

# Translation and Cultural Adaptation of the Short-Form Food Frequency Questionnaire for Pregnancy into Brazilian Portuguese

## *Tradução e adaptação cultural da versão curta do Questionário de Frequência Alimentar para gestantes em português do Brasil*

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### Abstract

**Objective** To translate and culturally adapt the short-form Food Frequency Questionnaire (SFFFQ) for pregnant women, which contains 24 questions, into Brazilian Portuguese.

**Methods** Description of the process of translation and cultural adaptation of the SFFFQ into Brazilian Portuguese. The present study followed the recommendation of the International Society for Pharmacoeconomics and Outcomes Research for translation and cultural adaptation with the following steps: 1) preparation; 2) first translation; 3) reconciliation; 4) back translation; 5) revision of back translation; 6) harmonization; 7) cognitive debriefing; 8) revision of debriefing results; 9) syntax and orthographic revision; and 10) final report. Five obstetricians, five dietitians and five pregnant women were interviewed to contribute with the language content of the SFFFQ.

**Results** Few changes were made to the SFFFQ compared with the original version. These changes were discussed with the research team, and differences in language were adapted to suit all regions of Brazil.

**Conclusion** The SFFFQ translated to Brazilian Portuguese can now be validated for use in the Brazilian population.

### Keywords

- ▶ food consumption
- ▶ validation studies
- ▶ pregnancy
- ▶ translation
- ▶ adaptation

### Resumo

**Objetivo** Traduzir e adaptar culturalmente, para o português do Brasil, a versão curta do Questionário de Frequência Alimentar (VCQFA), que contém 24 questões, voltado para gestantes brasileiras.

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**Métodos** Este estudo descreve o processo de tradução e adaptação cultural do VCQFA para o Português do Brasil. Este estudo seguiu as diretrizes da Sociedade Internacional para Farmacoeconomia e Pesquisa de Resultados para tradução e adaptação cultural, e foram realizadas as seguintes etapas: 1) preparação; 2) primeira tradução; 3) reconciliação; 4) tradução retrógrada; 5) revisão da tradução retrógrada; 6) harmonização; 7) discussão cognitiva; 8) análise dos resultados do desdobramento; 9) revisão de sintaxe e ortografia; e 10) relatório final. Cinco obstetras, cinco nutricionistas e cinco gestantes foram entrevistadas para contribuir com o conteúdo de linguagem do VCQFA.

#### Palavras-chave

- ▶ consumo de alimentos
- ▶ estudos de validação
- ▶ gravidez
- ▶ tradução
- ▶ adaptação

**Resultados** Poucas mudanças foram realizadas no VCQFA em comparação com a versão original. Essas mudanças foram discutidas com a equipe de pesquisa, e as diferenças de linguagem foram adaptadas para que o questionário seja adequado a todas as regiões do Brasil.

**Conclusão** A versão traduzida do VCQFA para o português do Brasil pode ser validada para a população brasileira.

## Introduction

Maternal nutritional status during pregnancy plays an important role in the well-being of both the mother and the fetus.<sup>1</sup> Maternal overnutrition during pregnancy, specifically the consumption of high-calorie foods, is considered a public health concern worldwide. It can lead to obesity and adverse metabolic outcomes in the offspring and infant later in life.<sup>2,3</sup> However, maternal undernutrition is also considered a major contributing factor to adverse pregnancy outcomes.<sup>2</sup>

During pregnancy, in addition to considerations of the quantity and quality of food intake, it is important to aim for adequate weight gain.<sup>4</sup> The Institute of Medicine<sup>4</sup> provides recommendations for adequate weight gain, which are based on prepregnancy body mass index (BMI). For women with normal prepregnancy BMI (18.5–24.9 Kg/m<sup>2</sup>), the recommendation of total weight gain during pregnancy is 11.33 Kg to 15.87 Kg; in the second and third trimesters the recommendation is 0.45 Kg (0.36–0.45) per week.<sup>4</sup> In order to achieve these goals, individuals may need to follow a specific dietary or physical activity program.<sup>5,6</sup>

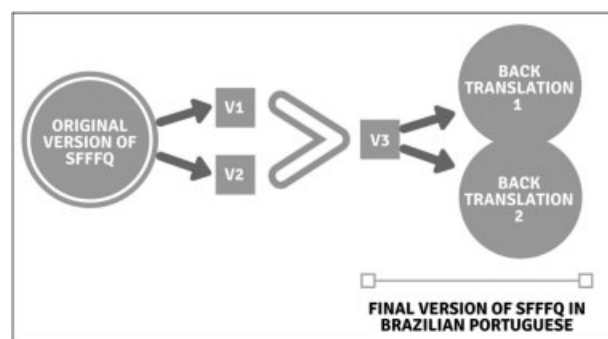
Food frequency questionnaires (FFQs) are considered useful tools for the assessment of dietary intake. They consist of a list of foods and beverages with various options the participant can check to reveal the frequency in which they consume these items.<sup>7</sup> The FFQ is widely used in epidemiological studies aiming to categorize individuals into different levels of dietary patterns and to determine their relationships with health outcomes.<sup>8,9</sup> Many FFQs are validated for Brazilian pregnant women;<sup>10–13</sup> however, most of them are considered lengthy, with around 80 to 100 food categories. Issues with long questionnaires include difficulties in handling data,<sup>14</sup> participant fatigue<sup>15</sup> and lower response rates, especially among the elderly.<sup>16</sup>

The short-form Food Frequency Questionnaire (SFFFQ) contains 24 questions about regular food consumption, which are divided into main groups that focus on fruit, vegetables, fiber-rich foods, high-fat and high-sugar foods, meat, meat

products and fish. This questionnaire was developed based on nutritional guidelines for the United Kingdom adult population and was validated and considered an effective method of assessing diet quality.<sup>17</sup> In order to use the SFFFQ in Brazilian pregnant women, the questionnaire needed to be translated and validated for this population. The main objective of the present study was to translate and to culturally adapt into Brazilian Portuguese the SFFFQ for pregnancy.

## Methods

The present study was developed with the authorization of the authors of the original version of the SFFFQ,<sup>17</sup> and followed all the steps recommend by Wild et al (2005)<sup>18</sup> for translation and cultural adaptation. The process of how the present study was conducted to obtain the final version of the SFFFQ in Brazilian Portuguese is summarized in ▶ Fig. 1. The original version of the SFFFQ in English was translated to Brazilian Portuguese by two independent researchers, thus creating two different versions (V1 and V2), which were combined into a third version (V3) that was back translated from Brazilian Portuguese to English by two independent translators (▶ Fig. 1).



**Fig. 1** Process of translation and cultural adaptation of the SFFFQ into Brazilian Portuguese. SFFFQ, short-form Food Frequency Questionnaire; V1, version 1; V2, version 2; V3, version 3.

The present study was developed according to the guidelines laid down in the Declaration of Helsinki, and the cultural adaptation of the SFFFQ for Brazilian pregnant women was approved by the Ethics Committee of the Universidade Estadual de Campinas, Brazil (under CAAE: 62916616.0.1001.5404). Written informed consent was obtained from all participants. Five obstetricians, five dietitians and five pregnant women were interviewed regarding the language content of the SFFFQ, and their opinions were recorded for the cognitive debriefing section of this paper. Then, the final version of the SFFFQ was developed based on the results of the interviews, the discussion with the author of the original SFFFQ validation,<sup>17</sup> and the group's final decision.

## Results

The different versions developed as a result of the translation and cultural adaptation of the SFFFQ are presented in **Table 1**.

### 1. Preparation

We obtained the consent of Cristina Cleghorn, MD (University of Otago) (original author of the validation paper of the SFFFQ in English, to perform the SFFFQ translation and cultural adaptation to Brazilian Portuguese, to apply it among pregnant women.

### 2. First translation

The first (V1) and second (V2) versions of the questionnaire translations were done by two independent native Brazilian Portuguese speakers (KTK and DSMP). These translations were considered a draft for the next step.

### 3. Reconciliation

Versions V1 and V2 were compared to create the third version in Brazilian Portuguese (V3) by another native Brazilian Portuguese speaker (FGS); at this point, details on language were adjusted to create one document.

### 4. Back translation

Two back translations into English were done by two official translators, who were English native speakers with experience in medical terms. These translations were done independently based on V3 to compare with the original version of the SFFFQ. After the back translations, some misinterpretations were identified, and these differences were discussed.

### 5. Revision of back translation

The author of the original validation paper of the SFFFQ in English (CLC) and KTK compared the original instrument with the two independent versions of the back translation. The two back translations were slightly different (**Table 1**), and this stage was based on whether the back translations were correctly interpreted from V3. The result of this step was also incorporated into the final version of the SFFFQ in Brazilian Portuguese.

### 6. Harmonization

For this step, the comparison of the back translations of the multiple language versions with each other and the original instrument is recommended. However, the original SFFFQ has not been translated to any other language, so this step was not included in the process.

### 7. Cognitive debriefing

For this step, 5 dietitians with a mean age of  $42.8 \pm 10.8$  years and work experience of  $15.2 \pm 10.1$  years, 5 obstetricians with a mean age  $40 \pm 6.2$  years and work experience of  $15 \pm 6.4$  years, and 5 pregnant women with a mean age of  $29.4 \pm 7.8$  years were interviewed. These interviews were recorded in an open questionnaire that captured their suggestions regarding the language and the semantic content of the SFFFQ. All the participants were native Brazilian Portuguese speakers and residents of the Southeastern Region of Brazil (in the city of Campinas, São Paulo).

### 8. Revision of debriefing results

The dietitians missed the presence of "eggs" as a protein in the questionnaire, since in Brazil it is very common to have eggs as a main source of protein in a meal.<sup>19</sup> Therefore, this food item was included in the questionnaire. The food "corned-beef" is not considered a common food in Brazil, and was excluded from the questionnaire, and "ham" was transferred from the "meat" category and included under the "processed meat" category, since it is more commonly consumed in this preparation in Brazil. In the same way, the second mention of the word "cream" in the "ice cream/cream" category was excluded, since "cream" is not a common item in the Brazilian diet. ["Canned fruit" was excluded from the category "fruit", as it was considered too sweet, with a high glycemic index, and canned fruit is not a part of Brazil's dietary recommendations for fruit intake. Only "fresh fruit" was considered for this category.<sup>20,21</sup> All the changes were discussed with the research team, and differences in language were adapted to suit all the regions of Brazil.

### 9. Syntax and orthographic revision

The syntax and orthographic revision was developed by a Brazilian Portuguese grammar professor with experience in medical terms. The final version of the SFFFQ was reviewed and approved by all authors.

### 10. Final report

As recommended by Wild et al (2005),<sup>18</sup> the process of translation and cultural adaptation of the SFFFQ into Brazilian Portuguese has been reported to provide guidance for other researchers considering translating the same questionnaire into a different language.

## Discussion

This short communication describes the process of translation and cultural adaptation of the SFFFQ to Brazilian Portuguese, as it is considered the first step toward the validation of the questionnaire for Brazilian pregnant women. Dietary patterns during pregnancy may vary in Brazilian pregnant women,<sup>22,23</sup> and different factors influence maternal food intake, such as food price policies and nutritional inequalities.<sup>24,25</sup>

Adequate assessment of the quantity and quality of food intake in pregnant women provides essential information on associations among diet, nutrition and health, the detection of nutrient deficiencies, and the characterization of population

**Table 1** Process of translation into Brazilian Portuguese and cultural adaptation of the short-form Food Frequency Questionnaire (SFFQ) for Brazilian pregnant women

	Original	Version 1 (V1)	Version 2 (V2)	Reconciliation - Version 3 (V3)
1	Fruit (tinned/fresh)	Frutas (enlatadas/frescas)	Frutas (em lata/frescas)	Frutas (enlatadas/frescas)
2	Fruit juice (not cordial or squash)	Suco de frutas (exceto suco concentrado, de caixinha, ou artificial)	Suco de frutas natural (sem contar suco concentrado, de caixinha, ou artificial)	Suco de frutas (exceto suco concentrado, de caixinha, ou artificial)
3	Salad (not garnish added to sandwiches)	Salada (não como ingrediente em sanduíches)	Salada (não como acompanhamento de sanduíches)	Salada (não como ingrediente em sanduíches)
4	Vegetables (tinned/frozen/fresh but not potatoes)	Vegetais (enlatados/congelados/frescos, mas não batatas)	Vegetais (em lata/congelados/frescos, mas não batatas)	Vegetais (enlatados/congelados/frescos, mas não batatas)
5	Chips/fried potatoes	Salgados/Batata frita	Salgados fritos/Batata frita	Salgados/Batata frita
6	Beans or pulses like baked beans, chick peas, dahl	Feijão ou leguminosas cozidas, como grão de bico e lentilha	Feijão ou leguminosas cozidas, como grão de bico e lentilha	Feijão ou leguminosas cozidas, como grão de bico e lentilha
7	Fiber-rich breakfast cereal, like Weetabix, Fruit 'n Fiber, Porridge, Muesli	Cereais ricos em fibras, como aveia e granola	Cereais enriquecidos em fibras, como aveia e granola	Cereais ricos em fibras, como aveia e granola
8	Wholemeal bread or chapattis	Pão integral ou pão sírio de farinha de trigo integral	Pão integral ou pão sírio de farinha de trigo integral	Pão integral ou pão sírio de farinha de trigo integral
9	Cheese/yoghurt	Queijo/iogurte	Queijo/iogurte	Queijo/iogurte
10	Crisps/savoury snacks	Salgadinhos de pacote/petiscos salgados	Salgadinhos de pacote/petiscos salgados	Salgadinhos de pacote/petiscos salgados
11	Sweet biscuits, cakes, chocolate, sweets	Biscoitos doces, bolos, chocolate, doces	Biscoitos doces, bolos, chocolates, doces	Biscoitos doces, bolos, chocolate, doces
12	Ice cream/cream	Sorvete/doce	Sorvete/doce com creme	Sorvete/doce
13	Nonalcoholic fizzy drinks/pop (not sugar free or diet)	Bebidas com gás, como "Aquarius Fresh" ou "H2OH"/refrigerante (sem açúcar ou diet)	Bebidas gaseificadas, como "Aquarius Fresh" ou "H2OH"/refrigerante (sem açúcar, zero ou diet)	Bebidas com gás, como "Aquarius Fresh" ou "H2OH"/refrigerante (sem açúcar, zero ou diet)
14	Whole meats: beef, lamb, pork, ham - steaks, roasts, joints, mince or chops	Carnes: carne de vaca, cordeiro, carne suína, presunto - bifés, assados, mocotó, moída ou costelas	Carnes: carne de vaca, cordeiro, carne suína, presunto - bifés, assados, mocotó, moída ou costelas	Carnes: carne de vaca, cordeiro, carne suína, presunto - bifés, assados, mocotó, moída ou costelas
15	Chicken or turkey - steaks, roasts, joints, mince or portions (not in batter or breadcrumbs)	Frango ou peru - filés, assados, asa/coxa da asa de frango, desfiado ou porção (sem milanesa)	Frango ou peru - filés, assados, asa/coxa da asa de frango, desfiado ou porção (sem milanesa)	Frango ou peru - filés, assados, asa/coxa da asa de frango, desfiado ou porção (sem milanesa)
16	Processed meats/meat products: sausages, bacon, corned beef, meat pies/pasties, burgers	Carnes processadas/preparações com carne: salsichas, bacon, fraldinha, torta de carne/pastéis com carne, hambúrgueres	Carnes processadas/preparações com carne: salsichas, bacon, fraldinha, torta de carne/pastel de carne, hambúrgueres	Carnes processadas/preparações com carne: salsichas, bacon, fraldinha, torta de carne/pastéis com carne, hambúrgueres
17	Chicken/turkey nuggets/twizzlers, turkey burgers, chicken pies, or in batter or breadcrumbs	Frango/nuggets, hambúrguer de frango, torta de frango, ou à milanesa	Nuggets de frango, hambúrguer de frango, torta de frango, ou à milanesa	Nuggets de frango, hambúrguer de frango, torta de frango, ou à milanesa

Table 1 (Continued)

	Original	Version 1 (V1)	Version 2 (V2)	Reconciliation - Version 3 (V3)
18	Fish: White fish in batter or bread-crums – like 'fish 'n chips'	Peixes: peixe branco à milanesa	Peixes: peixe branco frito à milanesa	Peixes: peixe branco à milanesa
19	White fish not in batter or breadcrumbs	Peixe branco sem milanesa	Peixe branco sem milanesa	Peixe branco sem milanesa
20	Oily fish – like herrings, sardines, salmon, trout, mackerel, fresh tuna (not tinned tuna)	Peixes oleosos – como arenque, sardinha, salmão, truta, cavala, atum fresco (não atum enlatado)	Peixes com alta concentração de óleo – como arenque, sardinha, salmão, truta, cavala, atum fresco (exceto atum em lata)	Peixes oleosos – como arenque, sardinha, salmão, truta, cavala, atum fresco (não atum enlatado)
21	On average, how many portions of FRUIT do you eat a day? (Examples include a handful of grapes, an orange, a glass of fruit juice, a handful of dried fruits).	Em média, quantas porções de FRUTAS você consome por dia? (Por exemplo: um punhado de uvas, uma laranja, um copo de suco de frutas, um punhado de frutas secas).	Em média, quantas porções de FRUTAS você come diariamente? (Por exemplo: um punhado de uvas, uma laranja, um copo de suco de frutas, um punhado de frutas secas).	Em média, quantas porções de FRUTAS você consome por dia? (Por exemplo: um punhado de uvas, uma laranja, um copo de suco de frutas, um punhado de frutas secas).
22	On average, how many portions of VEGE-TABLES do you eat a day? (Exam-ples include: 3 heaped tablespoons of carrots, a side salad, 2 spears of broccoli).	Em média, quantas porções de VEGE-TAIS você consome por dia? (Por exemplo: 3 colheres de sopa cheias de cenoura, salada de acompanhamento, 2 ramos de brócolis).	Em média, quantas porções de VEGE-TAIS você come diariamente? (Por exemplo: 3 colheres de sopa cheias de cenoura, salada de acompanhamento, 2 ramos de brócolis).	Em média, quantas porções de VEGE-TAIS você consome por dia? (Por exemplo: 3 colheres de sopa cheias de cenoura, salada de acompanhamento, 2 ramos de brócolis).
23	What milk do you usually use or drink, such as in hot & cold drinks or on cereal? (Including tea, coffee, hot milk, milk shakes, or on cereal) Whole/full-fat milk • Semi-skimmed milk • Skimmed milk • Rarely/never use milk • Other (please write its name)	Qual tipo de leite você geralmente consome, quente, frio ou com cereal? (Incluindo leite com chá, leite com café, leite quente, milk shakes, ou com cereal) Leite integral • Leite semidesna-tado • Leite desnatado • Raramente/não consumo leite • Outros (por favor, escreva o nome)	Qual tipo de leite você usualmente bebe, quente, frio ou com cereal? (Incluindo leite com chá, leite com café, leite quente, milk shakes, ou com cereal) Leite integral • Leite semidesna-tado • Leite desnatado • Raramente/não bebo leite • Outros (por favor, escreva o nome)	Qual tipo de leite você geralmente consome, quente, frio ou com cereal? (Incluindo leite com chá, leite com café, leite quente, milk shakes, ou com cereal) Leite integral • Leite semidesna-tado • Leite desnatado • Raramente/não consumo leite • Outros (por favor, escreva o nome)
24	On average, how much alcohol do you drink over a complete seven-day week? (One unit is a standard glass of wine, half a pint of beer or lager, a single measure of spirits, a measure of sherry) I rarely/never drink alcohol • Less than 14 units • Between 14 & 21 units • More than 21 units •	Em média, quanto álcool você consome durante sete dias da semana? (Uma unidade é considerada uma taça de vinho, 250 mL de cerveja, uma dose de bebida destilada (uísque, gim, vodka, rum, cachaça, uma dose de licor) Raramente/não consumo álcool • Menos de 14 unidades • Entre 14 e 21 uni-dades • Mais de 21 unidades •	Em média, quanto álcool você bebe durante uma semana? (Uma unidade é considerada uma taça de vinho, 250 mL de cerveja, uma dose de bebida destilada (uísque, gim, vodka, rum, cachaça, uma dose de licor) Raramente/não bebo álcool • Menos de 14 unidades • Entre 14 e 21 unidades • Mais de 21 unidades •	Em média, quanto álcool você consome durante sete dias da semana? (Uma unidade é considerada uma taça de vinho, 250 mL de cerveja, uma dose de bebida destilada (uísque, gim, vodka, rum, cachaça, uma dose de licor) Raramente/não consumo álcool • Menos de 14 unidades • Entre 14 e 21 uni-dades • Mais de 21 unidades •



Table 1 (Continued)

	Original	Back translation 1	Back translation 2	Final version
1	Fruit (tinned/fresh)	Fruits (canned/fresh)	Fruits (canned/fresh)	Frutas frescas
2	Fruit juice (not cordial or squash)	Fruit juice (except concentrated juice, in a box, or artificial)	Fruit juice (except concentrated, canned, or artificial juice)	Suco de frutas natural (exceto suco concentrado ou artificial)
3	Salad (not garnish added to sandwiches)	Salad (not as an ingredient in sandwiches)	Salad (not as ingredient in sandwiches)	Salada de folhas (não como ingrediente em sanduíches)
4	Vegetables (tinned/frozen/fresh but not potatoes)	Vegetables (canned/frozen/fresh, but not potatoes)	Vegetables (canned/ frozen/fresh, but not potatoes)	Legumes (enlatados/congelados/frescos, mas não batatas)
5	Chips/fried potatoes	Snacks/Potato chips	Savory snacks/potato chips	Salgados fritos/Batata frita
6	Beans or pulses like baked beans, chick peas, dahl	Cooked beans or legumes such as chick peas and lentils	Beans or legumes cooked, such as chickpeas and lentils	Feijão ou leguminosas cozidas, como grão de bico e lentilha
7	Fiber-rich breakfast cereal, like Weetabix, Fruit 'n Fiber, Porridge, Muesli	Cereals rich in fibers, such as oats and granola	Cereals rich in fiber, such as oatmeal and granola	Cereais ricos em fibras, como aveia e granola
8	Wholemeal bread or chapattis	Whole-wheat bread or whole-wheat pita bread	Whole grain bread or Syrian bread made from whole wheat flour	Pão integral ou pão sírio de farinha de trigo integral
9	Cheese/yoghurt	Cheese/Yogurt	Cheese/yogurt	Queijo/iogurte
10	Crisps/savoury snacks	Snacks in packages/salty snacks	Packaged savory snacks/savory snacks	Salgadinhos de pacote/petiscos salgados
11	Sweet biscuits, cakes, chocolate, sweets	Sweet biscuits, cakes, chocolate, sweets	Sweet biscuits, cakes, chocolate, candies	Biscoitos doces, bolos, chocolates, doces
12	Ice cream/cream	Ice cream/candy	Ice cream/sweet	Sorvete
13	Nonalcoholic fizzy drinks/pop (not sugar free or diet)	Carbonated soft drinks, such as "Aquarius Fresh" or "H2OH"/soft drink (no sugar or diet)	Drinks with gas, such as "Aquarius Fresh" or "H2OH"/soft drinks (without sugar or diet)	Refrigerantes (sem incluir os refrigerantes sem açúcar, zero ou diet)
14	Whole meats: beef, lamb, pork, ham - steaks, roasts, joints, mince or chops	Meats: beef, lamb, pork, ham - steak, roasted, calf's foot, ground beef or ribs	Meat: beef, lamb, pork, ham - steaks, roasts, calf's foot jelly, ground meat, or ribs	Carnes: carne de vaca, cordeiro, carne de porco - bifes, assados, mocotó, moída ou costelas
15	Chicken or turkey - steaks, roasts, joints, mince or portions (not in batter or breadcrumbs)	Chicken or turkey - steak, roasted, wings/chicken wing thigh, shredded or serving (not breaded steak)	Chicken or turkey - filets, roasts, wing/ wing flat, shredded or a portion (without batter)	Frango ou peru - filés, assados, asa/coxa da asa de frango, desfiado ou porção (sem ser empanado)
16	Processed meats/meat products: sausages, bacon, corned beef, meat pies/pasties, burgers	Processed meat/meat preparations: sausages, bacon, thick flank, meat pie/meat pastry, hamburgers	Processed meat/preparations with meat: sausages, bacon, flank steak, meat pie/pasty, hamburgers	Carnes processadas/preparações com carne: salsichas, presunto, bacon, torta de carne/pastéis com carne, hambúrgueres
17	Chicken/turkey nuggets/twizzlers, turkey burgers, chicken pies, or in batter or breadcrumbs	Chicken/ nuggets, chicken hamburger, chicken pie or chicken fried steak	Chicken/nuggets, chicken burger, chicken pie or battered chicken	Nuggets ou hambúrguer de frango, torta de frango, ou frango empanado

Table 1 (Continued)

	Original	Back translation 1	Back translation 2	Final version
18	Fish: White fish in batter or bread-crumbs – like ‘fish ‘n chips’	Fish: Breaded white fish	Fish: Battered white fish	Peixes: peixe branco empanhado
19	White fish not in batter or breadcrumbs	White fish not breaded	White fish without batter	Peixe branco (sem incluir peixe empanhado)
20	Oily fish – like herrings, sardines, salmon, trout, mackerel, fresh tuna (not tinned tuna)	Oily fish – such as herring, sardine, salmon, trout, mackerel, fresh tuna (not canned tuna)	Oily fish - such as herring, sardines, salmon, trout, mackerel, fresh tuna (not canned tuna)	Peixes oleosos – como arenque, sardinha, salmão, truta, cavala, atum fresco (não atum enlatado)
21	On average, how many portions of FRUIT do you eat a day? (Examples include a handful of grapes, an orange, a glass of fruit juice, a handful of dried fruits).	On average, how many servings of FRUITS do you consume per day? (For example: a bunch of grapes, an orange, a cup of fruit juice, a bunch of dried fruits).	On average, how many servings of FRUITS do you consume per day? (For example: a handful of grapes, an orange, a glass of fruit juice, a handful of dried fruits).	Em média, quantas porções de FRUTAS você consome por dia? (Por exemplo: um cacho pequeno de uva, uma laranja, um copo de suco de frutas, um punhado de frutas secas).
22	On average, how many portions of VEGETABLES do you eat a day? (Examples include: 3 heaped tablespoons of carrots, a side salad, 2 spears of broccoli).	On average, how many servings of VEGETABLES do you consume per day? (For example: 3 heaping tablespoons of carrots, salad side dish, 2 florets of broccoli).	On average, how many servings of VEGETABLES do you consume per day? (For example: 3 full tablespoons of carrot, an accompanying salad, 2 sprigs of broccoli).	Em média, quantas porções de LEGUMES você consome por dia? (Por exemplo: 3 colheres de sopa cheias de cenoura, salada de acompanhamento, 2 ramos de brócolis).
23	What milk do you usually use or drink, such as in hot & cold drinks or on cereal? (Including tea, coffee, hot milk, milk shakes, or on cereal) Whole/full-fat milk • Semi-skimmed milk • Skimmed milk • Rarely/never use milk • Other (please write its name)	What type of milk do you usually consume, hot, cold or with cereal? (Including milk and tea, milk and coffee, hot milk, milk shakes, or with cereal) Whole milk • Semi-skimmed milk • Skim milk • Rarely/does not consume milk • Others (please, write the name)	What kind of milk do you usually consume, hot, cold, or with cereal? (Including milk with tea, milk with coffee, hot milk, milk shakes, or with cereal) Whole milk • Semi-skimmed milk • Skimmed milk • Rarely/does not drink milk • Other (please write the name)	Qual tipo de leite você geralmente consome, quente, frio ou com cereais? (Incluindo leite com chá, leite com café, leite quente, milk shakes, ou com cereais) Leite integral • Leite semidesnatado • Leite desnatado • Raramente/não consumo leite • Outro (por favor, escreva o nome)
24	On average, how much alcohol do you drink over a complete seven day week? (One unit is a standard glass of wine, half a pint of beer or lager, a single measure of spirits, a measure of sherry) I rarely/never drink alcohol • Less than 14 units • Between 14 & 21 units • More than 21 units •	On average, how much alcohol do you consume during seven days of the week? (one unit is considered a glass of wine, 250 ml of beer, a dose of distilled drink (whisky, gin, vodka, rum, sugarcane brandy, a dose of liquor) Rarely/does not consume alcohol • Less than 14 units • Between 14 and 21 units • More than 21 units •	On average, how much alcohol do you consume over the seven days of the week? (A unit is considered a glass of wine, 250 ml of beer, a shot of distilled drink (whiskey, gin, vodka, rum, brandy, a shot of liquor) Rarely/does not drink alcohol • Less than 14 units • Between 14 and 21 units • More than 21 units •	Em média, quantas doses de bebida alcoólica você consome durante 7 dias da semana? (Uma dose é considerada uma taça de vinho, 250 ml de cerveja, uma dose de licor ou uma dose de bebida destilada, como uísque, gim, vodka, rum, cachaça) Raramente/não consumo álcool • Menos de 14 doses • Entre 14 e 21 doses • Mais de 21 doses •

vulnerability.<sup>26</sup> A study conducted in Brazil showed a different dietary pattern according to the sociodemographic characteristics of pregnant women measured by the FFQ.<sup>23</sup> A restrictive dietary pattern with a low variety of grains, fruits and vegetables was observed in younger Brazilian pregnant women who lived without a partner and attended school or university, while pregnant women with higher maternal age and higher socioeconomic status presented a healthier diet, with more food variety.<sup>23</sup> Therefore, the FFQ has been considered a useful tool to adequately assess maternal dietary habits and to improve the communication between pregnant women and health professionals (dietitians and obstetricians).

During the development of the present study, there were different suggestions made by dietitians, obstetricians and pregnant women about the language content of the SFFFQ. While the dietitians had more comments regarding the food categories and classification, the obstetricians were more concerned with the language content in the questions that were asked. The pregnant women focused on the quantities assessed by the questionnaire and needed clarification on portion sizes. From our perspective, all of them contributed significantly to the development of the final version of the Brazilian SFFFQ.

The present study is similar to various other studies regarding the process of translation and cultural adaptation.<sup>27–29</sup> All the studies followed the recommendation of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) for translating and culturally adapting different questionnaires into Brazilian Portuguese.<sup>27–29</sup> The translated SFFFQ to Brazilian Portuguese can now be validated for use in Brazilian pregnant women.

## Transparency Declaration

The lead author states that this manuscript is an honest, accurate, and transparent account of the study being reported. The lead author states that no important aspects of the study have been omitted, and that any discrepancies from the study as planned have been explained.

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