

# Psychometric Properties of (Bare) Scale: A Systematic Review Protocol

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## Abstract

**Objective:** The Brief Accessibility, Responsiveness, and Engagement (BARE) Scale is a short self-report questionnaire that measures the key behaviors of the attachment system. It can be easily administered by both clinicians and researchers of different domains as the dyadic relationship between attachment and mental/physical health. It has been proved by a vast majority of studies. To our knowledge, no measure specifically focuses on couple attachment. Furthermore, we could not find any systematic review and/or meta-analysis which have been conducted to evaluate the psychometric properties of BARE.

**Method:** Two independent reviewers will search comprehensively through relevant databases and also grey literature. Information will be analyzed by means of priori-defined criteria by two of reviewers. Seemingly, data will be extracted from the full texts of included studies based on a set of data extraction forms in accordance with the related psychometric information. The methodological quality of studies on the development and validation of BARE will be assessed using consensus-based standards for the selection of health Measurement Instruments (COSMIN) checklist. Finally, the psychometrics of this tool will then be analyzed using predefined criteria.

**Results:** Systematic review with meta-analyses involving multidimensional outcomes.

**Conclusion:** In this protocol, we have briefly described our method for conducting a systematic review in order to measuring the psychometric properties of BARE. All of the reasons call for exploring the psychometric properties of BARE discussed comprehensively in the introduction. It is the first and crucial step to formulate the recommendations every researcher or a clinician needs in working with couples.

Systematic review registration: PROSPERO CRD42020210098

**Keywords:** Brief accessibility, Responsiveness and Engagement (BARE) Scale, Psychometric Properties, Systematic Reviews Protocol.

## Introduction

Attachment theory, first introduced by John Bowlby (1969), describes a fundamental system for innate regulation of social behavior, development of emotional stability, mental health, and satisfaction in intimate relationships for all human beings.

According to this theory, all human beings are born with a naturally selected need for forming and retaining close emotional bonds with other signs. While the emotional bond between infants and caregivers has been the main focus of attachment theory (Bowlby, 1973), it has also highlighted the impact of early parent-child relationships on subsequent relationships between romantic partners during young adulthood (Hazan & Shaver, 1987). In particular, the attachment system is an emotion regulation framework that prompts people to forge strong relationships with important others to be survived in tough situations (Pakdaman, Alipour, Aghayousefi & Azghandi, 1394). In recent years,

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the theory has been extended to other relationships during adulthood such as friendships and co-working (Cassidy & Shaver, 2002).

Years ago, a study about family health (Lewis, Beavers, Gossett & Phillip, 1976) proposed that a couple's relationship is the main context of people's health and a basis for a healthy family. Then the couple interventions suggested a unique self and therapeutic system-oriented which could have maximized the efficacy of therapy and meliorated the health quality in different levels and various domains. Recent studies have discovered that emotion-focused therapy is far more than an evidence-based therapy that just provides relationship satisfaction. It can revamp special aspects of secure attachment in relationships that have been shaping effective factors of physical and mental health (Zeifman & Hazan, 2008).

Attachment styles concern a person's tendency to build interpersonal connections or avoid such relationships. A large number of tools have been developed to assess individuals' attachment styles. We have found two systematic review and meta-analytical studies on measurements of attachment styles in adolescents (Graham & Unterschute, 2015) and adults (Jewell et al., 2019). These two studies did not focus on the couple relationships. In addition to specific attachment styles, researchers have also identified the key attachment behaviors in couple relationships, i.e., those behaviors that are the vital elements of a strong attachment connection (Feeney, 2008; Scott & Cordova, 2002; Gottman, Coan, Carr & Soanson, 1998). Despite the growing interest in couple attachment among clinicians and researchers, defining and measuring couple attachment has remained a challenge.

Several researchers have used the Adult Attachment Interview as a guide to design the Couple Attachment Interview (Alexandrov, Cowan & Cowan, 2005). Wampler, Riggs, and Kimball (2004) developed the "Adult Attachment Behavior" questionnaire battery to encode data from couple interactions

and classify their behaviors into attachment styles. These approaches to measuring attachment behavior in couples are fundamentally based on a deductive classification characterized by clear boundaries between secure, anxious, and avoidant attachment styles. These tools have mainly aimed to specify the attachment styles in relationships rather than to identify and highlight those behaviors that facilitate the couple's connection.

The Brief Accessibility, Responsiveness, and Engagement (BARE) Scale is a short self-report questionnaire that measures the key behaviors of the attachment system. It can easily be administered by clinicians and researchers. The simple scoring method is another advantage of this questionnaire (Sandberg, Busby, Johnson & Yoshida, 2012). A growing number of studies have been using BARE in the context of research on couple relationships as it has acceptable reliability and good enough validity (e.g., Oka, Sandberg, Bradford & Brown, 2014; Sandberg, Bradford & Brown, 2017; Knapp, Norton, & Sandberg, 2015).

*However, to our knowledge, no systematic review or meta-analysis has been conducted to summarize the psychometric properties of BARE. Given that currently, no measure specifically focuses on couple attachment, it is of great importance to review the psychometric properties of BARE to determine its usefulness in this context.*

#### *Description of BARE*

The Brief Accessibility, Responsiveness and Engagement (BARE) Scale, as mentioned above, is a brief instrument that measures key attachment behaviors predicting positive communication, satisfaction and stability in a couple's relationship. As it is a unique scale measuring both partners' attachments, a body of research has been using it (Sandberg et al, 2016). It is a 12-item scale with both clinical and research exploitation. It contains 6 subscales assessing the responsiveness, stability and engagement for both partners. Appropriate reliability and validity have been reported for this

scale (Sandberg et al,2012). The BARE items are available in table 1.

Babaei(2018) reported acceptable validity and stability for BARE in a two-step psychometric study in Iranian society. Table 2 shows an analogous between reported psychometrics by sandberg et al(2012) and Babaei(2018).

analysis has been written According to Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement, like any other protocol for systematic review and met-analysis (for instance malekasgar et al, 2021) we registered this protocol on PROSPERO. The registration number in the International prospective

**Table 1:** Brief accessibility, responsiveness and engagement.

Please circle the number that best represents your experiences in your current relationship with your partner.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| <b>Accessibility</b>  |   |   |   |   |   |
| 1. I am rarely available to my partner.                                 | 1 | 2 | 3 | 4 | 5 |
| 2. It is hard for my partner to get my attention.                       | 1 | 2 | 3 | 4 | 5 |
| <b>Responsiveness</b>   |   |   |   |   |   |
| 3. I listen when my partner shares her/his deepest feelings.            | 1 | 2 | 3 | 4 | 5 |
| 4. I am confident I reach out to my partner                             | 1 | 2 | 3 | 4 | 5 |
| <b>Engagement</b>   |   |   |   |   |   |
| 5. It is hard for me to confide in my partner.                          | 1 | 2 | 3 | 4 | 5 |
| 6. I struggle to feel close and engaged in our relationship.            | 1 | 2 | 3 | 4 | 5 |
| <b>Partner's Accessibility</b>  |   |   |   |   |   |
| 7. My partner is rarely available to me.                                | 1 | 2 | 3 | 4 | 5 |
| 8. It is hard for me to get my partner's attention.                     | 1 | 2 | 3 | 4 | 5 |
| <b>Partner's Responsiveness</b>   |   |   |   |   |   |
| 9. My partner listens when I share my deepest feelings.                 | 1 | 2 | 3 | 4 | 5 |
| 10. I am confident my partner reaches out to me.                        | 1 | 2 | 3 | 4 | 5 |
| <b>Partner's Engagement</b>   |   |   |   |   |   |
| 11. It is hard for my partner to confide in me.                         | 1 | 2 | 3 | 4 | 5 |
| 12. My partner struggles to feel close and engaged in our relationship. | 1 | 2 | 3 | 4 | 5 |

1 = *Never True*; 2 = *Rarely True*; 3 = *Sometimes True*; 4 = *Usually True*; 5 = *Always True*.

## Objectives

### Primary objective

register of systematic reviews (PROSPERO) is CRD42020210098.

**Table 2** psychometric properties of BARE

| version         | stability         |         | Convergent validity    |                          |
|-----------------|-------------------|---------|------------------------|--------------------------|
|                 | Chronbach's alpha | Re-test | With couple adjustment | With couple satisfaction |
| Sandberg (2012) | 0.5               | 0.73    | -                      | -                        |
| Babaei(2018)    | 0.68              | 0.9     | 0.68                   | 0.72                     |

The main objective is to find out what the psychometric properties of BARE are.

### Secondary objective

The second purpose of this study is to assess the potential sources of heterogeneity.

## Method

This protocol for systematic review and meta-

## Eligibility Criteria

### Types of studies

- 1- Studies using BARE for assessing couple attachment styles will be included.
- 2- Studies reported at least one psychometric properties (validity, reliability) will be included.
- 3- Studies reported the norming for BARE will be eligible,

- 4- Studies on adult age group (older than 18) will be included.
- 5- Studies published from 2012 to June 1<sup>st</sup> 2020 will be included.
- 6- No language restriction will be imposed.

### **Types of participant**

- 1- Both couples should have answered the BARE.
- 2- All participants should be older than 18.
- 3- All participants should have a straight sexual orientation.
- 4- Participants with psychotic and related disorders are excluded.
- 5- Participants with dementia are excluded.
- 6- Participants with intellectual and developmental disorders will be excluded.

### **Types of outcome measures**

#### **Primary outcomes**

The primary outcome of this review will be the assessment of the psychometric properties of BARE.

#### **SECONDARY OUTCOMES**

The secondary outcomes will be:

- 1- Finding the potential sources of heterogeneity
- 2- Finding clinical utility of BARE.

### **Search methods for identification of studies**

#### **Information sources**

To conduct a comprehensive search, the following databases will be queried:

Cochrane Database of Systematic Reviews, MEDLINE (via PubMed, from 2012 to June 2020), EMBASE (via Scopus, from 2012 to June 2020), PsycINFO, PsycTest, Scopus, ProQuest, Web of science, Google Scholar, Open grey.

#### **Grey literature**

To obtain a thorough enough search, we will hand search through the Journal of Couple and relationship therapy as the key journal. Moreover, the reference lists of included articles will be

queried. Conference papers gained by conducting a search on google will be considered too. we will look for any practically relevant study among thesis and dissertation, unpublished articles and articles in press., if we need extra information, we will get in contact with to authors. In case get in contact with the authors after sending them 2 emails with 2 weeks intervals, that missed information will be eliminated from this systematic review.

### **Search terms and strategy**

The purpose of this systematic review is to assess the psychometrics of BARE which is structured in 2012. So, the starting point for the search is 2012 and the ending point is June 1<sup>st</sup>, 2020. the search strategy of this systematic review will be based on the peer review of the electronic search strategy (PRESS) (McGowan et al, 2016). Search terms were selected by the hands of three expert persons in the area of attachment research in addition to considering previous systematic reviews run about attachment tools.

the following search strategy will be searched in PubMed:(The **briefaccessibility, responsiveness, and engagement**" [All] OR BARE [all] OR "attachment behavior [tiab]) AND (scale[tiab] OR inventory [tiab] OR questionnaire[tiab] OR interview[tiab])

#### *Study screening and selection*

All titles and abstracts of practically related studies based on the resultant search strategy and other mentioned sources will be independently assessed by both researchers due to finding suitable studies according to eligibility criteria. Any inevitable disagreement will be resolved through discussion and consensus. In case disagreements remain unsolved, getting help from a third expert person will be applied.

### **Data extraction**

Both reviewers will extract the data on their own initiative from the full texts of eligible studies based on a set of data extraction forms in accordance with

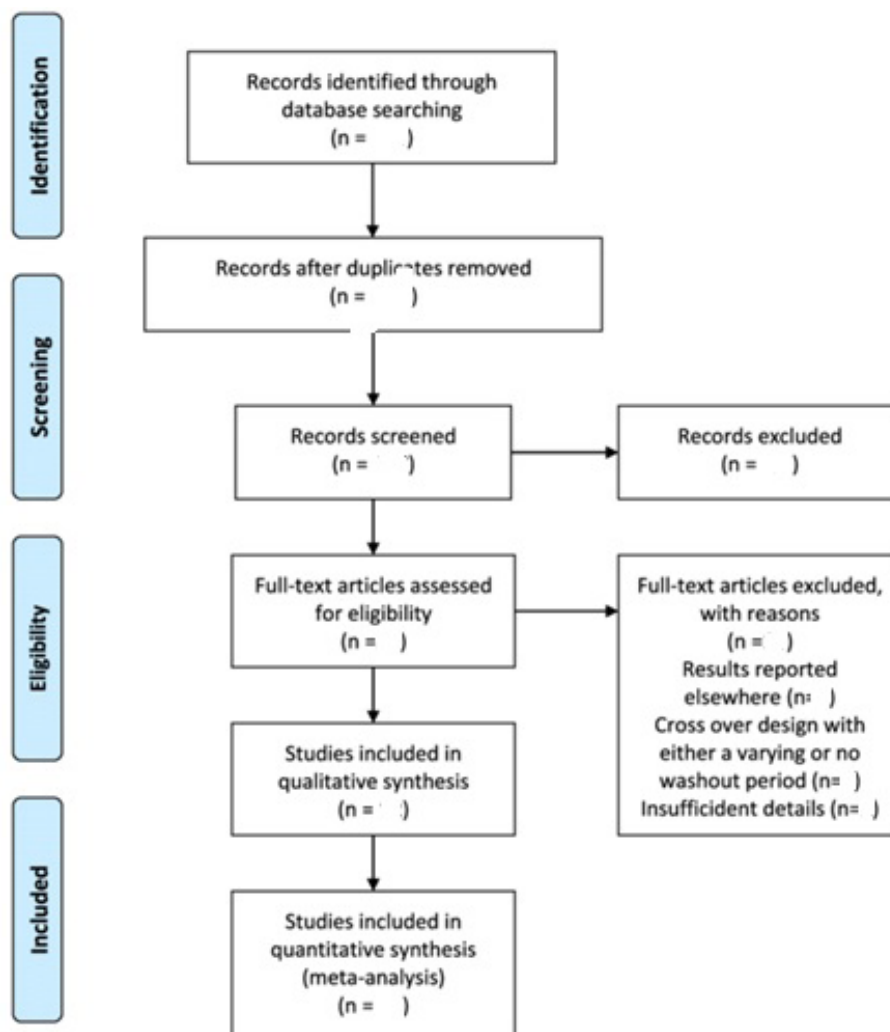
the following information:

- 1- Recognizing primary studies based on first author name, publishing year, starting and ending points of study, design of study, sample size of each group, geographic origin.
- 2- General properties of scale which used in study (construct, sub-scales, items and version)
- 3- Psychometric properties of BARE scale reported including: Validity (content, criterion, construct), Internal consistency, Reliability, Agreement, Responsiveness, Floor and ceiling effects, interpretability
- 4- Two table of interpretability and generalizability of COSMIN .

### Risk of bias (quality) assessment

Best known tool for assessing the risk of bias is four-point COSMIN checklist. methodological quality of included studies will be assessed with COSMIN. This vital step will be carried out to prevent the risk of selecting and evaluating which were developed inappropriately.

COSMIN scale using the descriptors ‘very good’, ‘adequate’, ‘doubtful’ and ‘inadequate’. A ‘not applicable’ option is also put in for each property. we will assess the measurement properties that are relevant to each study. An overall score of the methodological quality for each measurement property will be counted by summing lowest rating



of any of the items. Such procedure called 'the worst score counts' principle.

To insure the rightfully evaluation of methodological quality, two reviewers will independently work on this step. As previous steps, any disagreement will be resolved through consensus. If discussion about controversy does not lead to consensus, we will get help form the third expert person.

*Figure 1 PRISMA chart*

### Data synthesis

Data will be shown in tables. psychometric properties which reported on at least three primary articles will be eligible for meta-analysis and will be calculated in STATA ver.14. This process will be done by using Random effect model. Forest plot will be used to show synthesis of psychometrics. After extracting psychometrics, if possible, forest plots will be presented for each property separately. Each forest plot will be followed by a semi comprehensive interpretation.

To assess heterogeneity of psychometrics, Cochrane Q test and P value will be applied. Besides,  $I^2$  measure will be used for assessing the inconsistency level (McGowan et al,2016). In case the level of inconsistency is moderate to high in subgroups, the effect of potential factors on consistency will be assessed by using one of subgroup analysis or meta-regression.

To assess the publication bias, we will use the funnel plot. Begg's and Egger's statistical methods will used if needed (Higgins & Julian,2003).

### Reporting results

In this review the final results will be reported in accordance with PRISMA check list (Moher, , Altman, Liberati & Tetzlaff,2011).

### Discussion

In this protocol, we have briefly described our method for conducting a systematic review in order to measuring the psychometric properties of BARE. This review is needed as its advantages

were explained. All of the reasons (discussed comprehensively in the introduction) call for exploring the psychometric properties of BARE in more detail. To find out the potential sources of heterogeneity, we will initiate a comprehensive search strategy and use the statistical method appropriately. It is the first and crucial step to formulate the recommendations every researcher or clinician needs in working with couples.

### Limitation

Based on the chronological order, this measure is too young and we expect that the number of studies that focused on or used this tool might be limited. This probable limitation may affect the feasibility of meta-analysis. Other limitations such as significant heterogeneity will be expected and should be solved accordingly.

Ethics approval and consent to participate in ethics approval are not required for a systematic review of secondary data.

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