

Research Article

Knowledge of Primary Healthcare Physicians about Headache Disorders: A Cross-Sectional Study

Faris Alzahrani

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

Mohammed Hmoud

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

Hassan Khayat

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

Fayssal Farahat, MD, MSc, PhD

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

King Abdulaziz Medical City – Western Region, Ministry of National Guard – Health Affairs

Kingdom of Saudi Arabia

Juan Manlangit

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

Hussein A. Algahtani, MD, FRCPC

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

King Abdulaziz Medical City – Western Region, Ministry of National Guard – Health Affairs

Kingdom of Saudi Arabia

Ahmed Attar, MD, FRCPC, ABPN, FAAN

King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi arabia

King Abdulaziz Medical City – Western Region, Ministry of National Guard – Health Affairs

Kingdom of Saudi Arabia

ABSTRACT

Background: Headache is the commonest neurological complaint in primary care setting (about 7% of visits) with estimated global burden that is increasing with time.

Aim: To determine primary healthcare physicians' knowledge about headache disorders.

Design and setting: This cross sectional study was done in primary care centers affiliated with National Guard Health Affairs- western region, Saudi Arabia.

Methods: Eighty-five primary healthcare physicians were enrolled. The participants were asked to fill a questionnaire covering multiple demographic, factual and practical aspects of headache disorders. Student t test and analysis of variance were used for differences in means. Linear regression was used to identify the correlation between variables. This study used $p < 0.05$ to determine the significance.

Results: Fifty-five physicians responded (response rate=

65%). Forty-five percent of the total respondents were classified as having inadequate knowledge. The participants showed to significant difference in their knowledge about “primary” in comparison to “secondary” headache disorders (p value = 0.06). There was no association between the number of patients seen in the clinic and better management for those patients (p value = 0.84). In contrast, Physicians who had better score in “general knowledge” questions had better score in questions concerning the management (p = 0.039).

Conclusion: knowledge about headache disorders at primary healthcare setting needs further improvement. Educational programs directed to treating physicians can significantly improve their knowledge. This can result in a decrease in the rate of unnecessary referrals, use of neuroimaging and cost.

Keywords: Headache; primary; secondary; primary healthcare physicians; quality of care.

HOW THIS FITS IN: Although headache is a common presentation to primary care setting, literature has shown a significant shortage in the knowledge about headache disorders. This study supports the global finding of lack of knowledge and statistically proved that better knowledge is translated to better practice.

Introduction

Headache, is defined as pain located above the orbitomeatal line. It is classified into primary headache disorders, secondary headache disorders and painful cranial neuropathies and other facial pains(1).

Headache is the most common neurological complaint presented to the primary healthcare centers(1,2). It has been estimated that more than 7% of all visits to the primary healthcare facilities are related to headache disorders. Therefore, the caring physicians have to actively inquire and examine the patients for appropriate and accurate diagnosis and treatment.

The average headache prevalence in the general population is 60% and the 1-year prevalence can reach up to 46%. The estimated Disease-Adjusted Life Years (DALYs) for all neurological disorders is 92 million in 2005, and can be increased to 103 million in 2030. Migraine, in terms of disease burden and DALY, was the third among all neurological disorders(2,3). In Saudi Arabia, the prevalence of headache was estimated to be 8-12%(4).

It has been estimated that 80% of the patients presented to the primary healthcare centers are migraneurs. Approximately, only less than 20% of them are diagnosed accurately. Treatment inadequacy has been noted as well(5). Moreover, it was shown in the literature that around 70% of patients presenting to their primary healthcare physicians with headache did not receive a certain diagnosis(6). In Saudi Arabia, a study done by Al-Ansary L et al. showed that primary healthcare physicians have difficulty in diagnosing headache in comparison to other neurological disorders(7).

In light of the above, it is important to determine whether primary healthcare physicians have the adequate knowledge about headache in order to manage their patients properly. Therefore, this study aimed to assess the primary healthcare physicians' knowledge about headache disorders and to compare the findings with international data.

Methods and materials:

This cross sectional study was conducted in National Guard Health Affairs-Western Region (NGHA-WR) in Saudi Arabia from January-March 2015. This study included 85 primary healthcare physicians.

A validated, 30-items questionnaire was distributed to the participants to assess their knowledge about headache disorders. The first section of the questionnaire addressed demographic data (age, gender, education, work experience, professional title, previous training in neurology, and previous related courses). The second section was focused on headache-related questions. It included questions about classifications and general knowledge (7 items), prevalence (6 items), diagnosis (10 items) and management (7 items). Content validity was done by two neurology consultants and one primary healthcare consultant. The Cronbach's alpha was calculated and found to be 0.83 which indicates a good internal validity.

Data was entered and analyzed using SPSS software version 20. Knowledge score for each respondent was calculated. Correct answers were given "1" and wrong answers were given

"0". Student t tests and analysis of variance (ANOVA) were used for differences in means. Linear regression was used to identify the correlation between variables. This study opted to use $p < 0.05$ to determine the level of significance.

The final score was categorized into 5 levels of knowledge. "Expert" category included those with a final mark of 90% or more, "satisfactory" (80% to 89%), "moderate" (70% to 79%), "borderline" (more than 60%) and "inadequate" knowledge (60% or low).

RESULTS

Demographics

The number of the respondents returned the questionnaire is 55, comprising a response rate of 65%. A considerable number of subjects were not on service during the period of data collection which explains the decreased response rate. The mean age of the respondents was 36 years of age (± 9.98). Twenty-eight respondents were males (50.9%), while 27 were females (49.1%). Five of them were consultants (9.1%), 3 were associate consultants (5.5%), 16 were assistant consultants (29.1%), 17 were staff physicians (30.9%), 11 were residents (20%), and 3 were interns (5.5%). Nine respondents have gone through a neurology rotation (16.4%) (Table 1). Forty-five percent of the respondents reported seeing 1-3 patients at least per one week (Figure 1). Most of the respondents considered neuroimaging in 1-3 patients at least per week (Figure 1). Fifty-four percent of the respondents considered referring 1-3 headache patients at least per week to a neurologist or a headache specialist, while 32.7% would never refer their patients.

Questionnaire-Based Analysis

Passing score was arbitrarily set as 18/30; meaning that the respondent had correctly answered (60%) of the questions. Passing score for each category (prevalence, general knowledge, diagnosis, and management questions) was set as 60% as well. Thirty respondents out of 55 (55%) scored above the passing score. Final score mean was 19 (± 3.98). The mean score for physicians who have gone through a neurology rotation was 19.88 (± 4.2), while for those who have not was 18.86 (± 3.96) (p value = 0.49; CI = -3.94 – 1.91).

Forty-five percent of the respondents fall in the category "inadequate knowledge", while 35% in "moderate", 10.9% in "satisfactory", 9.1% in "borderline" (Figure 2). In questions'

Table 1: Demographic Data.

Variable	Means (SD) / Proportions
Age	36.07 (± 10)
Sex (Male)	50.9%
Position	
Consultant	5 (9.1%)
Associate consultant	3 (5.5%)
Assistant consultant	16 (29.1%)
Staff physician	17 (30.9%)
Resident	11 (20%)
Intern	3 (5.5%)
Had a Neurology Rotation Before	9 (16.4%)

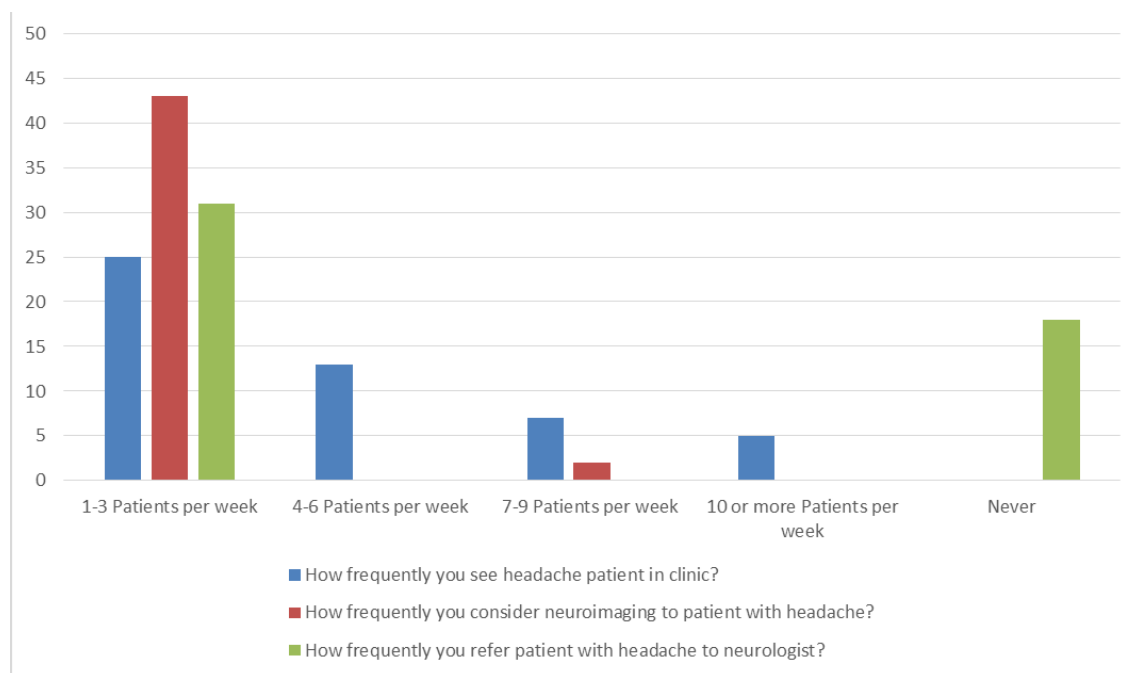


Figure 1: Frequency Distribution.

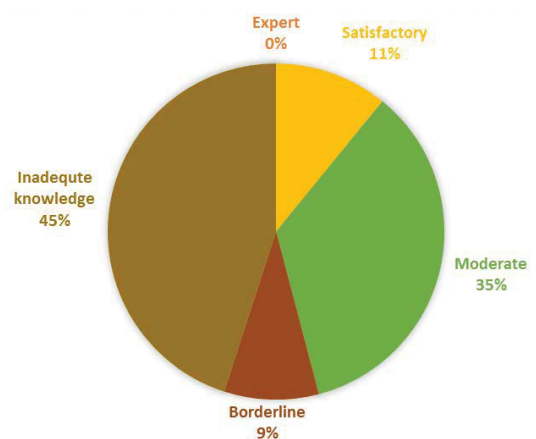


Figure 2: Percentage By Grade Category.

Table 2: Questionnaire Categories.

Variable	Mean ± SD / (Pass rate)
Primary vs. Secondary Headache Disorders	
Primary Headache Disorders (n=16)	9.15 ± 2.44
Secondary Headache Disorders (n=14)	9.85 ± 2.41
Types of Questions (number of questions)	
General Knowledge (n=7)	3.91 ± 3.9 (35%)
Prevalence (n=6)	3.44 ± 3.4 (50%)
Diagnosis (n=10)	6.96 ± 6.6 (57%)
Management (n=7)	4.69 ± 1.4 (84%)

categories, Thirty-six respondents (65%) had a score below 60% in knowledge questions. The mean score of the respondents in primary headache disorders is 9.15 ± 2.44 , while in secondary headache disorders is 9.85 ± 2.4 (Table 2). The difference between the primary and secondary headache disorders respondent’s knowledge had a p value of 0.06 (CI = -1.44 - 0.03).

Using linear regression, the correlation of the final grades and frequency of seeing headache patients had a p value of 0.84. The correlation between those who considered neuroimaging studies and their results in answering imaging-related questions had a p value of 0.5. The correlation between the overall score and referring headache patients had a p value of 0.12. Correlating “management questions” with “knowledge questions” had a p value of 0.039, while correlating “knowledge questions” with “prevalence questions” had a p value of 0.806 (Table 3).

Discussion

Summary

Despite being one of the most common complaints in the

primary healthcare setting, headache diagnosis and management still have areas of improvement. We found an increased utilization of diagnostic imaging studies regardless of the exact knowledge about specific indications and utility benefits. Another observation was the markedly increased referral rate regardless of the level of knowledge. Careful attention from headache and pain societies is of paramount importance in order to improve the quality of care in such patients(5,6,8).

Comparison with existing literature

A previous study conducted in Switzerland by Gantenbein et al(9). where almost 1000 primary healthcare physicians were asked and interviewed objectively through a questionnaire to assess their awareness about headache. The findings were interesting in that 92% of them, at least see one patient with headache in any given day, compared to 45% seeing 1-3 patients per week as seen in our study. Gantenbein et al(9). reported that 3% of the respondents refer headache cases to a specialist. In comparison, we found that 45% of the respondents refer at least 1 patient weekly.

Table 3: Summary of correlations *p*-value.

Correlations with final grades	<i>p</i> value
Neurology rotation	0.965
How frequently you see headache patient in clinic?	0.84
How frequently you consider neuroimaging to patient with headache?	0.5
How frequently you refer patient with headache to neurologist?	0.12
Correlations with 'General Knowledge' Questions	<i>p</i> value
Prevalence questions	0.806
Diagnosis questions	0.069
Management questions	0.039
How frequently you see headache patient in clinic?	0.373
How frequently you consider neuroimaging to patient with headache?	0.070
How frequently you refer patient with headache to neurologist?	0.732

In the current study, we demonstrated that the respondents had difficulty answering general knowledge questions followed by prevalence and diagnosis since their failure rate was 65%, 50% and 43% respectively (Table 2). Furthermore, it was evident that respondents who scored better in knowledge questions were more likely to score higher in management questions "management questions" (*p* value of 0.039). This may indicate that acquisition of more knowledge could be translated into better management as suggested by a previous study(10). Though the majority of the respondents were found to have inadequate knowledge, subgroup analysis revealed that there is no statistically significant difference in the level of knowledge about headache disorders between physicians who were involved in neurology rotation in comparison to those who were not (*p* value = 0.49).

As inferred from data analysis in this study, seeing more patients is not an indicator of having better sort of knowledge about headache disorders. This emphasizes the need for well-structured educational programs to be widely applied. A study reported by Kowacs et al(10). stated that such educational program can highly improve primary healthcare physicians' knowledge and quality of patient care.

Implications for research and/or practice

In conclusion, almost half of the responding physicians have demonstrated lack of knowledge concerning headache disorders. Further studies are needed to identify other factors that affect the level of primary healthcare physicians' knowledge about headache. We recommend that a structured educational program should be applied to enhance primary healthcare physicians' knowledge to improve the quality of patient care.

Limitations

This study has to be reproduced in a nationwide scale in order to generalize the results. The level of knowledge was determined using a questionnaire-based multiple choice

quantitative instrument, without considering other indicators of clinical practice, such as patient outcomes. The questionnaire itself can be a potential source of bias. Among the limitations. An educational program, along with the questionnaire based assessment, should be implemented to assess the effect of knowledge on practice.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgement

We, as study authors, express our sincere gratitude to all physicians who participated in the study for their interest, time and support for the study.

REFERENCES

- Road C. The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia. 2013;33:629–808.
- WHO | Neurological Disorders: Public Health Challenges. World Health Organization; 2006.
- Manzoni GC, Stovner LJ. Epidemiology of headache. Handb Clin Neurol Netherlands; 2010; 97:3–22.
- Abduljabbar M, Ogunniyi A, al Balla S, Alballa S, et al. Prevalence of primary headache syndrome in adults in the Qassim region of Saudi Arabia. Headache 1996;36:385–388.
- Kernick D. Reducing the burden of headache: The International Headache Society Primary Care Interest Group. Cephalalgia 2010;30:899–901.
- Kernick D, Stapley S, Hamilton W. GPs' classification of headache: is primary headache underdiagnosed? Br J Gen Pract England 2008; 58:102–104.
- Al-Ansary LA, Al-Rajeh SM. Diagnostic agreement between primary care physicians and neurologists. Ann Saudi Med 1994 May;14:215–218.
- Vincent MB, de Carvalho JJ. Primary headache care delivery by nonspecialists in Brazil. Brazilian Headache Care Cooperative Group. Cephalalgia. NORWAY; 1999;19:520–524.
- Gantenbein AR, Jäggi C, Sturzenegger M, Gobbi C, et al. Awareness of headache and of National Headache Society activities among primary care physicians - a qualitative study. BMC Res Notes. 2013; 6:118.
- Kowacs PA, Twardowsky CA, Piovesan EJ, Dal-Prá Ducci R, et al. General practice physician knowledge about headache: evaluation of the municipal continual medical education program. Arq Neuropsiquiatr 2009; 67: 595–599.

ADDRESS FOR CORRESPONDENCE:

Farsi A. Alzahrani, Medical student, King Abdullah International Medical Research Center / King Saud bin Abdulaziz University for Health Sciences, Jeddah, 21423, Tel: +966 555272894; e-mail: faris.a.alzahrani@hotmail.com