/10.24095/hpcdp.36.1.01)] [Medline: [26789022](https://pubmed.ncbi.nlm.nih.gov/26789022/)]
433. Thom J, Mauz E, Peitz D, Kersjes C, Aichberger M, Baumeister H, et al. Establishing a mental health surveillance in Germany: development of a framework concept and indicator set. *J Health Monit.* 2021;6(4):34-63. [doi: [10.25646/8861](https://doi.org/10.25646/8861)] [Medline: [35146320](https://pubmed.ncbi.nlm.nih.gov/35146320/)]
434. Sierk A, Travers E, Economides M, Loe BS, Sun L, Bolton H. A new digital assessment of mental health and well-being in the workplace: development and validation of the unmind index. *JMIR Ment Health.* 2022;9(1):e34103. [doi: [10.2196/34103](https://doi.org/10.2196/34103)] [Medline: [35037895](https://pubmed.ncbi.nlm.nih.gov/35037895/)]
435. Torous J, Friedman R, Keshavan M. Smartphone ownership and interest in mobile applications to monitor symptoms of mental health conditions. *JMIR mHealth uHealth.* 2014;2(1):e2. [FREE Full text] [doi: [10.2196/mhealth.2994](https://doi.org/10.2196/mhealth.2994)] [Medline: [25098314](https://pubmed.ncbi.nlm.nih.gov/25098314/)]
436. Whitehead L, Seaton P. The effectiveness of self-management mobile phone and tablet apps in long-term condition management: a systematic review. *J Med Internet Res.* 2016;18(5):e97. [FREE Full text] [doi: [10.2196/jmir.4883](https://doi.org/10.2196/jmir.4883)] [Medline: [27185295](https://pubmed.ncbi.nlm.nih.gov/27185295/)]
437. Sarsenbayeva Z, Fleming C, Tag B, Withana A, Berkel NV, McEwan A. A review on mood assessment using smartphones. Cham. Springer; 2023. Presented at: Human-Computer Interaction – INTERACT 2023: 19th IFIP TC13 International Conference; 2023 28 August:385-413; York, United Kingdom. [doi: [10.1007/978-3-031-42283-6_22](https://doi.org/10.1007/978-3-031-42283-6_22)]
438. Uddin MN, Bhar S, Al Mahmud A, Islam FMA. Psychological distress and quality of life: rationale and protocol of a prospective cohort study in a rural district in Bangladesh. *BMJ Open.* 2017;7(9):e016745. [FREE Full text] [doi: [10.1136/bmjopen-2017-016745](https://doi.org/10.1136/bmjopen-2017-016745)] [Medline: [28864700](https://pubmed.ncbi.nlm.nih.gov/28864700/)]
439. Maçkalı Z, Güneri G, Korkmaz A, Çakır S. A preliminary study of group therapy intervention for bipolar disorder based on the integrative cognitive model. *tCBT.* 2020;13:e46. [doi: [10.1017/s1754470x20000446](https://doi.org/10.1017/s1754470x20000446)]
440. Koh ZH. Towards a holistic and adaptive digital mental health assessment for Australian adults. 2025. Presented at: Australian Psychological Society (APS) Festival of Psychology; 16-18 May 2025; Gold Coast, Queensland. URL: <https://psychologyevents.org.au/QuickEventWebsitePortal/2025-aps-festival-of-psychology/festival25-program/Portal/Closed>
441. Digital Health CRC. URL: <https://www.digitalhealthcrc.com/> [accessed 2025-09-03]
442. SiSU Health. URL: <https://sisuhealthgroup.com/> [accessed 2025-09-03]

Abbreviations

CAT: Computerized Adaptive Test
CES-D: Center for Epidemiologic Studies-Depression Scale
COSMIN: COnsensus-based Standards for the selection of health Measurement INstruments
CTT: classical test theory
DASS-21: Depression, Anxiety, Stress Scale 21 Items
EMA: ecological momentary assessment
GAD-7: Generalized Anxiety Disorder 7 Items
HRQoL: health-related quality-of-life
IRT: item response theory
K10: Kessler Psychological Distress Scale
MHC-SF: Mental Health Continuum Short-Form
PHQ-8: Patient Health Questionnaire 8 Items
PHQ-9: Patient Health Questionnaire 9 Items
PICOT: Population, intervention, comparison, outcome, and time
PRISMA-ScR: Preferred Reporting Items for Systematic Review and Meta-analysis Extension for Scoping Reviews
PROMIS: Patient Reported Outcome Measures Information System
PSS-10: Perceived Stress Scale 10 Items
RQ: research question
SF-36: Medical Outcome Survey Short Form 36 Items
SWL: Satisfaction With Life Scale
WEMWBS: Warwick-Edinburgh Mental Well-Being Scale
WHOQOL-BREF: The World Health Organization Quality of Life (abbreviated version)

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