

Awareness of benign paroxysmal positional vertigo among the population of Taif city

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Abstract

Background: Benign paroxysmal positional vertigo (BPPV) is the most common cause of peripheral vestibular vertigo worldwide.

Objectives: to evaluate overall knowledge and perception about the disease among the different demographics of the population in Taif city.

Methods: a cross-sectional community-based study was done and data was collected via a self-administered Google form questionnaire in Taif city, Saudi Arabia. Data about demographics, knowledge about symptoms of BPPV and how to improve this knowledge were collected.

Results: The study included 290 participants; 43.1% were females, 48.3% of them were (18 – 25) years old and 67.6% were university educated. Most (85.9%) of our participants had a history of chronic diseases, 75.9 % of our participants felt dizzy before, 24.1% had a history of Otitis media, and 1.7 % had a history of benign paroxysmal positional vertigo (BPPV). Participants agreed that vertigo is a serious illness, an infectious disease, a rare disease, caused by head trauma, caused by vitamin deficiency, is idiopathic, and lasts from seconds to minutes with a percent of (19.7%, 17.6%, 37.2%, 13.1%, 16.2%, 14.1%, 8.6%, 5.2%) respectively. From the participants' point of view, awareness can be improved by health practitioners, social media,

spreading awareness in companies, spreading awareness in schools, the television, by parents with percentage of (23.6%,28.0%, 11.6%, 20.2%, 16.4%, 0.1%) respectively.

Conclusion: A low level of knowledge about vertigo was found among the studied sample. Education level was associated with knowledge level, thus awareness campaigns should be done to raise awareness about BPPV.

Keywords: Awareness, benign, paroxysmal, positional, vertigo, Taif

Introduction

Benign paroxysmal positional vertigo (BPPV) is a peripheral vestibular disorder that affects the semi-circular canals of the vestibulocochlear system (1). It was discovered by Róbert Bárány in the 1920s (2).

BPPV is characterized by intermittent attacks of vertigo, as a consequence of a change in head position (3). It is not associated with hearing loss or neurological deficit. It is the most common cause of peripheral vestibular vertigo worldwide, with a prevalence of 2.4%, a 1-year prevalence of 1.6%, and a 1-year incidence of 0.6% (4).

The majority of patients don't have a known etiology of the condition. Some patients had previous head trauma or middle ear infections. Otoconial debris (canaliths) which are calcium carbonate crystals poisoned in the utricular or saccular macula can dislodge and float in the endolymph of the semicircular canals resulting in a transient gyratory sensation that is accompanied by distinctive nystagmus (Bergenius, Qing and Maoli, 2014). Other risk factors include: age, female gender, HTN, hyperlipidemia, DM, osteopenia, and osteoporosis (5).

A study conducted in Israel showed that BPPV is still an under-recognized entity. The study was conducted by reviewing patients' referral letters who had been diagnosed with BPPV. The referral diagnoses can generally be categorized into these groups: idiopathic causes of vertigo (36.6%), BPPV (25.6%), dizziness (27.5%), and others (10%). BPPV was diagnosed more frequently by ENT doctors than by other specialists. The results of this study showed that BPPV is still considered an under-recognized disease (6).

Another cross-sectional descriptive study conducted in Saudi Arabia showed that BPPV is still largely unrecognized by ordinary individuals. However, diagnosis with the illness and education level was generally associated with knowledge of the different aspects of the disease (7).

Because BPPV is considered one of the most common causes of vertigo we aim to evaluate overall knowledge and perception about the disease among the different demographics of the population in Taif city. We assumed that the population of Taif city didn't have sufficient knowledge about the disease. Many individuals may suffer from it without knowing the cause or seeking medical advice. Misconception about the symptoms is highly suspected among the population that we are targeting.

Subjects and Methods

In this descriptive cross-sectional community-based study, we collected the data using a self-administered questionnaire. The target sample was the population of Taif city in Saudi Arabia.

The sample size aimed for was 385 persons from a total population of 993,000, with a confidence level of 95% and a margin of error 5%. The study included both genders,

and we excluded any incomplete forms. The consent was built-in into the form. No private information was collected from the participants. The questionnaire was taken from a previous study conducted in 2020 by Alotaibi et al., 2020 (7).

The questionnaire had four parts, including 6 demographic and personal questions, 3 questions about the Symptoms of BPPV, 15 Likert questions measuring the awareness, and 2 questions about how to improve BPPV knowledge. The questionnaire was on Google forms and distributed through social media networks. Data collection was done approximately between April 2022 to May 2022. The data were analyzed by SPSS version 26.

Study tool: The questionnaire consisted of 5 parts. The 1st part was consent to participate. The 2nd part consisted of personal questions including gender, age, region, educational level, occupation, and medical conditions. The 3rd part consisted of yes or no questions related to BPPV such as; did you feel dizzy? have you had a Middle ear infection? have you ever been diagnosed with BPPV? The 4th part had an agree/disagree answer to questions such as; BPPV is a serious disease? BPPV is a common disease? The final part was a suggestion question about improving awareness of the disease.

Results

Table 1 shows the socio-demographic data of the participants. We included a total of 290 participants who filled out our questionnaire according to the inclusion criteria. Most of our participants (56.9%) were males and 43.1% of them were females. Only 7% of the participants were less than 18 years old; 48.3% of them were between 18 and 25 years old and 31% were between 40 and 60 years old. Most of our participants (67.6%) were university educated, 35% were secondary educated, and only 7.2% were postgraduate educated. 53.8% of our participants didn't have work.

Table 2 shows 85.9% of our participants had a history of chronic diseases, 75.9% of our participants had felt dizzy before, 24.1% had a history of Otitis media, and 1.7% had a history of benign paroxysmal positional vertigo (BPPV). Most of our study population didn't know vertigo is common; only 12.1% of the participants agreed about how common the disease is. Table 3 shows the attitude of participants toward vertigo. Participants agreed that vertigo is a serious illness, a common disease, an infectious disease, a rare disease, caused by head trauma, caused by vitamin deficiency, is idiopathic, last from seconds to minutes with a percentage of (19.7%, 17.6%, 37.2%, 13.1%, 16.2%, 14.1%, 8.6%, 5.2%) respectively.

Table 4 shows awareness can be improved by health practitioners, social media, spreading awareness in companies, spreading awareness in schools, the television, and by parents with a percentage of (23.6%, 28.0%, 11.6%, 20.2%, 16.4%, 0.1%) respectively.

Table 1: Sociodemographic characteristics of participants (n=290)

Parameter		No.	%
Gender	Male	165	56.9
	Female	125	43.1
Age	Less than 18	2	0.7
	18 - 25 years old	140	48.3
	26 - 30 years old	28	9.7
	31 - 39 years old	21	7.2
	40 - 60 years old	90	31
	60 more than	9	3.1
Social status	Single	152	52.4
	Married	125	43.1
	Divorced/ widowed	13	4.5
Nationality	Saudi	288	99.3
	Non-Saudi	2	0.7
Educational level	less than secondary	7	2.4
	secondary	35	12.1
	Bachelor's (University Student)	196	67.6
	Diploma	31	10.7
	Postgraduate	21	7.2
Occupational status	Work	134	46.2
	No work	156	53.8

Table 2: History of chronic diseases, dizziness, Otitis media, and benign paroxysmal positional vertigo among the participants (n=290).

Parameter		No.	%
History of chronic diseases	Yes	41	14.1
	No	249	85.9
Felt dizzy before	Yes	220	75.9
	No	70	24.1
History of Otitis media	Yes	70	24.1
	No	154	53.1
	I do not know	66	22.8
History of benign paroxysmal positional vertigo (BPPV)	Yes	5	1.7
	No	285	98.3

Table 3: Attitude of participants toward vertigo (n=290)

Variable	Agreed No. (%)	Disagree No. (%)	Don't know No. (%)
Vertigo is a serious illness	28 (9.7%)	57 (19.7%)	205 (70.7%)
Vertigo is a common disease	35 (12.1%)	51 (17.6%)	204 (70.3%)
Vertigo is an infectious disease	5 (1.7%)	108 (37.2%)	177 (61.0%)
Vertigo is a rare disease	59 (20.3%)	38 (13.1%)	193 (66.6%)
Vertigo is caused by head trauma	46 (15.9%)	47 (16.2%)	197 (67.9%)
Vertigo is caused by vitamin deficiency	48 (16.6%)	41 (14.1%)	201 (69.3%)
Vertigo is idiopathic	71 (24.5%)	25 (8.6%)	194 (66.9%)
Symptoms last from seconds to minutes	110 (37.9%)	15 (5.2%)	165 (56.9%)
Symptoms last minutes to hours	29 (10.0%)	66 (22.8%)	195 (67.2%)
Symptoms last hours to days	23 (7.9%)	72 (24.8%)	195 (67.2%)
Vertigo is diagnosed by radiography	70 (24.1%)	46 (15.9%)	174 (60.0%)
Vertigo is diagnosed clinically	86 (29.7%)	17 (5.9%)	187 (64.5%)
Vertigo is treated with antibiotics	52 (17.9%)	55 (19.0%)	183 (63.1%)
Vertigo is treated with a change in eating pattern	71 (24.5%)	36 (12.4%)	183 (63.1%)
Vertigo is treated with clinical exercises	85 (29.3%)	13 (4.5%)	192 (66.2%)

Table 4: Opinion of participants toward improving the awareness about vertigo (n=290)

Parameter	No.	%	
Awareness can be improved by	Health practitioners	197	23.6
	Social media	234	28.0
	Spreading awareness in companies	97	11.6
	Spreading awareness in schools	169	20.2
	The television	137	16.4
	By parents	1	0.1

Discussion

This cross-sectional study aimed to evaluate overall knowledge and perception about Benign Paroxysmal Positional Vertigo (BPPV) among the different demographics of the population in Taif city. In this study, about 14% of the participants had a history of at least one or more chronic diseases which is less than the findings of Alotaibi et al. (2020), who recorded the prevalence of chronic disease as approximately 20% (7). This also agrees with the findings of Alqurashi et al. 2011 (8).

Most of our participants (75.9%) felt dizzy before, however, only 1.7% of the participants were positively diagnosed with (BPPV) which indicates that it has a relatively low prevalence, making it relatively unknown among the masses, which clearly shows that BPPV is still an under-recognized entity.

About 40% of BPPV patients had an audiogram and BERA before being seen at the dizziness clinic. These audiological tests are cheap, but redundant for establishing the diagnosis of BPPV (6).

We assume that the main reason for the under-diagnosis of BPPV among general physicians (specialists in family or internal medicine) is the lack of familiarity with this entity. The benign course and spontaneous remissions could be other contributory factors to the relative unawareness of BPPV among community doctors (9,10). In another study, by Alotaibi. et al. 2020, a higher percentage of BPPV (6.9%) was detected, but this result is still low generally (7).

In this study, the awareness level regarding BPPV is not good, as most of the participants had no information about the disease which is clear in Table 3. A large number of our participants (from 60% to 70%) answered "I don't know" to most of the questions. 12.1% of our participants thought that this disease is common while 70.3% of them didn't know about it at all. In another study, more than 20% of their participants agreed that vertigo is a common disease and less than 50% were neutral. 7.9% of the sample respondents thought that an episode of BPPV takes hours to days, whereas 67.2% were not sure. This result was different than Alotaibi. et al. (2020), who reported that 19.4% of the participants thought that an episode of BPPV takes days, and 53.5% were not sure (7).

Interestingly, the knowledge of the diagnosis of BPPV appeared also not good, as 24.1% of the participants thought that vertigo was diagnosed by radiography, and 29.7% thought vertigo is diagnosed clinically. These variations may be a result of the different educational levels among the participants as recorded by Alotaibi. et al. (2020). The knowledge of the diagnosis of BPPV in their participants appeared not only significantly different across the levels of gender, but also across the standards of education and the condition of mid-ear infection (7).

The suggestion of radiology as a method of diagnosis may be attributed to the differences across the different groups. This is possible because when the same respondents were asked whether antibiotics could be used to treat BPPV, 21.5% of them agreed and 54.1% had no information; also there was no significant difference across the levels of gender and education level. These results were unlike our results. 17.9% of our participants thought that antibiotics are an effective way to treat vertigo, 24.5% thought it changes with the eating pattern, and 29.3% thought that clinical exercise is the right form of treatment.

Conclusion

In the current study, we estimated a low level of knowledge and awareness about vertigo among the population targeted. This may be because of the low awareness level about the disease which made it harder for ordinary individuals to know about the ailment. The awareness level is highly affected by many factors and education level was generally associated with knowledge of the different aspects of the disease. Also, education in the form of lectures, courses, or demonstration seminars, could improve the knowledge of the pathogenesis, the tendency for recurrence, and diagnostic tools for BPPV in this large group of first-line physicians to make the disease easier to diagnose

Ethical considerations: an ethical approval for the study was obtained from the research ethics committee of Taif University, Saudi Arabia.

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References

- Bergenius J, Qing Z, Maoli D. Benign paroxysmal positional vertigo. *Journal of Otology* 2014; 9(1): 1–6. doi: 10.1016/S1672-2930(14)50001-3.
- Pearce JMS. Robert Barany. *Journal of Neurology, Neurosurgery & Psychiatry*, 2007; 8(3): 302–302. doi: 10.1136/jnnp.2006.0110197.
- Zuma E Maia F, Ramos BF, Cal R, Brock CM, Mangabeira Albernaz PL, Strupp M. Management of Lateral Semicircular Canal Benign Paroxysmal Positional Vertigo. *Front Neurol* 2020;11:1040-1052.
- von Brevern M, Radtke A, Lezius F, Feldmann M, Ziese T, Lempert T, Neuhauser H. Epidemiology of benign paroxysmal positional vertigo: a population based study. *J Neurol Neurosurg Psychiatry* 2007;78(7):710-715. doi: 10.1136/jnnp.2006.100420
- Li S, Wang Z, Liu Y, Cao J, Zheng H, Jing Y, et al. Risk Factors for the Recurrence of Benign Paroxysmal Positional Vertigo: A Systematic Review and Meta-Analysis. *Ear Nose Throat J* 2022;101(3):NP112-NP134. doi: 10.1177/0145561320943362
- Pollak L. Awareness of benign paroxysmal positional vertigo in central Israel. *BMC Neurology* 2009; 9:1–5. doi: 10.1186/1471-2377-9-17.
- Alotaibi SS, Alshbiny MT, Alsehali SA, Hayat M, Aladhyani AN, Aboud S. Knowledge and awareness of benign paroxysmal positional vertigo among Saudi population: a cross-sectional study. *International Journal of Medicine in Developing Countries*. 2020; 4(8):1184-1190. doi: 10.24911/ijmdc.51-1591198516.
- Alqurashi KA, Aljabri KS, Bokhari SA. Prevalence of diabetes mellitus in a Saudi community. *Ann Saudi Med* 2011;31(1):19–23. <https://doi.org/10.4103/0256-4947.75773>
- Imai T, Ito M, Takeda N, Uno A, Matsunaga T, Sekine K, Kubo T. Natural course of the remission of vertigo in patients with benign paroxysmal positional vertigo. *Neurology* 2005, 64: 920-921.
- Froehlich DA, Silverstein MD, Mohr DN, Beatty CW, Offord KP, Ballard DJ. Benign positional vertigo: incidence and prognosis in a population-based study in Olmsted County, Minnesota. *Mayo Clin Proc* 1991, 66: 596-601.