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Diagnosis and prevalence of headache at the Out-Patient Department of Dr. Yusuf Dadoo Hospital

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RESEARCH REPORT

TITLE: **Diagnosis and prevalence of headache at the Out-Patient Department of Dr. Yusuf Dadoo Hospital.**

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Medicine in Family Medicine.

DECLARATION

I, Moshe Magethi, declare that this research report is my own work. It is submitted for the degree of Master of Medicine in Family Medicine to the University of the Witwatersrand, Johannesburg. It has not been submitted for any degree or examination at this or any other University.

……04/09/2017……

DATE OF SUBMISSION

Student No: 0002493d

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ABSTRACT

Introduction

Headache disorders are prevalent in society and the number of adults suffering with an active headache disorder is increasing. Unfortunately the magnitude of this problem has been underestimated, and this has resulted in many headache sufferers being misdiagnosed or sub-optimally managed. Headache is a very common problem that is seen during primary health care consultations and should thus be given the priority it deserves. The aim of this study was to determine the prevalence and types of headaches seen at a district hospital.

Methods

A quantitative cross-sectional study was conducted at the Out-Patient Department of Dr Yusuf Dadoo Hospital which is located in the West Rand District, South Africa. Of the 206 participants approached, 203 consented to participate in the study. The ICHD-II criteria were used to guide diagnosis of the participants. Consecutive study sampling was used for a period of just under 6 months. Results were reported as frequencies and means, and Chi-squared tests were carried out.

Results

The response rate was 98.5%. Primary headache disorders were more prevalent compared to secondary headache disorders (69.95% vs. 30.05%). Fifty four percent of the participants suffered from tension type headache. Infections were the commonest cause of secondary headache disorders (34%). Middle aged black females were most commonly affected by the headache disorders. Tension headache is three times more likely to be seen in an unemployed participant than an employed person (OR-3.2, p-0.01, 95% CI: 1.50-7.08). Non-infectious secondary headache disorders are 14 times more likely to be seen in those who are White than those who are Black (OR- 13.8, p-0.015, CI. 1.67-114.14).

Conclusion

Headache disorders are a significant cause of morbidity among those who attend the OPD of Dr. Yusuf Dadoo hospital and more needs to be done in addressing this issue. Further studies should be embarked on with the aim of closely looking at the psychosocial impact headache disorders have on patients.

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ABBREVIATIONS

CEO: Chief Executive Officer

CI: Confidence Interval

DYDH: Dr. Yusuf Dadoo Hospital

GP: General Practitioner

HREC: Human Research Ethics Committee

ICHD: The International Classification of Headache Disorders

OPD: Out-Patient Department

PHC: Primary Health Care

WHO: World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Background and rationale for the research:

Headache is a serious problem that requires attention from clinicians. Its impact and prevalence have been growing, with reports of global percentages of adults suffering with an active headache disorder being 46% for headache in general, 11% for migraine, 42% for tension-type headache and 3% for chronic daily headache[1]. Despite the high numbers of patients suffering with a headache disorder, the magnitude of the problem has been underestimated. This has, unfortunately, resulted in the problem being sub-optimally managed and under-recognized. It is also a well documented fact that headaches can be disabling and result in huge socio-economic problems for those affected by them[1, 2]. This is another important reason why their impact should not be taken lightly especially because some studies have reported prevalence rates that are between 60-80%[22,,25,26].

A high percentage of headache patients will present to primary health care physicians/General practitioners (GP's) [3]. In the United Kingdom, the most common neurological condition that patients present with, to GP's, is headache[4]. Many of these patients will, unfortunately, be under-treated due to incorrect diagnosis[3]. Despite a headache lifetime prevalence of 82.7%, in Singapore, and a prevalence rate of 9.3% for patients suffering with a migraine type headache, diagnosis and treatment of the condition is sub-optimal among primary care doctors[5]. This raises an important question: If more developed countries are facing challenges with regard to the diagnosis and treatment of headache disorders, how much bigger are the challenges in less developed countries like South Africa?

Primary health care providers working in primary care settings need to be aware of the burden of headache (type and prevalence) and its effects on those attending their respective health facilities. This will, however, not be possible without correct diagnosis of the problem. Such knowledge is important as it allows more effective interventions to be instituted, in an attempt to optimally help the affected patients[5]. Unlike the more developed countries, developing countries (sub-Saharan Africa in particular), have not provided enough data describing the magnitude of the problem of headache[6]. There is, therefore, a need for more studies that will not only describe the extent of the problem but those that will also provide information on the most common types of headaches seen in our setting.

1.2 Motivation for the study

Dr. Yusuf Dadoo Hospital is a level 1 hospital serving a large population (2 million people) in the West Rand district. An average of 80-100 patients present daily to the OPD of the hospital, presenting with various problems, headache being one of the commonest complaints. An assessment evaluating the prevalence and types of headache disorders that adult patients present with at the OPD of Dr. Yusuf Dadoo Hospital has, unfortunately, not been done. There is a paucity of studies in South Africa around the subject of Headache at a PHC Level, especially regarding the types of headache and socio-demographic features associated with the headache. Little is known about the burden of this problem on the population presenting to this facility. This study will, thus, establish the extent of this problem and thus contribute to the growing literature on this topic. Establishing the extent of this problem will also allow more effective interventions in the form of guidelines/protocols to be put in place. This will, hopefully, enable primary health care practitioners in South Africa to better manage patients presenting with headache.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Among disorders of the nervous system, headache is one of the commonest presentations to health care workers. It affects different types of populations making it a pervasive problem that should not be ignored. In addition to this, those affected by headache disorders tend to experience significant disability[1]. A third of those who suffer with migraine, in the UK, consider it a serious problem – enough to control their lives. Sixty six percent of the same population felt that the problem creates substantial morbidity "that they cannot control it at all or, at best, rarely."[2]

2.2 Prevalence according to headache type

Tension type headache and migraine are the commonest headache disorders, accounting for 75% of all headache disorders[11]. A study conducted in a headache specialist centre in Canada, found migraine (45.3%) to be more prevalent than tension type headache (7.9%) among patients referred to the centre[15]. This is in contrast to a study conducted in a primary health care centre where tension type headache and migraine had the same prevalence[17]. The World health organization reports tension type headache to be more common than migraine headache ***among those consulting in primary health care centres*** – 35% vs. 30%[11]. About 10% of patients have combined migraine and tension type headache. Migraine is, however, reported to be the commonest diagnosis made ***by neurologists*** – 34% (migraine) vs. 23% (tension type). There is therefore a difference between the prevalence of these two types of headache disorders in primary health care centres and headache specialist centres. While most of the primary headaches are acute or paroxysmal in nature, about 3% of headache sufferers have primary chronic headache which is defined as more than 15 headache days per month[2]. A study conducted in Norway, looking at the

management of primary chronic headache in the general population found it's prevalence to be high. Twenty two percent of the men and 78% of the women who participated in the study were primary chronic headache sufferers. Ninety five percent had chronic tension-type headache, 4% had chronic migraine, and 2% had other primary chronic headache disorders. Forty nine percent had migraine as a co-morbidity and 46% suffered from medication overuse headache[2].

A large study conducted in Britain with 91,121 study participants found headache prevalence to be high among the study population[3]. Cluster headache had a prevalence of 4.0%, Tension-type 23.0% and Migraine 73.0%. Six percent of the patients were diagnosed with secondary headache. Unfortunately 70.1% did not receive a definitive diagnosis. Another study conducted in Europe also found the prevalence of migraine and tension type headache to be relatively high (migraine 17.9%, tension-type headache 13.3%, Migraine + Tension-type headache 12.8%)[13]. Unclassifiable headache was found to be 14.6% in prevalence. Another European study confirmed high percentages of headache disorders in the population, ranging from between 70% to over 90%[29].

In Africa the pattern seems to be similar. In a group of textile mill workers, in Ethiopia, the prevalence of Migraine headache was found to be 6.2%. Females had a prevalence of 10.1% compared to males (3.7%). Overall, the prevalence of tension-type headaches was found to be 9.8% (16.3 % in females and 5.7% in males)[10]. Another study conducted in Addis Ababa found the overall one year prevalence for tension type headache to be 10.4%, compared to 10% for migraine[6]. The prevalence of cluster headache was low (1.3%). In rural Tanzania the prevalence of migraine headache was found to be as high as 5%[12]. These figures are in the same range as those found in other continents, re-enforcing the fact that primary headaches (especially tension type headache and migraine headache) are more common than secondary headaches. In Zambia the prevalence of TTH was the same as that of migraine[27] while in India TTH was slightly more prevalent than migraine[28]. The World health Organization reports other headache disorders to be less common, together

accounting for 25% of headache disorders (other secondary headache – 9%, medication overuse headache – 9%, cluster headache – 2%, other – 6%)[11].

2.3 Types of headache

In order to effectively care for the headache patient awareness of the problem, correct recognition and diagnosis need to be recognised as essential components in the medical management[15]. Knowledge of the classification of headache is therefore important. The ICHD-2 classifies headache into primary and secondary headache disorders. Primary headaches are migraine, tension type headache, cluster type and other autonomic cephalalgias and other primary headaches[16]. An attachment giving a more extensive description of both primary and secondary headaches is found in Annexure 6. The ICHD-III beta version has recently been published with the final draft still to be confirmed[21].

2.4 Prevalence of headache among students

Headache disorders are prevalent among various types of populations. A cross-sectional descriptive study was conducted in 2010 among six randomly selected secondary schools in Nigeria. This study, which had one thousand six hundred and seventy-nine participants(aged between 11 and 18 years), assessed the prevalence and influence of headache disorders in this population of Nigerian students. While previous studies[8] of headache prevalence, in Nigeria, had focused on the adult population this study was the first of its nature – focusing on secondary school students. The study found the overall prevalence of headache to be 19.5%[7].

In 2009 another prevalence study was conducted in Lagos, Nigeria, on an older population of students[8]. In contrast, the prevalence of headache, among the medical students participating in this study was much higher, at 46%. This cross-sectional survey included 376 undergraduate students in the second to sixth year of their medical studies who completed a

structured questionnaire. Females were found to have a higher prevalence of headache compared to men (62.8% vs. 38.1%)[8].

Compared to African students, a pilot study conducted in America found the prevalence of headache to be 50.9% among 104 college students[9]. The fact that in all 3 of the above mentioned studies the prevalence of headache was found to be significantly high among the students has important implications. The students' quality of life is impacted and they are also unable to engage in leisure or outdoor activities. There is also a high rate of school absenteeism[7].

2.5 Prevalence among workers

Another important group of people that can be impacted by headache disorders is workers, as seen in a study conducted in Ethiopia[10]. All the workers in Akaki textile mill were included in this study. 1105 of the 1300 (85%) employees agreed to participate in the study. The researchers found the overall 1-year prevalence to be 16.4% for primary headaches. The one year prevalence of all types of headaches, however, was 73%. Females were found to have a higher prevalence of headache disorders, compared to males (one year prevalence of headache 79.2% vs. 69.5%; primary headache prevalence 26.9% vs. 9.1%). Those between the ages of 45 to 54 years had a prevalence of 18%[10] . In Enugu, Nigeria, among health care workers, the prevalence of headache was 88%[31]. Primary headaches were more prevalent (71% among males and 76.4% among females). Twelve percent reported that the headache was strong enough to wake them up from sleep[31].

2.6 Prevalence in other countries

In contrast to Africa, the problem of headache has been given the attention it deserves in European countries like Germany[13]. A large study conducted over a period of 3 years, looked at the prevalence of primary headaches in Germany. A validated questionnaire using

the IHS diagnostic criteria was used. 41.8% of the study population did not have any headache problems. 55.5% complained of headache less than fifteen days in a month, while 2.6 percent complained of headache more than fifteen days in a month. Overall women had a higher prevalence of headache disorders compared to males[13]. A study looking at the impact of headache on the quality of life, in Turkey found the prevalence to be high – 78.2%[34]. In Italy the life time prevalence of headache was reported to be 82.5% and the same study reported a 1 year prevalence of 74.2%[25].

In South America countries like Brazil have also recognized the importance of studying the burden of headache disease among its population[14]. A study was conducted in Vitoria ES, Brazil, looking at prevalence of headache symptoms, possible causes, nature of assistance that the headache sufferers seek and use of analgesics among the inhabitants who suffer with headache. Fifty three percent of the study participants were found to be headache sufferers. Most of these were women compared to men (62.6% vs. 38.6%). Among those who are over 55 years old the prevalence of headache was significantly lower ($p<0.001$). The prevalence of headache was, however, higher among participants who are under the age of 30 years compared with those who are over 30 years of age ($p<.025$)[14]. Another study carried out in Brazil, investigated the main reason for consultation among those attending a family health care unit and found that 10.4% of the participants complained of various headache disorders[24].

In Bangalore India the 1 year prevalence was 62% and the 1 day prevalence was 5.9%[22]. Another study carried out in India found the 1 year prevalence to be 63.9%[28]. In 2012 a study carried out in Iran was published and it reported a prevalence of 78.2% of primary headaches. Surprisingly migraine disorders were more prevalent than TTH disorders (41.6% vs. 31.6%)[47]. In a large population based prevalence study, carried out in the United states of America, 17.3% of the participants were reported to be suffering from severe migraine headaches[37].

2.7 Prevalence in Africa

A study published in 2011, conducted by experts of the World health Organization and Lifting the burden, found headache prevalence to be 21.6% in the continent of Africa[11]. Compared to other continents/regions, this was the lowest figure (Americas – 46.5%, Eastern Mediterranean – 78.8%, Europe – 56.1%, South East Asia 63.9%, Western Pacific -52.8%). The problem, however, is that in Africa most countries did not submit data (only 39% of countries submitted data). Hence, the problem of headache prevalence in Africa might be underestimated, especially among patients who present to primary care settings. The same study also found that 58% of Africans affected by headache disorders self treat, instead of seeking help from a clinic or GP. This is compared to 20% who consult with primary care physicians and 15% who consult with neurologists[11].

A study published in 2004 found that 23.1% of the 3351 participants living in a rural area in Tanzania suffered from a headache disorder the year before the study was undertaken. Five percent of these had suffered from a migraine attack[12]. Another study carried out in Addis Ababa Ethiopia, in an urban setting, also looked at the prevalence of primary headaches among 231 participants[10]. Twenty six percent of these participants were found to have a one year prevalence of primary headache disorders. There was no difference in prevalence of primary headache disorders between males and females (21.8% vs. 21.4%). Recently published studies (2014 & 2015) showed a moderately high prevalence (72% in the past year and 28.3% on the day prior to the interview) in Zambia[27,39], in a door to door survey and in Nigeria among health care workers (88% in the past six months)[31]. *(At the time of writing no studies were found that directly address the prevalence of headache among patients seen in a primary health care setting in South Africa).*

2.8 Socio-demographic aspects of headache

As shown above females are more affected by headache disorders compared to males[7,8,10,14]. The percentage ranges from 60-75% of females who present with headache disorders (this includes both primary health care centres and specialist headache centres). Those between the ages of 20 to 60 years frequently consult for headache disorders[11]. Primary headache disorders are diagnosed in those between the ages of 35-44, while secondary headache disorders are diagnosed in those who are 55 years and older[15].

A study conducted ***in a specialist headache centre*** found 90% of patients to have at least a high school diploma, while 22% were educated to a Bachelor degree level or higher[10]. 61.9% of the patients were employed outside of the home, while 9.3% were unemployed. This finding is in contrast to another study ***conducted in the general population*** which found the prevalence to be similar across all occupations, suggesting that headache disorders can affect anyone[11]. A study carried out in the United States reported a high prevalence of headache among those with a low level of education[40].

Studies done in the US have suggested that some headache disorders are more common among Caucasians compared to African-Americans[18]. African-Americans have, however, been reported to suffer from more frequent and severe headaches than Whites[18]. In South Africa, unfortunately, no studies have been done looking at headache prevalence by race.

A study looking at the prevalence of headache in the elderly population found that 16.9% of the participants had onset of headache after the age of 64 years[19]. 51% were significantly affected by primary headache disorders. The 1 year prevalence of those with headache was higher in women compared to men. It, however, decreased from the 65–74 through the 85–96 age group[19]. Marital status also seems to play a role in whether individuals were more affected by headache disorders[10].

In a study conducted in Ethiopia widows and divorced individuals had a significantly higher proportion of all types of headaches[10]. Individuals suffering from primary headaches also tend to miss working days more frequently (34.8% of individuals studied) and have a reduced work capacity. Migraine attacks accounted for 60.3% of those who miss work compared to 20.4% in patients suffering from tension-type headaches. An average of 13.77 work days are lost per year (16 days for migraine sufferers and 11 days for those with tension-type headache)[10].

Among secondary school students studied, in Nigeria, 76.8% of the migraine sufferers reported negative impact on the quality of life. This included school absenteeism, inability to engage in or enjoy leisure activities including sports, and inability to perform normal household responsibilities or chores[20].

Alcohol consumption has been reported as a significant beverage associated with triggering headache disorders[41,42]. A study carried out in Italy found that 4.9% of the participants had identified alcohol consumption as a trigger to migraine headaches[41]. Other studies have reported a high prevalence of smoking among patients suffering with both migraine and tension type headache [43,44].

2.9 Conclusion

Headache disorders pose a significant health challenge internationally and in Africa with prevalence rates as high as 82% in countries such as Italy. The magnitude of the problem has been grossly underestimated in the African continent, particularly in South Africa. The extent of headache disorders and their impact on the health of different populations warrant a closer look of this problem at a primary health care level. The influence of socio-demographic factors on the prevalence and severity of headache cannot be ignored. Knowledge of the different types of headache disorders including accurate diagnosis is also important in determining the extent of the problem.

CHAPTER 3

METHODOLOGY

3.1 Aim

- The aim of this study was to explore the prevalence and types of headaches seen at the Out-Patient Department of Dr. Yusuf Dadoo Hospital

3.2 Objectives

- To determine the prevalence of headache at the Out-Patient Department
- To diagnose and classify headache using ICHD-II criteria
- To describe the demographic characteristics of the patients presenting with headache
- To correlate the demographic characteristics with the type of headache patients present with

3.3 Study design

A quantitative cross-sectional study was undertaken

3.4 Study site

The study was conducted at the OPD of Dr. Yusuf Dadoo Hospital, a level 1 hospital in the West Rand district, Gauteng. An average of 80-100 patients is seen, at the OPD, on a daily basis. The majority of this patient population are black females. There are 4 full time doctors and one clinical associate, who care for patients.

3.5 Study Period

Pilot study: A pilot study was undertaken following approval from the ethics committee. It was conducted from 15/01/2015 to 30/01/2015.

Study period: The main study was started following approval from the ethics committee. The approval was given on 07/01/2015. Data collection started on 01/02/2015 and was completed on 30/06/2015. On days when the researcher was on call and post call or had academic responsibilities to fulfil, no data collection was carried out. This, unfortunately, may have introduced sampling bias as some patients were inadvertently omitted from the study sample during these periods. There was also a two week period in the month of April where the researcher was on leave. The data collection period was 5 months.

3.6 Study Population

All patients who presented with headache to the OPD of Dr. Yusuf Dadoo Hospital, during the study period, formed the study population.

3.7 Study Sample

All patients who presented with headache to the OPD during the research period, and who gave consent to participate formed the study sample. This study used EPI Info STAT Calc to calculate the sample size. The calculation was done using the confidence interval as 95% and the expected sample error of 5% with a power of 80%. In 2014 (January to March) a total of 86 patients were seen, whose primary complaint was headache. In a year there will, therefore, be 344 headache patients presenting to the OPD. The calculated sample size was 160. All headache patients were targeted during the study period. .The sample size, at the end of the research, was 203 after using the inclusion criteria (see Figure 1. Chapter 4)

3.8 Inclusion Criteria

- Patients who are 18 years and older.
- Patients who gave consent to participate in the study

3.9 Exclusion criteria

- Patients who did not give consent to participate
- Young children (less than 18 years of age)
- Those who were critically ill and needed care in the emergency department
- Pilot study participants

3.10 Data collection

The researcher worked in the OPD of Dr Yusuf Dadoo Hospital for 5 months. Patients who presented with headache were consecutively selected (i.e. all individuals who met the selection criteria) when they arrived at the OPD reception area for registration. There was no randomisation. They were greeted, welcomed and registered by the nurse who works at the reception of the OPD. Following measurement of their vital signs they were directed to the researcher's consultation room. The researcher then explained the purpose of his study and the patient either chose to participate in the research or to just have their headache addressed as per a normal hospital consultation. Patient's who chose to participate were asked to sign a consent form.

The researcher then proceeded to interview the patients. This included a detailed history and examination. Diagnosis of headache was according to the ICHD-2 criteria (the ICHD-3 criteria were not yet available). At the end of the interview the researcher thanked the patient and managed the problem according to the 2012 EDL guidelines (see Annexure 6). The patient was then directed back to the reception area. From the reception area they were

given a return appointment, if this was necessary, and then directed to the pharmacy. Patients who refused to take part in the research were also managed according to the 2012 EDL guidelines. At the end of each day the researcher collected all the questionnaires. He also found out the total number of patients that came to consult at the OPD on that particular day so that the prevalence of headache can be calculated. This was done on a daily basis until the end of the study period. The questionnaires were kept safely in a locked cupboard in the researcher's house. The patient's file and questionnaire were colour coded to help identify them and to maintain confidentiality. Data were transferred to MS Excel spreadsheet. The data were also password protected so that the researcher alone had access to it.

3.11 Measuring tool/instrument

A directed questionnaire was the primary tool used to collect data (see Annexure 1). It was written in English and the researcher administered it (interview style). The questionnaire was adapted from a validated questionnaire used in a previous study, in Singapore, where a similar study was done[5]. The questionnaire was reliable as it had been designed and directed by the Singapore Headache Society, in consultation with Neurologists who had a special interest in the subject of headache[5]. The questionnaire was modified to suite the African setting. The following modifications were made:

- Race: From Chinese, Malay, Indian and others to Black, White, Coloured and Asian
- Questions such as, "Are you satisfied with your current headache medication?" as our research did not focus on this area.

The first part (of the questionnaire) was used to collect demographic data. The second part was used to collect data about the type of headache the patient is presenting with.

3.12 Pilot study

A pilot study was conducted in January 2015 on ten participants, following ethics approval. The aim of the pilot study was to estimate the time taken to complete the questionnaire and

to check if there is a need for further modification of the questionnaire. After the analysis of the data it was found that there was no question that needed modification. The time needed to complete the questionnaire was 30 minutes. The data of the participants, including the participants themselves, were not used in the final analysis. The participants were treated according to the EDL guidelines after the interview

3.13 Data analysis

1. Data entry: Data was entered into the MS-Excel spread sheet.

2. Data analysis: Data that has been entered into the MS- Excel spread sheet was then imported to the statistical software. A statistician helped with the data analysis.

Categorical variables were analysed and the results are presented as frequencies and percentages. Continuous variables are presented as means and standard deviation. Association between socio-demographic features and types of headache was determined using Chi-square method for categorical data and logistic regression. The statistical parameter used in this study was $p \leq 0.05$ with a CI of 95%.

3.14 Ethics considerations

- Confidentiality was maintained by ensuring that all questionnaires are anonymous. The participant's identity was coded and a coding number was given to each participant's file. The number was then entered on a separate MS Excel sheet. Access to this information was only via a password which only the researcher knows.
- A participant letter and informed consent form were provided to the participant. Two copies were made available, one for the researcher and one for the participant. Only participants who agreed to participate by signing the consent form took part in the study.

- Occasionally a translator (auxiliary nurse) assisted in helping participants who could not speak or read English, to answer the questions. The interviewer is was fluent in most South African Languages, therefore a translator was rarely needed (only on two occasions)
- Those who refused to participate in the study were not forced or discriminated against; their right to refuse was respected.
- Permission to conduct this study was sought from the CEO of Dr Yusuf Dadoo hospital (See annexure 2).
- Written permission was also sought from the West Rand District Ethics Committee. (See annexure 3).
- Ethics clearance was given by the Human Research Ethics Committee (HREC) of the University of Witwatersrand.

3.15 Funding of the research

The cost of the research was funded by the researcher's personal funds.

CHAPTER 4

RESULTS

In this section, the researcher will report the results of the data collection. Diagnosis of headache, prevalence, the demographic characteristics of the participants and how these correlate with headache diagnosis, will be presented.

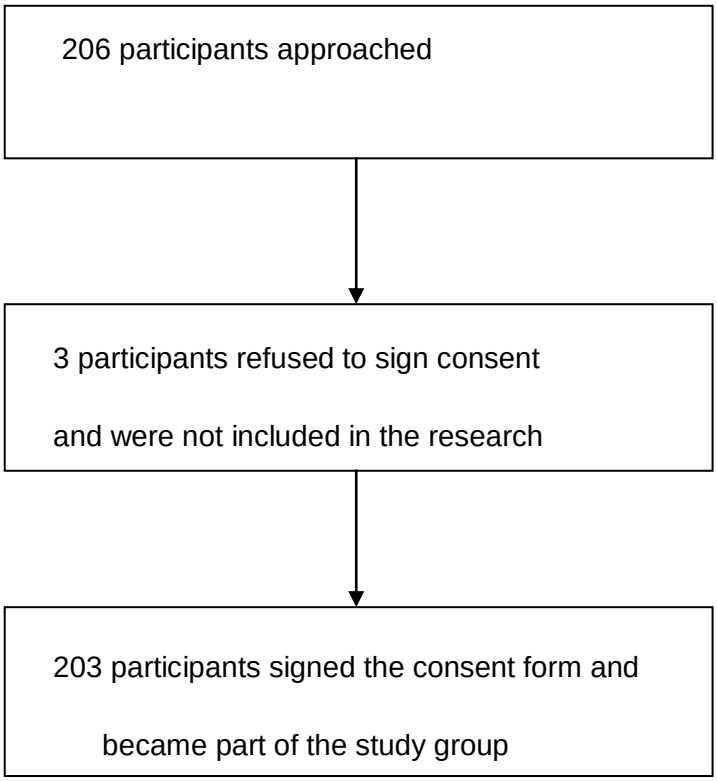


Figure 1. Selection of the patients

Two hundred and three participants made up the study population. The response rate was 98.5%.

4.1 Prevalence of headache in the study centre

The total number of patients seen in OPD during the study period was 4408. The one day prevalence of headache was calculated to be 4.7% (206/4408 X 100). This number includes patients who refused to participate in the study.

4.2 Headache classification using ICHD-II criteria

Table 4.1 Types of headache

HEADACHE TYPE	NUMBER OF PARTICIPANT N=203	PERCENTAGES
Type of headache	**N=203**	
Primary headache	142	69.95
Secondary headache	61	30.05
PRIMARY HEADACHE	**N=142**	
Migraine	41	28.87
Tension Headache	77	54.23
Mixed headache(tension/migraine)	24	16.90
SECONDARY HEADACHE	**N= 61**	
Cause of Secondary Headache		
Head and/or neck trauma	9	14.75
Non-vascular intracranial disorder	6	9.84
Substance or its withdrawal	4	6.56
Infection	21	34.43
Disorder of homeostasis	8	13.11
Disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth, or other facial or cranial structures	13	21.31

Seventy percent of the participants had primary headache and 54.23% of them had tension headache. Infections were the commonest causes of secondary headache and they were seen in 34.43% of the secondary headache participants.

4.3 Socio demographic characteristics of the participants

Table 4.2 Demographic characteristics of the participants

Demographic Variables	Number of participants (N=203)	Percentages	Mean +/- SD
AGE GROUP (YEARS)			48.09 +/- 15.29
Youth (18-24 yrs)	15	7.39	
Young adults (25-39 yrs)	50	24.63	
Middle aged Adults (40-64 yrs)	108	53.20	
Aged (≥65yrs)	30	14.78	
GENDER			
Female	147	72.41	
Male	56	27.59	
ETHNIC GROUP			
Black	130	64.04	
White	66	32.51	
Coloured	6	2.96	
Asian	1	0.49	
EDUCATIONAL LEVEL			
No Schooling	10	4.93	
Primary School	31	15.27	
High School	134	66.01	
Post High School qualification	28	13.79	
MARITAL STATUS			
Single	56	27.59	
Married	60	29.56	
Co-habiting	35	17.24	
Divorced	28	13.79	
Widowed	24	11.82	
MONTHLY INCOME			
No income	33	16.26	
<R1000	5	2.46	
R1000-R5000	134	66.00	
R5001-R10000	18	8.87	
>R10000	13	6.40	
EMPLOYMENT STATUS			
Unemployed	107	52.71	
Employed	86	42.36	
Part-time Employed	10	4.93	
TYPES OF UNEMPLOYMENT	N=107		
No job	50	46.73	
Pensioner	48	44.86	
Student	9	8.41	

The age range of the participants was between 18 and 88 years with a mean age of 48 years. Fifty three percent (108/203) of the participants were middle aged adults. Black married females with a high school qualification made up the majority of the participants. Sixty six percent of the participants earned a monthly salary between R1000-R5000. Fifty three of the participants were unemployed (pensioners or no job).

Table 4.3 Social characteristics of the participants

Demographic Variables	**Number of participants N=203**	**Percentages %**
ALCOHOL USE		
Participants who used alcohol	55	27.09
Participants who did not use alcohol	148	72.91
ALCOHOL CONSUMPTION IN NUMBER OF GLASSES	N=55	
1 to 5	36	65.45
6 to 10	15	27.27
>10	4	7.27
PERIOD WHEN ALCOHOL WAS CONSUMED	N=55	
Weekends/special occasions	54	98.18
Week days	1	1.82
RECREATIONAL DRUG USE	N=3	
Participants who used recreational drugs	3	100
USE OF CIGARETTES	N=203	
Participants who smoked cigarettes	52	25.62
Participants who did not smoked cigarettes	151	74.38
NUMBER OF PACK YEARS FOR PARTICIPANTS WHO SMOKED	N=52	
1-10	23	40.35
11-20	20	35.09
21-30	8	14.04
31-40	5	8.77
>40	1	1.75

Twenty seven percent (55/203) of the study population used alcohol. They drank 1-5 glasses at a time and used it more frequently during weekends while 25.62% (52/203) smoked cigarettes, with a pack year history of 1-10 years.

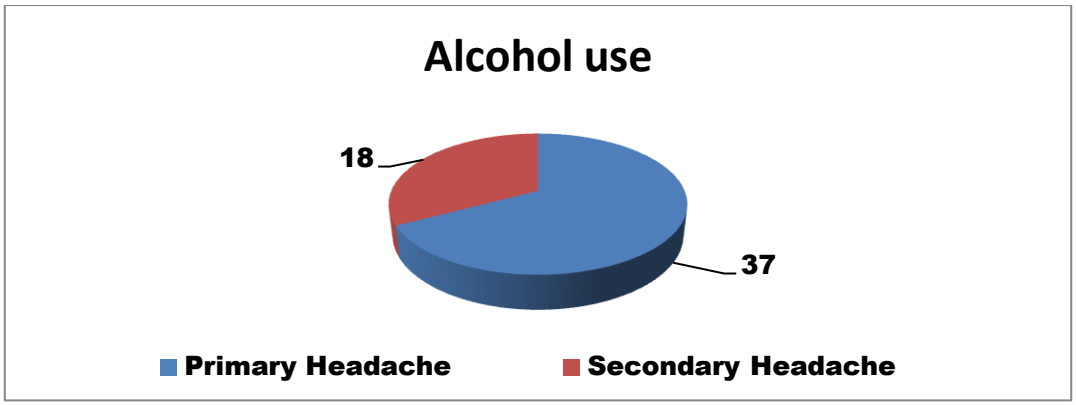
4.4 Characteristics related to headache

Table 4.4 Characteristics related to headache

Variables	Number of participants N=203	Percentages (%)
Headache duration		
<1 year	76	37.44
1-5 years	40	19.70
>5 years	87	42.86
Number of days per month		
1 day	17	8.37
2-4 days	60	29.56
5-10 days	39	19.21
11-15 days	35	17.24
>15 days	52	25.61
Severity of headache		
Mild (1-4)	10	4.93
Moderate (5-7)	85	41.87
Severe (8-10)	108	53.20
Inactivity caused by headache		
No of participants who were unable to work	94	46.31
No of participants who were able to work	109	53.69
Use of Headache Medication		
Participants who used medication for headache	168	82.76
Participants who did not use medication for headache	35	17.24
Overusing of Pain Medication for acute headache		
Participants who overused medication	60	29.56
Participants who did not overuse medication	143	70.44

Forty three percent (87/203) of the participants had headache for more than 5 years with a frequency of two to four days per month. Fifty three percent reported that the headache was severe. Fifty three percent of the participants could perform their daily activities despite suffering from headache. Eighty three percent reported that they used headache medication (168/203). Thirty percent reported that they overused pain medication.

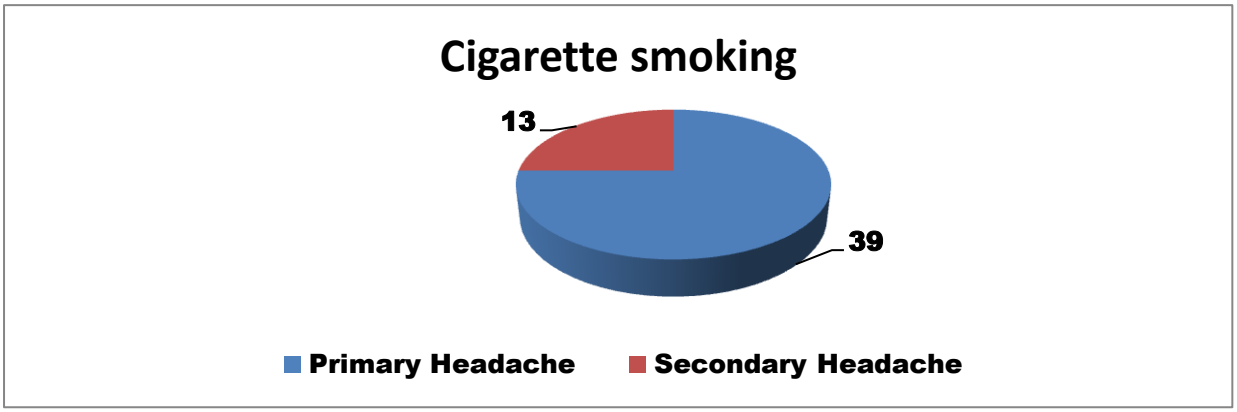
4.5 Association between headache types and social characteristics of the participants



Pearson chi2 = 0.2573925 p-value = 0.612

Figure 2. Alcohol use and Headache types

Despite this result not being statistically significant, those who used alcohol were 2 times more likely to have primary headache than secondary headache.

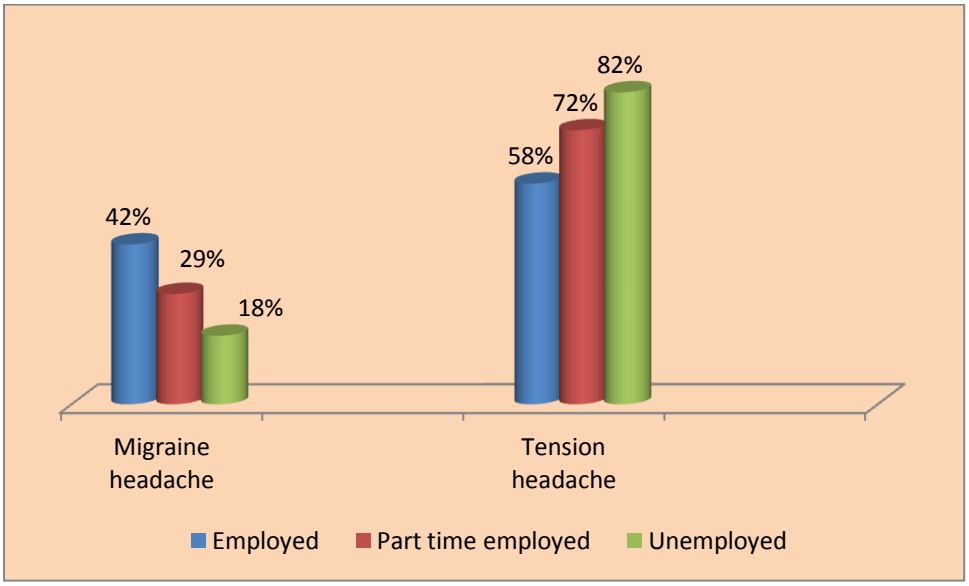


Pearson chi2 = 0.8479143 p-value = 0.357

Figure 3. Cigarette smoking and Headache type

Cigarette smokers were 3 times more likely to have primary headache than secondary headache. This result is, however, not statistically significant.

4.6 Association between Socio-demographic features of the participants vs. sub-divisions of primary headache

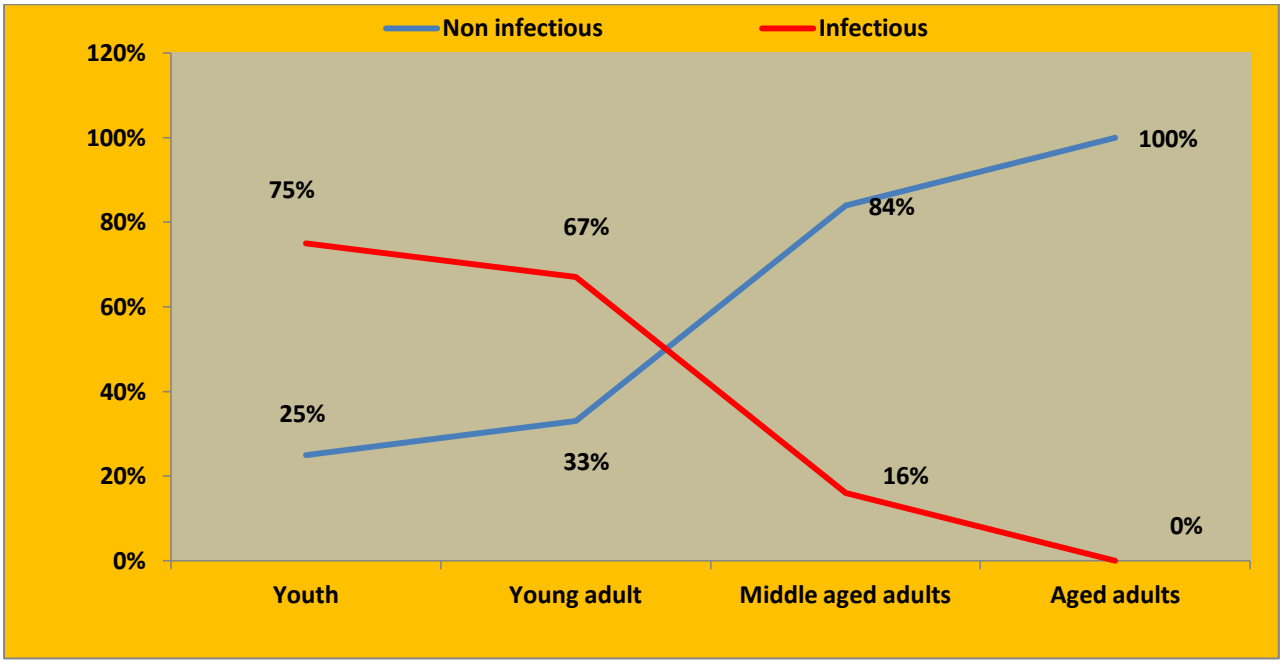


Pearson chi2 = 13.2660 p-value = 0.010

Figure 4. Employment status vs. sub-divisions of primary headache

There was a statistically significant relationship between employment status and sub-divisions of primary headache. More unemployed participants suffered from Tension headache compared to those in the employed category [62/76, 82% vs. 25/59, 58%]. Participants who were unemployed were three times more likely to suffer from Tension headache compared to those who were employed and the confidence interval was narrow. [OR: 3.2, p: 0.010, 95% CI: 1.50-7.08].

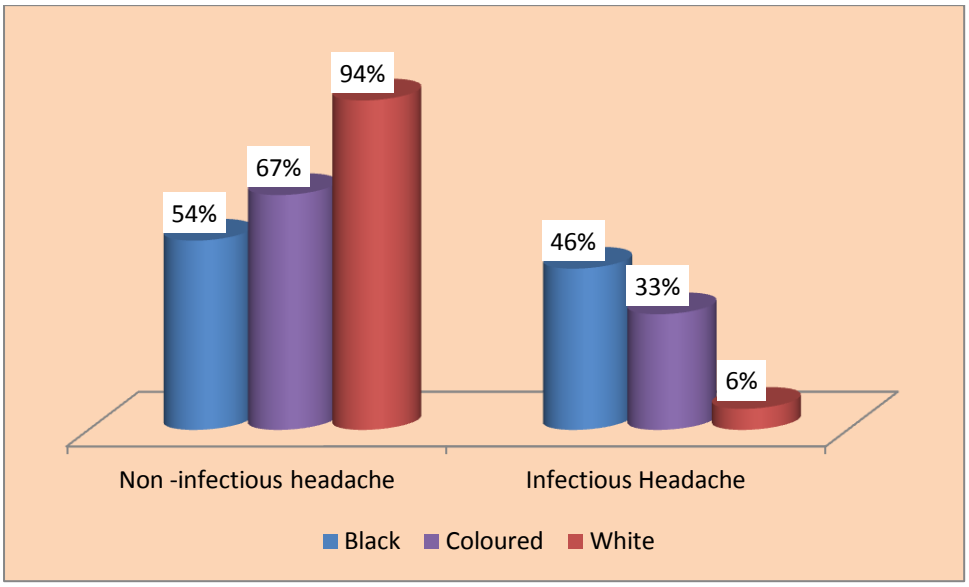
4.7 Socio-demographic features vs. sub-division of secondary headache



Pearson chi2 = 21.1403 p-value = 0.000

Figure 5. Age category vs. sub-division of secondary headache

There was a statistically significant relationship between types of secondary headache and age category. Non infectious headache was seen more frequently in aged adults when compared to the youth [7/7, 100% vs. 2/8, 25%]. Aged adults were 16 times more likely to suffer from non-infectious headache compared to the youth, however the 95% confidence interval was very wide [OR: 15.6, p: 0.004, CI: 2.42-100.68].



Pearson chi2 = 8.7157 p-value = 0.013

Figure 6. Ethnic groups vs. sub-division of secondary headache

There was a statistically significant relationship between sub-divisions of secondary headache and ethnic group. Non-infectious headaches were seen more frequently in white participants when compared to black participants [16/17, 94% vs 22/41, 54%]. White participants were 14 times more likely to suffer from non infectious secondary headaches compared to black participants, however the 95% confidence interval was very wide [OR: 13.8, p: 0.015, CI: 1.67-114.14].

There was no statistically significant relationship between headache types, sub-divisions of primary headache and sub-divisions of secondary headaches and the following variables: Gender, educational level, marital status, and monthly income. There was no statistically significant relationship between headache types, sub-divisions of primary headache and age and ethnic group and between headache types and sub-divisions of secondary headaches and employment (i.e. No other comparisons yielded statistically significant results).

Validity and reliability of results

There was consistency in the methodology and findings of the research.

CHAPTER 5

DISCUSSION

5.1 Introduction

This section of the report discusses the results of the study and compares them to other studies that were carried out in other parts of the world.

5.2 Methodology

A larger study sample would have been desirable, in this study, but time constraints prevented its realisation. A cross-sectional study was carried out in order to have a snapshot of headache prevalence, in this hospital. The researcher was happy with the response rate (98.5%). The study design was suitable for the objectives of the study.

5.3 Prevalence of headache

This study determined the prevalence of headache among adults aged 18 years and above at the OPD of Dr. Yusuf Dadoo Hospital. Such a study had never been done in this institution and there was also a paucity of these kinds of studies at a primary health care level in South Africa and Sub-Saharan Africa.

The prevalence of headache disorders was found to be 4.7% among those attending the OPD of Dr. Yusuf Dadoo Hospital. Most studies report a 1 year prevalence or lifetime prevalence of headache, in contrast to the 1 day prevalence used in this study. One year prevalence and life time prevalence studies tend to have higher percentages. In a study conducted in India the 1 day prevalence was low (5.9%). This number is comparable to the current study findings. However, the same study had a higher (62%) 1 year prevalence [22]. Headache centres have higher prevalence rates by virtue of the fact that they are specialized units[23]. This is not the case with primary health care centres as most of the patients who present for consultation are undifferentiated. In a primary health care facility in

Brazil, the 1 day prevalence of headache disorders was 10.4%[24]. Population studies, in contrast, report higher prevalence rates of headache disorders with some studies reporting percentages as high as 82.5%[22,25,26]. These numbers suggest that a lot of headache sufferers do not present to health care facilities for help, because population studies include headache sufferers who have not necessarily presented to a health care facility for help. This may be the case with the population that Dr. Yusuf Dadoo Hospital serves.

5.4 Types of headache

The ICHD-II diagnostic criteria were used together with acceptable study methods. In 2013 the ICHD-III beta version was published by the International Headache Society[21]. At the time of writing the protocol, the researcher had not found any related studies that have used this new guideline.

Most of the participants suffered from primary headaches (69.95%). This is consistent with findings from other prevalence studies conducted globally (61.6%)[27]. A cross-sectional study carried out in Zambia found the prevalence of primary headache to be 61.6%[27]. A similar study which was carried out in India reported the 1 year prevalence to be 63.9%, confirming the pervasiveness of primary headache in the general population[28]. Steiner et.al conducted a large study in Europe. Their results suggest that primary headache disorders are more widespread with a life time prevalence of 91.3% and a one year prevalence of 78.6%[29]. Although some of these studies[27] were carried out in the general population and not in a health care facility the numbers do confirm that primary headache disorders are indeed common.

Tension type headache and migraine are the commonest primary headache disorders[11]. In this study TTH was the commonest primary headache disorder seen (54%). In Zambia Mbewe et. al found the prevalence rate between migraine and TTH to be equal, 22.9% and 22.8% respectively[27]. However, in India, Kulkarni et. al reported a higher prevalence of TTH

(35.1 %) compared to migraine (25.2%), among the study participants[28]. Steiner et al. also found TTH to be more prevalent in their study[29]. Dowson concurs with these observations: "TTH is a ubiquitous condition that is highly prevalent in the community and has a large impact on people's lives and society as a whole"[32]. Even though, in this study, the observed difference between TTH and migraine (54% vs. 29%) was greater, the results confirm a similar observation in other studies[11,17].

The prevalence of secondary headache disorders was surprisingly high (30.05%). This may be due to the fact that this study was conducted in a hospital setting and not a primary care clinic setting. A study conducted in Spain reported a prevalence of secondary headache disorders to be 16%. This study was carried out on a population of the elderly (≥65 years) in a headache specialist unit of a tertiary hospital[30]. The prevalence in this study may be slightly lower than that observed at the OPD of Dr. Yusuf Dadoo hospital because it focused on a single age group. Onwuekwe et.al observed a higher prevalence (29% males, and 23% females) among health workers in a Nigerian hospital[31]. In both studies discussed above secondary headache disorders have a lower prevalence rate when compared to primary headache disorders. This is the same case in Dr. Yusuf Dadoo hospital.

5.5 Demographic characteristics of the participants

5.5.1 Age

Adults between the ages of 40-64 (mean 48.09,+/- 15.29) years presented more frequently. In Zambia those between the ages of 18-29 years (34%) made up the majority of headache sufferers[27] while the mean age in headache sufferers from various European nations was between 40-50 years[29]. The age findings of the European study are similar to those observed in this study. Other studies, like the Zambia study, tend to report greater prevalence in younger participants [22,28,31,33]. Most of those who consult at the OPD of DYDH are elderly people suffering from various chronic diseases. This is possibly the reason why the researcher observed a greater number of those between the ages of 40-64 years.

5.5.2 Gender

Female participants suffered more than male participants (72% vs. 28%). This is consistent with other prevalence studies[7,8,10,14]. A study looking at the prevalence and burden of headache in Nepal reported a higher rate amongst females[33]. Arslantas et.al also reported a higher prevalence of headache among females, with an accompanying significant impact on quality of life[34]. Autret et. al also had a similar observation with an increase in psychosocial challenges among females compared to males[35]. While this study did not directly observe the related psychosocial issues accompanying headache disorders, it is possible that females attending the OPD of DYDH are significantly impacted by this pain. This does not mean that men should be ignored. They also can be significantly impacted, especially when suffering from Migraine headaches[35].

5.5.3 Ethnic group

The majority of the people who live in the West Rand District are blacks[36]. Since DYDH is a public hospital, the patients seen are predominantly blacks and this study reflects this (64%). A study conducted in the United States of America (USA) reported a greater prevalence of headache disorders among Caucasians. However, Caucasians were the majority of respondents in the study[37]. With the exception of the USA[18,37] not many studies have focused on Ethnicity as having a significant relationship with the prevalence of headache disorders.

5.5.4 Level of education

Most of the participants in this study attained a high school level of education (66%). This number is comparable to a study carried out in Italy (in a headache centre) where most of the participants had a low to moderate level of education[38]. A study looking at the epidemiology of headache in Zambia found the majority of participants to have attained a secondary level of education (54%) while the rest of the participants had attained a Primary (25%) or Higher (21%) level of education[39]. At DYDH 15% had a primary school qualification and only 14% had a post high school qualification. In their study looking at how headache impacted the quality of life among adults, Arslantas et al found that most (78%) of the headache sufferers had a Secondary or lower educational level[34].

Another study, carried out in France, found the majority of participants who had consulted in various headache specialist centres to have left school between the ages of 16 to 19 years[35]. This is the age where most people are in high school. A prevalence study in India reported a similar observation among headache sufferers. The majority of the study participants had a high/middle school qualification while fewer participants had a primary or professional qualification[28]. This is in contrast to another prevalence study carried out in India where the majority of headache sufferers were found to be illiterate[22]. There are not many studies which report this trend. Only 5% of the participants at the OPD of DYDH had not attained any level of education.

In 2013 Smitherman et al. published a study which found the majority of headache sufferers, in the USA, to have attained a low level of education (high school and lower)[40]. The findings in this study (with regard to level of education) are therefore consistent with most of the prevalence studies carried out in different countries (both low income and high income countries).

5.5.5 Marital status

Participants who reported to be married were slightly more than those who are single (30% vs. 28%). A study looking at anger and distress among headache suffers reported a higher prevalence among the married compared to those who are single, divorced or widowed[38]. Gururaj et al. reported a higher prevalence of headache sufferers among the married (72%) compared to the non-married[22]. In Turkey a headache prevalence study also reported a high percentage (75%) of married participants to be suffering with headache[34]. In both rural and urban participants of headache sufferers Mbewe et al. found most (51%) of them to be married compared to the unmarried. These studies have significantly higher percentages of headache sufferers who are married compared to the OPD of DYDH. It is, however, possible that in South Africa there is a higher percentage of those who are co-habiting, thus decreasing the percentage of married individuals who suffer with headache.

A study done in Ethiopia reported a different observation to the ones reported in the studies discussed above. They reported a higher proportion of headache sufferers among those who are widowed and divorced[10]. The combined percentage among the widowed and divorced in the OPD of DYDH is 26%. Therefore, despite a slightly higher number of married participants complaining of headache, the OPD of DYDH seems to have comparable proportions of headache sufferers in the marital status category.

5.5.6 Monthly income and employment status

Unemployed participants presented more frequently and those who are employed earned a low income salary (R1000-R5000). A headache prevalence study carried out in America, comparing gender differences and other demographic factors associated with headache, reported percentages within the same range (of headache sufferers) among different income classes[37]. In Zambia the unemployed and unskilled participants together made up the majority of headache sufferers (70%)[39]. A study carried out in Turkey, looking at the

prevalence of headache and its effects on adults, found that more of the participants were employed (60%) compared to the unemployed[34]. This is in contrast to another study carried out in Turkey that reported a 27% unemployment prevalence among the participants[26]. The difference between observations made in the OPD of DYDH, other African countries and American/European countries may be related to economic factors in the respective countries. In India more employed individuals suffered from primary headache disorders compared to unemployed individuals[28]. Another study in India also reported a lower prevalence of unemployed participants (7%) suffering from headache disorders[22]. This is a unique observation in a country known to have more low income and unemployed people. While our study reported a 5% prevalence of participants who are part-time employed other studies did not use this terminology.

5.6 Social features of the participants

Alcohol consumption is an important and frequent dietary cause and trigger of primary headaches [41,42]. Twenty seven percent of the OPD participants reported use of alcohol and only one patient used on week days. A study looking at factors associated with primary headache disorders found that 26% of migraine headache sufferers and 35% of tension headache sufferers consumed “light alcohol beverages”. Ten percent of migraine headache sufferers and 15% of tension headache sufferers consumed “strong alcoholic beverages”[43]. Our study did not separate participants into users of light and strong alcohol beverages.

Only three participants who presented to the OPD used recreational drugs. There are not many contemporary studies that have looked at the prevalence of headache among recreational drug users. In 1991 Dhuna et al. reviewed records of 21 patients who were admitted for cocaine related headache. Fifteen patients had headaches with features of migraine. “All the patients were habitual cocaine users”[49]. Unfortunately we did not look at the frequency of recreational drug use. An important observation, however, was that 6.56% of secondary headache disorders was due to a “substance or its withdrawal”.

Twenty six percent of the participants smoked cigarettes. Lebedeva et al. reported that 26% of migraine sufferers and 35% of tension headache sufferers were current smokers. However, they did not specify the level of smoking in pack years[43]. Orhurhu et al. reported a high prevalence of smoking among those suffering from chronic diseases, including headache disorders[44]. The prevalence of smoking in headache sufferers who presented to the OPD of DYDH should therefore not be ignored.

5.7 Characteristics related to headache

Forty three percent of the patients had suffered with headaches for more than 5 years while 20% had headache disorders for no more than five years (1-5 years). Thirty percent had headaches for 2-4 days/month while 26% had headaches for more than 15 days/month. In Zambia Mbewe et al. reported a duration of 3.4 days a month[27]. In Nepal Manandhar et al. reported a mean duration of 3.8 (+/-6.2 SD) days per month, which was higher among females (4.3 +/- 6.9 SD)[33]. "A survey conducted in seven European countries and Russia revealed that headache is one of the most frequent types of everyday pain"[32]. Those attending the OPD of DYDH seem to be impacted by headache more frequently.

In a Nigerian study, among health workers, Onwuekwe et al. found the highest frequency to be between 6-10 days. They, however, used frequency in the past 6 months. They also found that the majority (57%) of the participants experience the headache at no specific time of the day[31]. In Turkey the headache days per month were reported to be 6.3 days (± 6 SD) among the females and 6.0 days (± 6 SD)[26]. A study done in Pakistan found that 49% of the participants (male and female) had suffered from headache disorders for over five years and 39% of the participants experience the problem for more than 14 days a month[44]. Our study findings are therefore consistent with other prevalence studies with regard to the burden of headache as expressed in terms of headache duration.

Inactivity caused by headache expresses headache severity and our study found that 46% of the participants could not work when experiencing a headache attack. Fifty three percent of the participants felt that their headache was severe. This finding is not unique to the OPD of DYDH. In Austria a study involving eight headache centres reported a high percentage (62%) of patients who lost at least 11 days, as a result of headache, 3 months prior to the study[23].

An Italian study found that those who had suffered with headache for more than 15 days a month were impacted the most. They lost more days from work[25]. Interestingly though, among health workers who participated in a headache study, in Nigeria, most did not feel that the headache impacted their work. Only 2 percent believed that their headache disorder was severe and 10% felt that the headache was severe enough to impact on their daily activities. Seven percent had been absent from work as a result of the headache problem[31].

Autret et al. found a significant number of their study participants to have their physical function, general health perception, social function and mental health significantly impacted by headache disorders[35]. Mbewe et al. estimated the GDP loss to be up to 2% as a result of the burden of headache on Zambia's population[27]. It is a possibility, in South Africa, that there is a significant impact on the economy as a result of the burden of headache on this population.

A large number (29%) of the study participants in our study overused headache medication. This figure is three times higher than that reported by the World health organization[11]. In Nepal those who were classified as overusing headache medication had their quality of life profoundly impacted[33]. In India the prevalence of medication overuse was only 1.2%[28] with a similar number (1.3%) reported in Turkey[26]. A multicentre study in Austria had percentages that are a little closer to those observed in our study (16%)[23]. The higher numbers observed

in our study may be suggestive of sub-optimal management of headache disorders in the OPD of DYDH.

5.8 Association of socio-demographic features and types of headache

This study found that those who used alcohol were 2 times more likely to have primary headache than secondary headache even though this result was not statistically significant. Panconesi et al. found that habitual alcohol consumption triggers Migraine without aura in 15% of their participants[41]. They however did not find an association between habitual alcohol consumption and tension headache. This is in contrast to Lebedeva et al. who found that consumption of "light" alcohol was associated with Tension type headache[43]. Our study did not differentiate Migraine and Tension headache when comparing associations between alcohol consumption and headache types. A review study reported that, in most countries, up to a third of migraine patients report alcohol consumption as a trigger of their headache. Many of these studies were, however, retrospective studies[42]. Unfortunately our study did not differentiate between strong and weak alcoholic drinks.

Despite this result not being statistically significant, this study found that cigarette smokers were 3 times more likely to have primary headache than secondary headache. Orhurhu et al reported a 21% prevalence of chronic headache (primary headache) as a result of chronic smoking[44]. This number is comparable to our study (19%). Sarker et al. found that use of cigarettes (both smoking [24.6%] and smokeless [15.9%]) is associated with migraine headache[45].

In this study participants who are unemployed were 3 times more likely to suffer from Tension headache compared to those who are employed (p-0.010, CI: 1.50-7.08) Twenty five percent of participants in Stang et al.'s study were headache sufferers who were unemployed. Although their study did not discriminate between headache types they found that headache sufferers were most likely to be unemployed[46]. In contrast to our study

Arslantas et al. do not report employment status as a statistically significant cause of primary headache or any headache type[34].

This study found that the elderly (≥ 65 years) were 16 times more likely to suffer from non-infectious secondary headache compared to youth (18-24 years) (p-0.004, CI:2.42-100.68). A study conducted in Iran found that the prevalence of secondary headache increased with age in their participants[47]. They, however, also found that infectious causes of secondary headache (meningitis and sinusitis) were more prevalent in the younger age groups. They reported the overall prevalence of Secondary headache as 20.1%. In their study looking at the prevalence of headache in the elderly, Lisotto et al. reported a higher prevalence of headache in participants who were older than 65 years[48]. However, they also found that non-infectious causes of secondary headache were more prevalent in this age group. Ruiz et al. also found that Primary headaches are more prevalent in the elderly and confirmed that non-infectious secondary headaches account for the majority of secondary headache complaints in this age group[30].

Although our study found a statistically significant relationship between ethnicity and secondary headache types, no studies were found that directly address this association. The significantly higher number of blacks who presented to the OPD may have influenced our result. Unfortunately our study also did not demonstrate a statistically significant relationship between headache types, sub-divisions of primary headache and sub-divisions of secondary headaches and the following variables: gender, educational level, marital status, and monthly income. In addition to this, there was no statistically significant relationship between headache types, sub-divisions of primary headache and age, ethnic group and between headache types and sub-divisions of secondary headaches and employment. In particular, it was surprising that gender did not yield statistically significant associations with certain headache types (e.g. primary headache disorders such as Tension headache, as discussed in the Literature review section).

Limitations

- Time constraints could not allow for a larger sample size. It is possible that with a longer period of data collection certain variables could have yielded statistically significant associations. The inability of the researcher to collect data on days when he was on call, post call or attending to other academic responsibilities could have resulted in sampling bias (omission bias) and played a role in the outcome of results.
- The type of study carried out (cross-sectional study) places more focus on prevalence and thus weakens the strength of the subject studied.
- The study was carried out in a hospital setting, where there is a possibility that a certain group of the population will present more frequently than another group.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

The study objectives were met and the findings were comparable with other studies carried out in other parts of the world. Headache disorders are a significant challenge that afflicts patients who present to the OPD of Dr. Yusuf Dadoo Hospital. Primary headache disorders are the commonest types of headache seen but there are also a significant number of those who suffer with Secondary headache disorders. Tension type headache is the commonest sub-division of Primary headache disorders and this needs to be noted as it is not a disorder that is difficult to manage. Middle aged adults suffered more than those in other age groups. It is possible that this observation was influenced by the type of patients who commonly present to the OPD of Dr. Yusuf Dadoo Hospital (those with some type of chronic disorder). This same explanation may apply to the reason why Black adults presented more commonly than other ethnic groups (they make up the majority of patients who attend the hospital). As observed in other studies, carried out globally, unemployed and low income level female participants made up the majority of headache sufferers. While a statistically significant association was not observed between alcohol consumption, cigarette smoking and headache disorders, the fact that more of those who used these substances suffered with headache disorders should not be ignored. We found a statistically significant relationship between employment status and sub-division of primary headache disorders; age category and sub-division of secondary headache and ethnic group and sub-division of secondary headache.

Therefore the following recommendations are made:

- Guidelines that specifically address the management of headache disorders at district hospitals, in South Africa, need to be updated and improved, in order to assist those working in such centres.

- Primary health care physicians need to be aware of the burden of headache disorders among those who consult with them, and more should be done by national authorities to train health workers in the proper diagnosis and management of headache disorders.
- The results suggest that there is a possibility that many headache sufferers are economically impacted (46.31% stated that they were unable to work as a result of suffering from headache disorders) by this disorder (women in particular), therefore increased efforts to decrease the level of morbidity among those affected need to be made in order to curb the socio-economic impact headache disorders have on those afflicted by them.
- Health education should be given to patients, about the effects of alcohol and smoking in precipitating headache disorders.
- Further studies should be embarked on with the aim of closely looking at the psychosocial impact headache disorders have on patients, as a high number of headache sufferers are not only unable to work but also tend to overuse headache medication.

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Annexure 1 – Questionnaire

Diagnosis and prevalence of headache at the out-patient department of Dr. Yusuf Dadoo Hospital.

Part I: Socio-demographic features

1. Code number for the patient? ……
2. What is your age in Years? ……...
3. What is your Gender?

☐ Male ☐ Female

4. Which ethnic group do you belong to?

☐ White ☐ Black

☐ Coloured ☐ Asian

5. What is your educational level?

☐ No schooling ☐ Pre-school ☐ Primary School ☐ High School

☐ Diploma ☐Post Higher Diploma ☐ Bachelors Degree

☐ Honours Degree ☐Higher Degree (Masters/PhD) ☐Other

6. What is your marital status?

☐ Single ☐ Married

☐ Co-habiting ☐ Divorced ☐ Widowed

7. What is your employment Status?

☐ Student ☐ Pensioner

☐ Unemployed ☐ Employed

☐ Part-time employment

8. a) How much monthly income do you receive?

☐ No monthly income

☐ <R1000/Month ☐ R1000-R5000/Month

☐ R5000-R10000/Month ☐ >R10000/Month

b) Where do you receive this income from?

☐ Child support grant ☐ Disability grant

☐ Pensioner ☐ Depend on family member

9. a) Do you use alcohol?

☐ Yes ☐ No

b) If yes, how much do you drink ……

c) When do you drink? …….

d) If yes, how often:

☐ On weekends/special occasions ☐ Once a week

☐ Twice a week ☐ Three times a week

☐ Daily

10. Do you use recreational drugs like dagga, marijuana, and heroine?

☐ Yes ☐ No

11. Do you smoke cigarettes?

☐ Yes ☐ No

If yes, how many cigarettes do you smoke per day and for how many years?
……

Part II: Diagnosis and Type of headache (to be completed by the researcher)

12. How long has it been since you have started having headaches?

☐ Less than 1 year ☐ Between 1–5 years ☐ More than 5 years

13. How many days in a month do you experience headaches?

☐1 day ☐2-4 days ☐5-10 days ☐10-15 days ☐>15 days

14. When you have a headache, have you been inactive for at least 1 day over the past 3 months? ☐ Yes ☐ No

15. Is the patient presenting with migraine? ☐ Yes ☐ No

16. Is the patient presenting with a tension type headache? ☐ Yes ☐ No

17. Is the patient presenting with a cluster headache or other trigeminal autonomic headache? ☐ Yes ☐ No

18. Is the patient presenting with other trigeminal autonomic headaches?

☐ Yes ☐ No

19. Is the patient presenting with a secondary headache?

☐ Yes ☐ No

20. If yes what is the most likely cause? ----------

21. Is the patient taking medication for headache? ☐ Yes ☐ No

22. Is the patient overusing acute pain medication? ☐ Yes ☐ No

(≥ 15 days per month for simple analgesics or ≥ 10 days for ergotamines, triptans, opioids or combination medication)

23. How painful was the most painful headache the patient had in the past year?

On the scale 0 to 10 (with 0 being no pain and 10 being the worst pain imaginable)

1 2 3 4 5 6 7 8 9 10

Thank you for your participation

Annexure 2 – Hospital CEO's permission letter

Department of Health

OFFICE OF HUMAN RESOURCE MANAGEMENT
DR. YUSUF DADOO HOSPITAL

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

ENQUIRIES : P.M. Sofohlo
TELEPHONE : (011) 951-6161
FAX : (011) 953-5952
REF NO : 02
E mail: : SofohloP@gpg.gov.za

Date : 06.06.2014

Attention Dr. M. Magethi

Department of Family Medicine
West Rand District
KRUGERSDORP
1740

RE: PERMISSION TO CONDUCT RESEARCH AT DR. YUSUF DADOO HOSPITAL

Research Title: Diagnosis and prevalence of headache at the Out Patient Department of Dr. Yusuf Dadoo Hospital

Permission is hereby given to you Dr. Magethi to conduct research on the above mentioned topic at Dr. Yusuf Dadoo Hospital. You are therefore expected to adhere and comply with the Ethics of research as stipulated in the research policy.

Regards

P.M. Sofohlo
CEO (Dr. Yusuf Dadoo Hospital)
Date: 2014/06/06

Dr. YUSUF DADOO HOSPITAL
PRIVATE BAG X2006
2014 -06- 06
KRUGERSDORP 1740
CHIEF EXECUTIVE OFFICER

Dr. Yusuf Dadoo Hospital, Private Bag X2006, Krugersdorp, 1740

Annexure 3 – HREC Clearance Certificate

R14/49 Dr Moshe Magethi

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M141175

NAME: (Principal Investigator)	Dr Moshe Magethi
DEPARTMENT:	Family Medicine Dr Yusuf Dadoo Hospital
PROJECT TITLE:	Diagnosis and Prevalence of Headache at the Out-Patient Department of Dr. Yusuf Dadoo Hospital
DATE CONSIDERED:	28/11/2014
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Elizabeth Reji

APPROVED BY: pp _____
Professor C Feldman Co-Chairperson, HREC (Medical)

DATE OF APPROVAL: 07/01/2015

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**.

_____ _____

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Annexure 4 – Permission letter from the West Rand Health District Director

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

Enquiries: Dr Shaikh G K
Tel: 0828571925
Fax: 0866004183

Dr Moshe Magethi
Family Medicine
Dr Yusuf Dadoo Hospital

RE: PERMISSION TO CONDUCT RESEARCH IN WEST RAND DISTRICT.

Your correspondence on the above matter refers.
Thank you for your request to conduct research in West Rand District.

Permission is hereby granted to you to conduct research in West Rand District at Dr Yusuf Dadoo Hospital. I am anticpating that you will conduct your research with the knowledge of all relevant Managers.
You are expected to share the findings and recommendations with the district in order to improve the service delivery to people of west rand.

I hope you find the above in order.

Yours faithfully,

MS PULENG MUSO
DIRECTOR
WRDCA
DATE: 29/01/2015

Annexure 5 – Participant's information sheet and consent form

HREC protocol approval number:……..

Hello

My name is Dr. Moshe Magethi I am a Registrar in Family Medicine studying at the University of the Witwatersrand. I am conducting a research project that will be assessing the "Diagnosis and Prevalence of Headache at the Out-Patient Department of Dr Yusuf Dadoo Hospital", as part of the fulfilment for my Masters Degree. You are invited to volunteer to participate in this research study. Your participation in this study is voluntary. Before agreeing to participate in this study, it is important that you read and understand the following explanation of the purpose of the study, benefits, risks, discomfort, and precautions as well as your right to withdraw from the study at any time. This information leaflet is to help you to decide if you would like to participate. You should fully understand what is involved before you agree to take part in this study. Should you have any questions, which are not fully explained in this leaflet, do not hesitate to ask, me, the study doctor. If you decide to take part in this study, you will be asked to sign this document demonstrating your understanding of the study. You will be given a copy of this document to keep.

Purpose of the study:

The study will be assessing headaches that adult patients present with at the outpatient department of Dr. Yusuf Dadoo hospital. There is little knowledge about this subject in developing countries like South Africa, in particular. As a result many patients who have this problem are under diagnosed and mismanaged. This study will help increase knowledge about the magnitude of the problem at district level. It will also assist in increasing diagnosis and correct management of those who suffer from various headache disorders.

Procedure:

The researcher will conduct an interview/ ask you questions about your complaint, from a questionnaire that is specifically designed for the research. He will complete the questionnaire according to your response to the questions. This should take at most 15 minutes to answer. The study doctor will examine you as part of the normal consultation. The study doctor will also provide you with the appropriate treatment, according to the EDL guidelines.

Risks and benefits:

There are no foreseeable risks associated with your participation in the study. You will not receive any remuneration for participating in the study. The relevant education and/or referral for treatment will be given to you at this visit, as per South African standard of care.

Confidentiality and Data storage:

All the information that you provide will be kept confidential. The study doctor will not be required to record your name or date of birth on the questionnaire and you will not be directly identified in the research report. The questionnaire will be coded. Your name and/or date of birth will not appear on any data collection tool used in the study.

Are there any restrictions concerning my participation in this study?

- If you are younger than 18 years of age, you cannot participate in the study
- If you are critically ill you cannot participate in the study

Rights as a participant in this study:

- Your participation in this study is entirely voluntary and you can decline to participate, or stop at any time, without stating any reason.

Withdrawal:

- Your withdrawal will not affect your access to other medical care.

Research results:

A research report will be submitted to the University of the Witwatersrand. You may request a copy of the report or any other feedback and information that you may require. Kindly contact me on e-mail: mmagethi@gmail.com or 0839502920

Complaints:

The HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL) of the University of the Witwatersrand has approved this study. Ref No……

If you have concerns or complaints about the conduct of this study please contact the Wits Research Office at 011 717 1234

INFORMED CONSENT

UNIVERSITY OF THE WITWATERSRAND

- I hereby confirm that I have been informed by the study doctor, Dr. Moshe Magethi, about the nature, conduct, benefits and risks of the study: ***Diagnosis and prevalence of headache at the Out-Patient Department of Dr. Yusuf Dadoo Hospital***
- Protocol number:…….
- I have also received, read, and understood the above information (Participant Information Leaflet and Informed Consent) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the study doctor.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

Participant: Name:……

Signature/ Thumbprint:

Date and Time:…….....

I, Dr. Moshe Magethi, herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Study doctor: Name:……

Signature/ Thumbprint:

Date and Time:…….....

Translator/ Other person explaining informed consent form…….(Designation):

Name……..

Signature……..

Date/ Time……

Annexure 6 – Types of headache

Below is a brief summary of headache classification[8]:

Primary Headaches

1. Migraine
2. Tension type headache
3. Cluster type and other trigeminal autonomic cephalalgias
4. Other primary headaches

Secondary Headaches

1. Headache attributed to head and/or neck trauma
2. Headache attributed to cranial or cervical vascular disorders
3. Headache attributed to non-vascular intracranial disorder
4. Headache attributed to a substance or its withdrawal
5. Headache attributed to infection
6. Headache attributed to disorder of homoeostasis
7. Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth, or other facial or cranial structures
8. Headache attributed to psychiatric disorder

Cranial Neuralgias, central and primary facial pain and other headaches

1. Cranial Neuralgias and central causes of facial pain
2. Other headache, cranial neuralgia, central or primary facial pain

A brief summary of the definitions and symptom clusters of the most common forms of primary headaches is given below. For a full definition of the other headache conditions the reader can refer to the The International Classification of Headache Disorders 2nd edition.

ICHD-2 diagnostic criteria for migraine without aura[8]

A. At least five attacks fulfilling criteria B–D

B. Headache attacks lasting 4–72 hours and occurring on < 15 days/month (untreated or unsuccessfully treated)

C. Headache has at least two of the following characteristics

1. Unilateral location

2. Pulsating quality

3. Moderate or severe pain intensity

4. Aggravation by or causing avoidance of routine physical activity (i.e. walking or climbing stairs)

D. During headache at least one of the following:

1. Nausea and/or vomiting

2. Photophobia and phonophobia

E. Not attributed to another disorder

ICHD-2 diagnosis criteria for typical aura[8]

A. At least two attacks fulfilling criteria B–E

B. Fully reversible visual and/or sensory and/or speech symptoms but no motor weakness

C. At least two of the following

1. Homonymous visual symptoms including positive features (i.e. flickering lights, spots and lines) and/or negative features (i.e. loss of vision) and/or unilateral sensory symptoms including positive features (i.e. pins and needles) and/or negative features (i.e. numbness)

2. At least one symptom develops gradually over ≥ 5 min and/or different symptoms occur in succession

3. Each symptom lasts ≥ 5 min and ≤ 60 min

D. Headache that meets criteria B–D for migraine without aura begins during the aura or follows aura within 60 min

E. Not attributed to another disorder

ICHD-2 diagnostic criteria for tension-type headache

A. At least 10 episodes fulfilling criteria B–E; headache < 1 day/month (episodic infrequent), 1–14 days/month (episodic frequent), or ≥ 15 days/month (chronic)

B. Headache lasting from 30 min to 7 days

C. At least two of the following pain characteristics

1. Pressing or tightening (non-pulsating) quality

2. Mild or moderate intensity (may inhibit but does not prohibit activities)

3. Bilateral location

4. No aggravation by walking stairs or similar routine physical activity

D. Both of the following

1. No nausea or vomiting (anorexia may occur)

2. Photophobia and phonophobia are absent, or one but not the other may be present

E. Not attributed to another disorder

Annexure 7 – Standard Treatment Guidelines

STANDARD TREATMENT GUIDELINES AND ESSENTIAL MEDICINES LIST FOR SOUTH AFRICA. 2012 Edition (Hospital based)

HEADACHE AND FACIAL PAIN SYNDROMES

MIGRAINE

DESCRIPTION

Episodic headache, usually focal in nature, which may occur with or without an aura. It is usually accompanied by nausea and vomiting. Several variants of migraine also occur.

GENERAL MEASURES

Reassure patient that this is a benign condition. Attempt to identify any precipitating factors or food allergies from the history (although this is usually unrewarding), and try to diminish patterns of tension.

MEDICINE TREATMENT

Acute treatment

Initiate therapy during the attack or at the onset of the headache.

Analgesics, e.g.:

• Paracetamol, oral, 1g 4–6 hourly when required to a maximum of 4 doses per 24 hours.

OR

NSAIDs, e.g.:

• Ibuprofen, oral, 800 mg immediately then 8 hourly, if needed. If severe and not responding to therapy above:

• Morphine, IM, 10 mg as a single dose.

For nausea:

• Metoclopramide, oral/IM, 10 mg 8 hourly.

Prophylaxis

Regular, daily, prophylactic therapy is advised if:

» attacks are frequent, i.e. more than 2–3 per month, or

» severe, causing a significant amount of disability, or

» attacks are long lasting.

Also consider for patients who tolerate therapy for acute attacks poorly.

• Amitriptyline, oral, 10–25 mg at bedtime.

o Titrate dose up to adequate response.

o More than 75–150 mg as a single bedtime dose is seldom required.

OR

• Propranolol, oral, 20–80 mg 12 hourly.

Note:

The evidence for using atenolol for this indication is limited.

OR

• Carbamazepine, oral.

o Start with 100 mg 12 hourly.

o Increase every two weeks up to a maximum of 400 mg 12 hourly.

Note:

Only about half of patients will respond to one of these agents and this response may take 1 to 2 months to occur.

REFERRAL

» Patients with unexplained neurological signs, additional risk factors for an alternate diagnosis, such as immune deficiency, or an atypical short history require brain imaging.

» Sudden onset of a first severe headache, even if it resembles migraine, as this may indicate serious organic pathology, such as subarachnoid haemorrhage.

» Acute migraine, not responding to treatment.

» Recurrent migraine not controlled with prophylactic therapy.

CLUSTER HEADACHE

DESCRIPTION

Repetitive episodes of excruciating headache typically of short duration (up to 2 hours) in clusters for weeks to months at a time. Typically the headache is of sudden onset, unilateral during the specific cluster, and quickly reaches a climax. Associated redness of the eye with lacrimation and rhinorrhoea occurs.

MEDICINE TREATMENT

Oxygen inhalation may abort some episodes. Analgesics are ineffective in this indication. To induce rapid remission in patients with episodic cluster headache:

• Prednisone, oral, 40 mg daily for 5–10 days.

o Tapering is not necessary when the above duration is used.

OR

• Verapamil, oral, 40 to 80 mg 8 hourly.

REFERRAL

» Inadequate response to treatment.

TRIGEMINAL NEURALGIA

DESCRIPTION

Severe, very short lived stabs of facial pain in the sensory trigeminal distribution. It is important in the diagnostic workup to exclude intracranial mass lesions, which may impinge on the trigeminal nerve.

MEDICINE TREATMENT

• Carbamazepine, oral, 100 mg 2–3 times daily, initial dose

o Increase dose slowly. Doses of up to 1 200 mg daily may be required.

o After exacerbation, reduce to maintenance dose of 400–800 mg daily.

REFERRAL

» Neuro-imaging, if not available locally.

» Poor response to single drug therapy.

TENSION HEADACHE

DESCRIPTION

Headache over the back of the head, but sometimes over the entire head, described as a tight band around the head, usually worse in the afternoon.

GENERAL MEASURES

Consider use of relaxation techniques. The importance of this diagnosis is the exclusion of other, more sinister conditions. Exclude analgesia overuse headache.

MEDICINE TREATMENT

• Amitriptyline, oral, 10–75 mg at night.

REFERRAL

» Atypical pain, suggestive of alternate diagnosis.

» Poor response to therapy.

IDIOPATHIC (BENIGN) INTRACRANIAL HYPERTENSION

(PSEUDOTUMOUR CEREBRI)

DESCRIPTION

Patients present with symptoms (chronic headache and sometimes eventual visual loss due to persistent papilloedema) and signs (papilloedema) of raised intracranial pressure in the absence of any structural intracranial abnormality or abnormal CSF composition.

Diagnosis

All patients should have neuro-imaging (CT scan).

» If this is normal, i.e. the absence of structural lesions or hydrocephalus, perform a lumbar puncture.

» Diagnosis is confirmed by the presence of raised CSF pressure > 20 cm H20.

GENERAL MEASURES

Not all patients require definitive treatment. Regular monitoring of visual fields is crucial. Weight loss. Repeated lumbar punctures. Consider surgery if there is progression of visual

defects, despite medical therapy, visual loss at onset or severe papilloedema. Stop drugs known to be associated with benign intracranial hypertension.

MEDICINE TREATMENT

All patients need to be discussed with a specialist. For visual involvement, persistent headaches, or severe papilloedema:

• Acetazolamide, oral, 1–2 g daily.

OR

• Furosemide, oral, 40 mg daily.

OR

• Hydrochlorothiazide, oral, 25 mg daily.

REFERRAL

» For neuro-imaging, if not available locally.

» Visual symptoms or deterioration of visual fields for ophthalmology evaluation.

» Patients not responding to therapy or in need of surgical management

Annexure 8 – Methodology Flow Chart

