

**Previous results of semipresential multiprofessional intervention, with an approach to a behavioral treatment in obesity****Resultados anteriores da intervenção multiprofissional semipresencial, com abordagem de tratamento comportamental na obesidade**

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**Samantha Ottani Rhein**

Nutricionista, Especialista e Mestre pela Universidade Federal de São Paulo.  
Doutoranda em Ciências na área de Nutrição pela Universidade Federal de São Paulo.  
Instituição: Universidade Federal de São Paulo - UNIFESP  
Endereço: Rua Benta Pereira, 403/ap 41 – Santa Terezinha / CEP 02451-000, SP  
E-mail:s.rhein@uol.com.br

**Paola Próspero Machado**

Graduada em Educação Física Modalidade em Saúde pela Universidade Federal de São Paulo  
Mestre em Ciências da Saúde pela Universidade Federal de São Paulo  
Doutoranda em Ciências na área de Nutrição pela Universidade Federal de São Paulo  
Instituição: Universidade Federal de São Paulo - UNIFESP  
Endereço: Rua Forte William, 87 apto 51 - Jardim fonte do Morumbi / CEP 05704-110, SP  
E-mail: paola@paolamachado.com.br

**Ana Raimunda Dâmaso**

Mestrado em Educação Física pela Universidade de São Paulo – USP. Doutorado em Nutrição pela Universidade Federal de São Paulo – UNIFESP.  
Pós-Doutorado em Pediatria pela UNIFESP.  
Professora Livre-Docente em obesidade clínica e experimental UNIVERSIDADE FEDERAL DE SÃO PAULO  
Instituição: Universidade Federal de São Paulo  
Endereço: Rua Napoleão de Barros, 865. Vila Clementino. 040.20-060  
E-mail: ana.damaso@unifesp.br

**Raquel Munhoz da Silveira Campos**

Fisioterapeuta, Doutorado em Ciências pela Universidade Federal de São Paulo.  
Instituição: Departamento de Biociências, Programa de Pós Graduação Interdisciplinar em Ciências da Saúde, Universidade Federal de São Paulo - Campus Baixada Santista.  
Endereço: Rua Silva Jardim, 136, 11015-020, Santos, SP.  
E-mail: raquelmunhoz@hotmail.com

**Michelle de Souza Lima**

Bacharel em Nutrição pela Universidade São Camilo  
Instituição: Centro Universitário São Camilo  
Rua Rossio do Carmo, 87 cep 02861-090

E-mail: michelle.slima@live.com

**Lian Tock**

Graduação em Medicina pela Santa Casa  
Especialização em Endocrinologia pela USP - Universidade de São Paulo  
Instituição: Universidade Federal de São Paulo - UNIFESP  
Rua Teodoro Sampaio, 744 conjunto 98. Pinheiros. SP. 05406-000  
E-mail: lionto@uol.com.br

**Deborah Cristina Landi Masquio**

Especialista em Obesidade, Emagrecimento e Saúde: Abordagem Multiprofissional pela UNIFESP. Pós-Graduação em Nutrição Clínica Funcional. Nutricionista formada pela Universidade Federal de São Paulo. Mestrado pelo Programa de Pós-Graduação Interdisciplinar em Ciências da Saúde da UNIFESP.  
Doutorado pelo Programa de Pós-Graduação em Nutrição da UNIFESP  
Instituição : Centro Universitário São Camilo  
Rua Haddock Lobo, 234 apto 402 cerqueira cesar. Sao Paulo- SP cep 01414-000  
E-mail: deborahmasquio@yahoo.com.br

**ABSTRACT**

**AIM:** Obesity is recognized as an important multifactorial disease and the Cognitive-Behavioural Therapy (CBT), based on reflection on conflicts with food, has been used in a way associated with interdisciplinary clinical therapies, aiming to promote greater understanding, self-efficacy and autonomy of treated individuals. In this context, the objective of this investigation was to analyse the impact of behavioural nutritional intervention using the MTT (Transtheoretical Model); associated with non-intensive interdisciplinary clinical therapy, including digital health education. **METHODS:** The research was approved by the Research Ethics Committee of University Federal of São Paulo (n ° 0242/2017). The 60 selected volunteers (BMI ~34.7Kg/m<sup>2</sup>) were conducted to an interdisciplinary lifestyle therapy, with duration of 12 weeks. This therapy included clinical, nutritional and exercise physiology approach associated to digital health education. At the beginning (week 0) and after the 12 weeks an anthropometric evaluation was performed and a biochemical profile analysis as well as evaluation of the stage of behavior change according to *Prochaska and Diclemente*. Statistical analysis was performed adopting as significant values  $p \leq 5\%$ . **RESULTS:** there was an increased degree of motivation and a reduction in the frequency of volunteers in the Relapse and Pre-Contemplation stages, as well as an increase in the number of women classified in the Action stage. The decision-categorized group had a statistically significant reduction on body weight ( $p = 0.00$ ), BMI ( $p = 0.00$ ), Neck Circumference ( $p = 0.00$ ), Waist Circumference ( $p = 0.02$ ), Abdominal Circumference ( $p = 0.03$ ), Hip Circumference ( $p = 0.02$ ) Body Fat Percentage ( $p = 0.00$ ), Total Cholesterol ( $p = 0.02$ ) and Non-HDL Cholesterol ( $p = 0.04$ ). In the Action and Maintenance group, there was a significant reduction in body weight ( $p = 0.00$ ), BMI ( $p = 0.01$ ), Neck Circumference ( $p=0.00$ ), Waist Circumference ( $p= 0.00$ ), Abdominal Circumference ( $p = 0.00$ ) and Hip Circumference ( $p = 0.00$ ). **CONCLUSION:** the semi-presential clinical approach was effective to promote improvements in the body composition, including body fat and lipid profile, as a dependent manner considering the identification of the stage of behavior change.

**Keywords:** obesity, weight loss, body weight, social network.

**RESUMO**

**OBJETIVO:** A obesidade é reconhecida como uma importante doença multifatorial e a Terapia Cognitivo-Comportamental (TCC), baseada na reflexão sobre conflitos com alimentos, tem sido utilizada de maneira associada a terapias clínicas interdisciplinares, com o objetivo de promover maior entendimento, auto-eficácia e autonomia dos indivíduos tratados. Nesse contexto, o objetivo desta investigação foi analisar o impacto da intervenção nutricional comportamental utilizando o MTT (Modelo Transteórico); associado à terapia clínica interdisciplinar não intensiva, incluindo educação digital em saúde. **MÉTODOS:** A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da Universidade Federal de São Paulo (nº 0242/2017). Os 60 voluntários selecionados (IMC ~ 34,7Kg / m<sup>2</sup>) foram conduzidos para uma terapia de estilo de vida interdisciplinar, com duração de 12 semanas. Essa terapia incluiu a abordagem clínica, nutricional e fisiológica do exercício associada à educação digital em saúde. No início (semana 0) e após as 12 semanas, foi realizada uma avaliação antropométrica e uma análise do perfil bioquímico, bem como uma avaliação do estágio de mudança de comportamento de acordo com Prochaska e Diclemente. A análise estatística foi realizada adotando como valores significativos  $p \leq 5\%$ . **RESULTADOS:** houve aumento do grau de motivação e redução da frequência de voluntárias nos estágios de Recaída e Pré-Contemplação, além de aumento no número de mulheres classificadas no estágio de Ação. redução significativa no peso corporal ( $p = 0,00$ ), IMC ( $p = 0,00$ ), circunferência do pescoço ( $p = 0,00$ ), circunferência da cintura ( $p = 0,02$ ), circunferência abdominal ( $p = 0,03$ ), circunferência do quadril ( $p = 0,02$ ) Porcentagem de gordura ( $p = 0,00$ ), colesterol total ( $p = 0,02$ ) e colesterol não HDL ( $p = 0,04$ ). No grupo Ação e Manutenção, houve uma redução significativa no peso corporal ( $p = 0,00$ ), IMC ( $p = 0,01$ ), circunferência do pescoço ( $p = 0,00$ ), circunferência da cintura ( $p = 0,00$ ), circunferência abdominal ( $p = 0,00$ ) e circunferência do quadril ( $p = 0,00$ ). **CONCLUSÃO:** a abordagem clínica semipresencial foi eficaz para promover melhorias na composição corporal, incluindo gordura corporal e perfil lipídico, de maneira dependente, considerando a identificação do estágio de mudança de comportamento.

**Palavras-chave:** obesidade, perda de peso, peso corporal, rede social

**1 INTRODUCTION**

Obesity increasingly recognized as a major pandemic and multifactorial disease. Since the discovery of leptin in 1994, knowledge about the neuroendocrine regulation of body weight has expanded and improved rapidly, forcing new directions for studies aimed at modulating hunger and satiety. Hunger, appetite and satiety are fundamental sensations in the regulation of the physiology of eating behavior, and the appetite is sensitive to stress and gustatory quality of food, that is, its palatability, and is not always translated into the physiological need of the organism, but rather to the desire to eat for satisfaction or pleasure (Alvarenga and Koritar, 2015). Individual factors, such as gender, body fat and binge eating, directly influence food perception and modulate eating behavior and physiological triggers involved in hunger, satiety, and appetite control.

Although we clearly have the neuroendocrine axis directly influencing food behavior, other factors such as dietary choices and motivation may contribute to the onset or worsening of obesity (Yu, 2015). Considering the broad spectrum of factors involved in body weight regulation, it is now understood that obesity may be related to hedonic or emotional eating. Eating can become excessive due to the interference of elements related to habits, convenience, opportunities, and social factors. Therefore, the food choice process cannot be disconnected from other aspects of life, such as past personal experiences, historical events, work, family dynamics and changes in food culture (Marinilli Pinto et al., 2008; Kraschnewskiet al., 2010; Maclean et al 2011).

In the conventional treatment of obesity, the aim is to increase the energy expenditure associated with the hypocaloric diet, aiming at improving body composition. Dietary management for the treatment of obesity, in most cases, prioritizes the prescriptive diet, in which there is a restriction of sugar, fat and salt (WHO, 2017).

Behavioral Cognitive Therapy (CBT) has been shown to be a positive strategy in assisting individuals with obesity, since it addresses educational aspects and promotes reflection of existing conflicts with food, identifies and assists in the treatment of behavioral disorders, surgical intervention, in addition to increasing patient adherence to treatment. The Trans-theoretical Model (MTT) is an instrument that composes this approach and is characterized by an integrative and biopsychosocial model that conceptualizes the process of intention to change. Considering that other models of behavioral change focus exclusively on one of the dimensions of change (socially or biologically only), MTT continues to include a view that contemplates a variety of behaviors; it is composed of 5 stages of change, with very different objectives and characteristics, and that at any moment the individual can suffer a "relapse", and return at some stage of the model. The motivational factor plays an important role in the adherence of obese patients to the interventions, so strategies for this purpose should be frequently used and encouraged (DiClemente et al., 1991).

Considering the increase in technological inclusion nowadays, electronic media can help in the treatment of obesity and the weight loss process, within the scope of attractiveness and appropriate language generated by the constant online support to patients. Through the implementation of some strategies based on accessible electronic means and attractive to the public, it is aimed at obtaining greater accessibility between professionals and patients, the opportunity to control variables that would only be possible through face-to-face meetings, mainly related to the context of physical exercise and of nutrition. In addition, in the process of

health education, electronic media are characterized as an educational tool, of support, of feedback to professionals, and of coverage of a larger part of the population, with lower operating costs for public and private health promotion agencies and for the individual.

The objective of this study was to verify the efficacy of a semi-presential clinical therapy, with digital resources, for the complementary treatment of obesity on the anthropometric and biochemical indicators, according to the behavioral stages of Thanstheoretical Model.

## **2 MATERIALS AND METHODS**

This work was previously approved by the Ethics and Research Committee of the Federal University of São Paulo (n° 0242/2017) and all the volunteers signed the Informed Consent Term (TCLE).

After the sample calculation (G \* Power 3.1.7, Germany), 68 adult women were selected, recruited through ads published in the measurement; of these, 60 were adequate to the inclusion criteria and at the end of the study we counted on the presence of 41 women. The volunteers lived in or near the city of São Paulo, so that they could attend on the days of evaluations and clinical approach.

As inclusion criterion, we adopted age range between 30 and 45 years, Body Mass Index (BMI) above 30 kg / m<sup>2</sup>, fulfilling the inclusion criteria for the obesity profile according to the World Health Organization,(2000). Women who had heart disease, musculoskeletal deformities, diseases related to the immune system, genetic, metabolic, or endocrine diseases, identified by the physician or those undergoing bariatric surgery were not included in the study.

### **2.1 EXPERIMENTAL PROTOCOL**

Sixty volunteers were submitted to a model of half-life intervention for changes in lifestyle, with duration of 12 weeks. This model has included face-to-face meetings for evaluations and lectures, as well as the application of digital health education. During the treatment, the volunteers were supported and have received individual and group orientations, through face-to-face meetings, that occurred in the 1st, 6th, and 12th week. In these sessions an anthropometric and biochemical evaluation were performed, as well an evaluation of the level of behavior change.

Body mass and height measurements were performed using a Filizola® mechanical anthropometric scale, with a capacity of 150 kg and sensitivity of 100 g, and a Sanny® brand

stadiometer, with a precision scale of 0.1 cm. The BMI was then calculated by dividing the body mass (Kg) by the height squared (m). Measurements of waist circumference, hip and neck were obtained using an inelastic tape measure, as recommended by Roche (1991). The body composition, energy expenditure of rest and hydration were measured through the four-pole electric bioimpedance (Biodynamics 310e, TBW).

## 2.2 BLOOD ANALYZES

Blood samples were collected through a peripheral puncture of the forearm vein after a 12-hour overnight fast. Plasma was separated and concentrations of glucose, insulin and lipid profile dosed immediately after collection. The values were analyzed according to the V Brazilian Guideline on Dyslipidemias and Prevention of Atherosclerosis (2013) and Guidelines for Brazilian Society of Diabetes (2015; 2016).

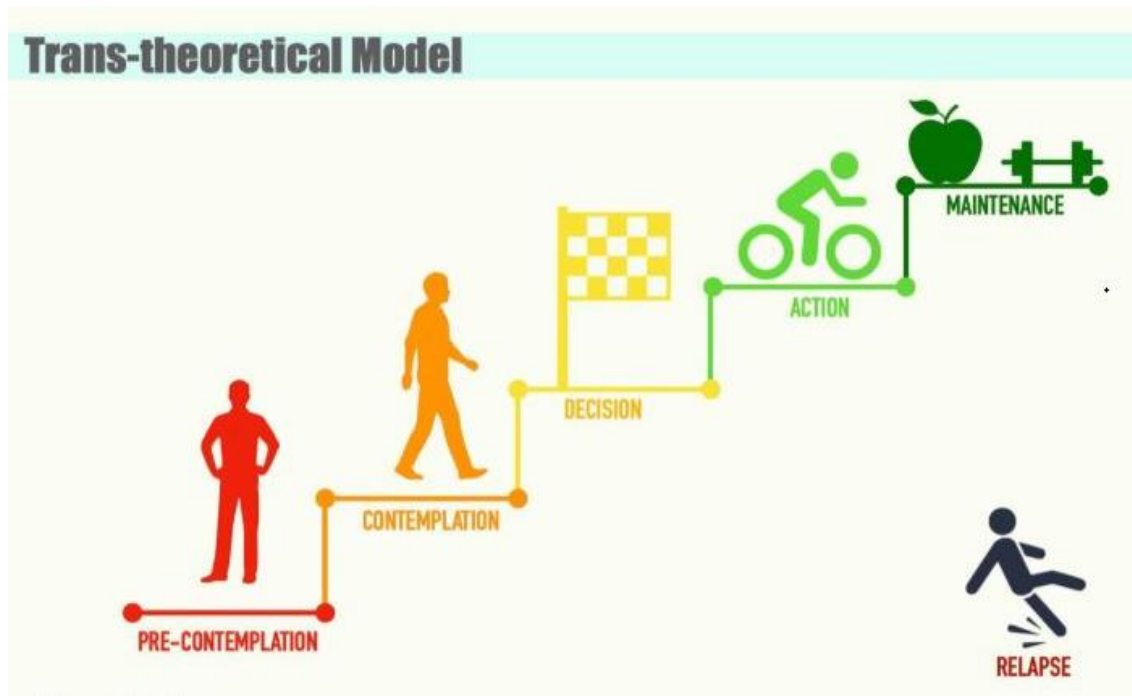
## 2.3 BEHAVIOR CHANGE STAGE

In order to estimate the stage of change, the questionnaire "Food habit research", based on the principles of the Transtheoretical Model (MTT) proposed by Ling and Horwath (2000) was applied, composed of 6 questions that lead the volunteer to one of the 5 categories of change stages (Figure 1 and Table 1), so that each category leads to a type of approach in clinical practice.

Table 1. Description of the therapeutic actions, by stage of MTT.

<b>MOVING STATIONS</b>	<b>THERAPIST MOTIVATIONAL TASKS</b>
Pre-Contemplation	Increase the patient's perception of the risks and problems of current behavior.
Contemplation	Evoking the reasons for the changes, the risks of not changing, strengthen the patient's self-sufficiency to change the current behavior.
Decision or Preparation	Help the patient determine the best course of action to be followed in the quest for change.
Action	Helping the patient lead the changes.
Maintenance	Help the patient identify and use strategies to prevent relapse.
Relapse	To help the patient to renew the processes of contemplation, preparation, and action, without being immobilized or demoralized by relapse.

Figure 1. Stages of MTT.



## 2.4 CLINICAL APPROACH

Clinical therapy was conducted in the 1<sup>st</sup> and 12<sup>th</sup> week through individual sessions with the endocrinologist. The volunteers, who have presented some type of metabolic alteration, were reevaluated, and followed in order to control the metabolic alterations detected, mainly diabetes, insulin resistance and dyslipidemia.

The dietary guidelines were made available through explanatory texts and videos with topics related to healthy and balanced eating. In addition, after a face-to-face nutritional assessment, we provide a food planning designed based on the patient's basal metabolic rate (BMR), divided into diets of up to 1400 kcal, from 1400 to 1700 kcal and above 1700 kcal.

The nutritional approach was focused on the behavioral analysis of the diet, addressing the relationship between the individual and the food, as well as the accomplishment of pertinent dietary guidelines, focused on the principles of caloric reduction to achieve weight reduction established as a goal of 0,5 to 2.0 kg per week, macronutrient balance, diet fractionation, glycemic load concept and glycemic index. Moreover, sessions in groups with a duration of 60 minutes, to approach subjects in nutrition and physical activity (Figure 2).

Figure 2. Thematic about nutrition and physical exercise addressed in the clinical approach

<b>NUTRITIONAL THEME</b>
Meeting 1 – Knowing the principles of a conscious diet
Meeting 2 – Differences between hunger and satiety and understanding the importance of these sensations in the control of body weight
Meeting 3 – Phases of weight loss, characteristics, and fundamentals
Meeting 4 – Food Behavior and Nutrition
Meeting 5 – Guidelines for continuous weight loss and achieving weight maintenance
<b>THEME PHYSICAL EXERCISE</b>
Meeting 1 – Awareness of the training and practice of exercise in the park
Meeting 2 – Finding identify in exercise and practicing exercise in the park
Meeting 3 – Practice: recreational walking and running techniques
Meeting 4 – The importance of setting goals
Meeting 5 - Closing with recreational physical activity

## 2.5 EDUCATION IN DIGITAL HEALTH

The online intervention was based on the use of the digital platform (#12Semanas®), and videos were made available on topics related to the importance of healthy and balanced nutrition and exercise as a weight reduction component of explanatory texts on the themes. Digital media (chat, WhatsApp® and Facebook groups) were also used to interact and increase the motivation of volunteers to join lifestyle changes through daily conversations with Physical Education and Nutrition professionals. In addition, the volunteers had to fill out a weekly form on the platform for practitioners to observe how they were going and to promote interactions.

## 2.6 STATISTICAL ANALYSIS

Statistical analysis was performed using the STATISTICA® software version 7.0 for Windows; the significant value adopted was  $\alpha \leq 5\%$ . The normality of the data was verified by the Shapiro Wilk test. Parametric data were expressed as mean  $\pm$  SD, and non-parametric data were expressed as Z-scores. To analyze the effects of the intervention, Student's t-test was applied. Correlation analysis was performed by the Pearson test. Delta values ( $\Delta$ ) were obtained from the calculation:  $\Delta = \text{final value after intervention} - \text{baseline value}$ .



**3 RESULTS**

The average age of the volunteers was  $31 \pm 6$  years and all participants contemplated the inclusion criteria for the obesity profile according to the World Health Organization (WHO). Table 1 shows the distribution of the volunteers according to the stages of the Transtheoric Model before and after the 12 weeks of intervention. It was observed that at the beginning of the intervention the volunteers presented different degrees of motivation (Relapse, Pre-Contemplation, Contemplation, Decision, Action and Maintenance). After the intervention, there was an increased degree of motivation, so that at the end of the study, it was possible to observe a reduction in the frequency of volunteers in the Relapse and Pre-Contemplation stages, as well as an increase in the number of women classified in the Action stage.

MTT STAGE	BASELINE	FINALLY
	N / %	N / %
Pré Contemplation	3	1
Contemplation	1	0
Decision	21	0
Action	30	37
Maintenance	1	1
Relapse	4	2
Total	60	41

Table 1. Distribution of the volunteers, according to MTT stages, at baseline and at the end of the study.

Regarding the effects of therapy, the parameters of body composition, anthropometry and metabolic profile will be presented according to the stages of behavior change grouped according to similarity (Table 2 and Table 3). In the group categorized as relapse and pre-contemplation, a significant reduction was observed in body weight ( $p = 0.01$ ), BMI ( $p = 0.01$ ), Neck Circumference ( $p = 0.03$ ), and Percent of Body Fat ( $0.02$ ). Waist circumference presented a significant increase ( $p = 0.05$ ).

The group categorized as contemplation had, at baseline, only one volunteer, who at the end of the study was incorporated into the decision group, and their data are described in it.

The decision-categorized group had a statistically significant result on body weight ( $p = 0.00$ ), BMI ( $p = 0.00$ ), Neck Circumference ( $p = 0.00$ ), Waist Circumference ( $p = 0.02$ ),

Abdominal Circumference ( $p = 0.03$ ), Hip Circumference ( $p = 0.02$ ) Body Fat Percentage ( $p = 0.00$ ), Total Cholesterol ( $p = 0.02$ ) and Non-HDL Cholesterol ( $p = 0.04$ ).

In the action and maintenance group, there was a significant reduction in body weight ( $p = 0.00$ ), BMI ( $p = 0.01$ ), Neck Circumference ( $p = 0.00$ ), Waist Circumference ( $p = 0, 00$ ), Abdominal Circumference ( $p = 0.00$ ) and Hip Circumference ( $p = 0.00$ ). Results clinically like the previous group were observed at the end of the intervention.

During the evaluation of the results, focusing the gaps ( $\Delta$ ) of the anthropometric variables between the groups, considerable weight loss is observed in the G1 group, however, central fat measures directly associated with cardiometabolic risks showed a significant reduction in groups G2 and G3. In these same groups (G2 / G3) there was also a reduction in the values of total cholesterol, LDL-Col.

VARIABLES	RELAPSE AND PRÉ CONTEMPLATION G1			VARIABLES	DECISION G2			VARIABLE	ACTION AND MAINTENANCE G3		
	Baseline	Finally	$\Delta$		Baseline	Finally	$\Delta$		Baseline	Finally	$\Delta$
Weight (Kg)	89.3	80.3	-9	Weight (Kg)	95.3	91.3	-4	Weight (Kg)	85.4	81.5	-3.9
BMI (Kg/m <sup>2</sup> )	31.8	29.2	-2.6	BMI (Kg/m <sup>2</sup> )	35.6	34.1	-1.49	BMI (Kg/m <sup>2</sup> )	32.6	32.6	0
Circ.Neck (cm)	37	35.5	-1.5	-Circ.Neck (cm)	36.5	35.8	-0.7	Circ.Neck (cm)	35.5	34.6	-0.9
Circ.Waist (cm)	94.5	99.5	5	Circ.Waist (cm)	97.3	94.1	-3.2	Circ.Waist (cm)	91.7	89.1	-2.6
Circ.Abdominal (cm)	107.7	111.5	3.8	Circ.Abdominal (cm)	111.6	107.6	-4	Circ.Abdominal (cm)	105.1	102.3	-2.8
Circ.Hip (cm)	116.2	113.2	-3	Circ.Hip (cm)	123.1	121.2	-1.9	Circ.Hip (cm)	118.4	116.2	-2.2

Table 2. Values of the variables with significant results ( $p < 0.05$ ), observed in the groups categorized from the Transtheoric Model, at the basal and final moments of the study.

VARIABLE	RELAPSE E PRE-CONTEMPLATION G1			DECISION G2			ACTION E MAINTENANCE G3		
	Baseline	Finally	p	Baseline	Finally	p	Baseline	Finally	p
Weight (kg)	89.3	80.3	0.01	95.3	91.3	0	85.4	81.5	0
BMI (Kg/m <sup>2</sup> )	31.8	29.2	0.01	35.6	34.11	0	32.6	32.6	0
Circ. Neck (cm)	37	35.5	0.03	36.5	35.8	0	35.5	34.6	0
Circ. Waist (cm)	94.5	99.5	0.05	97.3	94.1	0.02	91.7	89.1	0
Circ. Abdominal (cm)	107.7	111.5	0.13	111.6	107.6	0.03	105.1	102.3	0
Circ. Hip (cm)	116.2	113.2	0.17	123.1	121.2	0.02	118.4	116.2	0
CHR	0.83	0.84	0.76	0.79	0.77	0.26	0.77	0.77	0.1
%GC	36.9	34.4	0.02	38.6	36.4	0	36.3	35.2	0.27
%MM	52.2	48.6	0.09	59.4	58.3	0.1	55.5	54.4	0.2
TMB (Kcal)	1800	1717	0.22	1800	1773	0.07	1688	1665	0.35
Blood Glucose (g/dL)	94.5	93.5	0.4	97.5	102.5	0.2	93.4	95.3	0.55
Total Cholesterol (g/dL)	207	200.5	0.36	199.7	181.4	0.02	194.1	190.4	0.39
HDL	53.5	46	0.18	54.2	50.5	0.09	56.6	53.3	0.03
N HDL	162.5	155	0.76	131.5	131.5	0.04	138	137.7	0.8
LDL	133.5	134.5	0.95	118.8	107.3	0.09	115.1	114.1	0.8
VLDL - Col	23	20	0.13	27.5	24.0	0.39	22.96	22.96	1
Triacylglycerol	113.5	111.5	0.17	132.6	117.9	0.38	115.1	115.2	0.98
Insulin	8.8	9.8	0.6	12.5	11.8	0.54	10.6	10.4	0.88

\*  $p < 0.05$

Table 3. Variables of the study grouped according to the Stages of Transtheoric Model.

#### 4 DISCUSSION

One of the main challenges during treatment for obese individuals is adherence to treatment. Thus, the focus on the recognition of the motivation level of the volunteers throughout the process was a strategy used in this study to evaluate the potential adhesion and obtain more expressive results. This variable was evaluated from the weekly results reported through the weight measured at each week participation in social networks and interaction with the team. When it was perceived a fall or insufficient result in one of these variables, this volunteer was called individually, met in their needs, and motivated to continue within the determined guidelines.

During the intervention, patients were encouraged to seek self-knowledge, always encouraged to recognize solutions to their difficulties and actions, with less guilt and greater self-reflection and self-efficacy; since the guidelines suggested in the program should not be restricted to eating and practicing physical exercises, but rather to the whole constellation of meanings related to eating, body and living, as understood by Bueno et al. (2011).

Thus, approaches using CBT have shown a tendency for positive and promising results, since overweight may act as an etiological factor for eating behavior disorders, and this condition is reinforced by unconventional diets for weight loss (fad diets), which restrict calorie intake drastically as well as food groups.

Therapeutic processes using MTT as a reference, focused on the acquisition of new habits and weight loss, can be used in association with traditional dietary interventions, presenting positive results in a minimum period of 12 weeks. Other studies analyzed the association of this model with the practice of physical activity, diet and other interventions based on stress maintenance and individualized feedback, compared with conventional therapy, and the first one showed positively significant results regarding weight loss.

When analyzing the data of the study, it was possible to observe results of greater impact in the stage of the Decision or Preparation, at which time the individual recognizes his need of change and looks for alternatives to realize it. The second-best grouping of data was identified in the action and maintenance group, being the Relapse or Pre contemplation group the one with results of less statistical relevance.

Regarding the cardiometabolic results, it was possible to observe significant results related to the circumference measurements of the abdomen and hip, which did not occur in the pre contemplation and contemplation group. Regarding the waist circumference measurement, only G1 showed no reduction in this measure, while the other groups had a

mean reduction around 2.5 cm after 12 weeks of intervention. The reduction in central adiposity is directly related to a reduction in cardiovascular risk, and a lower incidence of peripheral resistance to insulin. Although not statistically significant, there was a greater reduction of MM in the G1 group, which may be justified by a lower adherence to physical exercises and diet without dietary restrictions. The decision group (G2) presented a more significant reduction in total cholesterol and triacylglycerol rates, resulting in a reduction in cardiovascular risk.

In addition, it is important to emphasize that the interdisciplinary intervention promotes an integral view of the patient, allowing clinical and behavioral improvement, as well as the reduction of associated risk factors. This study supports the hypothesis that the blended intervention, combined with conventional nutritional therapy, allows for an improvement in the relationship with diet and diet, as well as enable weight loss of more than 5%, which is directly linked with clinical and metabolic improvements, reducing risks and improved quality of life.

As a limitation of the study, we can cite the number of volunteers, being this a factor of compromise in the impact of the data, from the statistical point of view of the data. Thus, further studies that elucidate the relationship between the stage of change and response to therapy are suggested. As a future action, we identified the need for greater exploration and application of the subject in question, specifically in individuals with obesity, in order to potentiate the clinical results and consolidate the changes obtained after the intervention.

## **5 CONCLUSION**

In this study, was showed that the semi-presential clinical approach was effective to promote improvements in the body composition, including body fat; and lipid profile, as a dependent manner considering the identification of the stage of behavior change.

## **SPECIAL THANKS**

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**APPROVAL OF THE COMMITTEE OF ETHICS**

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and / or national research committee and with the 1964 Helsinki Declaration and its subsequent amendments or comparable ethical standards.

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