Validating the Fear of Being Single Scale for Individuals in Relationships

Isabel A. Cantarella¹, Stephanie S. Spielmann¹✉, Ty Partridge¹, Geoff MacDonald², Samantha Joel³ and Emily A. Impett⁴✉

Abstract
The Fear of Being Single (FOBS) Scale (Spielmann et al., 2013) assesses insecurity about singlehood, but its items are phrased for those who are currently single. The present research validated the FOBS in Relationships Scale for individuals currently in relationships. Results suggested that both single and partnered individuals experience FOBS, and that the FOBS Scale and FOBS in Relationships Scale are appropriate measures for single and partnered individuals, respectively. We advise against using the original FOBS Scale for those in relationships, and recommend an abridged scale for researchers who wish to make direct comparisons of FOBS between single and partnered individuals.

Keywords
fear of being single, relationship status, measurement, invariance testing, social psychology

Introduction
Being in a romantic relationship does not necessarily preclude someone from fears about being single. Even those in relationships may consider the prospect of one day returning to singlehood. However, those currently in relationships have often been overlooked in research on concerns about singlehood. Such research has focused primarily on the

¹Department of Psychology, Wayne State University, Detroit, MI, United States
²Department of Psychology, University of Toronto, Toronto, ON, Canada
³Department of Psychology, Western University, London, ON, Canada
⁴Department of Psychology, University of Toronto Mississauga, Mississauga, ON, Canada

Corresponding author:
Stephanie S. Spielmann, Department of Psychology, Wayne State University, 5057 Woodward Ave, Suite 7908, Detroit, MI, 48202, United States.
Email: spielmann@wayne.edu
experiences of those who are currently or ever-single (e.g., Cole, 1999; Sharp & Ganong, 2011) or relies on measures that have not been validated within a sample of people currently in relationships to speak to their specific concerns (e.g., Adamczyk, 2017; 2018; Spielmann et al., 2013; 2016). Because of this, there remains a poor understanding about what fear of singlehood means when currently involved in a romantic relationship and how well our current measures assess fear of being single among partnered individuals.

**Fear of Being Single**

Fear of being single (FOBS) has been defined as “concern, anxiety, or distress regarding the current or prospective experience of being without a romantic partner” (Spielmann et al., 2013, p. 1049; emphasis added). Although Spielmann et al. solicited responses from single and partnered participants when developing the FOBS Scale, no testing has verified whether the scale measures the same construct in both populations. The FOBS Scale contains wording framed toward currently-single individuals, which may be challenging for those in relationships to answer in a meaningful way. Because measurement issues are a primary concern in the field of psychology (Flake & Fried, 2020; Sakaluk et al., 2021), it is important for our understanding of the FOBS construct to formally test assumptions of measurement equivalence.

FOBS is associated with a wide range of relationship experiences. For instance, FOBS predicts remaining in dissatisfying relationships (George et al., 2020; Spielmann et al., 2013) and pursuing mates in an unselective manner (Spielmann et al., 2013, 2020b). FOBS is associated with commitment readiness and relationship-initiation intentions (Hadden et al., 2018), positive attitudes toward mate poaching (McKelvie et al., 2021), and likelihood of infidelity (Sakman et al., 2021). Although the antecedents of FOBS are not fully known, early work has shown that FOBS is associated with exposure to romantic media (Timmermans et al., 2019), perceptions of mate availability/scarcity (McKelvie et al., 2021; Thomas et al., 2022; cf. Brady et al., 2022), and social network pressure to enter a relationship (Sprecher & Felmlee, 2021). FOBS also mediates the association between satisfaction with one’s relationship status and life satisfaction, well-being, depressive symptoms, and loneliness (Adamczyk, 2017, 2018). Although the original FOBS Scale has previously been used among those in relationships, ensuring proper measurement is critical for accurately assessing FOBS among partnered individuals and directly comparing FOBS based on relationship status (cross-sectionally or longitudinally after status changes).

Researchers have previously used an adapted version of the FOBS Scale where each item includes qualifiers such as, “If I were single...” (Spielmann et al., 2013; Study 3, Study 4A; Spielmann et al., 2016). We refer to this as the FOBS in Relationships Scale (R-FOBS; see Table 1). The primary goal of the present research was to assess the construct validity of the R-FOBS Scale, and to test whether the latent FOBS construct is truly comparable between relationship statuses.
Measurement Invariance

Measurement invariance is a method for testing whether scales have the same measurement properties across different populations/contexts (Fischer & Karl, 2018; Kline, 2016). Measurement invariance is a multistep analysis, with each step increasing the number of equality constraints across groups. If model fit is not significantly worse than the previous model, it is determined that the stricter level of measurement invariance was met. Increasingly conservative tests are not conducted once a level of invariance fails to be met.

The first step assesses configural invariance, determining whether the same factor structure holds across groups (Fischer & Karl, 2018; Kline, 2016; Sakaluk et al., 2021). The second step assesses weak invariance, constraining factor loadings across groups. The third step assesses strong invariance, constraining item intercepts across groups. Strong invariance is needed to justify tests of mean differences across groups (such as comparing FOBS among single and partnered individuals) since it indicates that individuals with the same score on the latent variable should have the same score on each item. The fourth step—less commonly used—is strict invariance, constraining item residual variances across groups, addressing whether factors are assessed with equivalent precision.

Current Research

The current research tests FOBS measurement between single and partnered individuals. In Study 1, we explored the validity of using the original FOBS Scale—phrased for current-singles—among those in relationships, and tested measurement equivalence between

<table>
<thead>
<tr>
<th>Fear of being single (FOBS) scale</th>
<th>Fear of being single in relationships (R-FOBS) scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel it is close to being too late for me to find the love of my life</td>
<td>1. If I were single, it would be close to being too late for me to find the love of my life</td>
</tr>
<tr>
<td>2. I feel anxious when I think about being single forever</td>
<td>2. I feel anxious when I think about the idea of being single forever</td>
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<tr>
<td>3. I need to find a partner before I’m too old to have and raise children</td>
<td>3. If I were single, I would be worried about finding a partner before I was too old to have and raise children</td>
</tr>
<tr>
<td>4. If I end up alone in life, I will probably feel like there is something wrong with me</td>
<td>4. If I end up alone in life, I will probably feel like there is something wrong with me</td>
</tr>
<tr>
<td>5. As I get older, it will get harder and harder to find someone</td>
<td>5. As I get older, it will get harder and harder to find someone else if I were single</td>
</tr>
<tr>
<td>6. It scares me to think that there might not be anyone out there for me</td>
<td>6. It scares me to think that there might not always be someone out there for me</td>
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</tbody>
</table>

Note. Participants responded on a scale from 1 (not at all true) to 5 (very true). Bolded items displayed measurement invariance across groups in Study 3.
groups. In Study 2, we explored the validity of the R-FOBS Scale. Finally, in Study 3, we tested measurement equivalence between the FOBS Scale and R-FOBS Scale, with the goal of informing researchers about directly comparing FOBS scores across relationship status.

**Study 1**

Although the original FOBS Scale (Spielmann et al., 2013) has been well-validated among singles and has been used among those in relationships, the purpose of Study 1 was to validate whether the FOBS Scale assesses the same construct for both groups.

**Method**

*Participants and Procedure*

Study 1 involved a secondary analysis of data from Spielmann et al.’s (2013) Studies 2A/2B. The sample included 276 single individuals (Range age: 17–69 years, $M_{age} = 24.94$, $SD_{age} = 9.35$, Median$_{age} = 21$; 194 women, 81 men, one unreported) and 172 in relationships (Range$_{age}$: 17–57 years, $M = 27.56$, $SD = 9.23$, Median = 25; 147 women, 24 men, one unreported) recruited via Craigslist ($n = 162$ single, $n = 139$ relationship) and the University of Toronto undergraduate research pool ($n = 114$ single, $n = 33$ relationship).¹ Online participants resided in Canada ($n = 166$), the United States ($n = 133$), Germany ($n = 1$), and one unreported. Unfortunately, participants were not asked about race/ethnicity, sexual orientation, disability status, or class information. All participants completed the FOBS Scale presented in Table 1 (Spielmann et al., 2013).

**Results and Discussion**

A first comparison revealed that the scale was reliable for both single ($\alpha = .80$; $M = 3.01$, $SD = .93$) and partnered participants ($\alpha = .82$; $M = 2.31$, $SD = .94$). We next tested measurement invariance of the FOBS Scale across groups, using Mplus 8. Elaboration on the method and results of the invariance testing are presented in the Supplemental Material. Although the six items were related to one latent construct for both single and partnered participants, the items had different factor loadings depending on relationship status, failing to find support for weak invariance (Kline, 2016). This suggests that the original FOBS Scale is not an equivalent measure across relationship status. Thus, we do not recommend using the FOBS Scale among those in relationships with the assumption that one is assessing the same construct as among singles.

**Study 2**

The goal of Study 2 was to assess the factor structure and convergent and discriminant validity of the R-FOBS Scale.
Method

Participants and Procedure

Study 2 involved a secondary analysis of data from partnered participants from Spielmann et al. (2013) Study 3.[2] Details regarding data exclusion decisions can be found in the Supplemental Material. Our analyses included 3470 partnered individuals (2029 women, 839 men, 602 unreported), recruited through Mechanical Turk (n = 3213) and the University of Toronto undergraduate psychology pool (n = 257). Participants ranged from 18 to 68 years old (M = 25.77, SD = 7.54, Median = 24) with relationship length averaging 22.12 months (Range: 1 month to 40 years, SD = 30.35 months, Median = 15 months). The majority of Mechanical Turk participants resided in the United States (n = 2611), with another nine in India, five in Canada, and one to two each in 14 additional countries; 827 were unreported. Participants were not asked about race/ethnicity, sexual orientation, disability status, or class information.

Participants completed the R-FOBS Scale (see Table 1), as well as measures to assess validity comparable to those used for the original FOBS Scale (Spielmann et al., 2013), such as attachment style, social goals, and personality (see Supplemental Material).

Results and Discussion

Descriptive statistics and correlations among the six scale items are presented in Supplemental Material Table 2. We first conducted a principal component analysis, using SPSS 23, without rotation, to test the factor structure of the R-FOBS Scale.3 As seen in Supplemental Material Table 2, the R-FOBS Scale was reliable (α = .83, M = 2.74, SD = .97), with a single-factor structure similar to the original FOBS Scale. Additionally, tests of convergent and discriminant validity—presented in the Supplemental Material—mirrored the findings from Spielmann et al. (2013) such that R-FOBS was positively associated with anxious attachment, neuroticism, and social avoidance goals, and negatively associated with social approach goals and attachment avoidance.

Study 3

Study 3 used measurement invariance testing to assess the extent to which we could meaningfully compare individuals’ scores on the FOBS Scale and R-FOBS Scale.

Method

Participants and Procedure

To garner a sufficiently large sample for measurement invariance, Study 3 aggregated data from multiple studies from the corresponding author’s lab collected between 2015 and 2019, with participants recruited through Wayne State University’s undergraduate pool, Mechanical Turk, and Craigslist.4 The sample of single individuals included data from 1524 participants (Rangeage: 18–78, Mage = 26.47, SDage = 9.78, Medianage = 23.00;
1005 women, 510 men, seven other, two unreported) aggregated from seven studies. The sample of partnered individuals included data from 958 participants (Range: 18–68, $M_{\text{age}} = 26.06$, $SD_{\text{age}} = 9.86$, $\text{Median}_{\text{age}} = 22.00$; 753 women, 199 men, five other, one unreported) aggregated across two studies. Unfortunately, participants were not consistently asked about race/ethnicity, sexual orientation, disability status, class information, or country across the studies that were aggregated together. Depending on their relationship status, participants completed the FOBS Scale ($M = 3.01$, $SD = 1.06$, $\alpha = .85$) or the R-FOBS Scale ($M = 2.66$, $SD = 1.08$, $\alpha = .86$).

**Results and Discussion**

A confirmatory factor analysis was conducted using Mplus 8 to determine if the R-FOBS Scale validated in Study 2 was generalizable to another, independent sample. Overall, there was support for a single-factor solution. However, cautious interpretation is recommended due to some inconsistencies across fit indices (see Supplemental Material page 8).

Invariance testing was conducted to determine if the FOBS Scale and R-FOBS Scale were equivalent measures across relationship status. Results are presented in Supplemental Material Table 4. The measures failed to satisfy criteria for strong invariance, suggesting that it may not be appropriate to directly compare mean values of FOBS across groups (Timmons, 2010; cf. Steenkamp & Baumgartner, 1998). Partial strong invariance was subsequently tested to determine which specific items were endorsed differently based on relationship status (Byrne et al., 1989; Supplemental Material Table 4). Constraining the intercepts of items 3, 5, and 6, did not significantly alter model fit. This suggests that if single and partnered individuals had truly equal FOBS, these items would be endorsed equivalently regardless of relationship status. Items 1, 2, and 4 would be endorsed differently even if participants had truly equal FOBS.

For research questions where directly comparing FOBS across relationship status is necessary, we conducted exploratory data-driven invariance testing on abridged three-item scales consisting of items 3, 5, and 6 (see Supplemental Material Table 5). This abridged scale satisfied strict invariance, indicating that the 3-item FOBS scales equivalently measured the same construct in single and partnered individuals. Therefore, direct comparisons of FOBS across relationship status ought to use the abridged 3-item measures (items bolded in Table 1). As a first test of such a comparison using properly validated measures, we found singles ($M = 3.17$, $SD = 1.13$) were statistically higher in FOBS than those in relationships ($M = 2.78$, $SD = 1.20$), $t (1943.41) = 7.97$, $p < .001$, CI95% [0.30, 0.48].

Finally, replicating validation of the FOBS Scale (Spielmann et al., 2013), we also tested measurement invariance of the R-FOBS Scale across gender. As seen in Supplemental Material Table 6, strict invariance was met suggesting it is appropriate to use this scale to compare means across gender. In our data, men ($M = 2.49$, $SD = 1.03$) reported significantly lower R-FOBS than women ($M = 2.70$, $SD = 1.08$), $t (950) = -2.47$, $p = .01$, CI95% [−.38, −.04].
General Discussion

Fear of being single is not restricted to those who are currently single. Those in relationships can also fear the prospect of returning to singlehood. The current studies suggest that the FOBS Scale (Spielmann et al., 2013), with phrasing oriented toward singles, is not an appropriate measure for those in relationships (Study 1), and that the R-FOBS Scale is a valid alternative (Studies 2 and 3). However, the FOBS Scale and R-FOBS Scale are not fully equivalent (Study 3), suggesting that this insecurity may be experienced uniquely based on relationship status and we should not directly compare FOBS using the current measures.

Results suggest that the full scales are appropriate for the study of FOBS within relationship status because, when analyzed separately, all items loaded strongly and contributed meaningfully to the assessment of FOBS. It is therefore recommended that researchers use the version of the FOBS Scale worded specifically for their population of interest. However, we recommend an abridged scale for research questions where direct comparisons of FOBS across relationship status are relevant. The abridged scale items seem to tap into more generalizable concerns about long-term singlehood and the associated challenges of aging. Conversely, the three excluded items seem to focus on aspects of missing the love of one’s life and singlehood reflecting negatively on oneself. Partnered individuals may believe they are already with their love or find it harder to picture themselves as forever-single. Additionally, because singles experience poorer social support and greater discrimination (DePaulo & Morris, 2006; Girme et al., 2022), it may be that singles internalize negative aspects of singlehood differently than their partnered counterparts, which may explain differences on item 4.

Though the present work offers insights into the assessment and comparability of FOBS across relationship status, some of the findings should be interpreted cautiously due to the variation among fit indices. For example, in Study 3, the CFA for the R-FOBS Scale and the fit statistics for the invariance testing of relationship status and gender have some fit statistics in the ideal range (e.g., CFI) and others slightly outside of the ideal range (e.g., RMSEA). Though inconsistencies with RMSEA should not be a large concern given the degrees of freedom (Kenny et al., 2014), cautious interpretation is warranted. Additionally, future studies should replicate the invariance testing to confirm the abridged scales are ideal to use when comparing FOBS across relationship status.

Although the present work suggests that some aspects of FOBS are unique for single and partnered individuals, we have likely not captured the full scope of the differences between groups. For example, the R-FOBS Scale does not capture concern over losing one’s current partner, despite this being implied by future singlehood. This concern was not included in the present work because there was not a direct parallel for singles, but this tangible loss is likely an influential component in partnered individuals’ singlehood concerns. Additionally, current relationship quality may be relevant for understanding concerns about singlehood among those in relationships (e.g., Hudson et al., 2019), as higher quality relationships may ironically prompt stronger fear of being single than lower quality relationships due to the implied loss of a rewarding relationship.
(Dis)satisfaction with singlehood is a multi-faceted experience. Research documenting such attitudes has commonly found a wide range of factors cited as concerns or benefits (Cole, 1999; Park et al., 2021; Spielmann et al., 2013), some of which are not captured by items on the current FOBS scales. The six items on the FOBS Scales appear to address a variety of distinct concerns, involving children, aging, and negative evaluation from oneself and others. Although these diverse concerns appear to tap into a common latent construct with good reliability, future research should explore additional factors with regard to FOBS and whether some domains weigh more strongly into people’s fear of being single scores than others.

Finally, our studies asked minimal demographic information of participants. Therefore, we are limited in our understanding of the generalizability of results, and cannot speak to the ways in which FOBS assessment may be affected by other demographic factors, such as race/ethnicity, country, disability status, etc. Additional testing is needed to further understand the complexity and generalizability of the psychometric properties of FOBS assessments.

In conclusion, the current work adds to our understanding of the growing research on FOBS. Both single and partnered individuals experience concerns about singlehood, and the FOBS Scale and R-FOBS Scale are appropriate measures for single and partnered individuals, respectively. However, an abridged three-item scale is recommended if researchers wish to make direct comparisons between participants who are single and in relationships.

**Declaration of conflicting interests**
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**Data availability**
The data used in the research cannot be publicly shared but are available upon request. The data can be obtained by emailing: spielmann@wayne.edu. The materials used in the research can be publicly posted but are available upon request. The materials can be obtained by emailing: spielmann@wayne.edu.

**ORCID iDs**
Stephanie S. Spielmann  
https://orcid.org/0000-0001-5683-9292  
Emily A. Impett  
https://orcid.org/0000-0003-3348-7524
Supplemental Material

Supplemental material for this article is available online.

Notes

1. Sample sizes for all studies were selected according to other hypotheses.

2. Spielmann et al. (2013) issued a correction [https://psycnet.apa.org/record/2018-51567-002] to clarify that participants actually completed the R-FOBS Scale. None of the associations presented here have been published previously.

3. Principal component analyses allowing rotation (both Promax and Varimax) also resulted in single-factor solutions.

4. All data from singles are previously unpublished. Data from a subsample of 104 participants in relationships were included in Spielmann, Gere, et al. (2020).

References


