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PERFORMANCE OF HEALTH PROFESSIONALS IN MINISTERIAL TRAINING COURSE ON OBESITY MANAGEMENT

DESEMPENHO DE PROFISSIONAIS DA SAÚDE EM CURSO DE FORMAÇÃO MINISTERIAL SOBRE MANEJO DA OBESIDADE

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ABSTRACT: **Aim**: The study aimed to evaluate the performance of health professionals in training on obesity management. This is a cross-sectional and analytical study. Sociodemographic and occupational data were collected and evaluated with a three-question Likert instrument. The scores were compared using the Student's t-test and ANOVA. Cronbach's alpha evaluated reliability. **Results**: Of the 59 who completed the course, most were women and almost a third of these were nutritionists, aged between 22 and 39 years old and with specialization. The performance in the modules was predominantly satisfactory, except for "Response based on literature beyond the course". The most complex module addressed Nutrition and Health Care Networks. The analysis of the modules was highly reliable. There was a significant association between level of education and the response variables, with higher averages obtained by MSc and PhD. **Conclusions**: The results suggest that the integration of the multiprofessional team needs to be improved, and the debate with the literature shows its effectiveness.

KEYWORDS: Professional Training. Continuing Education. Obesity.

RESUMO: **Objetivo**: Objetivou avaliar o desempenho de profissionais da saúde em curso de formação sobre manejo da obesidade. **Metodologia**: Trata-se de um estudo transversal e analítico. Foram coletados dados sociodemográficos e profissiográficos e avaliados com um instrumento de três perguntas *Likert*. Os escores foram comparados usando o teste t de *Student* e ANOVA. O alfa de *Cronbach* avaliou a confiabilidade. **Resultados**: Dos 59 que concluíram o curso, a maioria eram mulheres e quase um terço destas, nutricionistas, com idades entre 22 e 39 anos e com especialização. O desempenho nos módulos foi predominantemente satisfatório, exceto pela "Resposta baseada na literatura além do curso". O módulo de maior complexidade abordou sobre Nutrição e Redes de Atenção à Saúde. A análise dos módulos foi altamente confiável. Houve associação significativa entre nível de escolaridade e as variáveis respostas, sendo que mestres e doutores obtiveram maiores médias. **Conclusões:** Os resultados sugerem que a integração da equipe multiprofissional precisa melhorar, e o debate com a literatura mostra sua eficácia.

PALAVRAS-CHAVE: Capacitação Profissional. Educação Continuada. Obesidade.

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INTRODUCTION

Obesity is a disease characterized by excessive accumulation of adipose tissue, considered a multifactorial phenomenon influenced by biological, cultural, social and economic factors[1]. Its study and the impact on population health has been a central concern of the scientific community, historically associated with obstetric, musculoskeletal, endocrinological and cardiovascular diseases[2]. The modern understanding of obesity has evolved significantly since 1990, when it began to be interpreted as a chronic inflammatory condition, triggering the investigation of mechanisms that lead to systemic alterations[1].

By 2025, 2.3 billion adults around the world shall be overweight, with 700 million individuals being obese. According to the Pan American Health Organization (PAHO), obesity has quadrupled among children and adolescents (5-19 years old) since 1990. The data also show that 43% of adults were overweight by 2022[3]. The context of the COVID-19 pandemic exacerbated this scenario, which led to a significant increase in obesity due to decreased physical activity and the impacts on mental health caused by social isolation[4].

In Brazil, the situation is worsening, with more than half of the adult population being overweight and about 17% of men and 24% of women affected by obesity[5]. The condition is also aggravated among children, with approximately 20% of them being overweight or obese[6]. The Midwest region has a prevalence of 10.91% individuals in this age group with severe obesity, assisted by Primary Health Care (PHC) services.

In this context, obesity not only affects individual health but also has a financial impact on health systems. In Brazil, the costs associated with cardiovascular diseases that are closely related to obesity increased by about 17% between 2010 and 2015, totaling R$37.1 billion, which include direct costs, premature death and loss of productivity[7]. Substantially addressing this situation requires a comprehensive approach, involving institutions, governments and partnerships to improve health policies, promote healthy lifestyles and make health services more accessible and effective[8].

Obesity also has a direct relationship with the global syndemia, which consists of evidence that obesity, malnutrition and climate change interact in order to transform food systems and environments, which are related to the growth of consumption of ultraprocessed foods along with hunger[9].

The national strategies adopted in Brazil, coordinated by the Ministry of Health (MH), reflect international trends and recognize the relevance of the environment and its economic, social, political and cultural variables in the process of obesity[10]. Among the initiatives implemented, the National Policy on Food and Nutrition (PNAN - *Política Nacional de Alimentação e Nutrição*) and Permanent Health Education (EPS - *Educação Permanente em Saúde*) are essential elements in the management of obesity, providing tools for the training of health professionals and constantly promoting practices based on scientific evidence[8].

Historically, professional training in health has been limited to specific and decontextualized trainings, carried out in a rigid and traditional way, which perpetuates the individualization of knowledge in the work environment[11]. One necessary approach to health care for people with obesity is through the health education practices in the UHS, provided by the National Policy of Permanent Health Education (PNEPS - *Política Nacional de Educação Permanente em Saúde*) and the guidelines and principles of the National Health Promotion Policy (PNPS - *Política Nacional de Promoção da Saúde*). These practices have the potential to qualify work in BC, promoting health and improving care and self-care also of health professionals[12].

Thus, EPS is an innovative and comprehensive approach that empowers health professionals through a variety of methods, such as face-to-face and online courses, “workshops and simulations” in

order to update the skills and competencies of professionals. Encouraging critical reflection and the remodeling of health practices, with a view to adapting them to the needs of services and the cultural and social diversities experienced[13]. Evaluating and monitoring health services are essential for their continuous improvement, ensuring quality, safety for users and compliance with the actions performed[11].

Around the world, courses and training can be observed with a view to health education, as seen in the International Course on Obesity (CIOB - *Curso Internacional de Obesidade*) offered by the Brazilian Association of Clinical Nutrition (ABRAN) and the Strategic Centre for Obesity Professional Education (SCOPE), which prepares health care professionals with the skills to provide the best possible support to patients with obesity[14].

Therefore, the primary focus of this approach is to improve the practice of health professionals, with a view to ensuring patient safety, preventing errors, adopting evidence-based practices and fostering innovation in health procedures. In addition, it helps to train people to deal with complex and emerging situations, in order to strengthen the health system as a whole[15]. Developed as an alternative to the hospital-centered teaching model, the uniqueness of EPS is in critical integration with reality, focusing on activities seeking continuous updating of health professionals[16,17].

In the context of health professionals of the Unified Health System (UHS), EPS should be integrated into the process of thinking, reflection and action of workers, in order to provide both personal and professional development. This aims to stimulate the creation of new methods of work organization by analyzing and questioning the daily reality of the service[18]. At the same time, strategies such as EPS have played a crucial role in training professionals to deal with obesity[19].

Health promotion is suggested as an appropriate and continuous path in the context of Primary Health Care (PHC) actions aimed at stimulating healthy eating habits and physical activities that are essential in reducing obesity and public health expenditure. However, these actions are often permeated by challenges, many of which involve management within the scope of intersectoral coordination.[20].

The EPS has been pointed out as an essential tool for the production of changes in practices in the logic of health care and organization of work processes, which contributes to the coping of workers' feelings of insecurity, who often feel unqualified in the face of obesity management[21,22].

In order to contribute with the national institutions and bodies for future actions in this type of strategy, the performance of health professionals in relation to a training on the management of obesity is investigated. Moreover, the present study aims to describe the sociodemographic and occupational profile of these professionals and associate the variables of these profiles, in order to make clarify how relevant EPS is for the management of obesity in view of the annual growth of the disease and its possible consequences.

Given the complexity of health services, the effective implementation of EPS strategies can improve management planning, especially when aligned with the realities experienced by the involved[11]. Therefore, the objective of this study was to evaluate the performance of health professionals in a course on the management of obesity in Primary Health Care (PHC).

METHODOLOGY

This is a cross-sectional study from a cut of the matrix project entitled “Actions to combat and control obesity in the scope of the UHS in the State of Goiás”, funded by the National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*), process n. 439710/2018-9, with support from the MH (Public Call CNPq/MS/SAS/DAB/CGAN number 26/2018). This work did not apply an informed consent form.

For the training of health workers, a course for the management of obesity was offered in the Distance Learning (DL) mode by Moodle platform with a course workload of 182 hours, The study was conducted in a total of 62h theoretical and 120h practical sessions for 429 registered PHC professionals from 76 municipalities in Goiás, randomly selected among the five health regions of the state (Figure 1). In order for the student to have his/her activities evaluated by the data collection instrument, as inclusion criterion, it was necessary that he/she fulfilled at least 75% of the evaluation activities.

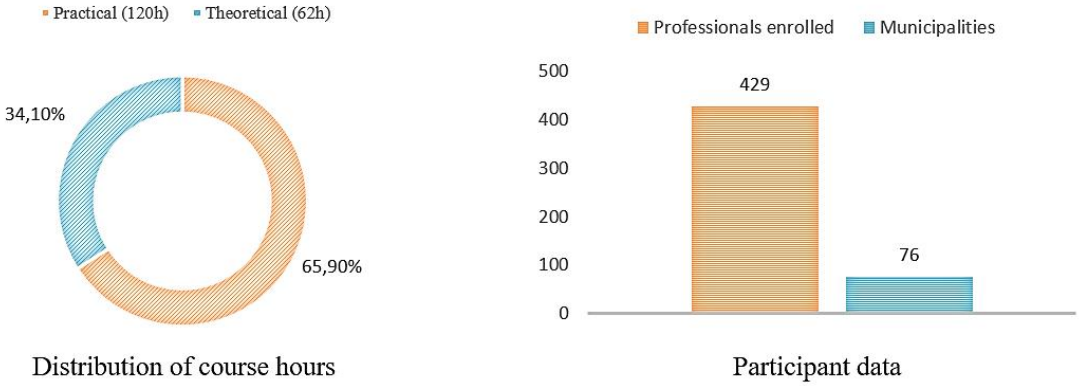

Figure 1. Distribution of course workload and participant data.

The structure of the course was based on six theoretical modules, namely: Epidemiology of obesity; Actions of food and nutrition and Health Care Networks; Food systems and the human right to adequate and healthy food; Promotion of adequate and healthy food; Collective, innovative, participatory and effective actions in the UHS; and Behavioral nutrition, physical practices and physical activities and integrative and complementary practices in Primary Care (Chart 1). In the course of the modules, the student was prompted to perform 14 evaluative activities.

MODULE 1: Epidemiology of obesity
Part 1: Epidemiology of obesity Part 2: Introduction to the social determinants of obesity Part 3: Health information systems in the context of PNAN and diagnosis of obesity Part 4: Considerations on the territory
MODULE 2: Actions of food and nutrition and Health Care Networks
Part 1 and 2: Getting to know PNAN Part 3: Understanding Health Care Networks Part 4: Obesity Care Line
MODULE 3: Food systems and the human right to adequate and healthy food
Part 1: Human Right to Adequate and Healthy Food Part 2: Food Sovereignty Part 3: Food environment; economic and trade determinants; eating behavior
MODULE 4: Promotion of adequate and healthy food
Part 1: Adequate and Healthy Diet; Food Guide for the Brazilian Population Part 2: PNAN and Pathways to Promoting Adequate and Healthy Diet (PAHD) Part 3: Food and Nutrition Education
MODULE 5: Collective, innovative, participatory and effective actions in the UHS
Part 1: Collective, innovative and effective actions Part 2: Fundamentals of participatory approaches Part 3: Collective actions in Primary Health Care
MODULE 6: Behavioral nutrition, physical practices and physical activities and integrative and complementary practices in Primary Care
PART 1: BEHAVIORAL NUTRITION - ASSESSMENT AND BEHAVIOR CHANGE IN THE FIGHT AGAINST OBESITY PART 2: BODY PRACTICES AND PHYSICAL ACTIVITIES IN PRIMARY HEALTH CARE PART 3: INTEGRATIVE AND COMPLEMENTARY PRACTICES
MODULE 7: Action plan

Chart 1. Contents offered by the training course for health professionals

Of the 429 professionals enrolled, those who completed the course with a minimum delivery of 75% of the evaluation activities were included, making up a total of 78 health professionals. Due to a divergence of evaluation activities and change in the course format in room 10, 19 students were excluded in order to protect the reliability of the research. Thus, the sample of this study was non-probabilistic and for convenience totaling 59 professionals.

Data collection was carried out in two stages. The first was the collection of sociodemographic and psychographic data of participants. And the second, the evaluation of activities through an adapted instrument, composed of three questions in the format of Likert scale, which ranged from zero (those who did not answer) to five (professionals who best expressed the answers).

The data collection instrument for performance analysis was adapted by the researcher based on the model of the proposal "Human Resources Training in Health: Information and communication technologies as a didactic resource in the FAIMER Brazil program (Foundation for Advancement of International Medical Education and Research - Brazil)" [13]. The instrument contained three questions that were measured by a Likert scale ranging from zero to five, with the "zero" note for the activity that was not answered and the "five" note to the one who could express the best understanding of the activity. The evaluation was carried out from a careful reading of the modules and based on the key answers built for each evaluative activity. The guiding questions were: "Did the student participate in the discussion in a relevant way keeping relation with the theme?"; Did the student conduct the discussion based on the literature offered by the course?"; "Did the student discuss literature beyond that offered by the course?".

The sociodemographic variables were age, level of education, municipality and profession and the occupational variables were training time, years working in PHC, performance in the HCN. In relation to the second stage, variables were considered in relation to the (Answer according to the topic, answer based on the course literature and answer based on the literature beyond the course).

The data were analyzed with the help of the Statistical Package for the Social Sciences (SPSS), (IBM Corporation, Armonk, USA) version 26.0. The significance level adopted was 5% ($p < 0.05$). The normality of the distribution was verified by the Kolmogorov-Smirnov test. For the variables of the evaluative activities, an arithmetic mean of the six modules was carried out, which generated a score (varying from 0 to 5). The evaluation criteria of the score were: from 0 to 2.99 - not satisfactory and from 3.0 to 5.0 - satisfactory. The comparison of these scores was made by means of Student's t-test and Analysis of Variance (ANOVA). The verification of reliability included an analysis with alpha of Cronbach this tool is one of the most important statistically and widespread in research involving the construction of tests and its application, so that it provides a reasonable measure of reliability in a single test.

After the variables of sociodemographic and occupational profiles were presented by means of absolute and relative frequency, and for continuous variables, averages and standard deviation were used.

This project respected the principles laid down in Resolution 466/2012 of the National Health Council of research involving human beings. It was approved by the Research Ethics Committee under opinion n. 3753251.

RESULTS

The survey included 59 health professionals from PHC who completed the training course on obesity management, representing 13.75% of the total number of registered professionals. When analyzing the sociodemographic profile, most of them were female (93.2%), with a predominant age

group from 22 to 39 years old (62.7%) and with specialization (52.5%). A third of the surveyed students worked in Midwestern Goiás (32.2%) (Table 1).

When describing the professional profile, it was found that most health professionals had up to 10 years of training (54.2%), they worked in PHC in a period of at least 1 to 5 years (39.0%), working in the Expanded Family Health Center (EFHC) (39.0%) and most of the graduates reported not being the first experience in the DL modality (84.7%) (Table 1).

Table 1. Characterization of the demographic and professional profile of the sample. Goiânia, GO, Brazil, 2023. (N=59).

	N	%
Sex		
Male	4	6.8
Female	55	93.2
Age group		
22 - 29 years	16	27.1
30 - 39 years	21	35.6
40 - 49 years	16	27.1
41 or more	6	10.2
Education		
High School	5	8.5
Higher Education	21	35.6
Higher Education with Specialization (lato and/or stricto sensu)	33	55.9
Municipalities divided by Health region		
Southwest	10	16.9
Southeast	13	22.0
Northeast	17	28.8
Midwest	19	32.2
Profession		
Nursing technician	3	5.1
Physiotherapist	5	8.5
Physical Education Professional	5	8.5
Community health agent	6	10.2
Nurse	11	18.6
Nutritionist	16	27.1
Others	13	22.0
Years of training		
Up to 10 years	32	54.2
11 or more	27	45.8
Years working in PHC		
< 1 year	9	15.3
1 - 5 years	23	39.0
5 - 10 years	9	15.3
Over 10 years	18	30.5
Work in the Health Care Network		
Outpatient Care	3	5.1
Health District	2	3.4
FHS*	20	33.9
EFHC**	23	39.0
Food and Nutrition Programs	2	3.4
Health Academy Program	3	5.1
Other locations in the Health Care Network***	6	10.1
Have you already experienced distance learning?		
No	9	15.3
Yes	50	84.7

*Family Health Strategy.
**Expanded Family Health Center.
***(Integrated Health Care Center, Psychosocial Care Center, Specialized Rehabilitation Center, Home Care Service, Municipal Department of Education and Primary Care Coordination).

Source: Direct research, 2023.

Table 2 presents data describing the performance of health professionals during the training offered. It was observed that the performance in the course modules was satisfactory, with the exception of the evaluation item "Answer based on literature beyond the course". There was high reliability of the analysis of modules, through the Cronbach's alpha test ($0.75 < \alpha\ 1 \leq 0.90$).

Table 2. Descriptive statistics of the performance analysis of participants in the training on obesity management and Cronbach's alpha of the questionnaire items. Goiânia, GO, Brazil, 2023. (N=59).

	Mean	Standard deviation	Median	Minimum	Maximum	Cronbach's alpha
Answer according to the theme	3.67	0.75	3.71	2.00	5.00	0.87
Answer based on the course literature	3.45	0.80	3.36	1.79	5.00	0.82
Answer based on literature beyond the course	1.72	0.65	1.57	0.86	3.86	0.87

Source: direct research, 2023.

Table 3 discusses the comparison of performance means according to the evaluation criteria of the data collection instrument. In relation to "Answer according to the theme", the highest mean occurred in module three, which dealt with Food Systems and Human Right to Adequate and Healthy Food (3.96 ± 1.07). Regarding the "Answer based on the course literature", module five presented the highest mean (4.13 ± 0.89), presenting the theme Collective, Innovative, Participatory and Effective Actions in the UHS, demonstrating items of literature offered in the writing of the answers.

The item "*Answer based on literature beyond the course*" presented the lowest averages in all modules. It is noteworthy that the module six that addressed the theme of behavioral nutrition, body practices and physical activities and integrative and complementary practices in Primary Care had the lowest average of this variable (1.17 ± 0.52). Module 2, which dealt with "*Actions of food and nutrition and Health Care Networks*", was the one that obtained the lowest means in all evaluation criteria. In all variables analyzed, the means of the modules were statistically associated with the variables attributed to the outcome performance (<0.001).

Table 3. Comparison of the performance of course participants between the modules completed. Goiânia, GO, Brazil, 2023. (N=59).

	Module (Mean ± SD)						
	M1 ±SD	M2 ±SD	M3 ±DP	M4 ±DP	M5 ±DP	M6 ±DP	*p**
Answer according to the theme	3.74 ± 0.86	2.93 ± 1.10	3.96 ± 1.07	3.93 ± 0.91	3.88 ± 0.92	3.52 ± 1.09	<0.001
Answer based on the course literature	3.30 ± 0.99	2.27 ± 1.22	3.36 ± 1.22	3.87 ± 0.99	4.13 ± 0.89	3.92 ± 1.23	<0.001
Answer based on literature beyond the course	2.22 ± 0.84	1.31 ± 0.82	2.10 ± 1.11	1.57 ± 0.74	1.42 ± 0.79	1.17 ± 0.52	<0.001

*ANOVA; SD: standard deviation

Source: direct research, 2023.

The independent variable profession showed a statistically significant association with the criterion answer according to the theme (p=0.031) and the answer based on the literature (p=0.032). The nutritionist profession was the one that obtained the highest means and health agents, the lowest (Table 4).

There was also a statistically significant association between level of education and *answer according to the theme* (p=0.025), *answer based on the literature* (p=0.032) and *answer beyond the literature* (p=0.014). The MSc and PhD levels of education obtained the highest means and high school, the lowest (Table 4).

Table 4. Result of the comparison of the expected dimensions in the course modules with the demographic and professional profile of the sample and their means. Goiânia, GO, Brazil, 2023. (N=59).

	Answer according to the theme	Answer based on the course literature	Answer based on the literature beyond the course
Profession**	p = **0.037**	p = **0.032**	p = 0.138
Community Health Agent	3.24 ± 0.47	3.00 ± 0.46	1.36 ± 0.20
Nursing Technician	3.31 ± 0.23	3.24 ± 0.30	1.21 ± 0.07
Physiotherapist	3.49 ± 0.80	3.07 ± 0.81	1.47 ± 0.52
Physical Education Professional	3.57 ± 0.49	3.23 ± 0.60	1.40 ± 0.27
Nurse	3.68 ± 0.79	3.53 ± 0.90	1.94 ± 0.89
Nutritionist	4.21 ± 0.56	4.01 ± 0.59	1.99 ± 0.48
Others	3.41 ± 0.91	3.18 ± 0.91	1.70 ± 0.80
Age group**	p = 0.575	p = 0.645	p = 0.565
22 - 29 years	3.77 ± 0.76	3.48 ± 0.80	1.66 ± 0.43
30 - 39 years	3.72 ± 0.72	3.49 ± 0.77	1.77 ± 0.65
40 - 49 years	3.45 ± 0.69	3.26 ± 0.73	1.60 ± 0.70
41 or more	3.85 ± 1.02	3.74 ± 1.12	2.02 ± 1.02
Education**	**p = 0.025**	**p = 0.032**	**p = 0.014**
High School	3.06 ± 0.40	2.93 ± 0.31	1.34 ± 0.26
Higher Education	3.51 ± 0.65	3.22 ± 0.69	1.49 ± 0.41
Specialization	3.81 ± 0.79	3.62 ± 0.84	1.87 ± 0.72
MSc/PhD	4.68 ± 0.35	4.46 ± 0.76	2.68 ± 1.06
Years of graduation*	p = 0.961	p = 0.364	p = 0.141
Up to 10 years	3.68 ± 0.70	3.36 ± 0.71	1.60 ± 0.49
11 or more	3.67 ± 0.82	3.55 ± 0.89	1.85 ± 0.80
Years working in PC**	p = 0.903	p = 0.519	p = 0.752
< 1 year	3.71 ± 0.66	3.53 ± 0.75	1.67 ± 0.45
1 - 5 years	3.60 ± 0.86	3.29 ± 0.88	1.62 ± 0.62
5 - 10 years	3.62 ± 0.82	3.37 ± 0.82	1.75 ± 0.89
Over 10 years	3.77 ± 0.65	3.65 ± 0.71	1.85 ± 0.68
Distance learning*	p = 0.548	p = 0.441	p = 0.317
No	3.53 ± 0.72	3.30 ± 0.77	1.52 ± 0.45
Yes	3.70 ± 0.76	3.48 ± 0.81	1.75 ± 0.68

*Student's t-test; **ANOVA; SD, standard deviation.
PC: Primary care
Course: Direct research, 2023.

DISCUSSION

The results of the research reveal that the performance of the graduates in the obesity training course was satisfactory, but limited to the content of the course. It is noteworthy that the module with lower performance discussed the actions of Nutrition and HCN evidenced as a fragility of the actions of nutrition in PHC. Health professionals must be able to provide care that takes into account the individual characteristics of people in different areas, such as to offer adequate answers to the various situations. Thus, the MH highlights the expectation that all PHC teams provide care in Food and Nutrition (FN) according to the health needs of the population under their responsibility and with the technical competence of the professionals involved[23].

Given the complexity of factors that influence health and disease status, it is increasingly necessary to promote collaboration between professionals from different areas to ensure a comprehensive, effective and safe health care. However, it is still common to believe that only nutritionists, whether in the main or specialized support team, are responsible for FN-related care. However, it is necessary to adopt an approach of shared responsibility: teamwork in PHC does not imply eliminating the particularities of the practices of each profession, but allowing a variety of professionals to contribute to an integral approach to care[23].

This fragility observed from the performance of non-nutritionist professionals points to the need to invest in qualification to improve the approach to obesity in PHC, as Bortolini *et al*.[24] found in their study. The authors describes that the group demonstrated no efforts of the federal management to develop training strategies for professionals and managers of PHC, partnerships with universities and the provision of courses in this area.

The MH also produced and made available publications with the objective of improving professional practice at higher level in comprehensive care to individuals with obesity. Nevertheless, there are still many obstacles to be overcome in order to achieve a satisfactory resolution in the nutritional treatment of overweight and obese people, regardless of the stage of their stage of life[23].

Therefore, the execution and monitoring of research activities, extension and training of professionals in FN, with special focus on promoting adequate and healthy eating habits, as well as in the prevention and control of obesity in PHC, are proposals aligned with the guidelines of the PNAN[18,19,23,25].

Recently, a Matrix for the Organization of Care in Food and Nutrition in PHC was developed, with the objective of offering guidelines for the structuring of this care in Brazil, assisting both professionals and managers in the organization of services[23,25-34].

Thus, recurrent training courses with the theme “obesity” are necessary (remote or face-to-face). A study from Copenhagen pointed out the benefits obtained by a remote course offered for a period of six months and focusing on the theme of prevention and treatment of diabetes and obesity. According to the authors, most of the answers obtained by health professionals agreed that the course contributed to their professional practition[35]. Osmundsen, Dahl and Kulseng[36] (2019) also demonstrated that a training program for general practitioners promoted the strengthening of primary and secondary care through the construction of knowledge and competence, making a promising path for improving health care. It is noted, therefore, that professional training is a tool that can contribute to the improvement of the work process.

Concerning the use of other strategies associated with coping with obesity and overweight, the literature also evidences a training program with children using the intervention mapping systematics that provides a structure based on a combination of evidence and practical information, which can be

used to structure the development of a training program for health professionals, which was subsequently applied and evaluated. It was noticed that a training with more interactive didactics influenced favorably the behavior of professionals in terms of improving the implementation of actions to prevent excess weight[37].

Dietz *et al*.[33] (2015) report in their study that inadequate education and training of doctors contribute to the prejudice and stigmatization of overweight or obese individuals and that negative attitudes in relation to individuals with weight problems are likely to harm the patient-professional relationship, reducing the likelihood of sustained success in weight loss efforts. This only reinforces that it is extremely important that the health service circumvent this problem by joining forces to improve health education, education, with a view to the fight against obesity.

Regarding the professional profile of the participants of the course, the results showed that most professionals are female, nutritionists, age range from 22 to 39 years and have specialization. The "sex" and "age group" variables are similar to other studies in the health area that demonstrated a predominance of female population in health work and an active young adult range with age ranging from 30 to 44 years[25,26]. Thus, more than half of the participants in the course presented specialization as the educational level, being superior to the data found in the aforementioned studies.

In relation to the years of work, in this course, more than half of health professionals have up to ten years of training and work in PHC in a period of 1 to 5 years. The research of Seidl *et al*. [38] (2014), which conducted interviews of the Program for Improvement of Access and Quality of Primary Care with health professionals, found that the average time of most of these workers was up to two years. This suggests the existence of a high turnover and short time of work in PHC, which may influence the strengthening of the bond and consequently the health follow-up of chronic issues such as obesity considering that permanence is one of the factors for a greater effectiveness in health actions. This finding diverges from the present study in relation to this time of professional training, in which it is clear that more than half of the professionals have more than five years of training and work in PHC, a fact that increases the use of the course offered.

When checking the literature on studies that evaluated the sociodemographic profile of PHC professionals, it was evident a predominance of nurses. This area of activity is the most populous and exercises leadership in the management of health processes[28]. Although obesity is a disease that must be cared for by a multiprofessional team, it is still noted that the main focus of care is the change in eating habits, which places the professional nutritionist as central in the treatment of the disease[29], which may thus explain the predominance of this profession in course regarding obesity, even if the scientific data point to the nurse as the profession of leadership of PHC.

Moreover, a study that aimed to evaluate the performance of multiprofessional work in relation to obesity, 99.3% of respondents (endocrinologists, physical education professionals and nutritionists) reported that articulated work is necessary for the management of obesity. However, during the evaluation of the perception of multiprofessional work performance, only 37% of physical education professionals reported that this interaction usually occurs; among endocrinologist doctors, this percentage increased to 48%; among nutritionists, more than half (57%) said that multiprofessional work occurs[30]. In addition, this factor may indicate that the management of obesity is still mostly the responsibility of the nutritionist professional. The management of the disease, therefore, needs to cover different areas and this should pass through the training of health professionals.

The biomedical model is also present in the curricula of health courses, emphasizing individual care that disregards biopsychosocial factors. Considering the complexity of the problem, it is noted that topics such as obesity need to be in different contexts of training. In this sense, there is a problem in the

performance and training of health professionals[31]. Also for this reason, EPS must be inserted in the context of work and professional practice spaces, in order to generate critical reflections and changes as foreseen by PNEPS[32].

In the performance analysis of health professionals who participated in the training course considered for this investigation, good performance was evidenced in two of the three variables analyzed. This study had the limitation of using a non-validated scale, which makes it difficult to discuss and debate with the literature. However, to ensure the validity and internal and external consistency of the findings, an analysis of Cronbach's Alpha ($0.75 < \alpha \leq 0.90$) was performed, which revealed high reliability and a wide debate.

There was a statistically significant association between the level of education of professionals and the performance of the course, which suggests that health professionals with higher educational level may have a better performance in the modules, which increases their effectiveness in actions to combat obesity. Furthermore, the study indicates that the possibilities of actions in PHC to address obesity are linked to the management and production cycle of the Food and Nutrition Surveillance (VAN - *Vigilância Alimentar e Nutricional*) care. This includes the diagnosis of dietary and nutritional problems in populations, since the Food and Nutrition Surveillance System operates in PHC services, as pointed out by Figueiredo *et al.*[39] (2020). Gomes *et al.*[40] (2017) also demonstrated similar results, but the study was developed with five professionals (two doctors and three nurses) and regarding dietary guidelines to hypertensive and/or diabetic users. In this study, in all the Family Health Units (FHU) of the study, the NASF included a nutritionist, however, the nutritionist was more linked to health education lectures[40].

In comparison, Moreira *et al.*[41] (2019) identified that the performance of radiologists in a distance learning course on the subject showed an improvement when compared to the pre- and post-test correct answers of the participants. Alencar *et al.*[42] (2018) also conducted a before-after study in relation to data of correct answers in the pre and post-test of a distance course on intestinal stomas for PHC nurses of Piauí, in which the data demonstrate that the performance of professionals was satisfactory after the course offered.

A limitation of this study concerns the lack of use of a validated scale for performance analysis in the course. Although there are criteria in the literature to evaluate the responses, they are still subjective and need adaptation. The criterion used was the Faimer adapted with the analysis of Cronbach's Alpha that indicated high reliability of the results.

An impact of the results found in this study may be that the efforts of professional health qualification have been carried out through educational practices inserted in the environments of health. Nevertheless, the inclusion of these practices in regional and municipal management planning is still incipient, requiring greater dialogue and knowledge for its effective execution[11]. Moreover, it should be noted that there is a reduced number of publications on evaluations of courses focusing on the management of obesity, which allowed knowing the weak points and allows this work to guide the need to include training in the management of obesity from college to the workers, with the growing need to discuss the management of obesity in the multiprofessional team.

There should be the implementation of actions that promote multiprofessional interaction and discussion of cases between professionals from different areas. In addition, strategies to deal with obesity should be strengthened, with emphasis on food and nutrition education and health promotion. As a future direction of research, it is suggested to evaluate the effectiveness of remote courses, similar to previously presented studies and the exploration of more active approaches in the training of health professionals.

CONCLUSION

In this research, the health professionals who participated in the training course had a good performance considering that the average of the modules was above three considering the Likert scale used in two of the three analyzed variables.

Based on the performance of the variable "Answer according to the theme", it is possible to see that health professionals understood the content and were able to answer in a coherent way to the proposed evaluation activity. The variables "Answer according to the theme" and "Answer based on literature" and level of education for the three outcome variables were associated with the profession. It was observed that MSc and PhD nutritionists presented the best performance.

It is necessary to intensify EPS initiatives to qualify assistance in obesity management in a multiprofessional and transdisciplinary way. For this, it is recommended to restructure the practices of the curricula of health courses so that there is training with a view to the work articulated and expanded to the adequate coping of the problem.

From the analysis presented, it is clear that the approach to obesity needs a thorough review in the health field, especially among nutritionist professionals. Furthermore, the importance of training programs for health professionals and government policies that encourage continuous training and adequate support for the care of obesity.

This study, therefore, offers valuable insights to improve the training and performance of professionals in coping with obesity, contributing to the advancement of literature and quality of health care in this area.

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