

Goals developed by overweight postpartum women through motivational interviewing

Metas desenvolvidas por mulheres com excesso de peso no pós-parto através da entrevista motivacional

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ABSTRACT

Motivational interviewing is a technique used to help individuals commit to behavior changes, particularly in weight control. This study aimed to analyze the goals established by overweight postpartum women who received nutritional counseling through motivational interviewing. It is a descriptive study conducted with the intervention group of a randomized clinical trial in Primary Health Care Units in Fortaleza-CE, Brazil. A total of 32 women participated, with a Body Mass Index ≥ 25 kg/m², a high school education, an average age of 30 years, and who were between the first and third months postpartum and breastfeeding. The women attended biweekly motivational interviewing sessions conducted by nutritionists and received guidance based on the Dietary Guidelines for the Brazilian Population for up to six months. Data analysis considered the types of goals chosen, their achievement, and levels of motivation and confidence. The most frequent goal was incorporating fruits, vegetables, and greens into their diet (34.6%). The highest motivation was observed for reducing soft drinks and sweets (15.4%), a goal that also received the highest confidence score (8.5) but was not achieved by any participant. Despite high levels of motivation and confidence, most planned goals were not accomplished. Therefore, motivational interviewing may help identify key dietary behaviors for managing excess weight, even in the face of challenges in goal execution.

Keywords: eating behavior; motivational interviewing; obesity management; postpartum period

RESUMO

A entrevista motivacional é uma técnica utilizada para ajudar pessoas a se comprometerem com mudanças de comportamento, especialmente no controle de peso. O objetivo deste estudo foi analisar as metas estabelecidas por mulheres no pós-parto com excesso de peso que receberam orientação nutricional utilizando a entrevista motivacional. Trata-se de um estudo descritivo com o grupo de intervenção de um ensaio clínico randomizado realizado em Unidades de Atenção Primária à Saúde de Fortaleza-CE, Brasil. Participaram 32 mulheres com Índice de Massa Corporal ≥ 25 kg/m², ensino médio completo e idade média de 30 anos, entre o primeiro e terceiro mês do pós-parto, e que estavam amamentando. As mulheres participaram de sessões quinzenais de entrevista motivacional conduzidas por nutricionistas e receberam orientações baseadas no Guia Alimentar para a População Brasileira durante até seis meses. Os dados foram analisados considerando os tipos de metas escolhidas, seu cumprimento e os níveis de motivação e confiança. A meta mais frequente foi incluir frutas, legumes e verduras na dieta (34,6%). A maior motivação foi para reduzir refrigerantes e doces (15,4%), meta que também obteve a maior pontuação de confiança (8,5), mas que nenhuma participante alcançou. Apesar das altas pontuações de motivação e confiança, a maioria das metas planejadas não foi cumprida. Portanto, a entrevista motivacional pode ser útil para identificar comportamentos alimentares relevantes no manejo do excesso de peso, mesmo diante das dificuldades de execução.

Palavras-chave: comportamento alimentar; entrevista motivacional; manejo da obesidade; período pós-parto.

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INTRODUCTION

Motivational interviewing (MI) is an individual-centered communication and counseling method that assists with ambivalence and conflict resolution for desired behavior changes. Four stages are proposed: involve, focus, evoke and plan, where the interviewer uses open questions, positive statements, summaries and reflective listening, with partnership, compassion and acceptance during the consultation, identifying the subject's motivation or resistance to the process of change (MILLE; ROSE, 2009; MILLER; ROLLNICK, 2013; DUNKER *et al.*, 2019).

MI is used in several clinical situations as it facilitates the identification of the individuals' needs, showing effective results in weight control (BARNES; IVEZAJ, 2015; PATEL; WAKAYAMA, 2019; SUIRE *et al.*, 2021). Promoting a healthy lifestyle remains the best strategy for treating overweight and obesity; however, adherence is often low and long-term success is discreet, reflecting difficulties on the part of both the individuals and health professionals (WHARTON *et al.*, 2020). The difficulty in making changes is due to several factors, mainly the subject's ambivalence, which is characterized by the simultaneous desire to change and to remain where they are, with MI being an alternative to working on this issue (WESTRA; NOROUZIAN, 2018).

Postpartum is a phase full of social, psychological and physiological changes in a woman's life, which leads to a greater likelihood of weight retention. Eating habits during this period are also affected by this new condition and women find barriers to healthy eating. The abandonment of healthy habits carried out during pregnancy is justified by the experienced internal and external influences, highlighting the feeling of helplessness and loneliness and the responsibility for numerous activities, especially caring for the baby (KAY *et al.*, 2017).

Such changes are aggravated in women with obesity, as their relationship with food is a compulsive one and release of the anxiety experienced in the postpartum. Food, in this case, becomes a source of pleasure, used to deal with unpleasant postpartum feelings (FARIA-SCHÜTZER *et al.*, 2020).

Considering this scenario and the importance of knowing health-related needs and motivations to determine realistic and accessible interventions, the use

of MI during this period can be an effective strategy for maintaining a healthy weight and preventing diseases associated with excess weight (MCKINLEY *et al.*, 2018).

The aim of this study is to analyze the goals established by postpartum women with excess weight submitted to nutritional monitoring through MI in Primary Health Care.

MATERIALS AND METHODS

This is a retrospective study on the goals set by postpartum women with excess weight monitored through MI to adopt a healthy lifestyle based on the recommendations of the Dietary Guidelines for the Brazilian Population (DGPB) (BRAZIL, 2015). The study is part of a randomized clinical trial, approved by the Ethics Committee of Universidade Estadual do Ceará (CAEE: 38311920.6.0000.5534, Opinion number: 4.442.057) and registered on the Brazilian Registry of Clinical Trials (ReBEC) platform (registration number: RBR-5vnnqnk). The participants provided written informed consent for the conduct and publication of this study.

Women aged between 18 and 45 years were included in the study, who were in the first semester of postpartum, with a Body Mass Index ≥ 25 kg/m² and availability for nutritional monitoring for six months. Pregnant women and women diagnosed with a chronic disease prior to the pregnancy (neoplasms, high blood pressure and diabetes mellitus) and those who were being monitored by nutritionists were excluded.

The follow-up took place from October 2021 to December 2022 by trained nutritionists. The participants were approached in Primary Health Care units in the city of Fortaleza, state of Ceará, Brazil, where socioeconomic data were collected: marital status (single, married/common-law marriage), ethnicity (brown, black, others), level of schooling (illiterate, elementary school, high school, higher education, postgraduate studies) and income (< 1 minimum wage; 1-2 minimum wages; > 2 minimum wages). Weight and height were measured on a mechanical scale with a Filizola® stadiometer (GUARULHOS-SP/BRAZIL) with a 150 kg capacity, available in the units, and waist circumference was measured with a Sanny® inelastic anthropometric measuring tape (SÃO BERNARDO DO CAMPO-SP/ BRAZIL). The measurements were

performed in duplicate and the average was used to classify weight status, according to the guideline manual for the collection and analysis of anthropometric data in health services (BRAZIL, 2011).

The intervention group established health or dietary goals during the MI sessions, in partnership with nutritionists, based on DGPB (BRAZIL, 2015). The goals were recorded by the nutritionists who applied the MI. They received support materials, available in the Motivational Interviewing Application Manual, to assist with nutritional monitoring, such as the circle diagram, which helped define goals, as well as a decision scale, action plans, feedback, and monitoring forms. This manual was developed by one of the researchers in the study and includes information on the application of MI according to the description by Miller and Rollnick (2013).

Each nutritionist underwent 20 hours of theoretical-practical training, conducted remotely via Google Meet, led by two nutritionists and one psychologist with practical experience in the method and post-graduate degrees in eating behavior. In addition, the nutritionists completed 10 MI sessions supervised by the professionals.

The follow-up was carried out every two weeks (in person or via video call), lasting up to six months, totaling 12 MI sessions per woman, with the creation of at least one goal at each meeting. The average duration of each MI was 40 minutes, following the steps proposed by Dunker *et al.*, (2019) and adapted from Miller and Rollnick (2013). The sessions followed the four stages of the MI, as described in Figure 1. At the end, the monitoring of goal achievement and the scheduling of the next appointment were defined.

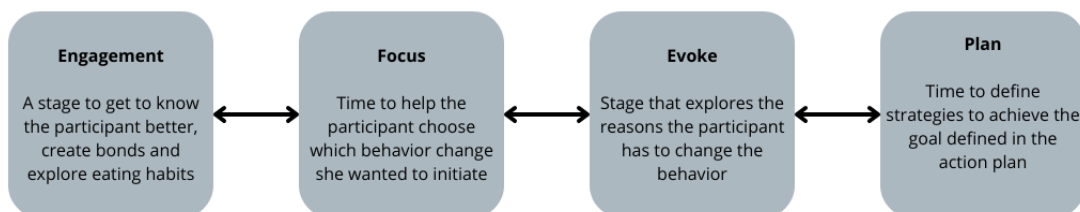
1 being not at all motivated and not at all confident and 10 being very motivated and very confident. Motivation was assessed immediately after choosing the goal to be worked on, during evocation, and confidence at the end of the creation of the action plan. This tool was adapted from the instrument validated for MI, Importance and Confidence Ruler. This visual-analog method aims to grade each of the dimensions, importance and confidence, on a ruler (MILLER; ROLLNICK, 2002).

During follow-up visits, the nutritionists assessed the implementation of the goal, exploring the positive points and aspects to be improved, in addition to the women's confidence, importance and motivation in continuing with the follow-up, whether with the previous goal or a new goal. The attainment of the goal was also evaluated through the percentage of frequency of achievement, considering the number of days proposed for meeting the goal: total (achievement of the goal in 70-100% of days); partial (30-69% of days); non-achievement (less than 30% of days).

The data on goals were collected from records carried out in Excel® spreadsheets by nutritionists. Each participant had a medical record that contained the following information: name, date of the MI, whether a goal was defined, description of the goal, format of the MI (in-person or remote), score for confidence and motivation, achievement of the goal and observations.

To facilitate the description of the goals, they were grouped into four categories according to the classification of foods, food consumption guidelines and establishment of health behaviors, according to DGPB (BRAZIL, 2015). The categories were: 1) Inclusion, control or increase in the frequency of consumption of

Figure 1- Stages of motivational interviewing. 2024.



Source: the authors

In all sessions, the women self-assessed their motivation and confidence in achieving the defined goal, assigning scores on a scale varying from 1 to 10, with

healthy foods/beverages; 2) Reduction in the quantity and/or frequency of food/beverage consumption; 3) Replacing unhealthy foods/beverages by healthy

foods/beverages; 4) Establishment of healthy behavior (health goal). There were sessions in which goals related to more than one category were defined and sessions without goal creation that were not analyzed. In each category, it was identified which type of food/beverage was related to the goal. When the goal did not specify the type of food or preparation, such as increasing consumption of fiber-rich foods or increasing consumption of healthy preparations, unspecified beverages and/or preparations were considered.

Data analyses were performed using SAS software, version 9.4.1. Descriptive analyses were carried out to characterize the sample regarding the socioeconomic level and to describe the categories of the chosen goals. Absolute (n) and relative (%) frequencies of each category were calculated. The scores for motivation and confidence were presented as the average of each woman's self-assessment score, along with the standard deviation (SD). The percentage of achievement of goals was estimated in a stratified manner for each category.

RESULTS AND DISCUSSION

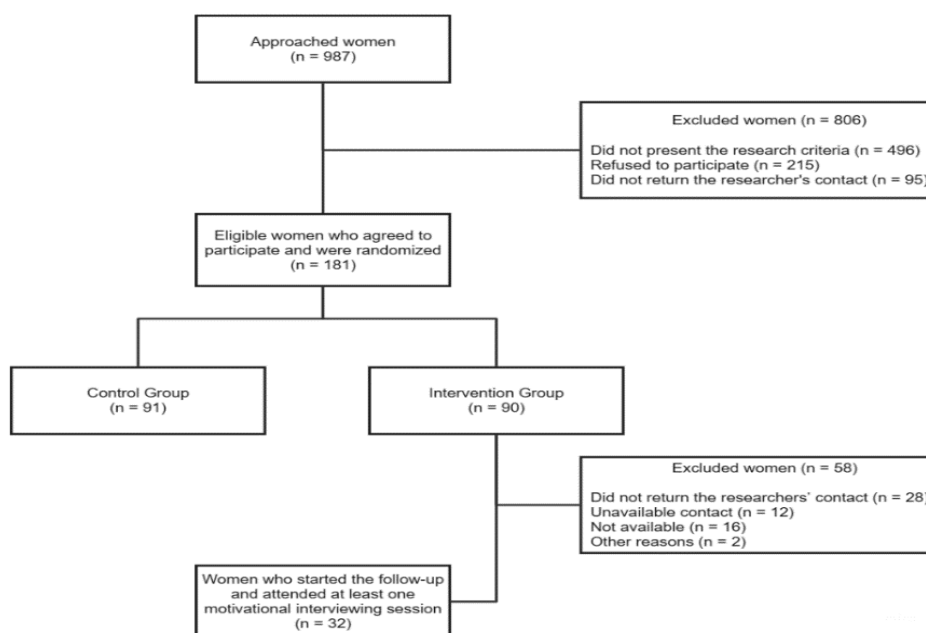
The study sample included 32 women randomized to the intervention group and who underwent at least one MI (Figure 2).

The mean age of the participants was 30 years old (SD = 6 YEARS), with the majority being mixed-race (71.9%), having completed high school, married or in a consensual union (75%), and with an income between 1 and 2 minimum wages (68.8%). Most were between the 1st and 3rd months postpartum (43.8%) and breastfeeding (90.6%). The average BMI was 30.1 kg/m² (SD = 4 kg/m²), and 68.8% had a waist circumference greater than or equal to 88 cm (Table 1).

Studies that evaluated diet quality as well as factors influencing weight control in postpartum women identified a similar profile of sociodemographic characteristics of the participants (PENG *et al.*, 2024; WILTHEISS *et al.*, 2013).

A total of 81 goals were established in 90 MI sessions, but only 78 goals were analyzed, as those with objectives related to more than one category (n = 3) and MI sessions without goal construction (n = 9) were not considered. During the follow-up, there were important losses in the number of monitored women. Most underwent only two MI sessions while only one participant managed to finish the follow-up with twelve MI sessions (Figure 3). This low adherence to follow-up reinforces that, although motivational interviewing is a tool recommended for behavior change that influences weight, overweight women in the postpartum period face obstacles that

Figure 2 - Diagram representing the flow of participants at each stage of the study in Fortaleza, Ceará, 2024 (n=32).



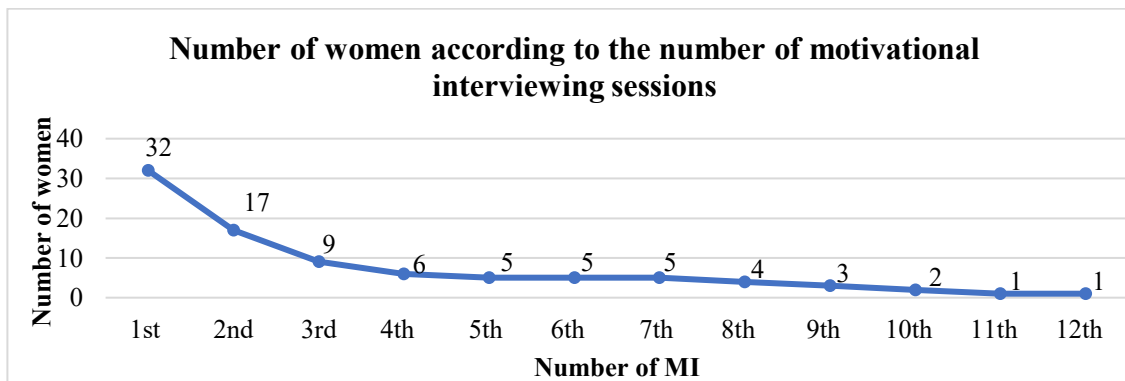
Source: the authors

Table 1- Sociodemographic characteristics of overweight postpartum women followed the motivational interviewing in Fortaleza, Ceará, 2024 (n=32).

Sociodemographic characteristics	n (%)
Ethnicity	-
Brown	23 (71.9)
Black	5 (15.6)
Others	4 (12.5)
Level of schooling	-
Elementary School	2 (6.2)
High School	24 (75.0)
Higher Education	6 (18.8)
Marital status	-
Married/ Common-law marriage	18 (56.0)
Single	14 (44.0)
Income	-
< 1 MW	3 (9.4)
1-2 MW	22 (68.8)
≥ 2 MW	5 (15.6)
Did not know how to answer	2 (6.2)
Postpartum period	-
< 1 month	6 (18.7)
1 – 3 months	14 (43.8)
4 – 6 months	12 (37.5)
Breastfeeding	-
Yes	29 (90.6)
No	3 (9.4)
BMI	-
Overweight (25.0 – 29.9 Kg/m ²)	19 (59.4)
Obesity (≥ 30 Kg/m ²)	13 (40.6)
WC	-
< 88cm	10 (31.2)
≥ 88cm	22 (68.8)

MW=minimum wage; BMI= body mass index; WC= waist circumference.

Figure 3 - Number of women with excess weight in the postpartum period according to the number of motivational interviewing sessions in Fortaleza, Ceará, 2024.



Source: the authors

Table 2 - Characterization of the goals defined by women according to the categories in Fortaleza, Ceará, 2024 (n=78).

Categories*	n	Mean and SD of Scores		% Fulfillment of Goals		
		Motivation	Confidence	Total	Partial	Not fulfilled/Abandonment
Category 01 (Inclusion, control or increase in the frequency of consumption of one or more healthy foods/beverages)	34	9.0 ± 1.0	8.8 ± 1.1	44.1	23.5	32.4
Fruits	12	8.8 ± 1.1	8.2 ± 1.3	58.3	8.3	33.4
Vegetables and/or green vegetables	10	9.0 ± 0.9	8.7 ± 0.9	40.0	40.0	20.0
Fruits, vegetables and/or green vegetables	5	8.8 ± 1.1	9.0 ± 0.7	20.0	40.0	40.0
Unspecified healthy foods, beverages and/or preparations	5	9.4 ± 1.3	9.4 ± 0.5	40.0	20.0	40.0
Water intake	2	9.0 ± 1.4	10.0	50.0	-	50.0
Category 02 (Reduction in the quantity or frequency of consumption of one or more foods/beverages)	22	9.0 ± 1.2	8.6 ± 1.2	31.8	40.9	27.3
Sweets, cookies and/or sugars	6	9.3 ± 1.0	9.3 ± 1.0	66.7	33.3	-
Soft drinks	6	9.7 ± 0.8	8.5 ± 1.0	-	66.7	33.3
Snacks and/or fried foods	4	8.7 ± 1.2	8.5 ± 1.3	50.0	50.0	-
Carbohydrates (rice and/or bread)	5	8.2 ± 1.5	7.8 ± 1.5	20.0	20.0	60.0
Foods, beverages and/or preparations related to pathologies	1	8.0	9.0	-	100.0	-
Category 03 (Replacing one or more unhealthy foods/beverages by healthy foods/beverages)	11	8.3 ± 1.0	8.5 ± 0.9	18.2	36.4	45.4
Breakfast	6	8.8 ± 1.0	9.0 ± 0.8	16.7	50.0	33.3
Snacks	1	8.0	8.0	-	-	100.0
Dinner	4	7.5 ± 0.6	8.0 ± 0.8	25.0	25.0	50.0
Category 04 (Establishing a healthy behavior unrelated to the consumption of specific foods/beverages- health goal)	11	8.5 ± 0.7	8.6 ± 0.9	27.3	18.2	54.5
Meal times	4	8.5 ± 0.6	8.7 ± 0.9	50.0	50.0	-
Physical activity	3	8.0	8.3 ± 0.6	-	-	100.0
Family meals	2	8.5 ± 0.7	8.0 ± 1.4	50.0	-	50.0
Food diary	1	10.0	10.0	-	-	100.0
Eating mindfully	1	9.0	9.0	-	-	100.0

* The goals in category 05 (n=3) were not analyzed because they had more than one objective related to different categories, in addition to category 06 (n=9), as there was no definition of goals.

During follow-up, 18 (20.0%) goals were maintained according to the participants' choice. Of these, 6 were related to the replacement of one or more unhealthy foods/beverages by healthy ones, 4 of which were related to breakfast. Five goals were related to reducing some type of unhealthy food: 02 (sweets and sugars), 02 (soft drinks) and 01 (snacks and fried foods) and the others were related to the consumption of fruits and vegetables or some type of healthy behavior, such as regulating meal times and eating with the family.

The defined goals are mainly related to the inclusion of fruits and vegetables, followed by reducing the consumption of soft drinks and sweets and improving the breakfast meal.

The main goals were in accordance with the DGPB, as there was a greater frequency in choosing goals related to the consumption of fresh foods and greater motivation to reduce the consumption of ultraprocessed drinks, such as soft drinks (BRAZIL, 2015).

The consumption of fruits and vegetables by postpartum women has health-promoting benefits, such as reduced caloric value, diversity of nutrients, high fiber content and the presence of bioactive compounds (WALLACE *et al.*, 2020). However, research has shown that during this period there is an irregular consumption of this group of foods (DING *et al.*, 2018; DING *et al.*, 2020). In Fortaleza, Ceará, data from 2021 show that only 35% of adult women consume fruits and vegetables on five or more days of the week (BRAZIL, 2021). In a study that compared the food consumption of Spanish women during pregnancy and the postpartum period, a significantly lower consumption of fruits and vegetables was observed in the postpartum period and less educated women had a higher consumption of sweetened beverages (JARDI *et al.*, 2019).

The inclusion of fruits and vegetables in the diet depends on factors ranging from biological aspects to social, cultural and economic issues, highlighting the cost of food and family income (LEWIS *et al.*, 2023). In Brazil, there was an increase in the inclusion of fruits and vegetables in total purchases by Brazilian families when there was a decrease in price or an increase in family income (CLARO; MONTEIRO, 2010). Family support and availability also influence food choices and women often choose canned or preserved foods

because they are unable to buy fresh vegetables and fruits periodically (FARIA-SCHÜTZER *et al.*, 2020).

The present study showed that the majority of women wanted to include or improve the consumption of these foods; however, most had an income of 1 to 2 MW, which is one of the factors that may have made it difficult to include these items in their routine food choices, even though they knew about their importance and health benefits.

Despite increased motivation and a relatively high confidence score (8.5) for the goals related to reducing soft drink consumption, none of the women fully met the goal. Studies have shown that unpleasant postpartum feelings can cause a woman with obesity to acquire a psychological-eating pattern, in which food becomes a compensatory mechanism and thus, food acts as an escape valve, similar to a drug (LAMAS; CADETE, 2017). Therefore, it is necessary to better explore women's barriers and difficulties in reducing the consumption of these foods.

This finding draws attention due to the fact that soft drinks are a large source of added sugar for the Brazilian population, showing attributes such as hyperflavor, large portions and liquid calories (FIGUEIREDO *et al.*, 2018; ANDRADE *et al.*, 2021). Among postpartum Hispanic women, the habit of consuming soft drinks was associated with higher maternal weight gain in the first semester after pregnancy (ALDERETE *et al.*, 2020). On the other hand, a study that investigated the foods included and excluded in the diet by nursing mothers treated in Primary Health Care units in Fortaleza, Ceará, between 2014 and 2015, showed that the foods most often excluded from the diet were: soft drinks (25.8%) and chocolate (15.5%) (ALVES *et al.*, 2018).

Breakfast was the meal that was most frequently chosen to undergo replacement of unhealthy foods by healthy choices. According to DGPB (BRAZIL, 2015), the Brazilian individuals' breakfast is based on fresh or minimally-processed foods, with fruits and coffee served with milk being constantly present. This meal, compared to other assignments and meals, is simpler and more accessible to be carried out.

In the postpartum period, the demands of the baby and household activities lead to a reduction in maternal self-care, due to the overload of responsibilities. This condition is highlighted among women who live

in situations of low socioeconomic status (GRAHAM; UESUGI; OLSON, 2016; KEEFE; BROWNSTEIN-EVANS; POLMANTEER, 2018). These aspects may justify the fact that women did not set goals in some meetings, with demands for speeches and confusing ideas, venting about family comments and marital problems.

In this context, nutrition is not a central issue for an obese postpartum woman and improving nutrition requires more than just providing guidance (PEREIRA *et al.*, 2020; HOEDJES *et al.*, 2012). Considering the woman as the protagonist of the experience, establishing a support network and setting realistic goals are fundamental strategies for building healthy eating habits (ADAMSKI *et al.*, 2018; FARIA-SCHÜTZER *et al.*, 2020).

Some tools, such as quantifying motivation and confidence, in addition to the decision scale, which helped participants who were experiencing ambivalence, are characteristics of MI. For patients who demonstrate a lot of resistance and few arguments for change, these tools are effective in reaching a stage of change of action and improving motivation (MILLER; ROLLNICK, 2009), justifying the participants' engagement in the setting of goals, considering that few were unable to define a goal.

The achievement of goals related to self-care in weight control, healthy eating habits and physical activity practice among patients with chronic diseases is influenced by professional support (BUKSHSH *et al.*, 2020). In the present study, the establishment of goals using the MI method was in accordance with the women's reality and desires. Therefore, some goals were not related to the consumption of specific foods/beverages, such as eating in the company of others, regulating meal times and eating regularly and mindfully. Postpartum women seek health services for care not related to their weight; therefore, commitment to postpartum nutritional care is challenging due to the demands of motherhood (GRAHAM; UESUGI; OLSON, 2016; MALHOTRA *et al.*, 2022).

The study showed that one-third of the goals were not analyzed in relation to their achievement, as the participants did not return. However, evaluating the non-adherence by these women suggests the need for studies that investigate the factors involved in non-adherence, which is one of the study limitations. Some

hypotheses are: unfavorable socioeconomic scenario aggravated by the pandemic during follow-up and lack of family support (BRITO *et al.*, 2024; ZANOTTI; CAPP; WENDER, 2015).

A positive characteristic of the present study is the presentation of unprecedented data that show results on the description of goals defined by individuals monitored by MI, mainly women with excess weight in the postpartum period. The findings can guide the planning of effective strategies that prioritize changes that women say they are motivated to make. For instance, measures that promote access to fruits and vegetables can make it easier to achieve the goal of including these items in the diet. Thus, it is worth highlighting that 2021 was celebrated as the International Year of Fruits and Vegetables, a date established by the United Nations General Assembly, emphasizing several strategies that promote the consumption of these foods. As part of the activities carried out to commemorate that year, the Brazilian government published, in 2022, the document "Recommendations for increasing the consumption of fruits and vegetables" (BRAZIL, 2022). If implemented, such recommendations could have an impact on the increase in the consumption of these foods among the population. In the case of the sample of the present study, the lack of consistent public policies in this area may have possibly been an important barrier to the desired change in behavior.

CONCLUSION

In conclusion, the women showed high motivation and confidence scores regarding the changes they chose, but, for the most part, they were unable to meet the established goals. Therefore, more than an individual choice, changes in diet reflect broader social determinants, disclosing the complexity of eating behaviors and the need to implement public policies that guarantee food and nutrition security and encourage the maintenance of healthy eating habits.

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