ORIGINAL ARTICLE

Psychometric properties: self-administered scale to assess eating habits in a sample of night shift workers

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ABSTRACT
Dietary practices and night shift behavior can often be influenced by multiple factors, increasing exposure to nutritional and health risks. One of the strategies for evaluating the characteristics of eating behavior is the use of scales. OBJECTIVE: The present study aimed to evaluate the psychometric properties of the Self-Applied Scale for the Assessment of Food, according to the Recommendations of the Food Guide for the Brazilian Population in a sample of night shift workers. METHOD: methodological study with emphasis on the psychometric evaluation of the Self-Applied Scale for the Assessment of Food, according to the Recommendations of the Food Guide for the Brazilian Population, developed and validated in Brazil, in a sample of night shift workers. The questionnaire used, self-completed by the participants, was composed of sociodemographic, health and work variables; and the Self-Applied Scale for the Assessment of Food, according to the Recommendations of the Food Guide for the Brazilian Population . It consists of 24 questions and investigates the individual's dietary practices. Four dimensions are in this instrument: food choice (FC), dietary habits (DH), household organization (HO) and planning (PL). RESULTS: 134 individuals from southern Brazil, with a mean age of 38.7±9.4, participated online. Exploratory factor analysis confirmed the evolution of evolution (KMO =0.73; Bartlett's test, P<0.001). The scale also showed good psychometric properties regarding internal consistency in three of the four dimensions: planning α = 0.73; modes α = 0.75; choices α = 0.81. The organization dimension obtained Cronbach's alpha α = 0.55. CONCLUSION: The results of this study suggest that this Self-Administered Scale is a valid and reliable instrument to measure feeding behavior in night shift workers.

Keywords: Psychometrics, Shift work schedule, Feeding behavior, Food guide

INTRODUCTION

As defined by the Ministry of Health, a worker is any person who performs work-related activities, whether linked to the formal or informal economy, also including family and/or domestic work [1]. The working day refers to the daily period in which the individual is available to carry out work activities, covering both day and night. According to data from the Brazilian Institute of Geography and Statistics (IBGE) from 2022, the workforce in Brazil is made up of 99.3 million people, distributed as follows: 68% are employees, 4.4% employers, 25 .9% self-employed and 1.7% family support workers [2].

Over the years, society has found ways to promote long working hours and physical exertion, characteristic of the 24/7 world. With continuous production and a market that remains open for exchanges without breaks or rest, driven mainly by technology, night work has become more widespread, attracting a growing number of

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interested parties [3]. However, this type of work activity can pose health risks, damaging biological and psychological functioning. This manifests itself through emotional problems such as stress, emotional exhaustion, changes in mood and psychological state. In addition to impacting workers' health, disruption of the biological clock can contribute to the deterioration of interpersonal relationships within families [4,5].

Altered sleep/wake patterns result in circadian hormonal dysfunction and other disturbances, impacting appetite, satiety and, therefore, food intake in these workers. This relationship, in turn, contributes to the development of chronic diseases, including cardiovascular disease, eating disorders and obesity, as prolonged exposure to night work can disrupt the normal circadian cycle and negatively impact glucose metabolism and lipid homeostasis. [6-10].

Night workers, characterized by working outside of regular hours, suffer from impacts on their health, such as an increased risk of metabolic disorders, insulin resistance, type 2 diabetes, obesity and gastrointestinal disorders. Shift work is also associated with fatigue and performance deficiencies, stress levels, exhaustion, burnout, job dissatisfaction and internal conflicts due to dysregulation of circadian processes [11–17].

Food consumption is one of the most significant external signals and is planned within the framework of the circadian system. When this system is disturbed, night shift work affects nutrition and reduces physical activity. Nocturnal type individuals exhibit more signs of eating disorders than morning type individuals and are more likely to exhibit nocturnal eating signs, such as eating at irregular times, consuming a high-calorie diet, having food addictions and presenting metabolic imbalance [18,19,20]. All these results show that the eating habits and behavior of night shift workers can be shaped by a variety of factors, thus intensifying their exposure to nutritional and health risks. The adoption of scales, which present themselves as a standardized method for obtaining responses, which form a behavioral sample, represents an effective strategy for evaluating the characteristics of eating behavior [21].

The Food Guide for the Brazilian Population (GAPB), as the current dietary guideline in the country, aims to offer a set of information and recommendations about nutrition, aiming to promote the health of individuals, families, communities and Brazilian society as a whole [22]. The Guide emphasizes the importance of conscious food selection, providing guidance on the appropriate combination to compose meals and ways to consume them. These guidelines were the basis for the formulation of the four domains of the Self-Administered Scale for Eating Assessment, which currently serves as a reference for evaluating the impact of the Dietary Guide on the population's eating habits [23].

Scales, when validated and with adequate internal reliability, enable observation, recording and description, or even the measurement of aspects that allow inferences to be made about a given psychological construct [24]. In this way, they can serve as a tool to help develop and strengthen the autonomy of the individual, in this case, night workers, with regard to their food choices and, consequently , the search for better health and quality of life. The present study aimed to evaluate psychometric properties of the *Self-administered*

Scale for Eating Assessment , according to the Recommendations of the Dietary Guide for the Brazilian Population in a sample of night shift workers .

METHODS

This is a methodological study with an emphasis on the psychometric evaluation of the Self-Administered Scale for Eating Assessment according to the Recommendations of the Dietary Guide for the Brazilian Population , developed and validated in Brazil by Gabe and collaborators [23], in a sample of night shift workers.

Participants

134 night shift workers, residing in the southern region of Brazil, participated in the study. Interns, children under 18 years of age and pregnant women were excluded, as were questionnaires filled out inadequately or incompletely.

Instruments

The questionnaire used, self-completed by the participants, was composed of sociodemographic variables (age, sex, race, marital status, profession); health (self-reported weight and height ; presence of diseases; medications, physical activities) and work (position, title, place of work and working hours); and the *Self-Administered Scale for Eating Assessment* , according to the Recommendations of the Dietary Guide for the Brazilian Population [23].

The Scale proposed by Gabe and collaborators consists of 24 questions, based on the recommendations of the Food Guide and investigates the individual's eating practices . There are four dimensions that make up the collection instrument: *food choice (EA), eating habits (MC), household organization (OD) and planning (PL)* (table 1). These dimensions were characterized as positive (domestic planning and organization) and negative (ways of eating and food choices), with the dimensions of ways and choices measuring constructions that are opposite to the Guide's recommendations.

At the end of completing the questionnaire, a score is generated. The items that make up the instrument are organized on a *Likert*-type scale four-point (strongly disagree to strongly agree). When the individual has up to 31 points, they must be more careful regarding their diet; between 31 and 41 points, you can move forward, as the individual is halfway towards a healthier and more adequate diet; and above 41 points, the individual demonstrates excellent eating habits, that is, they are already following the Ten Steps to Adequate and Healthy Eating, according to the GAPB.

Table 1 - Dimensions of the *Self-Administered Scale for Eating Assessment*, according to the Recommendations of the Dietary Guide for the Brazilian Population and their respective questions

Scale dimensions	Questions
Choice of food	1. I usually eat candies, chocolates and other sweets.
	2. I usually drink industrialized juices, such as boxed, powdered, bottled or canned juices
	3. I often go to *fast food restaurants* or snack bars
	4. I have a habit of 'snacking' between meals.
	5. I often drink soda.
	6. I usually replace lunch or dinner food with sandwiches, snacks or pizza.
	7. When I drink coffee or tea, I usually add sugar.
Ways of eating	8. I take advantage of meal times to solve other things and end up not eating.
	9. I usually eat my meals at my work or study desk.
	10. I usually eat my meals sitting on the living room sofa or in bed.
	11. I usually skip at least one of the main meals (lunch and dinner).
	12. I usually eat my meals sitting at the table.
	13. I try to eat meals calmly.
Home organization	12. I usually eat my meals sitting at the table.
	14. I usually participate in preparing food at home.
	15. In my house we share the tasks involved in preparing and eating meals.
	16. I usually buy food at open-air markets or street markets.

Planning	13. I try to eat meals calmly. 17. When I have small snacks throughout the day, I usually eat fruits or nuts. 18. When I choose fruits and vegetables, I give preference to those that are locally produced. 19. When I choose fruits and vegetables, I give preference to those that are organic. 20. I usually carry some food with me in case I feel hungry throughout the day. 21. I usually plan the meals I will eat that day. 22. I usually vary my consumption of beans by peas, lentils or chickpeas. 23. In my house it is common to use whole wheat flour. 24. I usually eat fruit for breakfast.

Data collection and ethical aspects

Data collection took place from April to September 2022, online*, through the Qualtrics* digital platform*.* The sample was for convenience. The recruitment of participants occurred through the dissemination of the research on social networks and by email, being directed especially to places that focused on night work. At the end of particiation, feedback was provided to the respondents, such as feedback on the questionnaire score and its classification, as well as dissemination of educational materials.

All ethical principles in accordance with the precepts established by Resolution No. 466/2012 of the National Health Council were respected, and the research project was approved by the Research Ethics Committee (CAAE No. 56673622.2.0000.5336).

Data analysis

For the statistical treatment of data in relation to sample characterization, all data were stored in an Excel spreadsheet and analyzed with the *Statistical software. Package for the Social Sciences* (SPSS) ® version 21.0. The normality of data distribution was checked using the Kolmogorov Test Smirnov and all variables presented a normal distribution, being described as mean and standard deviation. Categorical variables were presented as absolute and relative values.

Regarding the psychometric validation of the instrument, internal consistency was assessed using Cronbach 's alpha coefficient. Second Terwee et al[25], values of this statistic between 0.7 and 0.95 indicate adequate internal consistency. Factor analysis was used to verify possible groupings of variables, using the principal components method with VARIMAX rotation. According to Hair et al (1998),

factor loadings greater than 0.3 are the minimum accepted level, but those above 0.4 are considered more clinically important [26]. Furthermore, the *Kaiser-Meyer- Olkin* (KMO) measure and the Bartlett test were calculated to verify the adequacy of the sample for carrying out the factor analysis. According to the same author, KMO values above 0.7 and a significant Bartlett test indicate good adequacy of the sample to carry out this analysis.

The significance level adopted was 5% and the analyzes were carried out in the *Statistical program Package for the Social Sciences* (SPSS) ® version 28.0.

RESULTS

An average of 38.7 years was observed (SD=9.4; Min.= 20, Max.=64) and the predominance of females (71.6%), married workers/stable union (55.2 %) and living with family (60.4%). Regarding work variables, the majority were linked to the health sector (70.9%) with a predominance of technicians and assistants (40.3%) or other health professionals (30.6%). More often they had a postgraduate degree (30.6%), worked, on average, 11.0±2.3 hours at night (range 2 to 12 hours), with a family income of four to six minimum wages (35. 8%) (Table 1).

Table 1. Sociodemographic characteristics of the sample of night shift workers working in the South Region (N=134).

Sociodemographic characteristics	N (%)
Age in years (mean±SD)	38.7±9.4
Age range in years	
19-30	33 (24.6)
31-50	**86 (64.2)**
51-64	15 (11.2)
Sex	
Feminine	**96 (71.6)**
Masculine	38 (28.4)
marital status	
Single	50 (37.3)
Married or stable union	**74 (55.2)**
Divorced	7 (5.2)
Widower	1 (0.7)
Other	2 (1.5)
Who do you live with	
Alone	13 (9.7)
With the family	**81 (60.4)**
With partner	39 (29.1)
With friends	1 (0.7)
Education	
Complete primary education	4 (3.0)

Incomplete elementary education	20 (14.9)
Complete technical education	22 (16.4)
Incomplete technical education	2 (1.5)
Incomplete higher education	18 (13.4)
Complete higher education	21 (15.7)
Postgraduate	**41 (30.6)**
Other	6 (4.5)
Location and nature of work	
Institution linked to health	**95 (70.9)**
Airport	9 (6.7)
Educational institution	7 (5.2)
Other	23 (17.2)
Occupation	
Health professional	41 (30.6)
Technician or assistant	**54 (40.3)**
Airport	8 (6.0)
Engineer or operator	6 (4.5)
Other	25 (18.7)
Number of hours worked at night (mean±SD)	11.0±2.3
Family income	
Up to 1 SM	5 (3.7)
From 2 to 3 SM	34 (25.4)
From 4 to 6 SM	**48 (35.8)**
From 7 to 9 SM	0 (0.0)
10 SM or more	47 (35.1)

SM: Minimum wage of R$1,212.00.

The interviewees lived in 23 cities, distributed across the Southern Region of Brazil. Most frequently, they lived in Porto Alegre (41.0%) or greater Porto Alegre, with 13.4% in Viamão and 10.4% in Canoas.

Research participants had a mean weight of 77.3±15.2 kg (range 46.5 and 129.0 kg) and a body mass index of 28.0±5.2 kg/m2 (range 19. 0 and 53.6 km/m ^{2}), the majority were overweight (44.8%) or obese (28.4%).

With regard to health, 48.5% declared having already used psychological, nutritional or psychiatric treatment, most frequently due to obesity (41.5%) and 38.1% reported using some type of medication. Among the pathologies mentioned, the most common were hypercholesterolemia (25.0%) and arterial hypertension (10.4%).

Regarding lifestyle, 49.3% practiced some type of physical activity, on average 3.7 times a week (range 2 to 7 days), at least 150 minutes per week (26.3%). The majority occasionally consumed alcohol (66.3%) and did not smoke (90.3%) (Table 2).

Table 2. Anthropometric, health and lifestyle characteristics of the sample of night shift workers working in the South Region (N=134).

Characteristics	N (%)
Anthropometrics	
Weight in kg (mean±SD)	77.3±15.2
Height in cm (mean±SD)	1.7±0.9
Body mass index in kg/m ^{2} (mean±SD)	28.0±5.2
Nutritional status	
Thinness	1 (0.7)
Eutrophy	35 (26.1)
Overweight	**60 (44.8)**
Obesity	38 (28.4)
Health	
Seek psychological, nutritional or psychiatric treatment	
Yes	65 (48.5)
No	69 (51.5)
Reasons for seeking treatment	
Anorexia nervosa	1 (1.5)
Binge eating disorder	15 (23.1)
Obesity	**27 (41.5)**
Other	22 (33.8)
Use medication	
Yes	51 (38.1)
No	**83 (61.9)**
Stroke	1 (1.0)
Thyroid change	2 (2.1)
Cancer	2 (2.1)
Heart disease	1 (1.0)
Hypercholesterolemia	**24 (25.0)**
Depression	1 (1.0)
Diabetes Mellitus	8 (8.3)
Drop	1 (1.0)
Arterial hypertension	**10 (10.4)**
Hypertriglyceridemia	4 (4.2)
Missing	38
Lifestyle	
Practice physical activity	
Yes	66 (49.3)

No	**68 (50.7)**
Number of times per week of physical activity (mean±SD)	3.7±1.1
Weekly physical activity time	
Does not perform	**68 (51.1)**
At least 150 minutes	35 (26.3)
More than 150 minutes	30 (22.6)
Missing	01
Consumes alcoholic beverages	
Never	29 (29.6)
Possibly	**65 (66.3)**
Four days or more a week	4 (4.1)
Missing	36
Smokes	
Yes	13 (9.7)
No	**121 (90.3)**
Number of cigarettes per day (mean±SD)	1.1±0.3

Table 3 describes the Cronbach 's Alpha values for each of the dimensions of the Self-Administered Scale, which proved to be adequate, with values above 0.70, in three of the four (planning, ways of eating and food choices). The Cronbach value for the instrument in general was 0.70, which indicates good consistency.

Table 3 – Cronbach 's Alpha for the Self-Administered Scale for Eating Assessment according to the Recommendations of the Dietary Guide for the Brazilian Population:

Domains	**Cronbach 's alpha**
Planning	0.70
Home organization	0.51
Ways of Eating	0.71
Food choices	0.79

Exploratory Factor Analysis reveals that the original structure is maintained in the present sample of night workers, and the adjustment of the measurement model is considered good. The measure of adequacy of the KMO factor model was 0.73 and the Bartlett test was statistically significant ($p<0.001$), indicating that the sample is suitable for carrying out the factor analysis.

Table 4 describes the highest factor loadings found for the four dimensions of the Self-Administered Scale for Eating Assessment, according to the Recommendations of the Dietary Guide for the Brazilian Population.

Table 4 - Factor Loadings for the four dimensions of the Self-Administered Scale for Dietary Assessment according to the Recommendations of the Food Guide for the Brazilian Population, identified among night workers:

QUESTIONS	**Factor 1 (PL)**	**Factor 2 (OD)**	**Factor 3 (MC)**	**Factor 4 (AND THE)**
16 I usually buy food at open-air markets or street markets.	**0.62**			
18 When I choose fruits and vegetables, I give preference to those that are organic.	0.74			
19 When I choose fruits and vegetables, I give preference to those that are locally produced.	0.83			
22 I usually vary my consumption of beans by peas, lentils or chickpeas.	0.56			
23 In my house it is common to use whole wheat flour.	0.56			
13 I try to eat meals calmly.		**0.45**		
14 I usually participate in the preparation of food in my home.		0.69		
15 In my house we share the tasks involved in preparing and eating meals.		0.78		
20 I usually carry some food with me in case I feel hungry throughout the day.		**0.36**		
21 I usually plan the meals I will eat that day.		**0.39**		
8 I take advantage of meal times to solve other things and end up not eating.			0.76	
9 I usually eat my meals at my desk at work or study.			0.42	
10 I usually eat my meals sitting on the living room sofa or in bed.			0.74	
11 I usually skip at least one of the main meals (lunch and dinner).			0.68	
12 I usually eat my meals sitting at the table.			**0.74**	
1 I usually eat sweets, chocolates and other sweets.				0.62
2 I usually drink industrialized juices, such as boxed, powdered, bottled or canned juices.				0.63
3 I usually go to *fast*- food restaurants *food* or snack bars.				0.77
4 I have a habit of “snacking” between meals.				0.55
5 I usually drink soda.				0.73
6 I usually replace lunch or dinner food with sandwiches, snacks and/or pizza.				0.60

7 When I drink coffee or tea, I usually add sugar.	0.57
17 When I have small snacks throughout the day, I usually eat fruit or nuts.	**0.46**
24 I usually eat fruit for breakfast.	**0.49**

PL = Planning; OD = Domestic Organization; MC = Ways of Eating; EA = Food Choices. Total variance 46.95%.

The factor analysis with Varimax rotation presented the same dimensions, despite having grouped seven questions differently from that proposed by Gabe [23], totaling a percentage of 46.95% of the explained variance of the entire instrument. Therefore, Cronbach 's Alpha for the dimensions takes on new values: PL = 0.73; OD = 0.55; MC = 0.75; EA = 0.81. Table 5 describes the questions that were grouped differently from the original Scale.

Table 5 – Grouping of questions into the four dimensions of the Self-Administered Scale for Dietary Assessment according to the Recommendations of the Food Guide for the Brazilian Population according to higher factor loadings identified among night workers:

QUESTIONS	**Original dimension**[23]	**Size for night workers**
16 I usually buy food at open-air markets or street markets.	Organization	Planning
12 I usually eat my meals sitting at the table.	Organization	Ways of eating
13 I try to eat meals calmly.	Planning and eating habits	Organization
20 I usually carry some food with me in case I feel hungry throughout the day.	Planning	Organization
21 I usually plan the meals I will eat that day.	Planning	Organization
17 When I have small snacks throughout the day, I usually eat fruit or nuts.	Planning	Food choices
24 I usually eat fruit for breakfast.	Planning	Food choices

SCHEDULE PROPOSAL FOR NIGHT WORKERS:

Scale dimensions	Questions
Choice of food	1. I usually eat candies, chocolates and other sweets. 2. I usually drink industrialized juices, such as boxed, powdered, bottled or canned juices 3. I often go to *fast food restaurants* or snack bars 4. I have a habit of 'snacking' between meals. 5. I often drink soda. 6. I usually replace lunch or dinner food with sandwiches, snacks or pizza. 7. When I drink coffee or tea, I usually add sugar. 8. When I have small snacks throughout the day, I usually eat fruits or nuts. 9. I usually eat fruit for breakfast.
Ways of eating	10. I take advantage of meal times to solve other things and end up not eating. 11. I usually eat my meals at my work or study desk. 12. I usually eat my meals sitting on the living room sofa or in bed. 13. I usually skip at least one of the main meals (lunch and dinner). 14. I usually eat my meals sitting at the table.
Home organization	15. I try to eat meals calmly. 16. I usually participate in preparing food at home. 17. In my house we share the tasks involved in preparing and eating meals. 18. I usually carry some food with me in case I feel hungry throughout the day. 19. I usually plan the meals I will eat that day.
Planning	20. When I choose fruits and vegetables, I give preference to those that are locally produced. 21. When I choose fruits and vegetables, I give preference to those that are organic. 22. I usually buy food at open-air markets or street markets. 23. I usually vary my consumption of beans by peas, lentils or chickpeas. 24. In my house it is common to use whole wheat flour.

DISCUSSION

The Self-Administered Scale is a multidimensional instrument used to measure adherence to healthy eating practices, based on the recommendations of the Food Guide. This scale has already been adopted and published by the Ministry of Health as part of its materials [27]. From the evaluation of these characteristics of the diet of the individual or population studied, it will be possible to propose new monitoring, guidance and treatment strategies, possibly more appropriate, tangible and effective, aiming to change eating practices.

The results of this study suggest that the Self-Administered Scale for Eating Assessment, according to the Recommendations of the Dietary Guide for the Brazilian Population is a valid and reliable instrument for measuring eating behavior in night shift workers.

In the exploratory factor analysis, the tests in the present study confirmed the adequacy of the sampling (KMO =0.73; Bartlett 's test , P<0.001), corroborating the tests described in the Scale development and validation study (KMO = 0.63 ; Bartlett test , P<0·05) [23]. In the development study, the four factors were chosen because they had greater practical significance in relation to the theory proposed by the Food Guide. This decision in Gabe's study explained 41% of the variance in the data set, which is similar to the present study, which totaled 46.95% of the explained variance of the entire instrument.

The scale also presented good psychometric properties regarding internal consistency, in three of the four dimensions: planning α = 0.73; ways of eating α = 0.75; food choices α = 0.81. The *domestic organization dimension* obtained an alpha of α = 0.55. Even so, these findings are in line with the internal consistency analysis of the original study to develop the Scale. Gabe's group found the following Cronbach coefficient values: planning α = 0.82; ways of eating α = 0.68; food choices α = 0.77 and household organization α = 0.58 [23].

In the original study to develop and prepare the Scale, the *Food Choices dimension* grouped items that derived almost exclusively from the recommendations in the second chapter of the Guide (Food Choice), which justifies its name. The dimensions *Ways of Eating* and *Domestic Organization* retained, for the most part, items related to the fourth chapter of the Guide (The act of eating and commensality), while the *Planning dimension* was formed by a combination of items from the three chapters that made up the domain of scale [22, 23]. In the present study, seven questions were grouped differently, with emphasis on the dimensions of planning and domestic organization. The *Planning* dimension is expressed considering the acquisition of food, the combination of these in the form of meals and their consumption. In the original study, a positive correlation was demonstrated between this dimension and that of the *Organization* , considered acceptable, from a theoretical point of view, since they are related to similar attributes, even if the specificity of the latter manifests itself within the household [23].

Knox (2014) group, in their review study, proposed understanding the interaction between stress and eating behavior at work and also determining the best way to research and intervene to encourage healthy eating in these places. The study pointed out that the mechanisms through which stress interacts with food selection appear to be very complex and still unclear [28]. For

now, it is known that there is a positive association between stress, health and food choices in the workplace, making them important targets for research into the cause and effect relationship between stress and eating behavior [28–30].

Other studies, since the 90s, have highlighted the impact of work on food choice, regardless of eating culture, and there is a consensus that acute stress at work is synonymous with high energy intake and unhealthy eating practices. The types of food consumed in the workplace, under stress, tend to be rich in sugar, fat and salt, therefore contributing to excess weight and long-term health implications [31,32]. A fact that draws attention in the present study is the prevalence of overweight and obesity (73.2%). According to data from research carried out in Brazil, VIGITEL (Surveillance of Risk and Protective Factors for Chronic Diseases by Telephone Survey), the frequency of excess weight in the adult population is 57.2%, being slightly higher among men (59.9%) than among women (55%). The frequency of obese adults was 22.4%, being similar between men and women. The frequency of obesity increased with age up to 64 years for women [33].

Zhang's group performed a meta-analysis with the aim of quantitatively summarizing the association between shift work and the risk of obesity in nurses. It was one of the first systematic reviews and meta-analysis that confirmed that shift work may play a significant role in the development of obesity among nurses [34]. The majority of participants in the present study (70.9%) worked in health-related institutions, as many of the positions mentioned work at night in hospitals. There are several studies that include and evaluate night shift workers in the healthcare sector, both in relation to their health status and in relation to their eating behavior [35–43].

This is the first study to be carried out with the objective of verifying the validity and internal consistency of the scale developed by Gabe & Jaime, in a sample of night shift workers, and, therefore, the comparison of the results with those of other research is limited. Even so, scales, when validated and with adequate internal reliability, enable observation, recording and description, and even the measurement of aspects that allow inferences to be made about a given psychological construct [24]. In this way, they can serve as a tool to help develop and strengthen the autonomy of the individual, in this case, night workers, with regard to their food choices and, consequently, the search for better health and quality of life.

CONCLUSION

The results of this study have important implications for the health of the population studied. One of them is that the Self-Administered Scale for Eating Assessment, according to the Recommendations of the Food Guide for the Brazilian Population, can be used as an instrument for evaluating the eating behavior of night workers. The results can serve as a basis for the development and implementation of programs aimed at worker health.

Study limitations

In exploratory factor analysis, rules of thumb for sample size range from four to ten subjects per variable, with a minimum number of one hundred subjects to ensure stability of the variance and ecovariance matrix

[44]. Therefore, the present study worked with the limit, in order to guarantee the representativeness of the sample studied.

Implications of the study

Innovative studies like this, which verify convergent validity with representative samples from different scenarios and populations in Brazil, are important for expanding and understanding the phenomena verified by the tool. Movements in this direction are important for more research with night shift workers and, consequently, for the development of worker health programs.

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1- Substantial contribution to the study outline or data interpretation: LRC, TQI, AMPF

2- Participation in writing the preliminary version: LRC, TQI, AMPF

3- Participation in the review and approval of the final version: LRC, TQI, AMPF

4- Compliance with being responsible for the accuracy or integrity of any part of the study: LRC, TQI, AMPF

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