Cultural and reliable adaptation of the Reproductive Autonomy Scale for women in Brazil

Adaptação cultural e confiabilidade da Reproductive Autonomy Scale para mulheres no Brasil

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Abstract

Objective: To translate and adapt the Reproductive Autonomy Scale to the Brazilian culture and evaluate the reliability of the adapted version.

Methods: Methodological study, in which we followed the steps of translation, consensus among judges, back-translation, semantic validation and pre-test. Reliability was checked through internal consistency (Cronbach's alpha) and temporal stability by using the test-retest (intraclass correlation coefficient). The scale was applied to a sample of 140 women, of which 70 were rural workers of the São Francisco Valley and 70 were quilombola communities of the Identidade Sertão Produtivo Territory, in Brazil.

Results: The Reproductive Autonomy Scale was appropriately adapted for the Brazilian culture. The overall Cronbach's alpha of the scale was 0.76, which indicates adequate internal consistency. The reproducibility analysis showed no significant difference in test-retest scores and the ICC value=0.93 for the whole scale indicated excellent reproducibility.

Conclusion: The Reproductive Autonomy Scale is appropriate and reliable to evaluate the reproductive autonomy of Brazilian women.

Keywords
Reproductive health; Personal autonomy; Women’s health; Validation studies; Reproducibility of results; Translating

Descritores
Saúde reprodutiva; Autonomia pessoal; Saúde da mulher; Estudos de validação; Reprodutibilidade dos testes; Tradução

How to cite:

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Conflicts of interest: nothing to declare.
Introduction

Reproductive autonomy is women’s ability to freely decide on issues related to the best time to get pregnant, interrupt an unwanted pregnancy or continue it, and use contraceptives that best suit their needs. In practice, this freedom of choice is often hampered by multifactorial issues about women’s reality in society, which ultimately devalues or diminishes the power to exercise the freedom of reproductive decision.\(^{(1,2)}\)

Among the factors that may interfere in women’s reproductive decisions, the following sociodemographic conditions stand out: age, region, education, religion, marital status, color/race, and daily work.\(^{(2-4)}\)

The patriarchal and androcentric culture is still rooted in Brazil nowadays, and a natural privilege of choices is given to men, which denies many women their reproductive autonomy.\(^{(5,6)}\)

The evaluation of reproductive autonomy in women is a difficult task, because it involves multiple factors and the shortage of valid instruments for measuring this outcome. The Reproductive Autonomy Scale was developed and validated by professors/researchers at the Department of Obstetrics, Gynecology and Reproduction at the University of California, and allows to assess a woman’s power to achieve reproductive autonomy.\(^{(7)}\) This instrument is composed of 14 items, subdivided into three subscales: decision making (questions 1 to 4), absence of coercion (questions 5 to 9) and communication (questions 10 to 14).

The first subscale includes questions about who has the final word in different reproductive situations with three options of answer: my sexual partner (or family member, such as parents or mother-in-law/father-in-law) = 1 point; both me and my sexual partner (or someone in the family, such as parents or mother-in-law/father-in-law) equally = 2 points; Me = 3 points. Questions of the second subscale are related to situations in which women are coerced. The third subscale includes issues related to the possibility of communication between women and their partners (or another person, such as father, mother, mother-in-law/father-in-law) regarding sexual relationship and reproductive decisions. For the second and third subscales, responses are of the Likert type: Strongly disagree = 1 point; Disagree = 2 points; Agree = 3 points; Strongly agree = 4 points.\(^{(7)}\) Since all items in the coercion subscale are theoretically contrary to reproductive autonomy, the scoring of items of this construct must be inverted for calculating the score of absence of coercion.\(^{(7)}\) For each of the three subscales and for the scale as a whole, is calculated an average score, and higher scores indicate higher levels of reproductive autonomy.\(^{(7)}\)

Although the international literature has studies focused on reproductive empowerment and its association with sociodemographic and reproductive factors, in the Brazilian scenario, neither this type of research nor studies using validated and specific multidimensional instruments addressing reproductive autonomy were identified.

Although to date, the Reproductive Autonomy Scale has not been translated into other languages, its adaptation to other countries is essential and pertinent. When its psychometric properties were originally evaluated from the validity of dimensional construct, discriminant construct validity and internal consistency, satisfactory results were achieved, which suggests the scale is valid and reliable.\(^{(7)}\) Thus, the instrument can contribute to understand the reproductive intentions of women from other cultures, provide information that helps to propose sexual and reproductive health interventions addressing reproductive autonomy, and facilitate cross-cultural comparisons.\(^{(7)}\)

In view of the above, the purpose of this article is to translate and adapt the Reproductive Autonomy Scale for the Brazilian culture and evaluate the reliability of the adapted version.

Methods

Methodological study initiated after agreement of the main author of the original instrument.\(^{(7)}\) The Reproductive Autonomy Scale was culturally adapted as proposed by scholars of this procedure.\(^{(8)}\) There was a change in the back translation
step that was held after the judges committee’s opinion(9), but its purpose of showing possible errors of meaning between the original and the adapted version was maintained, which would not occur if the adapted version was later modified by the judges’ committee.(9)

The study was carried out in two Brazilian states: in the São Francisco Valley, city of Petrolina, state of Pernambuco, and in Quilombola communities of the Identidade Sertão Produtivo Territory, state of Bahia.

The signing of the Informed Consent form (IC) and the data collection occurred between November 2017 and January 2018 in private places and at times previously scheduled. For sociodemographic characterization, was used an instrument adapted from the National Health Survey.

The eligibility criteria of participants were: women of reproductive aged over 18 years, rural employees of the Chapéu de Palha Mulher Program, residents of Petrolina-PE, and quilombolas living in communities located in the Sertão Produtivo, certified by the Palmares Foundation. For the pre-test of the instrument was selected a convenience sample of 30 women, out of which 15 were rural workers and 15 were quilombolas. For the reliability study, the sample size was estimated by considering an acceptable proportion in this step of ten observations for each item of the scale.(10) As the scale contains 14 items, the study sample was of 140 women, out of which 70 were rural workers and 70 were quilombolas. The selection was by visiting the determined place in the quilombola communities, and in visits to the Chapéu de Palha project site in a previously established date and time with local leaders. Participants in the pre-test stage were excluded. In the first contact, women were informed about the purpose of the study, voluntary participation and confidentiality, and the scale was applied individually in a private setting. Out of the 140 women included in the reliability study, were selected 30 participants for temporal stability evaluation (test-retest reproducibility).

The original version of the instrument Reproductive Autonomy Scale was translated into Brazilian Portuguese independently by two bilingual translators and native speakers of the target language (Brazilian Portuguese). The two translations were simultaneously compared between the translators and the researchers, and was produced the synthesis version in Portuguese.

Then, the synthesis version was evaluated by a committee of judges selected for their knowledge on sexual and reproductive rights and gender (teachers of Postgraduate Programs; one was a PhD in Nursing, one a PhD in Social History, one a PhD in Social Sciences, and one a PhD in Education). Each judge received the invitation by e-mail to participate as a committee member. After acceptance, they received the evaluation guidelines, the original version and the synthesis version in Portuguese.

The judges evaluated the translated version from an instrument by including four equivalences and their concepts, namely: semantic, idiomatic, experiential and conceptual.(11)

The document was analyzed by the committee individually in about 20 days. The evaluation of each judge was compared with the evaluations of the others, and the items with agreement of less than 90%(12) in any equivalence were re-evaluated by the committee.

Then, was performed the pre-test(13) with the 30 women of reproductive age selected for this step, in which the objective was to evaluate the comprehension of the scale items.

As this is a low educational level public, the final version of the scale was applied by the researchers instead of being self-applied, as in the original version. After the application, women were asked about their difficulty with choosing the answers in order to identify the comprehension of items. Since participants reported difficulties in understanding, which was also observed by researchers, it was necessary to return to the judges’ committee for a new evaluation.

At this stage, no statistical test was performed, only items that respondents considered as difficult to understand were changed in a way not to affect the context.(14)

Finally, was written the final version of the instrument in Portuguese, later translated into English by two independent translators, and in a consensual
meeting between the two, was formulated a single version. This version was sent to the main author of the original version for approval, as changes in the instrument content were not part of the judges’ committee responsibility. After modifications, researchers had a favorable response to the use of the scale, and it was considered as culturally adapted for Brazilian Portuguese.

After the translation and cultural adaptation processes, the new Portuguese version of the scale must present reliability, i.e., the ability to produce the same results at different times and true measurements of items. After the translation and cultural adaptation processes, the new Portuguese version of the scale must present reliability, i.e., the ability to produce the same results at different times and true measurements of items. (15)

The internal consistency of the scale final version was evaluated in the sample of 140 women. After this step, the test-retest was performed in the sub-sample of 30 women, and the reapplication of the instrument occurred seven days after the scale was responded for the first time.

Descriptive statistics procedures were used to express the results as absolute and relative frequencies, means and standard deviations or median, and interquartile ranges and minimum and maximum values. When necessary, data normality was tested using the Shapiro-Wilk and Kolmogorov-Smirnov tests. The scale reliability was assessed by internal consistency (Cronbach’s alpha) and test-retest reproducibility [Wilcoxon test and intraclass correlation coefficient (ICC)]. As this is a scale with many psychological constructs, Cronbach’s alpha values ≥ 0.7 were considered adequate with tolerance for values slightly below this cutoff point. (16) In relation to the ICC, the following were considered: ICC <0.4 = poor reproducibility; 0.4 ≤ ICC <0.75 = moderate to good reproducibility; ICC ≥ 0.75 = excellent reproducibility. (17) The significance level adopted was 5% (α=0.05) and all analyzes were performed in the IBM SPSS Statistics for Windows (IBM SPSS. 21.0, 2012, Armonk, NY: IBM Corp.).

The study began after the project approval by the Research Ethics Committee of the Universidade do Estado da Bahia and the Universidade Federal do Vale do São Francisco in accordance with Resolution 466/12 of the National Health Council.

### Results

During the pre-test, study participants had greater difficulty with choosing the answers of the second and third subscales because they were Likert-type response options. They often answered yes or no and were again oriented about the response options (strongly disagree, disagree, agree and strongly agree).

There was general agreement of the committee regarding equivalences, but the suggestion for the form of writing the statement that explains the scale was accepted. It was adjusted to be clearer in a structure of topics and without the need for examples. In the decision making subscale, the suggestion was to replace the expression “who has more to say” by “who decides”, and replace the terms “strongly disagree” and “strongly agree” by “very much disagree” and “very much agree” in the options of the Likert-type response of the subscales of absence of coercion and communication.

In the reliability study, were included 140 women aged between 18 and 49 years (mean = 31.7 years; standard deviation = 8.3 years), out of which 70 were rural workers (mean = 30.6 years; standard deviation = 7.9 years) and 70 were of the rural quilombola community (mean = 32.8 years; standard deviation = 8.6 years). The main sociodemographic characteristics of the sample are described in table 1.

### Table 1. Distribution of study participants according to sociodemographic characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rural workers n(%)</th>
<th>Rural quilombolas n(%)</th>
<th>Total n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never got married</td>
<td>10(14.3)</td>
<td>15(21.4)</td>
<td>25(17.9)</td>
</tr>
<tr>
<td>Married/lives with partner</td>
<td>46(66.7)</td>
<td>51(72.9)</td>
<td>97(69.3)</td>
</tr>
<tr>
<td>Separated/divorced/widow</td>
<td>14(20.0)</td>
<td>4(5.7)</td>
<td>18(12.9)</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>49(70.0)</td>
<td>41(58.6)</td>
<td>90(64.3)</td>
</tr>
<tr>
<td>Medium</td>
<td>16(22.9)</td>
<td>14(20.0)</td>
<td>30(21.4)</td>
</tr>
<tr>
<td>High</td>
<td>5(7.1)</td>
<td>15(21.4)</td>
<td>20(14.3)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>10(14.3)</td>
<td>6(8.6)</td>
<td>16(11.4)</td>
</tr>
<tr>
<td>Black</td>
<td>16(22.9)</td>
<td>46(65.7)</td>
<td>62(44.3)</td>
</tr>
<tr>
<td>Mixed race/Asian</td>
<td>44(62.9)</td>
<td>18(25.7)</td>
<td>62(44.3)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>14(20.0)</td>
<td>1(1.4)</td>
<td>15(10.7)</td>
</tr>
<tr>
<td>Catholic</td>
<td>56(80.0)</td>
<td>68(98.6)</td>
<td>124(89.3)</td>
</tr>
</tbody>
</table>

The means, standard deviations, minimum and maximum scores of reproductive autonomy are shown in table 2. The mean scores varied between...
scales from 2.45 to 3.08; the overall mean score of reproductive autonomy was 2.83.

Table 2. Descriptive analysis of each domain of the Reproductive Autonomy Scale - Brazilian version

<table>
<thead>
<tr>
<th>Factor (subscale)</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum - maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision making</td>
<td>2.45</td>
<td>0.43</td>
<td>1.00 - 3.00</td>
</tr>
<tr>
<td>Absence of coercion</td>
<td>3.08</td>
<td>0.59</td>
<td>1.60 - 4.00</td>
</tr>
<tr>
<td>Communication</td>
<td>2.89</td>
<td>0.51</td>
<td>1.00 - 4.00</td>
</tr>
<tr>
<td>Total</td>
<td>2.83</td>
<td>0.35</td>
<td>1.71 - 3.57</td>
</tr>
</tbody>
</table>

The results of the reliability study are presented in table 3. The 14 items of the Reproductive Autonomy Scale - Brazilian version produced a Cronbach’s alpha of 0.76, which indicates adequate internal consistency. The absence of coercion subscale obtained the highest internal consistency, followed by the subscales of communication and decision making, all of which reached acceptable Cronbach’s alpha values. The analysis of reproducibility showed no significant difference in test-retest scores, and values of the intraclass correlation coefficient indicated excellent reproducibility for the scale as a whole and for the subscales of decision making and absence of coercion. The communication subscale has moderate to good reproducibility.

Table 3. Measures of internal consistency and test-retest reproducibility of the Reproductive Autonomy Scale - Brazilian version

<table>
<thead>
<tr>
<th>Factor (subscale)</th>
<th>Number of items</th>
<th>Cronbach’s alpha</th>
<th>Test Median ± IQR</th>
<th>Retest Median ± IQR</th>
<th>p-value</th>
<th>ICC (CI95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision making</td>
<td>04</td>
<td>0.68</td>
<td>2.50 ± 1.00</td>
<td>2.50 ± 0.75</td>
<td>1.000</td>
<td>0.84</td>
</tr>
<tr>
<td>Absence of coercion</td>
<td>05</td>
<td>0.81</td>
<td>3.30 ± 1.60</td>
<td>3.00 ± 1.05</td>
<td>0.645</td>
<td>0.93</td>
</tr>
<tr>
<td>Communication</td>
<td>05</td>
<td>0.75</td>
<td>3.00 ± 0.40</td>
<td>3.00 ± 0.20</td>
<td>0.108</td>
<td>0.59</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>0.76</td>
<td>3.00 ± 0.79</td>
<td>2.86 ± 0.61</td>
<td>0.931</td>
<td>0.93</td>
</tr>
</tbody>
</table>

After analysis, the scale remained with 14 questions, of which four questions in the first subscale, five in the second and five in the third, as shown in annex 1.

Discussion

The validity allows that instruments of evaluation produced in a certain language and cultural context are used in diverse places for studying the same phenomenon. Cultural adaptation requires a judicious and careful step towards finding equivalence in another culture and language.

All steps proposed for the process of translation, reliability and cultural adaptation of the Reproductive Autonomy Scale were performed in a systematized way and considered satisfactory and judicious.

By understanding the importance of the search for cultural equivalence, conceptual and idiomatic semantics, the judges considered pertinent to preserve the original layout of the scale and change the grammatical structure for improvements in writing.

The pre-test revealed that even with the researchers applying the scale, there were difficulties in understanding some items. After a new evaluation of judges, changes were made in order to keep the original substrate for the Brazilian Portuguese version.

In the first subscale, the scores ranged from 1 to 3, and participants had a mean score of 2.45, a result close to the highest score (3) and to the value of the original study (2.46). This shows women’s good performance in the study in relation to decision making.

The values of the subscales of absence of coercion and communication ranged from 1 to 4, and women presented mean values of 3.08 and 2.89 respectively, with greater autonomy in the absence of coercion subscale than in the communication subscale. In the original study, the absence of coercion score was 3.57 and the communication score was 3.53. These values show greater autonomy of American subjects in these aspects compared to participants of the present study. The socioeconomic profile can determine the differences found, since women in the present study are older, mostly married and of low educational level compared to women in the original study.

Internal consistency is a measure based on the correlation between different items in the same test or between subscales in a longer test. It is a way to measure the reliability of an instrument. The final version of the Reproductive Autonomy Scale showed a high Cronbach’s alpha coefficient with a value of 0.76, which indicates adequate internal consistency. Values above 0.60 are considered acceptable for preliminary validation studies with the purpose of re-
search.\(^{(12,20)}\) Note that the Cronbach’s alpha value was close to the value of the original scale (0.78).\(^{(7)}\)

The Cronbach’s alpha result of the decision making (0.68) subscale, as well as the ICC result of the communication subscale (0.59) were the lowest values presented in the measurements of internal consistency and analysis of test-retest reliability, respectively. Since this is a scale with many psychological constructs that evaluates the complex dimension of reproductive autonomy, some flexibility is acceptable and values are within acceptable limits in the area of psychometry.\(^{(12,20)}\) In addition, the Cronbach’s alpha value of the decision making subscale was higher than that of the original scale (0.65).\(^{(7)}\) In relation to the communication subscale, internal consistency (0.75) was also higher than that of the original scale (0.73). In the absence of coercion subscale, the value was somewhat lower (0.81) compared to the original scale (0.82).\(^{(7)}\) Thus, the internal consistency of the translated and culturally adapted scale is similar to the original scale.

The quality of the adaptation process determines the validity of the instrument for measuring the construct in question. Thus, the instrument chosen for the cultural adaptation must have been well developed and comprehensively validated with satisfactory psychometric properties, and these are characteristics of the original scale. In addition, the adaptation process used in this study was developed according to the methodological criteria recommended in the literature.

**Conclusion**

The performance of translation, consensus by judges, back translation and semantic validation allowed the cultural adaptation of the Reproductive Autonomy Scale for Brazilian women. The Reproductive Autonomy Scale - Brazilian version proved reliability for application to rural female workers and rural quilombola women by demonstrating acceptable internal consistency and reproducibility. This study showed that the Reproductive Autonomy Scale - Brazilian version is appropriate to evaluate the reproductive autonomy of Brazilian women. However, future studies are necessary for evaluation of psychometric properties of the Brazilian version.

**Acknowledgements**

To FAPESB (Fundação de Amparo à Pesquisa do Estado da Bahia) for doctoral scholarship grants.

**Collaborations**

Fernandes ETBS, Dias ACS, Ferreira SL, Marques GCM and Pereira COJ declare they have contributed to the conception of the study, analysis and interpretation of data, critical review of intellectual content and approval of the final version to be published.

**References**

Annex 1. Reproductive Autonomy Scale adapted to Brazilian Portuguese.

**ESCALA DE AUTONOMIA REPRODUTIVA**

- As próximas questões são sobre você e seu principal parceiro, ou o parceiro sexual mais recente.
- As questões perguntam sobre quem tem a palavra final em diferentes tipos de decisões.
- Se você tem mais de um parceiro, pense no seu parceiro principal. Se você não tem um parceiro, pense em um parceiro anterior. Se você não tem como fazer nem uma das seguintes decisões, por favor, pense em quem teria mais a dizer na decisão.

### Tomada de decisão

1. Quem decide sobre você usar um método para evitar a gravidez?
   - Meu parceiro sexual (ou alguém da família, como os pais, ou sogra/sogra)
   - Ambos, Eu e meu parceiro sexual (ou alguém da família como os pais, ou sogra/sogra)
   - Eu

2. Quem decide sobre qual método você usaria para evitar a gravidez?
   - Meu parceiro sexual (ou alguém da família, como os pais, ou sogra/sogra)
   - Ambos, Eu e meu parceiro sexual (ou alguém da família como os pais, ou sogra/sogra)
   - Eu

3. Quem decide sobre quando ter um bebê em sua vida?
   - Meu parceiro sexual (ou alguém da família, como os pais, ou sogra/sogra)
   - Ambos, Eu e meu parceiro sexual (ou alguém da família como os pais, ou sogra/sogra)
   - Eu

4. Se você engravidasse, de forma não planejada, quem decidiria o que fazer - seja criar a criança, seja procurar por pais adotivos, seja fazer um aborto?
   - Meu parceiro sexual (ou alguém da família, como os pais, ou sogra/sogra)
   - Ambos, Eu e meu parceiro sexual (ou alguém da família como os pais, ou sogra/sogra)

5. Comunicação
   - Eu

### Ausência de coerção

5. Seu parceiro te impediu de usar um método para evitar a gravidez quando você queria usar um?
   - Eu discordo muito
   - Eu discordo
   - Eu concordo
   - Eu concordo muito

6. Seu parceiro atrapalhou ou dificultou o uso de um método para evitar a gravidez quando você queria usar um?
   - Eu discordo muito
   - Eu discordo
   - Eu concordo
   - Eu concordo muito

7. Seu parceiro te faz usar algum método para evitar a gravidez quando você não queria utilizar um?
   - Eu discordo muito
   - Eu discordo
   - Eu concordo
   - Eu concordo muito

8. Seu parceiro te impediria de usar um método para evitar a gravidez se você quisesse usá-lo?
   - Eu discordo muito
   - Eu discordo
   - Eu concordo
   - Eu concordo muito

9. Seu parceiro tem a palavra final para engravidar?
   - Eu discordo muito
   - Eu discordo
   - Eu concordo
   - Eu concordo muito

10. Seu parceiro te apoiaria se você quisesse usar um método para evitar a gravidez.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

11. É fácil falar sobre sexo com seu parceiro.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

12. Se você não quisesse ter relação sexual você poderia dizer para seu parceiro.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

13. Se você estivesse na dúvida em estar grávida ou não estar grávida, você poderia conversar com seu parceiro sobre isso.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

14. Se você realmente não quisesse ficar grávida você poderia convencer seu parceiro a não ter filho.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

15. Seu parceiro te apoiaria se você quisesse usar um método para evitar a gravidez.
    - Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

16. Eu discordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

17. Eu discordo
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

18. Eu concordo
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

19. Eu concordo muito
    - Eu discordo
    - Eu concordo
    - Eu concordo muito

20. Please read the natural text as if you were reading it naturally.