

# MEDICAL SCIENCE

## To Cite:

Asiri S, Alanazi MM, Alalyani MM, Aldobikhi YA, Almeahmadi BS, Alboukai MAA, Alshammari AM, Alsulaiman Q. Symptomatology and clinical approach for suspected cases of nasopharyngeal carcinoma among Primary health care clinics in Riyadh, KSA, 2022-2023. *Medical Science* 2023; 27: e130ms2916.  
doi: <https://doi.org/10.54905/disssi/v27i133/e130ms2916>

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## Peer-Review History

Received: 19 February 2023

Reviewed & Revised: 21/February/2023 to 03/March/2023

Accepted: 04 March 2023

Published: 06 March 2023

## Peer-review Method

External peer-review was done through double-blind method.

Medical Science

pISSN 2321-7359; eISSN 2321-7367

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# Symptomatology and clinical approach for suspected cases of nasopharyngeal carcinoma among Primary health care clinics in Riyadh, KSA, 2022-2023

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## ABSTRACT

Nasopharyngeal carcinoma (NPC) account for 33% of all head and neck malignancies diagnosed in Saudi Arabia each year. Early recognition of the such serious medical illness by family physicians and general practitioners play vital roles to improve the outcomes. *Objective:* The aim of this study was to explore the common symptoms and clinical approach for suspected cases of NPCs in primary health care clinics. *Methods:* This cross-sectional study focuses on general practitioners in the Riyadh region. A questionnaire on several aspects of NPC was given to 190 general practitioners and family physicians, based on the literature and interviews with head and neck surgeons. A validity and reliability probing test was performed on this questionnaire. SPSS was used to analyze the data. *Results:* This study included a total of 190 participants form a variés primary health care center in Riyadh region. Starting with acknowledging nasopharyngeal carcinoma as a serious problem in Saudi arabia (15.26%) strongly agreed and (25.79%) only agreed, while the remaining participant were either neutral or disagreeing. Unilateral nasal obstruction was a reason enough to refer the patient to an ENT clinic for (70%) while it was not for (30%). *Conclusion:* Our study revealed that there are few areas to be improved regarding to the knowledge among primary health care physicians related to nasopharyngeal carcinoma.

**Keywords:** Nasopharyngeal carcinoma, Primary health care, Saudi Arabia, family physicians

## 1. INTRODUCTION

Nasopharyngeal carcinoma (NPC) is a tumor that emerge from the epithelial cell that line the nasopharynx's surface in most of the world's regions (Chua et al., 2016). NPC is a rare kind of cancer (Lee et al., 2019; Alqazlan et al., 2022). Globally, there were about 65,000 new cases and 38,000 fatalities in the year 2000 (Parkin et al., 2001). NPC, however, is endemic in a few numbers of clearly characterized groups, including those in China, Southeast Asia, the Arctic, the Middle East and North Africa and North America (Chang and Adami, 2006). In Hong Kong, where one out of every 40 males had an NPC before the age of 75, the incidence was greatest (Raab-Traub, 2002). In Saudi Arabia, head and neck cancers account for 6% of all malignancies diagnosed each year; 33% of these are nasopharyngeal in origin, with yearly age-standardized incidence rates for males and females of 2.5 and 0.8 per 100,000, respectively (Bazarbashi et al., 2017). A retrospective review of 381 patients with histologically confirmed nasopharyngeal carcinoma showed, the highest referral rate was 138 patients (36%) from region 1 (Riyadh). Next in order were 71 patients (18%) from region 3 (Medina); 58 patients (15%) from region 2 (Jeddah); 48 patients (12%) from region 4 (Dammam); 33 patients (8%) from region 6 (Gazan); 25 patients (6%) from region 5 (Tabuk); and 9 patients (2%) from region 1a (Qassim). Seventeen patients (4%) were referred from regions outside Saudi Arabia and no patients were referred from region 7 (Rub Al-Khali) (Clubb et al., 1990). Although Nasopharyngeal Carcinoma (NPC) is rare in Arab countries, it is becoming more common as a result of increased exposure to a variety of risk factors. In Saudi Arabia, many of the NPCs are diagnosed late (Farias et al., 2003; Al-Rajhi et al., 2009). The failure to recognize the signs and symptoms suggestive of cancer, the time spent waiting for hospital appointments and the time spent waiting for referral to tertiary care facilities are all examples of professional delays that can, in general, be blamed for delays in the diagnosis and treatment of NPC. The aim of our study in Riyadh, Saudi Arabia was to evaluate the level of perception of family physicians and general practitioners regarding early recognition of nasopharyngeal carcinoma among Riyadh health centers.

## 2. METHODS

A cross sectional study hold in Riyadh health centers. This study was conducted between November 20, 2022 and February 1, 2023 Riyadh, the capital of Saudi Arabia stratified by the five regions of Riyadh (Eastern, Western, Northern, Southern, Central). Included family physicians and general practitioners excluded other health practitioners. Sample size is 190. Systemic random sampling, data collection tool is a questionnaire based on the research was created to identify the most crucial NPC elements, such as risk factors, early symptoms, learning programs and academic interest. Four head and neck surgeons from Universities Almaarefa, King Saud, King Faisal and the Netherlands Cancer Institute, were interviewed informally about this first draft. In response to widespread consensus, the questionnaire was modified. Ten Saudi ENT specialists filled out the second draft and provided both oral and written feedback. The crucial information about NPC that a general practitioner should be aware of, according to these ENT specialists, is knowledge of early NPC signs and what to do if a patient exhibits them. GPs frequently don't know to whom and when to refer a patient. Patients who need to be referred are frequently sent to a general surgeon rather than an ENT specialist. Data collection methods interviewer administered, data was analyzed using SPSS version and Microsoft Excel to generate tables contains general knowledge of NPC, clinical knowledge, clinical experience and charts with P value of less than 0.05 considered significant.

### **Ethical consideration**

Ethical approval has been obtained with number IRB09-0401023-118 and consent was obtained from participants before data collection emphasizing confidentiality and the suitable participant to withdraw from the study at any time.

## 3. RESULTS

In this Table 2 according to the survey data of participants clinical experience 14.74% reported that they diagnosed NPC in early stages. 12.64% of participants reported that they diagnosed NPC in late stages. 60% of the participant reported that did not saw a patient with NPC, 71.06% reported did not use nasopharyngeal scope, 47.37% reported that they don't ask about ethnicity in suspected cases of NPC, 50.53% reported that they don't ask about family history in suspected cases of NPC (Figure 1).

**Table 1** Descriptive demographic analysis

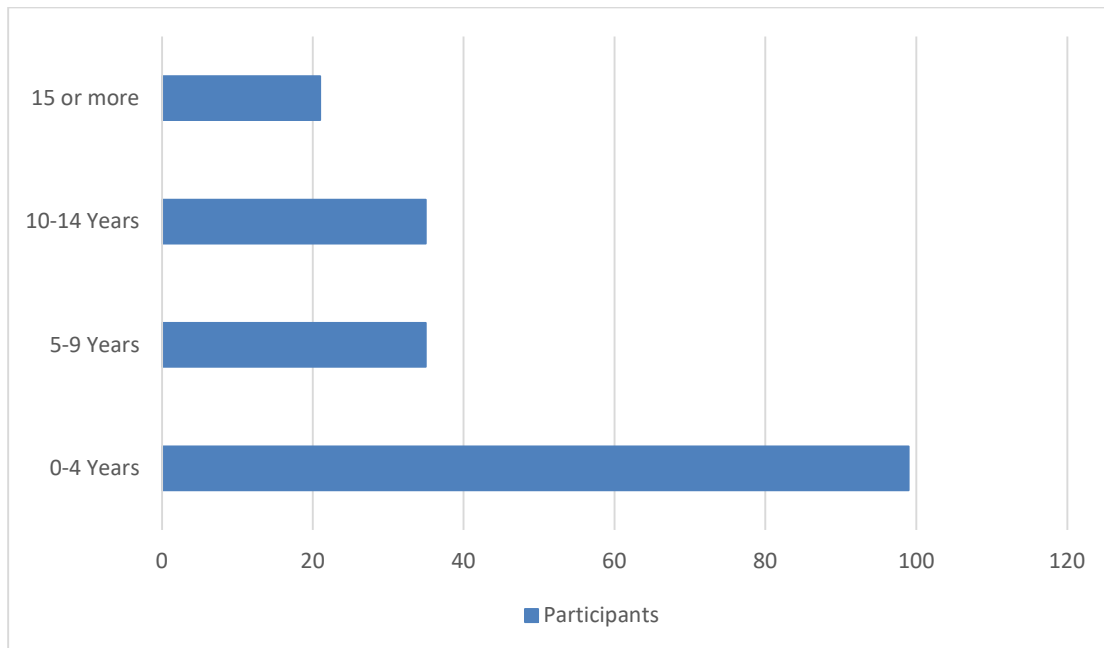
Variables	n (%)
Age (years)	
25-34	115 (60.53)
35-44	56 (29.47)
45-54	11 (5.79)
+55	8 (4.21)
Gender	
Male	118 (62.11)
Female	72 (37.89)
Specialty	
General practitioner	99 (52.11)
Resident family medicine	35 (18.42)
Specialist family medicine	35 (18.42)
Consultant family medicine	21 (11.05)

n=190

**Table 2** Clinical experience

Variables	n (%)
Diagnosis NPC in early stage	
Yes	28 (14.74)
No	162 (85.26)
Diagnosis NPC in late stage	
Yes	24 (12.64)
No	166 (87.37)
Seen a patient with NPC	
Never	114 (60)
Less than 2 times per year	68 (35.79)
2-5 times per year	8 (4.21)
Done nasopharyngeal scope	
Yes	55 (28.95)
No	134 (71.06)
Asking about ethnicity in patient suspected with NPC	
Yes	100 (52.63)
No	90 (47.37)
Asking about family in patient suspected with NPC	
Yes	94 (49.47)
No	96 (50.53)
Asking about social in patient suspected with NPC	
Yes	80 (42.11)
No	110 (57.89)

n=190



**Figure 1** The years of participants spent in primary care health clinics

**Table 3** General knowledge

Variables	n (%)
How common	
Strongly agree	29 (15.26)
Agree	49 (25.79)
Neutral	80 (42.11)
Strongly disagree	6 (3.16)
Viruses can cause NPC	
HPV 16-18	39 (20.53)
Rhinovirus	35 (18.42)
Epstein-barr virus	116 (61.05)
Lymph node can be affected more by NPC	
Upper anterior cervical	93 (48.95)
Upper posterior cervical	64 (33.68)
Mid posterior cervical	20 (10.53)
Mid jugular	13 (6.84)
Risk factor of nasopharyngeal carcinoma	
Fried food	48 (25.26)
Red meat	44 (23.16)
Salty food	35 (18.42)
None	63 (33.16)

n=190

This Table 3 shows the frequency of participants' answers. In regard how common is the nasopharyngeal carcinoma in Saudi Arabia most of the participants is in neutral position 42.11% (80). In the other hand 61.05% (116) most of participants answered Epstein-Barr virus is one of the causes of nasopharyngeal carcinoma. About the early diagnosis of nasopharyngeal carcinoma 72.11% (137) answered yes it can be diagnosed early while 27.89% (53) answered no. 48.98% (93) answered that most common lymph node involved in NPC is upper anterior cervical while 33.68% (64) answered upper posterior cervical. Asking about NPC food risk factor we found that most of participants 33.16% (63) answered none and the minority 18.42% (35) answered salty food.

**Table 4a** Clinical knowledge

Variables	n (%)
First investigation to do in suspected cases of NPC	
Physical examination	103 (54.21)
Biopsy	27 (14.21)
Imaging	24 (12.63)
Nasopharyngeal scope	36 (18.95)
Most sensitive investigation	
Biopsy of nasopharynx	115 (60.53)
EBV screening test	29 (15.26)
FNA	24 (12.63)
Imaging test	22 (11.58)
Headache as early symptom	
Yes	133 (70)
No	57 (30)
Unilateral obstruction as a reason for referring	
Yes	145 (76.32)
No	45 (23.68)
Red flag	
Persistent bleeding	65 (34.21)
Cough	4 (2.11)
Headache	38 (20)
Partial loss of vision	47 (24.74)
Tinnitus	21 (11.05)
Fever	15 (7.89)
Physical finding in NPC	
Painless neck mass	82 (43.16)
Hearing loss	21 (11.05)
Nasal obstruction	81 (42.63)
Erythematous throat	6 (3.16)
Most common presentation in NPC	
Cervical lymphadenopathy	96 (50.53)
Epistaxis	71 (37.37)
Hearing loss	14 (7.37)
Diplopia	9 (4.74)

n=190

In this Table 4a according to the survey data, a majority of participants reported having knowledge about NPC. 54.21% of participants reported knowing the first investigation to do in suspected cases of NPC, 60.53% reported knowing the most sensitive investigation to do in suspected cases of NPC, 70% reported knowing headache as early symptom, 76.32% reported knowing that unilateral obstruction as a reason for referring, 34.21% reported Persistent bleeding as a red flag and 24.74% reported partial loss of vision. 43.16% reported painless neck mass as a physical finding in NPC, while 42.63% nasal obstruction. These results suggest that while many participants have knowledge about NPC, there is still a significant portion of participants who may not have all the information they need to safely deal with suspected cases.

**Table 4b** Clinical knowledge

X	Good 6-7	Moderate 4-5	Poor 1-3
knowledge	66.2%	25.88%	7.92%

n=190

In Table 4b according to the survey data, 66.2% of participants reported having good knowledge about NPC, 25.88% reported moderate knowledge and 7.92% reported poor knowledge. These results suggest that while some participants have a good understanding of NPC, a significant portion of participants may not have the necessary knowledge to safely deal with suspected patient of NPC. It is important for individuals to educate themselves about the NPC.

**Table 5** Relation between clinical knowledge and specialty

X	Good 6-7	Moderate 4-5	Poor 1-3
General practitioner	64.7%	26.3%	9%
Residence family medicine	61.92%	27.32%	10.76%
Specialist family medicine	70.11%	23.2%	6.69%
Consultant family medicine	70.6%	22.3%	7.1%

P value=0.193

This Table 5 shows the relation between clinical knowledge and specialty. 64.7% of general practitioner has good knowledge while 61.92% of residence family medicine, 70.11% of specialist family medicine and 70.6% of consultant family medicine. The difference was statistically not significant (P=0.193).

#### 4. DISCUSSION

A total of 190 participants from various primary health care facilities in the Riyadh region were involved in this study. Our study found that the primary healthcare facilities in the country, which provided first care of NPC, have inadequate understanding of important NPC issues. The fact that GPs and family doctors only learned about NPC in its late stages may be directly related to their lack of basic understanding of the condition. The majority of the doctors thought that the actual incidence of NPC was at least ten times lower in their area than what was predicted. We can infer that these clinicians' knowledge of NPC is insufficient based on their ignorance of early NPC symptoms and risk factors. The most frequent sign of NPC is enlarged lymph nodes in the neck. The study's participants reported seeing patients with swollen neck lymph nodes frequently, but they said they saw very few cases with NPC. When considering early symptoms and incidence, we believe GPs frequently overlook NPC when they observe a patient with enlarged neck lymph nodes or other symptoms that are suggestive of NPC. Combining education and a screening technique might be a solution. A low-cost, sensitive screening approach for NPC has been developed by Fachiroh et al., (2008) and Chien et al., (2001) could be quickly applied in primary health care. The Epstein-Barr virus, which is prevalent in all NPCs in Indonesia, is the foundation of this approach. More information and a simple screening method could result in the early identification of NPC. According to the participants' responses, there are far less NPC patients treated by GPs than there are in this area as a whole. The findings of our study suggest that this might be because GPs are unable to recognize patients with NPC. It should be noted that the majority of patients seen in ENT departments either arrived at a hospital without a doctor's referral or were admitted due to a medical emergency brought on by the tumor, such as dyspnea or significant neck metastases. We further investigate the referral system as part of an ongoing probe.

#### 5. CONCLUSION

Based on the survey's findings, it is evident that GPs and family physicians in primary health care lack the necessary knowledge of NPC to address this critical health issue. The difficulty in identifying patients with NPC is probably more severe than anticipated. Our study revealed that there are few areas to be improved regarding to the knowledge among primary health care physicians related to NPC. We believe our study can be of great value in the field of early recognition of nasopharyngeal carcinoma and will benefit patients' prognosis and health system as well. We recommend further researches in this matter in nationwide studies that involve all regions of Saudi Arabia to be able to have a clear vision on what measures should be taken. To educate the general practitioners and family physicians working at the primary health care in Riyadh about NPC, a medical education program should be launched. A campaign to raise public knowledge about NPC may be the next step. Breast and cervical carcinomas have joined in comparable efforts (Ali et al., 2006). When people have concerns or early NPC signs, they should be advised to visit the primary health care.

#### Acknowledgment

We thank Almaarefa University, Riyadh, Saudi Arabia for supporting the steps of this work.

**Ethical consideration**

Ethical approval from the Institutional review board (IRB) of Almaarefa University College of Medicine was met before data collection began and the purpose of the study was clearly explained to the participants. They are assured that data from this study will be used for scientific purposes only, that ethical concerns and legal issues was considered and that participation is completely voluntary.

**Authors' contribution**

All authors had substantial contribution to the paper.

**Funding**

This study has not received any external funding.

**Conflict of interest**

The authors declare that there is no conflict of interests.

**Data and materials availability**

All data sets collected during this study are available upon reasonable request from the corresponding author.

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