Psicologia: Teoria e Prática, *21*(1), 69-84. São Paulo, SP, jan.-abr. 2019.
ISSN 1516-3687 (impresso), ISSN 1980-6906 (*on-line*). doi:10.5935/1980-6906/psicologia.
v21n1p69-84. **Sistema de avaliação**: às cegas por pares (*double blind review*).
Universidade Presbiteriana Mackenzie.

Psychological Evaluation

Psychometric properties of the Brief Smoking Consequences Questionnaire (BSCQ-A) in Brazilian women

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To cite this paper: Miguel, F. K., Kienen, N., & Scarinci, I. C. (2019). Psychometric properties of the Brief Smoking Consequences Questionnaire (BSCQ-A) in Brazilian women. *Psicologia: Teoria e Prática*, *21*(1), 69-84. doi:10.5935/1980-6906/psicologia.v21n1p69-84

Submission: 23/04/2018
Acceptance: 13/11/2018

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Abstract

Outcome expectancy has been suggested as a promising construct in effective tobacco cessation programs. We studied the psychometric properties of the Brief Smoking Consequences Questionnaire – Adult (BSCQ-A), a questionnaire designed to assess expectancies related to cessation of industrialized cigarette use. The participants were 323 adult Brazilian women who reported smoking cigarettes at least once per week. Assessments included questions associated with tobacco use, the Fagerström Test for Nicotine Dependence, and the BSCQ-A. Results from confirmatory factor analyses showed adequate factor structure, albeit with lower reliability indices for most of the subscales than obtained by the original authors. Our findings suggested a final version containing 21 (rather than 25) items, and 9 sub-scales (rather than 10 originally proposed). The translated version of BSCQ-A can prove useful in the development and implementation of gender-relevant tobacco cessation efforts among Brazilian women.

Keywords: outcome expectancy; BSCQ-A; Brazilian women; factorial analysis; psychometrics.

PROPRIEDADES PSICOMÉTRICAS DO BRIEF SMOKING CONSEQUENCES QUESTIONNAIRE (BSCQ-A) EM MULHERES BRASILEIRAS

Resumo

Expectativa por resultados tem sido um construto promissor em programas de cessação do tabagismo. Este estudo analisou as propriedades psicométricas do Brief Smoking Consequences Questionnaire – Adult (BSCQ-A), um questionário elaborado para avaliar as expectativas relacionadas à cessação do uso de cigarros industrializados. Participaram do estudo 323 mulheres brasileiras adultas que relataram fumar pelo menos uma vez por semana. As avaliações incluíram questões associadas ao uso do tabaco, o Teste de Fagerström para Dependência de Nicotina e o BSCQ-A. Análises fatoriais confirmatórias mostraram adequada estrutura fatorial, porém com menores índices de precisão que os obtidos pelos autores originais. Nossos resultados sugeriram uma versão final contendo 21 (em vez de 25) itens e nove subescalas (em vez de dez originalmente propostas). A versão traduzida do BSCQ-A pode ser útil no desenvolvimento e implantação de iniciativas de cessação do tabagismo entre mulheres brasileiras.

Palavras-chave: expectativa por resultados; BSCQ-A; mulheres brasileiras; análise fatorial; psicometria.

Psicologia: Teoria e Prática, *21*(1), 69-84. São Paulo, SP, jan.-abr. 2019. ISSN 1980-6906 (*on-line*).
doi:10.5935/1980-6906/psicologia.v21n1p69-84

PROPIEDADES PSICOMÉTRICAS DEL BRIEF SMOKING CONSEQUENCES QUESTIONNAIRE (BSCQ-A) EN MUJERES BRASILEÑAS

Resumen

La expectativa de resultados ha sido un constructo prometedor en programas para dejar de fumar. Estudiamos las propiedades psicométricas del cuestionario Brief Smoking Consequences – Adult (BSCQ-A), diseñado para evaluar las expectativas relacionadas con la cesación del uso de cigarrillos industrializados. Los participantes fueron 323 mujeres brasileñas adultas que informaron haber fumado cigarrillos al menos una vez por semana. Las evaluaciones incluyeron preguntas relacionadas con el consumo de tabaco, la Prueba de Fagerström para la Dependencia de la nicotina y la BSCQ-A. Análisis factoriales confirmatorios mostraron una estructura factorial adecuada, aunque con índices de fiabilidad más bajos que los obtenidos por los autores originales. Nuestros hallazgos sugieren una versión final que contiene 21 (en lugar de 25) elementos, y 9 subescalas (en lugar de 10 propuestas originalmente). La versión traducida de BSCQ-A puede resultar útil en el desarrollo y la implementación de esfuerzos para dejar de fumar entre las mujeres brasileñas.

Palabras clave: expectativa de resultado; BSCQ-A; mujeres brasileñas; análisis factorial; psicometría.

1. Introduction

Despite all efforts in the development, implementation, and evaluation of tobacco cessation interventions, cessation rates remain relatively low regardless of the approach (individual versus group) and across sub-populations (Lancaster & Stead, 2017; Stead, Carroll, & Lancaster, 2017). Outcome expectancy (i.e., expected anticipated positive and negative consequences of tobacco use) has been a promising construct in the development and implementation of effective tobacco cessation programs as it is posited that expectation of positive outcomes of tobacco use will maintain the behavior and hinder cessation efforts and/or increase the likelihood of relapse (Copeland, Brandon, & Quinn, 1995; Weinberger, Mckee, & George, 2010). On the other hand, the expectation of negative outcomes may motivate individuals to quit smoking and remain abstinent (Copeland & Brandon, 2000; Glock, Unz, & Kovacs, 2012).

To assess outcome expectancies related to cigarette smoking, Brandon & Baker (1991) developed the Smoking Consequences Questionnaire (SCQ) in a college-age sample. The SCQ was then further adapted to assess outcome expectancies

in an adult general population, particularly for heavy smokers (SCQ-A) (Copeland et al., 1995). It consists of 55 self-report items and has been used in a number of studies with diverse populations, and translated to Persian and Spanish (Cepeda-Benito & Ferrer, 2000; Reig-Ferrer & Cepeda-Benito, 2007; Vidrine et al., 2009; Zeidi, Saffari, Chen, & Pakpour, 2014; Wetter et al., 1994).

A shorter, more economic version of the SCQ-A was proposed by Rash and Copeland (2008), the BSCQ-A, featuring 25 items distributed along the same ten factors as the original scale: Negative Affect Reduction, Stimulation/State Enhancement, Health Risks, Taste/Sensorimotor Manipulation, Social Facilitation, Weight Control, Craving/Addiction, Negative Physical Feelings, Boredom Reduction, and Negative Social Impression. The results indicated good internal consistency, adequate fit for the ten original scales, and good convergent validity (Rash & Copeland, 2008).

Interestingly, gender was a relevant variable in the development of all three instruments (SCQ, SCQ-A, and BSCQ-A), particularly with regard to negative affect reduction, suggesting that gender should be taken into account when examining outcome expectancies associated with cigarette smoking. Although women seek quitting services more often and smoke less than men (Instituto Brasileiro de Geografia e Estatística, 2014), they experience lower quit rates (Sherman, Fu, Joseph, Lanto, & Yano, 2005; Szklo et al., 2012). A number of factors may account for these differences, such as a more frequent use of smoking for social and emotional reasons (e.g., to reduce tension, to cope with daily problems) (Berlin et al., 2003; Greaves, 2015), and a higher likelihood of relapse (Piper et al., 2010) among women compared to men. Regarding outcome expectancy, Rash and Copeland (2008) identified differences between men and women regarding factors like Negative Affect Reduction and Social Facilitation. This data showed the importance of a gender-relevant assessment in relation to outcome expectancy that can inform research and intervention strategies. Therefore, the purpose of the present study was to examine the psychometric properties of the Brazilian Portuguese version of BSCQ-A among Brazilian women cigarette smokers who were enrolled in a tobacco cessation group randomized trial.

2. Method

2.1 Parent study and setting

This study was conducted as part of a larger group randomized trial to assess the efficacy of a gender- and culturally-relevant tobacco cessation program

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delivered by Community Health Workers within a public health system in a Southern state in Brazil (Paraná). Brazil has a socialized and decentralized primary care service that is provided through Basic Health Units (BHUs). These BHUs tend to serve between 250 to 1,500 households and are staffed by health care teams (e.g., family medicine physicians, nurses, social workers), as well as paid Community Health Workers who live within the geographic area served by a particular BHU. A total of eight towns were randomized to the control (tobacco cessation program offered at the BHU) or intervention (tobacco cessation program offered at the BHU augmented by home visits by Community Health Workers for six months) conditions. The data for this paper was collected during baseline assessments.

2.2 Participants

Participants consisted of 338 adult women who reported currently using tobacco products. Out of these, 12 were excluded from the analysis since they indicated not smoking industrialized cigarettes and three were excluded due to missing data resulting in a total sample of 323 women who were cigarette smokers. They were identified by Community Health Workers through home visits on the following criteria: 1) at least 18 years of age, 2) smoked at least once a week, and (3) agreed to enroll in a tobacco cessation group randomized trial.

2.3 Measures

Baseline assessments consisted of a number of questions associated with tobacco use (e.g., type of tobacco product, number of cigarettes smoked, brand), demographics (e.g., age, income, educational attainment, marital status), and other variables relevant to the larger study (e.g., depressive symptomatology, self-efficacy). Nicotine dependence level was assessed through the Fagerström Test for Nicotine Dependence (FTND), which consists of six items. The higher the score, the more intense the participant's physical nicotine dependence (Heatherton, Kozlowisk, Frecker, & Fagerstöm, 1991). In our previous work with women smokers in Brazil, we found that a large percentage smoked their first cigarette longer than 60 minutes after waking up. Therefore, we added a response option (greater than 60 minutes) to the item "How soon after waking do you smoke your first cigarette?" and coded this response as "0".

The Brief Smoking Consequences Questionnaire – Adult (BSCQ-A) consists of 25 statements assessing beliefs participants have about the consequences of

smoking a cigarette. Participants are asked to rate each statement using a Likert scale (0 = "completely unlikely" to 9 = "completely likely"). These items are them grouped into ten scales: 1) Negative Affective Reduction, which refers to alleviation of negative affect; 2) Stimulation/State Enhancement, which refers to smoking as an stimulant/energizer; 3) Health Risks, which assesses long-term health risks associated with smoking; 4) Taste/Sensorimotor Manipulation, which refers to the taste pleasantness of smoking; 5) Social Facilitation, which refers to expectations that smoking facilitates social interactions; 6) Weight Control, which assesses expectations that smoking contributes to weight and appetite control; 7) Craving/Addiction, which refers to smoking as fulfilling the urge for nicotine; 8) Negative Physical Feelings, which refers to negative physical effects of smoking, particularly irritation of mouth and throat; 9) Boredom Reduction, which refers to smoking as an aid in coping with boredom; and 10) Negative Social Impression, which refers to the stigma of smoking (Rash & Copeland, 2008).

3. Procedure

Potential participants were identified by Community Health Workers during their home visits. If they were interested in participating in the study, the Community Health Worker administered a brief screening to assure eligibility. If eligible, participants were contacted by researchers to schedule a face-to-face meeting where they provided consent and were administered the baseline assessments. This study was approved by the Institutional Review Boards (IRB) at the University of Alabama at Birmingham and the Pontifical Catholic University of Paraná.

The BSCQ-A was initially translated by the senior investigator who is bilingual (Portuguese/English), and back-translated by a bilingual staff member. As a third step, the research team reviewed the questionnaire to assure consistency and relevance of words to the local setting. Given the simplicity and straightforwardness of the items, the research team concluded that no adaptations were needed besides direct translation.

3.1 Data analysis

Data analyses were conducted to explore the psychometric properties of BSCQ-A with regard to its factor structure, internal consistency, and convergent validity. For examination of factor structure, we conducted confirmatory factor analyses (CFA) and used the following as indicators of a good fit: a) significant chi-

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square goodness of fit divided by degrees of freedom; b) root mean square error of approximation (RMSEA) about 0.05 or less; c) Tucker-Lewis Index (TLI) close to 1, with 0.90 as minimum acceptable; d) comparative fit index (CFI) close to 1, with 0.90 as minimum acceptable (Vandenberg & Lance, 2000). For the validity component, we correlated the ten BSCQ-A's factors with the results from Fagerström Test for Nicotine Dependence and self-reported number of cigarettes/day. Given the non-parametric nature of the variables, the Spearman correlation was used.

4. Results

4.1 Demographics and patterns of cigarette smoking

Out of the 323 participants, the mean age was 47.1 (SD = 12.4), 54.9% were married or living with a significant other, and 55.1% were homemakers. Over 50% (56.5%) did not complete middle school (8th grade). With regard to patterns of cigarette smoking, 33.1% smoked ten or less cigarettes/day, 44.9% smoked 11 to 20, 10.8% smoked 21 to 30, and 11.1% smoked 31 or more. The mean FTND score was 4.63 (SD = 1.82), indicating moderate nicotine dependence. Over 80% of participants (81.6%) displayed low to moderate or moderate nicotine dependence, 11.8% low dependence, and only 6.5% high nicotine dependence. Approximately 11% of participants who were cigarette smokers endorsed the use of other tobacco products: 10.5% hand-rolled cigarettes, 0.6% hookah, and 0.3% electronic cigarettes.

4.2 Factor structure

We conducted CFA to evaluate the adequacy of the proposed factor structure for the Brazilian Portuguese version of the BSCQ-A. During the analyses, four items displayed factor loadings clearly lower than the remaining items ("Nicotine 'fits' can be controlled by smoking," "Smoking will satisfy my nicotine cravings," "Smoking makes me seem less attractive," "Cigarettes keep me from eating more than I should"). We then conducted a second CFA excluding these four items. Table 4.2.1 presents the indices from both CFAs. Table 4.2.1 presents the factor loadings of both versions of the Brazilian Portuguese version of the BSCQ-A. In both tables, the results are displayed along with the results from the original study by Rash and Copeland to facilitate comparisons (Rash & Copeland, 2008). The correlations between all factors from the full BSCQ-A ranged from 0.01 to 0.88, with an average of 0.28. For the reduced version, the correlations ranged from 0.01 to 0.74, with an average of 0.25.

Table 4.2.1. Confirmatory factor analysis indices.

	Rash & Copeland	Brazilian Portuguese version	Brazilian Portuguese version (reduced by four items)
Chi-square/df	1.72 ($p < 0.05$)	1.50 ($p < 0.01$)	1.52 ($p < 0.01$)
RMSEA	0.053	0.039	0.040
TLI	0.95	0.93	0.94
CFI	0.96	0.95	0.96

4.3 Internal consistency

Cronbach's alphas were calculated for both versions, i.e., with all items (ten subscales) and with four items excluded (nine subscales). The indices are presented in parentheses in Table 4.3.1. The overall reliability was 0.67 for the complete version, and 0.72 for the reduced version.

When comparing with the original questionnaire, all subscales displayed lower reliability indices than the ones obtained by Rash and Copeland, except for the Negative Physical Feelings factor, which showed higher indices than obtained by Rash and Copeland. In addition, the item "Smoking makes me seem less attractive" (Negative Social Impression Factor) displayed a low factor loading on the full version and was thus excluded. However, its exclusion lowered the factor reliability from 0.60 to 0.59 in the reduced version.

4.4 BSCQ-A scores

Table 4.4.1 presents the descriptive statistics for the scores of both versions of BSCQ-A, along with the FTND. For comparison, we also showed the results from the original study by Rash and Copeland (2008). While most of the means tended to be similar, it is noticeable that our participants' standard deviations were much larger than the ones found by the original authors. We used Cohen's d to calculate the magnitude of the differences between the original study and the full version used in our study. We found that our Brazilian sample scored moderately higher on Social Facilitation ($d = 0.36$), moderately lower on Craving/Addiction ($d = 0.42$), and Boredom Reduction ($d = 0.43$), extremely higher on Negative Physical Feelings ($d = 1.05$) and Negative Social Impression ($d = 1.73$), and extremely lower on the FTND ($d = 1.57$). All other scores showed Cohen's d lower than 0.10.

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Table 4.3.1. Confirmatory factor analysis factor loadings, with reliability indices reported in parenthesis.

	Rash & Copeland	Brazilian Portuguese version	Brazilian Portuguese version (< 4 items)
Negative affect reduction	(0.85)	(0.71)	(0.71)
When I am angry, a cigarette can calm me down	0.76	0.60	0.61
Smoking calms me down when I feel nervous	0.87	0.73	0.69
When I am feeling irritable, a smoke will help me relax	0.80	0.68	0.71
Stimulation/state enhancement	(0.82)	(0.76)	(0.76)
Smoking a cigarette energizes me	0.84	0.73	0.73
A cigarette can give me energy when I'm bored and tired	0.83	0.85	0.85
Health risks	(0.68)	(0.67)	(0.67)
The more I smoke, the more I risk my health	0.96	0.73	0.73
By smoking I risk heart disease and lung cancer	0.49	0.74	0.74
Taste/sensorimotor manipulation	(0.88)	(0.83)	(0.83)
When I smoke, the taste is pleasant	0.90	0.81	0.82
I enjoy the taste sensations while smoking	0.73	0.78	0.78
I will enjoy the flavor of a cigarette	0.91	0.78	0.78
Social facilitation	(0.69)	(0.60)	(0.60)
I feel like part of a group when I'm around other smokers	0.59	0.54	0.54
Smoking helps me enjoy people more	0.64	0.56	0.56
I feel more at ease with other people if I have a cigarette	0.73	0.64	0.63
Weight control	(0.88)	(0.73)	(0.84)
Smoking helps to control my weight	0.94	0.85	0.86
Smoking keeps my weight down	0.82	0.84	0.84
Cigarettes keep me from eating more than I should	0.78	0.42	-
Craving/addiction	(0.78)	(0.34)	-
Nicotine "fits" can be controlled by smoking	0.91	0.55	-
Smoking will satisfy my nicotine cravings	0.71	0.37	-
Negative physical feelings	(0.80)	(0.83)	(0.83)
My throat burns after smoking	0.78	0.69	0.69
Smoking irritates my mouth and throat	0.86	0.95	0.96
Boredom reduction	(0.82)	(0.67)	(0.67)
If I have nothing to do, a smoke can help kill time	0.83	0.75	0.75
When I am alone, a cigarette can help me pass the time	0.85	0.68	0.68
Negative social impression	(0.74)	(0.60)	(0.59)
I look ridiculous while smoking	0.76	0.67	0.62
People think less of me if they see me smoke	0.61	0.62	0.66
Smoking makes me seem less attractive	0.72	0.47	-

Table 4.4.1. Descriptive statistics of the BSCQ-A and the Fagerström Test for Nicotine Dependence (FTND).

Variable	Rash & Copeland mean (SD)	Brazilian Portuguese version mean (SD)
BSCQ-A		
Negative Affect Reduction	6.91 (0.14)	6.94 (1.93)
Stimulation/State Enhancement	3.94 (0.18)	3.97 (2.84)
Health Risks	8.31 (0.09)	8.41 (1.20)
Taste/Sensorimotor Manipulation	5.68 (0.18)	5.15 (2.70)
Social Facilitation	3.77 (0.16)	4.36 (2.32)
Weight Control	4.03 (0.20)	4.21 (2.73)
Craving/Addiction	7.33 (0.14)	6.76 (1.91)
Negative Physical Feelings	2.71 (0.16)	4.87 (2.91)
Boredom Reduction	6.43 (0.17)	5.68 (2.48)
Negative Social Impression	4.02 (0.17)	6.60 (2.10)
FTND	**5.80 (2.30)**	**2.99 (1.04)**

4.5 Convergent validity

We tested BSCQ-A's association with two other measures of smoking, i.e., FTND and self-reported number of cigarettes/day. The results are presented in Table 4.5.1. When significant, correlations tended to be around 0.15, indicating a small association between the measures (Cohen, 1992). In addition, correlations tended to have similar magnitudes when comparing the full version with the reduced version, except for the Negative Social Impression factor. The full version showed a significant – albeit small – correlation, while the reduced version showed a non-significant correlation. The Craving factor (absent in the reduced version) also displayed a significant correlation with the other measures.

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Table 4.5.1. Correlations between BSCQ-A and FTND and daily number of cigarettes.

	FTND	Daily number of cigarettes
Negative Affect Reduction	0.09 / 0.09	0.20*** / 0.20***
Stimulation/State Enhancement	0.11* / 0.11*	0.23*** / 0.23***
Health Risks	0.05 / 0.05	0.11 / 0.11
Taste/Sensorimotor Manipulation	0.11* / 0.11*	0.06 / 0.06
Social Facilitation	0.15** / 0.15**	0.20*** / 0.20***
Weight Control	0.08 / 0.08	0.02 / 0.00
Craving/Addiction	0.15** / no factor	0.15** / no factor
Negative Physical Feelings	0.04 / 0.04	0.07 / 0.07
Boredom Reduction	0.16** / 0.16**	0.19*** / 0.19***
Negative Social Impression	0.11* / 0.09	0.12* / 0.07

Note: the correlations indices are presented in pairs, with the left value corresponding to the full version of BSCQ-A, and the right value corresponding to the reduced version; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5. Discussion

The present research examined the psychometric properties of a Brazilian Portuguese version of the BSCQ-A among adult women who were cigarette smokers and agreed to enroll in a tobacco cessation group randomized trial. We conducted confirmatory factor analyses, and the results showed an adequate factor structure, albeit with lower reliability indices for most of the subscales than obtained by Rash and Copeland (2008). Our findings suggest a final version containing 21 (rather than 25) items and the 9 sub-scales (rather than ten originally proposed by Rash and Copeland).

Four items showed poor psychometric properties, so we created a reduced version of the BSCQ-A excluding them. The exclusion of the item "Cigarettes keep me from eating more than I should" resulted in a clear improvement of reliability for the Weight Control factor. Thus, we recommend that further studies with the Brazilian Portuguese version of the BSCQ-A among women exclude such item. On the other hand, the exclusion of the item "Smoking makes me seem less attractive" from the Negative Social Impression factor showed a slight decrease of reliability from 0.60 to 0.59. It is notable that both versions (full and reduced) provided similar indices in confirmatory factor analysis, as well as similar correlation indices, as discussed below. However, because the reduced version showed better overall stability, and for the sake of a brief instrument, exclusion of the items is recommended.

The two Craving/Addiction's items also performed poorly in the factor analysis, with low factor loadings and reliability indices, so we removed this factor in the reduced version. A similar procedure was used by Jeffries et al. (2004), which examined a shorter version of the SCQ-A containing 30 items and only nine factors. The authors considered the 9-factor structure adequate. A later study with the 25-item BSCQ-A by Rash and Copeland included the Craving/Addiction factor and the results showed an adequate 10-factor structure (Rash & Copeland, 2008). In our study, the removal of this factor (and two other items from other factors, as previously discussed) accounted for a slight improvement in goodness of fit and reliability. However, our study cannot provide unequivocal evidence for a 9-factor structure, as participants may have not understood the questions associated with craving/addiction. Over 50% (56.5%) of our sample did not complete middle school and only 25.5% completed high school (including college). In our qualitative work in preparation of the intervention development, we found that a number of women with demographic characteristics similar to the current sample did not know what "nicotine" is. Since both questions addressing craving/addiction include the word "nicotine", it is possible that questions were not understood by participants. Therefore, further examination of these items in future studies with Brazilian women is recommended.

Most of the factor scores tended to be similar to the original study by Rash and Copeland (2008). However, the standard deviations in our study were much higher. This result indicates that the participants showed greater variability of scores, suggesting that our sample may be more heterogeneous, while the original author's sample was more homogeneous, particularly with regard to being "heavy smokers." Although significant, the correlations between the BSCQ-A, the FTND, the BSCQ-A, and the number of cigarettes were relatively low. Interestingly, we found significant correlations between the FTND and Negative Affect Reduction and Social Facilitation while these factors were not significantly correlated with FTND in Rash and Copeland's sample. Given the gender differences found in previous studies with regard to negative affect reduction, this may explain the different findings. In our previous qualitative work among women, mood management emerged as an important factor on cigarette smoking maintenance. With regard to social facilitation, our qualitative findings also indicated that a large percentage of women endorsed social facilitation as a relevant factor for maintaining the habit (Scarinci, Silveira, Santos, & Beech, 2007). This was confirmed in our findings, as the means for these sub-scales in our sample were higher than obtained by Rash and Copeland (2008). However, given

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the relatively low to moderate FTND scores, the number of cigarettes smoked per day may be more relevant than assessing nicotine dependence as the number of cigarettes smoked per day showed a wide range with 33.1% of sample being "light smokers" (< 10 cigarettes per day), 44.9% reported smoking 11 to 20 cigarettes/day, 10.8% 21 to 30, and 11.1% 31 or more.

We acknowledge that this study has limitations. First, it was limited only to women and did not include men. Second, all participants were potentially "motivated" to quit as they consented to participate in a tobacco cessation study. This characteristic of our sample differed from Rash and Copeland's (2008) study, which investigated smokers and former smokers who were not necessarily willing to quit. Thus, future studies should also assess smokers not committed to a cessation program. Also, given that the study was done through the public health system and women were recruited by Community Health Workers through home visits, the sample consisted of primarily low-income homemakers with low educational attainment, possibly contributing to an unmeasured misunderstanding of questionnaire items. However, from a public health perspective, this is a high-risk group, as previous research describes a gradient relationship between educational attainment and cigarette smoking among Brazilian women (Brasil, 2017; Instituto Brasileiro de Geografia e Estatística, 2014; Scarinci, Bittencourt, Person, Cruz, & Moysés, 2012).

That is, the lower the educational attainment, the higher the cigarette smoking prevalence. This is particularly relevant in a country like Brazil that has shown a great reduction in tobacco use in the past 20 years, but the efforts may not have reached some underserved populations such as low-income women with low educational attainment.

In conclusion, we were able to replicate Rash and Copeland's findings in a translated version of the BSCQ-A to Brazilian Portuguese that can prove useful in the development and implementation of gender-relevant tobacco cessation efforts among Brazilian women. We believe this study makes a relevant contribution to researchers as well as clinicians engaged in tobacco cessation efforts in Brazil by providing a valid assessment of outcome expectancy among women. An understanding of women and tobacco-related issues, as well as the need for gender-relevant smoking cessation efforts, have been highlighted as priorities in landmark guiding documents (e.g., World Health Organization Framework Convention on Tobacco Control). One of the guiding principles in this document is "the need to take measures to address gender-specific risks when developing tobacco control strategies" (World Health Organization, 2017).

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This work was supported by the Fogarty International Center of the National Institutes of Health (R01TW009272).

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