

Knowledge and Practices Related to Added Salt in Meals by Food Handlers

Conhecimento e Práticas dos Manipuladores Relacionados com a Adição de Sal nas Refeições

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ABSTRACT

Objectives: To assess the knowledge and concerns about salt intake and added salt in meals, and to identify difficulties and proneness for a reduction of added salt in foods.

Methodology: The present study was based on a questionnaire sent by mail to a randomly selected sample of 100 business units from a catering industry, so that food handlers filled out and returned the questionnaires through the mail. The return rate was 70%, and 68 subjects were considered after the rejection of 2 questionnaires.

Results: The majority of the subjects (80.3%) recognized the maximum advised level of salt intake and 70.6% agreed with reducing the added salt to meals. The major difficulty for reducing the salt content of the meals was the consumer's opinion (mentioned by 79.4%). Soups and salads were identified as major candidates to salt reduction, by 36.4% and 18.2% of the participants, respectively.

Conclusions: Most of food handlers were aware about the recommended salt intake values, and are open to salt reduction strategies in food preparation.

KEYWORDS: Catering, Food handlers, Knowledge, Salt

RESUMO

Objetivos: Avaliar o conhecimento e preocupações relacionadas com a ingestão de sal e com a prática da adição de sal nas refeições, e identificar dificuldades e predisposição para uma possível redução do sal adicionado nos alimentos.

Metodologia: Este estudo baseou-se nos resultados de um questionário enviado por correio para uma amostra randomizada de 100 unidades de uma empresa de restauração colectiva, para que os manipuladores da unidade preenchessem e devolvessem os questionários através de correio. A taxa de resposta foi de 70% e 68 sujeitos foram considerados após uma rejeição de 2 questionários.

Resultados: A maioria dos sujeitos (80,3%) reconhecem o nível máximo de ingestão de sal preconizado e 70,6% concordam com uma redução no teor de sal adicionado às refeições. A maior dificuldade para a redução do teor de sal nas refeições foi a opinião do consumidor (mencionado por 79,4%). Sopas e saladas foram identificadas como melhores candidatas a uma redução do teor de sal, por 36,4% e 18,2% dos sujeitos, respectivamente.

Conclusões: A maioria dos manipuladores tem conhecimento dos valores de ingestão de sal recomendados, e estão receptivos a uma estratégia de redução do teor de sal na confecção de refeições.

PALAVRAS-CHAVE: Catering, Conhecimento, Manipuladores, Sal

INTRODUCTION

Clinical and epidemiological studies have shown strong evidence of the link between excessive salt consumption and several chronic diseases (1). The World Health Organization recommends consuming less than 5 g/day (2) to prevent chronic diseases. However, in Portugal salt consumption is estimated to be 12.3 g/day (3).

Interventions to reduce population-wide salt intake have been shown to be highly cost-effective, hence the urgency to implement strategies tackling the reduction of salt intake, such as those involving the catering industry level. Moreover, at the present, eating in canteens or outside the home may be associated with high levels of salt intake (4-6).

The interaction between health professionals and the catering industry should encourage harmonizing the salt content of served meals according to the lowest threshold possible to simultaneously promote good health and avoid dissatisfaction among consumers. Thus, it is important to involve catering industry in exploratory studies of behaviors like this to formulate an intervention with potential to reduce salt consumption (7).

The objectives of the study were to assess: the knowledge, perceptions, and concerns about salt

intake and added salt in meals; food handlers practices associated with the use of salt; the predisposition for a reduction of added salt in meals; and the difficulties and target foods for a reduction of added salt.

MATERIALS AND METHODS

Subjects and Procedures

This research was conducted in Uniself, a Portuguese catering company, and the subjects included in this study were workers that produce meals and manage the canteens for kindergartens, schools, nursing homes and prisons. Questionnaires were distributed to a randomly selected sample of 100 company's business units from North and Center of Portugal by mail without preference or intentional choice of any particular business unit, so that food handlers (one element that was responsible for cooking in each business unit) filled out and returned the questionnaires through the mail. All participants were informed that the questionnaire was anonymous and individual. The return rate was 70%, however 2 questionnaires were rejected because they were incomplete (68 subjects were considered).

The questionnaire was developed and reviewed after a pretest (on 10 food handlers) by a team of

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nutritionists, and consisted of three main parts: 1) assessment of knowledge about adequate intake of salt, major food groups contributing to salt intake, and the relationship between salt consumption and health; 2) evaluation of the concerns about the use of salt, practices and difficulties; 3) characteristics of the business unit and sociodemographic characteristics of the subjects.

Statistical Analysis

All analyses were performed using Statistical Package for Social Sciences v.20 (SPSS, Chicago, Illinois, US). Pearson's chi-square tests were performed to examine if there were any relationship between demographics (gender, age and school level), knowledge (recommended sodium intake) and practices (taste before add salt and taste after add salt). A p-value of <0.05 was regarded as significant.

RESULTS

The target consumers of these business units were children (50%), adults (22.1%), elderly (1.5%), and two or more age groups (26.5%). The subjects were 92.5% female, 60% were between 26-44 years old, and 50.7% of the handlers had 9 or less schooling years. Regarding the subject's professional status, 20.6% were 2nd level cooker, 20.6% were catering supervisors, and 35.4% had "Other" status (described as cookers 3rd level in 98% of cases).

Major results related to the assessment of knowledge about adequate intake of salt, and the evaluation of the concerns about the use of salt, practices and difficulties are described in Table 1.

Large majority of the respondents (91.2%, n = 61) said that has heard or read something about an adequate intake of salt and about 80.3% think that this value is less than 5 grams per day. Half of the respondents classified salt intake in Portugal as high (39.7%) and very high (10.3%). Food produced in catering industry was identified as major contributor to salt intake by 4.5% of respondents, being the major contributor's sausages and smoked sausages (69.7%) and fast food (12.1%). Adding salt to foods is associated with few benefits to human health (31.8%) and 95.5% of respondents has identified excessive consumption of salt with the development of hypertension.

Vast majority (94.1%) has concerned about quantity of salt added to meals and 75.0% believe that the amount of salt present in the food produced in their business unit does not affect the health of the consumer.

One usual quantity measured previously (63.2%), taste of food handler responsible for cooking process (33.8%) and the consumer acceptance of food (26.5%) was factors that determine quantity of salt added to foods.

About a quarter of respondents (26.5%) always tastes foods before adding salt however 55.8% tastes less then frequently foods before adding salt. After salt addition 70.6% always taste foods, however some respondents rarely (1.5%) or never (2.9%) taste foods.

About the possibility of reducing the amount of added salt in prepared meals, 70.6% agree and over half declare that meals would become similar if a reduction of usually salt used was performed (51.5%).

Opinion/knowledge of consumers (80.6%) and opinion/knowledge of food handlers (25.3%) was

TABLE 1: Survey answers about knowledge, concerns, practices and difficulties

Questions	Answer	%
Have you heard or read any information about an adequate intake of salt?	a) yes	91.2
	b) no	8.8
Which do you think is the value of the recommended daily salt intake?	a) < 5g/day	80.3
	b) 6-7.9 g/day	13.6
	c) 8-10.9 g/day	6.1
	d) 11-13.9 g/day	0
How much do you think is the consumption of salt in Portugal?	a) very low	2.9
	b) low	10.3
	c) moderate	36.8
	d) high	39.7
	e) very high	10.3
In your opinion, which factor contributes more to total salt intake?	a) pizzas	4.5
	b) sausages and smoked sausages	69.7
	c) cheese	0
	d) food produced in catering	4.5
	e) homemade food	4.5
	f) fast food	12.1
	g) bakery and pastry	4.5
Monitoring added salt to foods has health benefits?	a) many benefits	1.5
	b) some benefits	21.2
	c) no benefits	16.7
	d) few benefits	31.8
	e) very few benefits	28.8
Is the excessive intake of salt associated with any effects on health: (multiple answers)	a) enhance health	20.6
	b) mood changes	8.8
	c) hypertension	95.6
	d) osteoporosis	10.3
	e) stomach cancer	27.9
	f) any influence	0

TABLE 1 (continuation): Survey answers about knowledge, concerns, practices and difficulties

Questions	Answer	%
Do you have some concern about the quantity of added salt in foods produced in your business unit?	a) yes	94.1
	b) no	5.9
The quantity of salt present in foods produced in your business unit...	a) is beneficial to health of consumer	20.6
	b) don't affect health of consumer	75.0
	c) is harmful to health of consumer	2.9
	d) I don't have notion about the quantity	1.5
What are the most important factors that determine the quantity of salt added to foods/meals produced in your business unit?	a) the consumer acceptance	26.5
	b) the price	1.5
	c) the taste of food handler responsible	33.8
	d) one usual quantity, measured previously	63.2
	e) other	7.4
Do you usually taste foods before adding salt?	a) never	17.6
	b) rarely	19.1
	c) sometimes	19.1
	d) frequently	17.6
	e) always	26.5
Do you usually taste foods after adding salt?	a) never	2.9
	b) rarely	1.5
	c) sometimes	5.9
	d) frequently	19.1
	e) always	70.6
What do you think about trying to reduce added salt to foods in your business unit?	a) disagree totally	5.9
	b) disagree partially	17.6
	c) indifferent	2.9
	d) agree partially	30.9
	e) agree totally	39.7
If you reduce the quantity of salt usually added to foods, the meals produced would become:	a) much worse	1.5
	b) worse	36.8
	c) similar	51.5
	d) better	5.9
	e) much better	2.9
In your opinion, what difficulties you may have in salt reduction in your business unit?	a) opinion/knowledge of consumer	79.4
	b) time spend in reduction	1.5
	c) opinion/knowledge of food handlers	25.0
	d) the costs associated	5.9
	e) never try	1.5
	f) other difficulties	4.4

identified as major difficulties in a possible salt reduction.

The food groups more frequently named as targets to reduce their salt content were: soups (36.4%); salads (18.2%); rice/pasta/potato/pulses (16.7%); and bread (15.2%). Meat (7.6%) and fish (6.1%) products were less mentioned.

Knowledge and practices were not significantly associated with the sociodemographic characteristics of the respondents (Table 2).

TABLE 2: Relationship between sociodemographic characteristics and knowledge/practices

	Gender	School Level	Age
Knowledge^a	0.435	0.516	0.516
Taste before add salt^a	0.923	0.981	0.548
Taste after add salt^a	0.239	0.276	0.696

^a Analysis by χ^2 for categorical variables

DISCUSSION

The results showed that food handlers, the main players in the production of meals, are concerned, and had good knowledge about the recommended salt intake values and health problems associated with high salt intake.

The foods groups identified as major contributors of salt intake was in accordance to reported sodium composition of these foods (8). These results are encouraging, however, given that many courses of culinary have no specific nutrition content is no good reason to suppose that chefs know any more about nutrition than the general public (9).

Food produced in catering was considered by 4.5% respondents as major contributor to salt intake, however the contribution by catering to total salt intake may be underestimated by respondents. Recent data from U.S. population shows that foods consumed in restaurants could contribute by 24.8% to 27% from total salt intake (10) and other food sources contribute with 4.1% of salt from sausages, 6.3% from pizzas, 3.5% from cheese and 7.3% from bakery products (8). The contribution of salt in meals was considered by almost all the respondents as beneficial or not affecting consumer health. Nevertheless, mass catering may be an excellent mean for decreasing salt intake (11), and some studies showed that a single meal or a single component like soup provided in canteens may contribute to exceed the adequate daily intake of salt (12, 13).

A further aspect in the present study was the absence, or the occasional practice, to taste the foods in the meal before adding salt by about one third of the subjects, while the vast majority tastes the foods only after adding salt. Similar results was found by Johns and colleagues and suggest that salt addition depends on the chefs' palates, which tend to be less sensitive due to regular exposure to salt (9, 14) and this could have impact on quantity of salt added. Using standardized measures and procedures to add salt in

meal preparation could be a strategy to monitor the food handler's activities related to achieve the desired final salt composition of served meals. The amount of added salt to foods was based, in most cases, in the usual quantity that was used, and about one third of the subjects rely on the taste of food handler responsible for preparation.

The European Union framework for national salt initiatives established a benchmark of a salt reduction for all food products, also encompassing salt consumed in catering (15). Most food handlers agreed with a possible reduction in salt added to foods, and the majority reported to believe that the meals produced would be similar or better. These responses may be due to social desirability or to the belief that the amount of salt being used is modest and a further reduction would not affect the taste or the consumer health.

Although this study shows a predisposition of food handlers toward the possibility of changing their practices, such as reducing the added salt to foods, factors such as consumer behavior may affect this change (16). If a genuine effort to introduce meals with a lower salt composition is made, the consumer should also be willing to choose these meals, in order to maintain the sales in the subsequent time.

Food handler's knowledge of how to reduce salt in food preparation without affecting consumer acceptance should be supported. The United Kingdom's salt reduction program successfully reduced the average salt intake of the population developing a specific work in association with the catering sector including reviewing kitchen practices and menu planning (17). In order to perform effective actions, it will be necessary to concentrate efforts among catering associations, consumers and food handlers. Companies should be encouraged to create sustainable programs to maintain adequate salt content of the meals served, and if necessary, to reformulate some recipes, implement consumer information and awareness campaigns (18).

CONCLUSIONS

Most of food handlers were aware about the recommended salt intake values and health problems associated with excessive salt intake, and are open to salt reduction strategies in food preparation.

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