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Research Article

ASSESSMENT OF INTENSIVE CARE NURSES' PERCEPTIONS REGARDING OBESITY TAX

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Abstract: Obesity has become an increasingly significant health issue affecting both individuals and societies, leading many countries to implement various strategies to address this threat. One of these strategies is the obesity tax, which is applied to foods with low nutritional value and high fat, sugar, and calorie content. Healthcare professionals, particularly intensive care nurses, face additional challenges when caring for obese patients during this process. This research aims to assess the perceptions of intensive care nurses regarding obesity taxation. The descriptive study involved 92 intensive care nurses. Data were collected using a form to determine nurses' demographic characteristics and the Obesity Tax Perception Scale. A significant 94.6% of the surveyed nurses reported challenges in providing care for obese individuals. Most participants indicated a perception of a high tax burden. The statement "The fight against obesity is one of the main tasks of the state" received the highest support on the scale (3.93±1.13). There was also a strong endorsement of the statement, "The fight against obesity should be through non-tax instruments" (3.77±0.89). Conversely, the statement "Taxes should be the primary tool in the fight against obesity" received the least support, registering a mean of 2.28±1.11 from the participants. The findings indicate that intensive care nurses believe in government intervention in fighting obesity; however, they prefer that this intervention occur through non-taxation measures. These results underscore the importance of considering the perspectives of healthcare professionals in shaping effective policies and strategies against obesity.

Keywords: Intensive Care, Intensive Care Nursing, Nursing, Obesity, Tax.
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1. Introduction

Obesity is an increasing problem in all countries [1]. Worldwide, it is known that approximately 16% of the adult population was obese and 43% was overweight in 2022 [2]. According to data from the Turkish Statistical Institute, the proportion of obese individuals aged 15 years and older was 19.6% in 2016 and 21.1% in 2019. According to a gender-based breakdown, 24.8% of women and 17.3% of men were obese in 2019 [3].

Unhealthy dietary patterns and excessive sugar intake constitute significant factors linked to the risk of obesity [1]. One of the main sources of dietary sugar is sugar-sweetened beverages [4]. Regular consumption of sugar-sweetened beverages has been associated with increased obesity risk, particularly as noted in a systematic review [5], and further supported by findings and evaluations in related literature [6], [7]. The World Health Organization (WHO) has recommended taxing sugar-sweetened beverages as one of the 'good purchasing' interventions to fight obesity. According to the recommendation,

countries should aim to increase the retail price of sugar-sweetened beverages by at least 20% using taxation [8]. Sugar-sweetened beverage taxation is increasingly recognized as an effective fiscal policy to reduce consumption and combat obesity. This is supported by a growing body of literature, including systematic reviews [5], [9], modelling studies [10], [11], and policy and comparative analyses [12], [13], [14].

An "obesity tax" is the term commonly used for imposing a specified rate of taxation on food items characterized by low nutritional value, high fat, sugar, and calorie content. This tax is typically applied to products considered unhealthy, such as junk food, fast food, and sugar-sweetened beverages [15]. The number of states utilizing tax instruments in the fight against obesity has been increasing rapidly in recent years [6], [12]. Many countries worldwide are implementing or planning to implement obesity taxes in various ways, albeit with different scopes at regional or national levels [16].

Although there is no obesity tax in Turkey to fight obesity, there are already taxes in the form of differentiated proportional and lump-sum taxes on products that can be considered harmful. These taxes are applied to generate additional revenue [17]. In the tax system, subsidies that serve social purposes other than fiscal purposes are important. The restructuring of product groups and the progressive tax structure on products that are considered to cause obesity show that the excise tax can be effective in fighting obesity in Turkey [18].

Turkish society's views on the fight against obesity have a significant impact on the effectiveness of a possible tax policy [17]. Studies on the implementation of obesity tax in Turkey show that while support for the tax is low, there is widespread recognition of the need for diverse policies to combat obesity. Non-tax strategies are often preferred [19], [20] while some research suggests that a combination of tax and non-tax measures may be more effective [21], [22]. When the literature was examined, no study was found in which nurses' perceptions of obesity tax were evaluated.

Obesity is a condition that poses a burden not only on healthcare professionals but also on individuals and society as a whole. Among health professionals, nurses are the professional group that spends longer time with the patient and undertakes one-to-one care responsibility [23]. Nurses experience various difficulties while caring for patients with obesity due to their complex care needs. These challenges include intravenous access, urinary catheter insertion, mobilization, position change, patient transfer, hygiene and excretion needs. The patient's limited self-care ability, inability to provide personal hygiene, and limited ability to move and change position cause the nurse to handle all these care tasks alone [24]. Especially intensive care nurses who take care of patients with complex and life-threatening problems try to provide safe patient care with additional challenges caused by obesity. This research aims to assess the perceptions of intensive care nurses regarding obesity taxation.

2. Materials and Methods

2.1. Research Type

This study was conducted as a descriptive study.

2.2. Participants

The research was carried out within the intensive care units of a training and research hospital located in Turkey. The hospital where the research was conducted has seven different intensive care units with a total capacity of approximately 64 beds. The study population consisted of all nurses working in these intensive care units (115 nurses). According to the known sample calculation, it was calculated that at least 89 intensive care nurses should be included in the sample with a 95% confidence interval and 5% margin of error. Between June and July 2023, 92 nurses who were not on leave or report,

who agreed to participate in the study and who responded completely to the data collection form constituted the sample of the study.

2.3. Data Sources/Measurement

The study's data were gathered using a questionnaire form. The questionnaire included nurses' descriptive characteristics and characteristics related to caregiving (age, gender, marital status, etc.) and the Obesity Tax Perception Scale. In the questionnaire form, a definition of obesity tax was given and the participants answered the scale questions after checking "I read this definition." The study included nurses working in intensive care units who agreed to participate.

2.3.1 Obesity Tax Perception Scale

The Obesity Tax Perception Scale was developed by Ayyıldız and Demirli in 2015 [25]. The aim of the scale is to assess the perception of obesity tax. The questionnaire includes 18 questions to evaluate the participants' views on obesity tax. The questions are five-point Likert type. It consists of strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5) items [25]. The evaluation of the scale was based on the mean and standard deviations of the items. The total score of the scale is not calculated, and there is no cutoff point. In the study by Ayyıldız and Demirli, the Cronbach's alpha coefficient was reported as 0.826 [25]. In the present study, the reliability of the scale was confirmed with a Cronbach's alpha coefficient of 0.905.

2.4. Data Collection

Data were collected from nurses working in the intensive care unit by one of the researchers. Participants were briefly informed about the definition and purpose of this tax after the definition of the obesity tax was made. It took approximately 7-10 minutes to answer the questionnaire.

2.5. Statistical Analysis

The study's data were analyzed using the SPSS 28.0 software package (SPSS, an IBM Company, Chicago, IL, USA). Descriptive statistics were used to present and describe the results, including frequency, percentage, mean, and standard deviation.

2.6. Ethical Considerations

Before data collection in this study, approval was obtained from Mardin Artuklu University Non-Interventional Clinical Research Ethics Committee (Decision date and number: 08.06.2023, 2023/6-9). Permission was obtained from the responsible author via e-mail for the 'Obesity Tax Perception Scale' used in the study. Informed consent was obtained from the participants. The study adhered to the principles of the Declaration of Helsinki.

3. Results

Among the participants, 56.5% were female, 46.5% were married, 85.9% had undergraduate degrees, 54.3% had income less than expenses, and 63% had a normal BMI. The mean age of the nurses was 31.30±5.96 years (22-50), the mean duration of working as a nurse was 8.22±5.99 years (1-26), and the mean duration of working in the intensive care unit was 5.43±3.90 years (1-17) (Table 1).

Table 1. Descriptive Characteristics of Intensive Care Nurses

Characteristics		n	%
Gender	Female	52	56.5
	Male	40	43.5
Marital status	Married	52	56.5
	Single	48	43.5
Education status	High school graduate	4	4.3
	Undergraduate degree	79	85.9
	Postgraduate degree	9	4.3
Income status	Less than expenses	50	54.3
	Equal to expenses	35	38.0
	More than expenses	7	7.6
BMI (kg/m2)	Normal (18.50-24.99)	58	63.0
	Pre-obesity (25.00-29.9)	27	29.3
	Obesity (≥30.00)	7	7.6
	Mean±SD (Min-Max)		
Age (years)	31.30±5.96 (22-50)		
Duration of working as a nurse (years)	8.22±5.99 (1-26)		
Duration of working in intensive care unit (years)	5.43±3.90 (1-17)		

BMI: Body Mass Index, Max: Maximum, Min: Minimum, SD: Standard Deviation.

Fifty-five participants (59.8%) had low back/neck/knee pain. A significant 94.6% of the nurses reported challenges in providing care for obese individuals. The most difficult areas were meeting personal hygiene needs (77.2%) and changing in-bed positions (77.2%), preventing complications caused by obesity (64.1%), mobilizing and transferring the patient (60.9%), performing invasive procedures (57.6%), meeting excretory needs (52.2%), providing appropriate equipment (57.6%) and psychological support (19.6%), respectively (Table 2).

Table 2. Characteristics of Intensive Care Nurses Related to Caregiving

Characteristics		n	%
Do you have back/neck/knee pain?	Yes	55	59.8
	No	37	40.2
Do you have difficulty in caring for obese individuals?	Yes	87	94.6
	No	5	5.4
If yes to the previous question, which area do you have the most difficulty?* (n:87)	Meeting personal hygiene needs (such as bed bathing)	71	77.2
	Meeting excretory needs (such as insertion of a urinary catheter)	48	52.2
	Performing invasive procedures (such as intravenous access)	53	57.6
	Changing in-bed positions	71	77.2
	Patient mobilization and patient transfer	56	60.9
	Prevention of complications caused by obesity (such as pressure sores, thromboembolism)	59	64.1
	Provision of appropriate equipment for obese individuals (such as blood pressure cuffs of appropriate size)	53	57.6
	Psychological support	18	19.6

* More than one option was allowed.

The majority of the participants (95.7%) stated that the tax burden they paid was high (Table 3).

Table 3. Tax Burden Perception of Intensive Care Nurses

		n	%
What do you think about the total tax burden you pay? *(Income or Corporate + Value Added Tax + Motor Vehicle Tax + Special Consumption Tax + Other)*	Low	0	0.0
	Normal	4	4.3
	High	88	95.7

The statement " The fight against obesity is one of the main tasks of the state." received the most support, with a mean of 3.93±1.13 on the Obesity Tax Perception Scale. Then, the statement " The fight against obesity should be through non-tax instruments" was found to be the second most supported statement (3.77±0.89). The participants least supported the statement "Taxes should be the primary tool in the fight against obesity." (2.28±1.11) (Table 4).

Table 4. Frequency Distributions and Averages of Intensive Care Nurses' Views on Obesity Tax

Statements		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean±SD
1) Taxes on consumption can reduce consumption.	n	15	19	20	19	9	2.98±1.26
	%	16.3	20.7	21.7	31.5	9.8	
2) Taxes should be the primary tool in the fight against obesity.	n	24	37	16	11	4	2.28±1.11
	%	26.1	40.2	17.4	12.0	4.3	
3) The fight against obesity should be through non-tax instruments.	n	1	7	22	44	18	3.77±0.89
	%	1.1	7.6	23.9	47.8	19.6	
4) The fight against obesity is one of the main tasks of the state.	n	8	4	1	52	27	3.93±1.13
	%	8.7	4.3	1.1	56.5	29.3	
5) Obesity tax should be implemented in Turkey.	n	21	19	20	27	5	2.74±1.26
	%	22.8	20.7	21.7	29.3	5.4	
6) The tax rate can be set higher for products that cause obesity.	n	18	22	21	26	5	2.76±1.22
	%	19.6	23.9	22.8	28.3	5.4	
7) I think obesity tax will be beneficial for the society.	n	16	29	12	30	5	2.77±1.23
	%	17.4	31.5	13.0	32.6	5.4	
8) Obesity tax does not interfere with the way people live.	n	14	25	25	24	4	2.77±1.13
	%	15.2	27.2	27.2	26.1	4.3	
9) Reduced consumption of obesity products whose price increases due to the tax.	n	13	17	22	35	5	3.02±1.17
	%	14.1	18.5	23.9	38.0	5.4	
10) This tax could reduce the number of people in the obesity group.	n	11	23	14	39	5	3.04±1.18
	%	12.0	25.0	15.2	42.4	5.4	
11) Introducing an obesity tax would increase the consumption of healthy products.	n	11	24	14	36	7	3.04±1.20
	%	12.0	26.1	15.2	39.1	7.6	
12) This tax reduces the income of businesses selling obesity products.	n	6	21	25	31	9	3.17±1.10
	%	6.5	22.8	27.2	33.7	9.8	
13) The state will do this because it cares about the health of citizens.	n	21	24	13	27	7	2.73±1.31
	%	22.8	26.1	14.1	29.3	7.6	

Table 4 Continued.

Statements		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean±SD
14) I believe that the government will introduce this tax to raise revenue.	n	9	15	23	23	22	3.37±1.28
	%	9.8	16.3	25.0	25.0	23.9	
15) An obesity tax could reduce health costs for the state.	n	8	16	23	33	12	3.27±1.16
	%	8.7	17.4	25.0	35.9	13.0	
16) Obesity tax does not provoke a reaction in the society.	n	14	32	22	20	4	2.65±1.11
	%	15.2	34.8	23.9	21.7	4.3	
17) As a result of the obesity tax, I may consider reducing the consumption of the products in question.	n	11	20	18	38	5	3.07±1.16
	%	12.0	21.7	19.6	41.3	5.4	
18) The taxes we pay are returned to us as public services.	n	25	20	21	21	5	2.58±1.26
	%	27.2	21.7	22.8	22.8	5.4	

SD: Standard Deviation.

4. Discussion

This study was conducted to assess intensive care nurses' perceptions of the obesity tax. Turkish society's views on combating obesity have a significant impact on the effectiveness of a possible tax policy [17]. Society's perception of such measures is an important indicator of success in the fight against obesity. Participants' perceptions were evaluated using the Obesity Tax Perception Scale. The results indicated that nurses perceive the fight against obesity as a state responsibility. However, there was a general tendency to prefer educational, preventive, and supportive approaches over tax-based interventions. These findings may provide preliminary insights into the views of intensive care nurses, which could inform future health policy discussions.

In this study, the scale findings revealed that participants considered the state's role in combating obesity to be important, yet they believed that this effort should be carried out through non-tax instruments rather than tax-based interventions. There was limited agreement with statements such as *"Taxes should be the primary tool in the fight against obesity"* and *"Obesity tax should be implemented in Turkey."* In contrast, there was strong agreement with statements like *"The fight against obesity should be through non-tax instruments"* and *"The fight against obesity is one of the main tasks of the state."* These results suggest that nurses prioritize preventive, educational, and structural public health strategies over punitive fiscal approaches. Similar tendencies have been reported in studies with the general population. For instance, a study by Yeşiltaş and Gül reported similar views in the general public, where non-tax strategies were preferred over tax-based approaches [26]. In a study conducted by Asilkan and Yalçın Balçık with patients applying to a family health center to evaluate the opinions on the implementation of obesity tax, it was reported that the majority of patients did not support obesity tax, but believed that different tools and policies other than tax were necessary to fight obesity [15]. In a qualitative study conducted by Kayacık and Cural, it was reported that the participants did not have a completely negative attitude towards the obesity tax and believed that the tax policy to be implemented would reduce obesity [20]. Akbelen et al. conducted a study to determine the factors related to the acceptability of obesity tax and concluded that views on obesity tax and obesity culture have a significant effect [19]. According to the study conducted by Akkaya and Gergerlioğlu to examine the impact of obesity tax on individuals' attitudes, it was found that supportive attitudes towards obesity taxes were between 40% and 50%. It was reported that 40.8% of the participants believed that obesity tax would restrict people's freedoms [27]. In a study conducted by Sandalcı and Tuncer, it was found that Turkish people have a negative perspective towards obesity tax [21]. In another study, the level of public

acceptability towards obesity tax was found to be low [22]. These studies indicate a widespread lack of support for an obesity tax in Turkey. Yet individuals are aware of the essential need for diverse policies and tools in addressing the challenge of obesity.

In this study, 54.3% of participants stated that their income was less than their expenses, and 95.7% perceived the tax burden they paid as high. This perception is particularly relevant in the context of obesity taxation, as previous research indicates that obesity is more prevalent among low-income groups in Turkey, where food expenditure constitutes a major portion of household budgets [18]. The literature emphasizes that, if properly supported by targeted subsidies, excise taxes on unhealthy products can positively affect lower socio-economic groups [5], [14], [28]. However, since low-income individuals allocate a substantial portion of their income to food, taxation on unhealthy items may place a disproportionate financial burden on them [29]. A total of 66.3% of participants indicated that non-tax instruments should be used in the fight against obesity, and only about one-third agreed that taxation could reduce product consumption. These findings suggest that perceptions of economic burden may influence the participants' hesitant attitudes toward taxation. It should be recognized that in many places, individuals live in an obesogenic environment surrounded by cheap, ultra-processed, high-calorie and nutrient-poor food, where access to healthy food is often challenging, financially, and geographically almost impossible. Choosing a healthy diet should be the easiest choice [4]. Increasing the tax on products that may cause obesity and at the same time reducing the tax burden on food prices that are subject to healthy consumption, such as fruits and vegetables, dairy products and fish varieties, through incentives can increase the effectiveness in the fight against obesity [29], [30]. These changes can offset the impact of consumption taxes to address fairness concerns without increasing the total tax burden [26], [30].

Obesity and related medical conditions make it difficult for nurses to provide care [31]. Due to obesity, thromboembolism, prolonged ventilation, falls, increased risk of developing musculoskeletal complications, and prolonged intensive care unit stay are among the challenges [24]. In this regard, additional effort and time are required to offer care to individuals with obesity [31]. In this study, 94.6% of nurses reported experiencing difficulties in providing care to obese individuals. The most commonly reported challenges were meeting personal hygiene needs (77.2%) and changing in-bed positions (77.2%). In addition, 59.8% of nurses stated that they experienced pain in the back, neck, or knees. A systematic review highlighted that obesity increases the complexity of nursing care and frequently necessitates the involvement of multiple caregivers due to the physical demands, thereby contributing to caregiver burden and institutional stress [24]. These findings suggest that nurses experience not only physical strain when caring for obese individuals but may also require institutional support to ensure the sustainability of such care.

To prevent obesity, nurses recommend increasing the prices of unhealthy foods and beverages, improving public nutrition by limiting the levels of fat, sugar, and salt in food industry products, and encouraging children and parents to develop critical thinking about food advertisements for the marketing of unhealthy foods in various media [32]. Among the nurses participating in this study, 38% agreed with the statement "I think an obesity tax would be beneficial for society" and 34.7% supported the view that "An obesity tax should be implemented in Turkey. " Although the rate of nurses who believe that an obesity tax will benefit society is significant, most nurses in the study emphasize the importance of alternative approaches to promote health and reduce obesity by expressing that more support should be given to non-tax methods.

This research has some limitations. First, the study is limited to intensive care nurses, but not only intensive care units employ nurses who take care of obese persons; hence, the perceptions and experiences of nurses in other units may differ. The low number of nurses in the sample (n = 92) and the fact that the data were only collected between June and July 2023 further reduce generalizability. It

was conducted only in one training and research hospital in Turkey, possibly weakening the generalizability in other geographical and cultural contexts.

5. Conclusion

This study aimed to assess the perceptions of intensive care nurses regarding obesity taxation. The findings indicate that while nurses acknowledge the state's role in combating obesity, they prefer alternative policies over tax-based interventions. Most nurses reported difficulties in providing care for obese individuals, particularly in hygiene and mobilization. Although a significant proportion of nurses believed that an obesity tax could benefit society, they pointed out the importance of educational programs and regulatory measures on unhealthy foods as potentially more effective strategies. These findings suggest that, from the perspective of intensive care nurses, tax-based interventions alone may not be sufficient to address the challenges associated with obesity. Therefore, incorporating non-tax strategies, tailored to clinical and societal contexts, might be worth exploring in future initiatives. Given the study's limited sample, future research should include a broader range of healthcare professionals and stakeholders to provide a more comprehensive perspective. In conclusion, addressing obesity requires not only financial measures but also multidimensional strategies to ensure a more effective and equitable public health approach.

Ethical statement:
Before data collection in this study, approval was obtained from Mardin Artuklu University Non-Interventional Clinical Research Ethics Committee (Decision date and number: 08.06.2023, 2023/6-9).

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Conflict of interest:
The authors declare no conflict of interest.

Authors' contributions:
Plan, design: DBA, DAD; Material, methods and data collection: DBA, DAD; Data analysis and comments: DBA, DAD; Writing and corrections: DBA, DAD. All authors read and approved the final manuscript.

Generative AI statement:
The authors declare that no Gen AI was used in the creation of this manuscript.

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