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Silveira, M.S.; Oliveira, T.M.; Oliveira, A.S.; Santos, D.T.S.; Menezes, R.R.; Lima, M.L.;
Nutritional knowledge among Obese and Eutrophic women treated at an outpatient health unit: Classification and Comparison between Groups

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Conocimiento nutricional entre mujeres obesas y eutróficas atendidas en una unidad de salud ambulatoria: clasificación y comparación entre grupos

Conhecimento nutricional entre mulheres Obesas e Eutróficas atendidas em uma unidade ambulatorial de saúde: Classificação e Comparação entre os Grupos

ABSTRACT
Objective:To compare the level of nutritional knowledge between obese and eutrophic women. Methods: Cross-sectional study, non-probabilistic sample of obese (n 64) and eutrophic (n 64) women, aged between 19 and 60 years. Sociodemographic, lifestyle, anthropometric data (BMI, WC), QCN and International Physical Activity Questionnaire (IPAQ), short version, were collected. Results: Level of nutritional knowledge presented by the majority of "moderate" (72% OM and 82.8% ME). Classification of physical activity, the majority of participants in both groups were "active" (59.4% OM and 70.3% ME). When the NCN and the sociodemographic variables were associated, a positive association was perceived between the level of "moderate / high" nutritional knowledge of both groups; family income 1 to 2 minimum wages (p = 0.023); lifestyle, alcoholism (p = 0.016) and physical activity classified as "active". As for the associations between anthropometric variables (WC and BMI), there was no statistically significant association between the índices. Conclusion: The majority of the obese and eutrophic group had a "moderate" level of nutritional knowledge, with no differences between the groups, which was associated with higher family income, greater consumption of alcoholic beverages and more active individuals.
DESCRIPTORS: Knowledge, Nutritional status, Obesity.

RESUMEN
Objetivo: Comparar el nivel de conocimiento nutricional entre mujeres obesas y eutróficas. Métodos: Estudio transversal, muestra no probabilística de mujeres obesas (n 64) y eutróficas (n 64), con edades comprendidas entre 19 y 60 años. Se recogieron datos sociodemográficos, de estilo de vida, antropométricos (IMC, CC), QCN y Cuestionario Internacional de Actividad Física (IPAQ), versión corta. Resultados: Nivel de conocimiento nutricional presentado por la mayoría de "moderados" (72% OM y 82,8% EM). Clasificación de la actividad física, la mayoría de los participantes en ambos grupos eran "activos" (59,4% OM y 70,3% ME). Cuando se asociaron la NCN y las variables sociodemográficas, se percibió una asociación positiva entre el nivel de conocimiento nutricional "moderado / alto" de ambos grupos; renta familiar 1 a 2 salarios mínimos (p = 0,023); estilo de vida, alcoholismo (p = 0,016) y actividad física clasificada como "activa". En cuanto a las asociaciones entre variables antropométricas (CC e IMC), no hubo asociación estadísticamente significativa entre los índices. Conclusión: La mayoría del grupo obeso y eutrófico tenía un nivel "moderado" de conocimiento nutricional, sin diferencias entre los grupos, lo que se asoció con mayores ingresos familiares, mayor consumo de bebidas alcohólicas e individuos más activos.
DESCRIPTORES: Conocimiento, Estado nutricional, Obesidad.

RESUMO
Objetivo: Comparar o nível de conhecimento nutricional entre mulheres obesas e eutróficas. Métodos: Estudo transversal, amostra não probabilística de mulheres obesas (n 64) e eutróficas (n 64), idade entre 19 e 60 anos. Coletou-se dados sociodemográficos, estilo de vida, antropométricos (IMC, CC), QCN e Questionário Internacional de Atividade Física (IPAQ), versão curta. Resultados: Nível de conhecimento nutricional apresentado pela maioria de "moderado" (72% MO e 82,8% ME). Classificação de atividade física, a maioria das participantes de ambos os grupos se apresentaram "ativo" (59,4% MO e 70,3% ME). Quando associado o NCN e as variáveis sociodemográficas, percebeu-se associação positiva entre o nível de conhecimento nutricional "moderado/alto" de ambos os grupos; renda familiar 1 a 2 salários mínimos (p= 0,023); estilo de vida, etilismo (p= 0,016) e atividade física classificados como "ativos". Quanto às associações entre as variáveis antropométricas (CC e IMC), não houve associação estatisticamente significante entre os índices. Conclusão: A maioria do grupo de obesas e eutróficas apresentou um

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nível de conhecimento nutricional "moderado", sem diferenças entre os grupos, sendo este associado a maior renda familiar, maior consumo de bebida alcoólica e indivíduos mais ativos.

DESCRITORES: Conhecimento, Estado nutricional, Obesidade.

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INTRODUCTION

Knowing about a proper and balanced diet is an important step to become aware that every substance we eat will react in a specific way in our body. Having this awareness can be the first step towards changes in inappropriate eating behavior. Eating is a biological act necessary to survive, but eating goes beyond nourishing. It involves emotional, cultural and social aspects that transform the simple biological action of eating.[1]

Nutrition seeks a balance between food and body health, aiming at a better quality of life. Food imbalance can be one of the etiological factors of diseases such as obesity, which is now considered a major public health problem. The increase in caloric intake that is involved in being overweight occurs mainly at the expense of excessive consumption of processed foods that are often chosen because they are quick and practical options.[1,2]

Many factors, non-food can influence the level of nutritional knowledge and eating behavior, the most cited by scholars on the subject being gender, socioeconomic level, culture, ethnicity and education. In women, for example, the higher the level of education, the lower the rates of overweight and obesity observed. In contrast, for men the more years of study, the higher the rates of overweight and obesity.[2,3]

In the last decades, there has been an important increase in interest in the best way to eat and, consequently, the search for knowledge about what is healthier food has also increased. There are several methods for assessing the individual's food intake, but considering the subjective aspects, the Nutritional Knowledge Questionnaire (Questionário de Conhecimento Nutricional - QCN) has been postulated as a reputable tool. The QCN represents a scientific construct created by nutritional educators aiming to represent the individual cognitive process related to food and nutrition information.[4,5]

The contribution of nutritional knowledge to the overall quality of food intake is considered complex and influenced by the interaction of internal and environ-

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mental factors. However, improving the understanding of the relationship between nutritional knowledge, food intake and nutritional status is relevant as a link for the development of preventive policies against chronic non-communicable diseases (NCDs), mainly because these are highlighted among the representative causes of deaths in the population Brazilian. Obesity and its consequences are part of the epidemiological panorama of disabling diseases, thus becoming a major challenge for public health policies. [3,6]

The nutritionist has a fundamental role in carrying out health promotion, focusing on interventions aimed at nutritional education (training courses, workshops, consultations, lectures, support groups, among others). All of these tools are conducted with the aim of increasing people's knowledge of nutrition, thus improving their eating habits and consequently preventing diseases.

Unfortunately, the role of the nutritionist in the basic health units is still insufficient, which ends up reducing the population's access to the knowledge associated with this professional. [6,7] In view of the above, the present study classified the level of nutritional knowledge of obese and eutrophic women, seen in an outpatient health unit and made comparisons between groups.

METHODS

Cross-sectional and analytical study, carried out in overweight and gynecology outpatient clinics at the Medical Center of Bahiana belonging to the Bahiana School of Medicine and Public Health (EBMSP), in Salvador, BA, from September 2016 to April 2017. Approved by the Ethics in Research Committee (Comitê de Ética em Pesquisa - CEP) of the Bahiana Foundation for the Development of Sciences FBDC of the EBMSP in August 2016, under the number 1694789. After signing the Free and Informed Consent Form (ICF), women aged between 19 and 63 years were included in this study.

Women with a body mass index

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(BMI) outside the obesity or eutrophy range were not included; amputated or with difficulties to walk; pregnant or lactating women; with schooling below the fifth year of elementary school; cognitive impairment that prevented answering the questionnaires applied or that received some type of guidance/follow-up with a nutritionist in the last twelve months prior to data collection.

Social data (age, self-reported race, education, family income, occupation, and marital status) were collected through a questionnaire developed for this study. For clinical evaluation, information was collected on the presence or absence of diseases and lifestyle (alcohol consumption, smoking, physical activity level). To assess nutritional status, data on weight, height, waist circumference, BMI were collected. Height was measured with a fixed stadiometer. Weight was measured on a portable digital scale, by the Filizola brand. BMI was calculated from the data collected.

Waist circumference (WC) was assessed using an inelastic measuring tape, with a precision of 1.0 mm (TBW, São Paulo, Brazil), at the midpoint between the last floating rib and the iliac crest. For classification, the cutoff point proposed by the WHO and the National Institutes of Health - NIH (2000) was used according to the risk of metabolic complications associated with obesity. [8]

To assess nutritional knowledge, the Nutritional Knowledge Questionnaire (Questionário de Conhecimento Nutricional - QCN), developed by Harnack et al.9, adapted and validated for Brazil by Scagliusi et al.5 The QCN contains twelve topics pertinent to the American dietary standard that has been validated for the Brazilian population according to the food pyramid adapted for Brazil. The criteria for classifying the score are: total scores between zero and six indicate low nutritional knowledge, between seven and ten indicate moderate nutritional knowledge and above ten indicate high nutritional knowledge. [9,11]

To measure the level of physical activity, the International Physical Activity

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Questionnaire (IPAQ) was used, in its short version, whose validity was tested in Brazil by Matsudo et al. [10] For analysis purposes variations of "active" were considered in a single variable, and just as was done with the insufficiently active group.

The questionnaires were given to the research participants with verbal and written guidance on the procedures for completing them. Doubts were clarified by those responsible for the application of IPAQ and QCN. There was no communication between the research subjects during filling in, as well as no time limit for filling out the forms. During the return, conferences were held and, in the absence of answers, the participant was instructed to complete.

To describe the variables in this study, measures of central tendency (mean) and median were used for continuous variables and percentages for categorical variables. The normality of the data was tested using the Kolmogorov-Smirnov test. Association of categorical variables between the groups analyzed were tested using the chi-square test, Fisher's exact and Linear-by-Linear. The comparison of continuous variables between groups was made using the Student T Test. The critical level for determining the p-value was 5%. All analyzes were performed using the Statistical Package for the Social Sciences (SPSS) version 24.

RESULTS

The sample consisted of 128 women, with an average age of 40,26 years (SD ± 10,29) subdivided proportionately and purposefully into two groups: 64 Obese Women (OW) and 64 Eutrophic Women (EW). The characteristics of the two groups are shown in Table 1. In the OW group, the mean age was 45,17 years (SD ± 11,6) and EW with an average age of 35,36 years (SD ± 7.9). Among the OW, the majority were adults between 40 and 60 years old (33%) and among the EW, the majority were young adults aged 20 to 40 years (46%). Regarding marital status, 32% of the OWs were married, while 33% of the EWs were single. Regarding the level of general knowledge and physical activity, it is observed that most women classified as "low level" are single (63,6%), as shown in Table 1.

Still referring to sociodemographic variables, 50% of OW declared themselves black, while among EW the majority declared themselves to be non-black (51%). In relation to employment, both groups are unemployed (OW 76,6% and EW 53,1%). Regarding family income, both groups had family income of 1 to 2 minimum wages (56,3% of the OM and 67,2% of the EM, with p = 0,01). And among the groups, most EWs had completed high school (71,9% with p = 0,02), as well as women with "moderate/high" knowledge level (67%), as shown in Table 1.

Regarding clinical data, most EWs reported absence of CNCD (78,1%) in relation to OW (35,9%), p = 0,00. As for the level of knowledge, the group with "moderate/high" knowledge, also demonstrated the absence of CNCDs (55,7%).

As for the lifestyle, there was a homogeneity between the groups, which indicated that they were non-smokers (OW 95,3% and EW 96,1%), while 56,3% of the EW group reported being alcoholic. The group of women with a "moderate/high" level of knowledge also demonstrated that the majority were non-smokers

Table 1. Sociodemographic, lifestyle and clinical characteristics of obese (OW) and eutrophic (EW) women: comparison between the OW and EW groups and association between level of general knowledge and physical activity.

Variáveis	Obesas n= 64 (50%)	Eutróficas n= 64 (50%)	P Valor	Baixo n= 22 (17,2%)	Mod./ Alto n= 106 (82,8%)	P Valor
Idade Média (DP)	45,17 (± 11,6)	35,36 (±7,9)		42,3(±11,5)	38,9(± 10,9)	
Adultos Jovens (20 – 40)	24 (37,5)	46 (71,9)		8 (36,3)	62 (58,5)	
Adultos (40– 60)	33 (51,5)	18 (28,1)	0,00*	13 (59,1)	38 (35,9)	0,13*
Idosos (>60)	7 (10,9)	0		1 (4,5)	6 (5,7)	
Estado Civil						
Solteira	31 (48,4)	33 (51,6)		14(63,6)	51 (48,1)	
Casada	33 (51,6)	31 (48,4)	0,74*	8 (36,4)	55 (51,9)	0,24*
Raça						
Preta	32 (50)	31 (48,4)		14(63,6)	49 (46,2)	
Não Preta (Branca e Parda)	32 (50)	33 (51,6)	0,86*	8 (36,4)	57 (53,8)	0,13*
Situação Empregatícia						

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Sem vínculo	49 (76,6)	34 (53,1)	0,00**	18(81,8)	65 (61,3)	0,08**
Com vínculo	15 (23,4)	30 (46,9)		4 (18,2)	41 (38,7)	
Renda Familiar						
Até 1 Salário	26 (40,6)	11 (17,2)		10 (45,5)	27 (25,5)	
1 – 2 Salários	36 (56,3)	43 (67,2)	0,01*	12 (54,5)	67 (63,2)	0,023**
2 – 3 Salários	2 (3,1)	10 (15,6)		0	12 (11,3)	
Escolaridade						
Fundamental Completo	24 (37,5)	13 (20,3)		9 (40,9)	28 (26,4)	
Médio Completo	38 (59,4)	46 (71,9)	0,22*	13 (59,1)	71 (67,0)	0,95**
Superior	2 (3,1)	5 (7,8)		0	7(6,6)	
DCNT						
Sim	41 (64,1)	14 (21,9)		8 (36,4)	47 (44,3)	
DM	20 (31,3)	7 (11,0)		-	-	
HAS	18 (28,1)	5 (7,9)	0,00*	-	-	0,49*
Outras	3 (4,7)	2 (3,0)		-	-	
Sem DCNT	23 (35,9)	50 (78,1)		14 (63,6)	59 (55,7)	
Estilo de Vida Tabagista						
Sim	3 (4,7)	2 (3,1)	1,00**	-	5 (4,7)	0,587**
Não	61 (95,3)	62 (96,1)		22 (100)	101(95,3)	
Etilista						
Sim	29 (45,3)	36 (56,2)	0,289**	6 (27,3)	59 (55,7)	0,016**
Não	35 (54,7)	28 (43,8)		16 (72,7)	47 (44,3)	

Subtitles: DCNT: Chronic Noncommunicable Diseases; DM: Diabetes Mellitus; HAS: Systemic Arterial Hypertension
* Pearson's chi square
**Linear by – Lynear

Figure 1. Classification of the level of nutritional knowledge according to QCN.
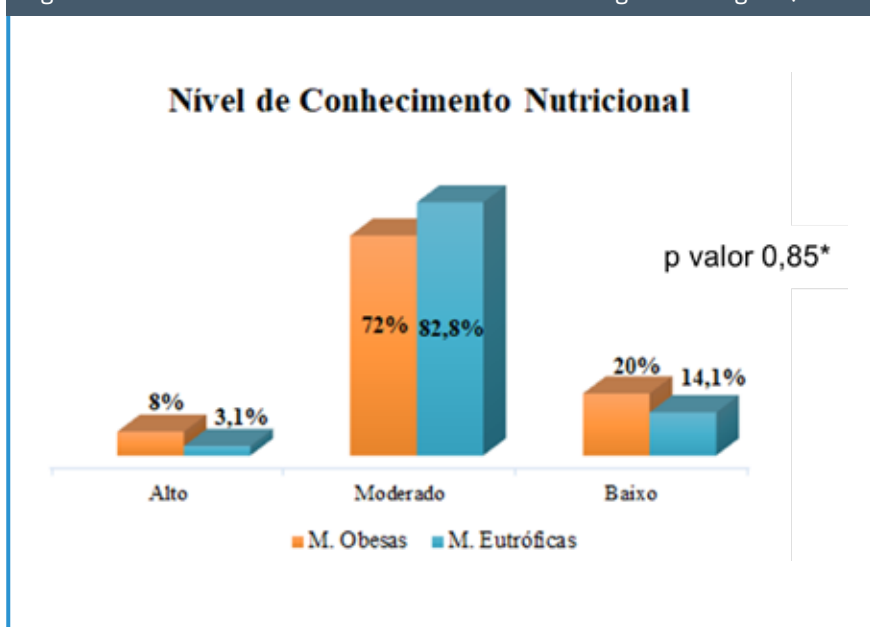
(OW 100% and EW 95,3%), but with a 55,7% predominance of being alcoholic. According to Table 1.

Regarding the Level of Nutritional Knowledge (Nível de Conhecimento Nutricional - NCN), it is possible to observe that both groups presented the majority as "moderate" (OW 72% and EW 82,8%). However, in relation to the "high" and "low" classification, most OW stands out with 8% and 20%, respectively (Figure 1). There was no statistical significance between the groups evaluated.

Regarding the level of physical activity, it is noteworthy that most groups had the classification "active" (OW 59,4% and EW 70,3%). And when compared to the level of knowledge, women classified as "Low" had a classification of "active" (4,5%), while those classified as "Mod./High" had a classification as "in-

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Table 2 - Classification of the level of physical activity according to IPAQ *.

Classificação de Atividade Física	Obesasn= 64 (50%)	Eutróficasn= 64 (50%)	p valor	Baixo n= 22 (17,2%)	Mod./Alto n= 106 (82,8%)	P valor
Sedentário	0	2 (3,1)	-	2 (9,1)	0	-
Insuficientemente Ativo	26 (40,6)	17 (26,6)	0,391**	8 (36,4)	35 (33)	0,075*
Ativo	38 (59,4)	45 (70,3)	-	12 (54,5)	71 (67)	-

* IPAQ - International Physical Activity Questionnaire
**Linear by – Lynear

Table 3 - Association of Nutritional Knowledge Level and anthropometric variables.

Variáveis	Nível de Conhecimento Nutricional		P valor
	Baixo X (SD) n = 22	Mod./ Alto X (SD) n = 106	
CC (cm)	91,8 (17,1)	89,9 (17,6)	0,651*
IMC (Kg/m²)	32,4 (9,1)	29,7 (8,9)	0,221*

* T student test

sufficiently active" (93,4 %), as described in Table 2.

It was also possible to associate the NCN with some variables, as described in Table 3, observing that there was no statistical difference between the variables.

DISCUSSION

The present study was conducted with a total sample of 128 women, equally divided into two groups (64 OW and 64 EW), attended at the Medical Center of Baiana, linked to EBMSP, in the city of Salvador-Bahia. According to the National Policy for Integral Attention to Women's Health 11, women are the main users of SUS, they attend health services accompanying children and other family members, but above all they seek their own care for the prevention and treatment of diseases.

Overall, the sample was composed predominantly of young, single and self-declared black adult women. Most did not have a job, had a family income between 1-2 minimum wages and had completed high school. These data are reinforced in the literature, since most of the Brazilian population comes from low to middle class families, where the race of blacks and browns predominates. This information, which is even more evident when compared to the regions of Brazil, in which the northeast region with the highest prevalence stands out. [12,13]

In relation to age, eutrophic women were younger while obese women were in greater numbers in the 40 to 60 age group and this difference was statistically significant between groups. These data were expected considering that with increasing age and hormonal changes, women tend to gain more weight. [14]

Regarding clinical aspects, it was observed that most OWs reported some type of NCDs, while in the EW group, the majority indicated the absence of such diseases. There is already a consensus in the literature about the consequences generated by obesity in the body, since it represents one of the determining factors for insulin resistance and the appearance of cardiovascular diseases. [13]

The prevalence of NCDs is also higher in more socioeconomically vulnerable populations, as they are more exposed to the determining and conditioning factors. Among these factors, limited access and low demand for health services related to the promotion of an adequate healthy diet that can prevent chronic non-communicable diseases are described in the literature. [14,15,16] When related to the level of physical activity, it is noticed that there is a predominance of the absence of CNCD, corroborating with studies that elucidate that the greater the practice of physical activity, the greater the prevention against these diseases. [17,18]

As for the lifestyle, it was found that both groups reported not being smokers, while most EWs declared to be alcoholics. This result reinforces data in the literature and is commonly justified by the socioeconomic, epidemiological and nutritional changes that the country has been experiencing in the last decades, more expressive especially among women. According to data from VIGITEL, there was an increase in the rates of alcohol intake in Brazilian women in the years 2006 to 2018. 20 Worldwide, studies show an increase in the consumption of alcoholic beverages by women, in addition, higher mortality rates have been documented related to the abuse of this substance. [21,22,23,24] As for the level of physical activity, it appears that the majority of women in both groups had the classification of "active". Currently, there is a growing search for physical activity. According to Machado and collaborators (2013) [25], the practice of physical activity combined with nutritional intervention and increased knowledge on nutrition results in better food consumption and consequently positive changes in anthropometric parameters, in addition to preventing the development of chronic diseases. [11,19,25] When comparing the level of knowledge and physical activity, it was highlighted that those classified as "Mod./High" level of knowledge obtained the classification of "insufficiently active" in relation to physical activity. According to the literature, these findings can be justified by the routine of these women, who end up not having a plan for carrying out these activities. [19,25, 27]

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In this study, only income and drinking data were significantly associated with a better level of nutritional knowledge. Regarding education, there was a difference between the groups, but without statistical significance. This result contrasts with findings in the literature that demonstrate positive associations between knowledge level and education, showing the importance of school education as a basic factor for obtaining knowledge related to nutrition. [28,29,30,31]

From the findings in the present study, we can consider that the socio-demographic and economic variables act as an influential factor and have an impact on the NCN, as well as in the practice of physical activities. Silva and collaborators (2016) [32] reinforce that these conditions have an impact on health care and food, affecting the quality of life and lifestyle, but not only for these women, but also for their families.

Still on the level of nutritional knowledge, it was observed that in both groups (OW and EW) there was a predominance of the classification of a "moderate" knowledge. In the literature, information about the level of nutritional knowledge is still scarce, especially in the population studied. However, it is possible to verify that from the application of other questionnaires that evaluate this same variable, the results are similar, always indicating in most cases a classification as "medium" or "moderate". Thus, they corroborate the findings of the present study, which indicate a moderate or intermediate level of knowledge. [12,18,27]

It was also possible to verify that there was no statistically significant association between the NCN and some anthropometric variables (WC and BMI).

It was also possible to verify that there was no statistically significant association

between the NCN and some anthropometric variables (WC and BMI). About this, a study developed by O 'Brien and Devies [32], with 500 adults, mostly women with an average age of 41,9 years in Northern Ireland using a general nutrition questionnaire, observed that the high level of nutritional knowledge did not correlate with BMI, highlighting that this may not be a determining factor for individuals adopt healthy eating habits. Other studies corroborated the results, confirming that anthropometric data such as BMI and WC are also not associated with the level of nutritional knowledge. [13,33,34,35,36]

As a limitation of the study, sample size was considered, however, there is a need to obtain more and more understanding of the factors that are interrelated to the NCN.

CONCLUSION

The majority of the obese and eutrophic group had a "moderate" level of nutritional knowledge, this knowledge being associated with higher family income (even with family income between 1 and 2 minimum wages), higher consumption of alcoholic beverages and more active individuals . Knowledge of the factors linked to the level of nutritional knowledge is necessary to enable the adoption of tools that assist in educational actions, better preparation for the health professionals involved and, finally, to plan public health strategies that can assist in the improvement of eating habits and consequently prevent occurrence of NCDs. ■

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