



Nutritional Knowledge, Attitude, and Practice of General Physicians Toward the Management of Metabolic Syndrome in Tehran

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Abstract

Background: Despite the dramatic increase in the prevalence of metabolic syndrome (MetS) in Iran, nutrition therapy has not been adequately addressed in primary care settings.

Objectives: This study aimed at investigating the nutritional knowledge, attitude, and practice of general physicians (GPs) toward the management of MetS.

Methods: This cross-sectional study was conducted in July 2019 in Tehran. Participants (n = 500) were recruited among GPs working in health centers and completed self-administered questionnaires, which included four sections: (i) six questions regarding demographic characteristics; (ii) six questions about knowledge on MetS; (iii) ten questions on nutritional attitude toward the management of MetS, and (iv) a case study designed to assess the nutritional practice of GPs.

Results: Incorrect responses in knowledge on the definition of MetS and its risk factors and complications were over 60%. In addition, their attitude and practice toward the details of macronutrient and micronutrient intakes in the prevention and treatment of MetS were inadequate.

Conclusions: Inadequate knowledge, attitude, and practice regarding nutrition is an obstacle for providing optimum nutritional counseling by GPs.

Keywords: Knowledge, Attitude, Professional Practice, General Physicians, Metabolic Syndrome

1. Background

Among health professionals in primary care settings, general physicians (GPs) are credible sources for providing nutritional information to improve dietary habits (1, 2), because of the chances of patients' first point of contact (3). However, although GPs support the nutritional interventions that are highly prioritized (4), their ability to prescribe accurate dietary recommendations to manage the chronic disease is still under question (5, 6). Metabolic syndrome (MetS) is a constellation of risk factors for developing cardiovascular disease (7). The prevalence of MetS is rapidly increasing among the Iranian population (8). According to the Ministry of Health and Medical Education of Iran, the management of MetS is a physician's task.

2. Objectives

The present study was conducted to assess the nutritional knowledge, attitudes, and practices of GPs in Tehran,

Iran, regarding MetS and its nutritional management.

3. Methods

This cross-sectional study was conducted in July 2019 in Tehran. Participants were recruited among GPs working in health centers affiliated to the Shahid Beheshti University of Medical Sciences.

The sample size was calculated considering alpha = 5%, d = 0.1, power = 0.95, P (the ratio of people with high practice) = 0.46, and possible attrition = 20% and using the following formula:

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 P (1 - P)}{d^2} \quad (1)$$

A total of 542 GPs were invited to participate in the study, of whom 500 cases returned completed self-administered questionnaires. This study was approved

by the Ethics Committee of the Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences (No: IR.SBMU.ENDOCRINE.REC.1397.093). Written informed consent was obtained from all GPs.

The “Nutrition and MetS” questionnaire was developed by a panel of expert dietitians, according to dietary guidelines (9). The questionnaire included 22 questions categorized into four sections, including:

- (i) Questions regarding demographic characteristics
- (ii) Six questions assessing knowledge about MetS (Table 1)
- (iii) Ten questions assessing nutritional attitude toward controlling MetS (Table 2)
- (iv) A case study designed to assess the practice of physicians

Table 1. Responses to the Nutritional Knowledge Toward MetS by General Practitioners^a

Variables	No.	%
Can you define the MetS?	157	31.4
Can you define the risk factors of the MetS?	126	25.2
Can you define the complications of the MetS?	109	21.8
Do you review the patient's medical history to determine if the patient has a MetS?	11	2.2
Do you provide nutrition recommendations for patients with MetS?		
Yes (correct response)	58	11.6
No, why?	442	88.4
This is not the responsibility of physicians	312	62.4
Lack of time	356	71.2
Limited nutritional knowledge	401	80.2
Feeling unskilled in providing nutrition recommendation	15	0.03
Lack of belief in the efficacy of diet therapy	73	14.6
Do you refer the patient with MetS to a dietitian? (yes)	304	60.8

Abbreviation: MetS, metabolic syndrome.

^aCorrect response

Physicians were asked to list seven dietary recommendations based on published guidelines (9) for improving healthy dietary patterns. For the case study, a group of dietitians assessed the quality of the dietary recommendations suggested by physicians, which included:

1. Consumption of various fruits and vegetables
2. Consumption of a variety of whole-grain products
3. Consumption of fat-free and low-fat dairy products
4. Replacing high-fat meat, red meat, and processed meat by fish, legumes, poultry, and lean meats
5. Limiting salt intake to less than 6 g/day
6. Limiting intake of foods with a high content of cholesterol

7. Maintain a healthy body weight

The quality of the dietary recommendations suggested by physicians was assessed. Any recommendation following the dietitians' advice received one point and those that were not advised by dietitians received no point. Scores of each physician were calculated by summing up the points. Scores for the practice of physicians were categorized as low nutritional practice (0 - 3 points) and high nutritional practice (4 - 7 points).

4. Results

The mean age of the participants was 42.8 ± 6.6 years, and most of them were married (72.6%) and female (58.0%). Regarding the knowledge of participants about MetS (Table 1), a high proportion of GPs could not define MetS and its risk factors and complications. Most GPs did not review the patient's medical history to determine if the patient had MetS. In addition, they did not provide nutritional recommendations for patients with MetS because they thought that this was not their responsibility and also due to lack of time and limited nutrition knowledge. Over 60% of GPs reported that they refer the MetS patients to dietitians. Regarding the attitudes of GPs about MetS (Table 2), most GPs believed that there was an established association between dietary patterns and MetS and weight loss improved MetS. However, their attitude toward the details of macronutrient and micronutrient intakes for the prevention and treatment of MetS was incorrect. Regarding the dietary recommendations based on dietary guidelines, a wide range of recommendations for controlling MetS were reported by GPs. Over half of them recommended reducing cholesterol intake, consuming low-fat dairy products, and maintenance of healthy body weight. Approximately 30% of GPs recommended consumption of varieties of grain products as well as fruits, vegetables, while less than a quarter of GPs recommended replacing high-fat meat, red meat, and processed meat by legumes, fish, and poultry, and a reduction in salt intake.

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5. Discussion

Our results showed that the vast majority of GPs were not familiar with the definition of MetS and its complica-

Table 2. Responses to the Nutritional Attitude Toward MetS by General Practitioners

	Agree (%)	Neutral (%)	Disagree (%)	Correct Answer
There are well-established associations between dietary patterns and MetS.	69.4	20.4	10.2	Agree
Weight loss is the most important method to improve MetS.	80.4	0.6	19.0	Agree
High-fat intake is the major cause of MetS than a high-carbohydrate diet.	81.6	0.0	18.4	Disagree
A low-sodium diet can improve MetS.	21.2	16.4	62.4	Agree
Consumption of fruits and vegetables, including five or more servings per day, is recommended for controlling MetS.	21.4	10.6	68.0	Agree
Limited intakes of starchy vegetables are recommended for controlling MetS.	71.6	7.8	20.6	Disagree
Consuming grain-based foods, including whole- and refined-grain products, is recommended for controlling MetS.	82.4	0.8	16.8	Disagree
Limited intakes of foods with a high content of cholesterol are recommended for controlling MetS.	100.0	0.0	0.0	Agree
Limited intakes of high-fat dairy products are recommended for controlling MetS.	97.0	1.8	1.2	Agree
Replacing legumes with red meat is recommended for controlling MetS.	95.0	0.4	0.1	Agree

Abbreviation: MetS, metabolic syndrome.

tions, and also they were not knowledgeable about healthy diet principles and guidelines to recommend patients with MetS. Consistent with previous studies (1, 4, 5), in this study, although GPs were informed about the importance of a healthy diet and weight control in the management of MetS, their attitude and practice regarding the details of a healthy diet, such as intakes of macronutrients and micronutrients and food groups for the prevention and treatment of the MetS were inadequate. Our findings indicated the urgent need for basic education regarding healthy dietary diet among GPs for the prevention of MetS. Overall, increasing the nutritional knowledge of GPs can enhance their performance in nutritional recommendations to MetS' patients (10). The current study demonstrated the paradox among GPs, despite their duties in addressing the MetS epidemic according to the guidelines of the Ministry of Health and Medical Education of Iran, inadequate attitude and practice regarding nutrition is an obstacle for providing optimum nutritional counseling by GPs.

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Footnotes

Authors' Contribution: S.HN conceptualized the study. K.N and S.HN: collected and analyzed the data and prepared the initial draft. P.M: supervised the data analysis

and edited the final manuscript. All authors read and approved the final manuscript.

Conflict of Interests: None.

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Informed Consent: Written informed consent was obtained from all participants.

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