

Navigating the frequency of Cervical Vertigo: Insights and statistics

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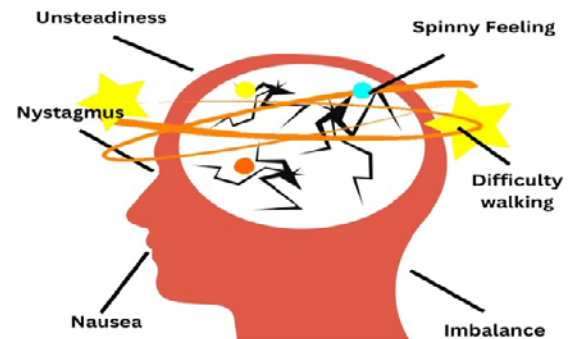
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Article

ABSTRACT

This study focuses on investigating the prevalence of cervical vertigo, delving into the existing knowledge about how frequently it occurs and its distribution across different populations. In ACS Medical College and Hospital, Abitha Modern Physio Center in Kolathur, Blossom Rehabilitation Clinic in Kolathur, and F.O.R Ortho and Neuro Specialty Hospital, a six-month cross-sectional observational study was carried out. The investigation was carried out from January 2023 to June 2023. 244 people in the age range of 40 to 60 made up the sample for the study. Utilizing the vertigo symptom scale, the prevalence was gathered. 244 participants categorized by age, gender, BMI to investigate the prevalence of dizziness. From the statistical data it is clearly stated that female subjects were more affected than men. 41 - 60 Years age group were identified more with complaint. The BMI Classification showed that more of the affected people were overweight. Percentage distribution of dizziness in the Overall Participants using vertigo symptom scale, much of the participants had mild and moderate dizziness. Prevalence of cervical vertigo on different populations were demonstrated in this study. This study sheds light on the prevalence of dizziness across different age groups, gender disparities, and its relationship with BMI classification. The findings contribute to a better understanding distribution of dizziness.



Keywords: Prevalence, cervical vertigo, dizziness, vertigo symptom scale

INTRODUCTION

Cervical vertigo, a condition characterized by dizziness and imbalance originating from the cervical spine, has garnered increasing attention in recent years due to its potential impact on individuals' quality of life.¹ While traditionally attributed to inner ear or vestibular dysfunction, emerging evidence suggests that cervical vertigo may arise from disturbances within the cervical proprioceptive system. The intricate interplay between the cervical spine, vestibular apparatus, and central nervous system has prompted researchers and clinicians alike to delve deeper into the prevalence, etiology, and clinical manifestations of cervical vertigo. The prevalence of dizziness in the general population has been estimated to be between 11-29%. One of the more common

categories of dizziness is thought to originate from a disorder of the cervical spine.² Cervicogenic dizziness is a disorder that is frequently linked to cervical spine tissue disease. It is also linked to psychological anguish, neck pain, and high health care expenses and utilization.³

Despite being recognized as a distinct entity, cervical vertigo remains a subject of ongoing debate and investigation within the medical and scientific communities. Its precise prevalence and the factors contributing to its development are yet to be fully elucidated. Several studies have reported varying prevalence rates of cervical vertigo, but the lack of standardized diagnostic criteria and the coexistence of other vestibular or musculoskeletal disorders have led to discrepancies.⁴

Cervical vertigo, as its name implies, is intricately associated with disorders affecting the cervical spine. These disorders encompass conditions such as degenerative alterations, herniated discs, and muscular imbalances.⁵ The prospect of these structural and functional irregularities impacting the vestibular system has spurred scientific investigation into the complex interrelations between cervical proprioception (the body's awareness of its position) and the processing of the vestibular system responsible

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for balance and spatial orientation. Despite progress in these inquiries, a thorough grasp of the prevalence and the fundamental mechanisms driving cervical vertigo continues to be a challenge.⁹

Vertigo emanating from the cervical spine is a defining feature of cervical vertigo. The more precise term for this uncomfortable disturbance of spatial orientation or to the false feeling of movement is "vertigo".⁶ Vertigo involves a perceived movement of the environment, one's own body, such as swaying or rotating, or both. In a study by Colledge et.al. examining the causes of dizziness in the elderly, the researchers found that cervical spondylosis was responsible for 65% of occurrences of dizziness.⁷ The coordination between these systems or the decline in function of the visual, vestibular, and proprioceptive systems may be a factor in the pathogenesis. When someone is experiencing vertigo or dizziness, they may believe they are moving or that items around them are moving. Vertigo frequently goes undiagnosed and results in severe impairment and significant psychological morbidity.⁸ Orthopaedic surgeons with cervical spondylosis (CS) that is radiologically obvious are always referred vertigo patients with all the described causes thoroughly studied and ruled out by ENT surgeons, ophthalmologists, and neuro-physicians.

According to a previously published study,¹⁶ the prevalence of vertigo in the general adult rural population of India was roughly 0.71%, with the maximum frequency (3.52%) reported in the sixth decade and the lowest (0.15%) in the third. Dizziness has a subtype called vertigo that is caused by an imbalance in the vestibular system. The three frequent forms of vertigo—prolonged spontaneous vertigo, recurrent vertigo attacks, and positional vertigo—are the main topics of this session. The history of the patient is typically essential for distinguishing between peripheral and central causes of vertigo. All adult populations frequently experience dizziness, which significantly increases morbidity and the need for medical services. In the neighborhood, dizziness affects 1.8% of young individuals and more than 30% of the elderly. A broad sensation of imbalance and changed spatial orientation is the hallmark of cervicogenic dizziness. This leads to erroneous proprioceptive information and a sensory mismatch between vestibular and cervical inputs. Both an unpleasant disruption of spatial orientation and an inaccurate perception of movement—more technically known as "vertigo" can be referred to as "dizziness".¹⁶ When someone has vertigo, they may experience movement in their surroundings, sensations of rotation or swaying in their body, or both.

MATERIALS AND METHODS

The manuscript has received approval from the Institutional Review Board of the Faculty of Physiotherapy under the reference number BPT IV C/PHYSIO/IRB/2022. A Cross-sectional observation study was carried out in ACS Medical college and hospital, Abitha modern physio center - kolathur, Blossom rehabilitation clinic, Kolathur, F.O.R Ortho and Neuro Speciality hospital. Total duration of the study was for 6 months (January to June 2023). A total of 240 females from 244 volunteers were selected among the population and included in the study of both male(112) and female(132) of age group 40 - 55 Years. Suitable data collection form for patients was prepared which includes

patient profile in detail as age, gender, Height, Weight. Vertigo symptom scale was used to find the prevalence.

DATA ANALYSIS

Table 1. Descriptive statistics to show the gender distribution of total population

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Skewness			Kurtosis	
					Statistic	Std. Error		Statistic	Std. Error	Statistic	Std. Error	
OVERALL	244	30.00	37.00	67.00	48.2295	.29481	4.60504	-.0456	.1516	.1690	.310	
FEMALE	132	20.00	37.00	57.00	47.8712	.40958	4.70570	-.1411	.211	-.8029	.419	
MALE	112	27.00	40.00	67.00	48.6518	.42214	4.46752	.1188	.228	1.5353	.453	

The above table indicates the total no. of subjects, no of Female subjects, no of male subjects minimum & maximum values, mean, standard deviation and skewness on vertigo symptoms scale. Overall mean value 48.22, Female mean value 47.87, Male mean value 48.65

Table 2: Descriptive statistics showing the age wise distribution

AGE GROUP	Frequency	Percent	Valid Percent	Cumulative Percent
<= 40 YEARS	19	7.8	7.8	7.8
41 - 60 YEARS	225	92.2	92.2	100.0
Total	244	100.0	100.0	

The above table indicates that out of 244 subjects <= 40 YEARS a total of 19 subjects (7.8%) were identified , 41 - 60 YEARS 225 (92.2%) were identified.

Table 3. Statistics shows the BMI classification distribution of total population

	Frequency	Percent	Valid Percent	Cumulative Percent
UNDERWEIGHT	5	2.0	2.0	2.0
HEALTHY	86	35.2	35.2	37.3
OVERWEIGHT	115	47.1	47.1	84.4
OBESE	38	15.6	15.6	100.0
Total	244	100.0	100.0	

The above table the **BMI Classification** .out of 244 subjects 5 subjects were underweight, (2%), 86 subjects were Healthy normal weight (35.2%), 115 subjects were Overweight (47.1%) ,38 subjects were Obese(15.6%).

The table 4 indicates the no. of subjects with no dizziness (overall, male and female), minimum & maximum values, mean, standard deviation and skewness on vertigo symptoms scale. Overall mean value **5.43**, Female mean value **4.33**, Male mean value **5.70**.

Table 4. Statistics of No-dizziness in overall participants, male and female

NO DIZZINESS	N	Range	Min.	Max.	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
OVERALL	30	10.00	1.00	11.00	5.4333	2.96745
FEMALE	6	8.00	1.00	9.00	4.3333	2.87518
MALE	24	10.00	1.00	11.00	5.7083	2.98517

Table 5. Statistics of mild dizziness in overall participants, male and female

MILD DIZZINESS	N	Range	Min.	Max.	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
OVERALL	117	16.00	14.00	30.00	21.3932	4.38052
FEMALE	61	16.00	14.00	30.00	21.9016	4.49705
MALE	56	16.00	14.00	30.00	20.8393	4.22020

The above table indicates the no. of subjects with mild dizziness (overall, male and female), minimum & maximum values, mean, standard deviation and skewness on vertigo symptoms scale. Overall mean value **21.39**, Female mean value **21.90**, Male mean value **20.89**.

Table 6. Statistics of severe dizziness in overall participants, male and female

SEVERE DIZZINESS	N	Range	Min.	Max.	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
OVERALL	5	3.00	50.00	53.00	52.0000	1.22474
FEMALE	2	.00	52.00	52.00	52.0000	.00000
MALE	3	3.00	50.00	53.00	52.0000	1.73205

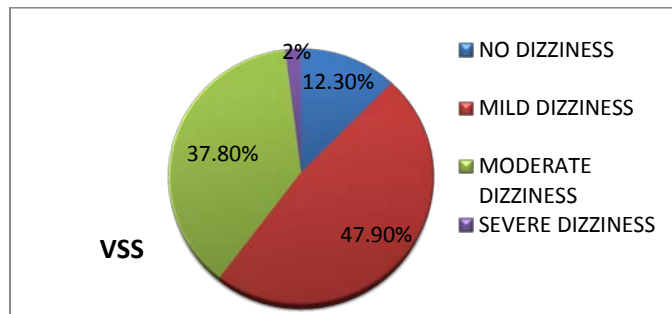
The above table indicates the no. of subjects with severe dizziness (overall ,male and female), minimum & maximum values, mean, standard deviation and skewness on vertigo symptoms scale. Overall mean value **52.0**, Female mean value **52.0**, Male mean value **52.0**.

RESULT

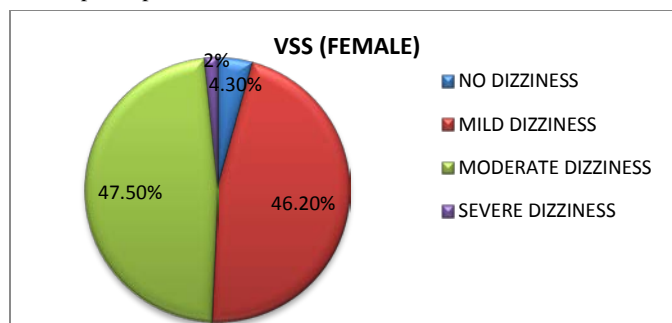
From the above statistical data it is very clearly stated that out of 244 identified subjects, 112 male (45.9%) and 132 female (54.1%) subjects were affected. Out of 244 subjects <= 40 Years a total of 19 subjects (7.8%) were identified, 41 - 60 YEARS 225 (92.2%) were identified. The BMI Classification out of 244 subjects, 5 subjects were underweight (2%), 86subjects were Healthy normal weight (35.2%), 115 subjects were Overweight (47.1%), 38 subjects were Obese (15.6%). Percentage distribution of dizziness in the Overall Participants using vertigo symptom scale, 12.3% no dizziness, 47.9% mild dizziness, 37.8% moderate dizziness and 2% severe dizziness. Percentage distribution of dizziness in Female

using vertigo symptom scale 4.3% no dizziness, 46.2% mild dizziness, 47.50% moderate dizziness and 2% severe dizziness. Percentage distribution of dizziness in Male using vertigo symptom scale 21.10% no dizziness, 50.0% mild dizziness, 25.90% moderate dizziness and 3% severe dizziness.

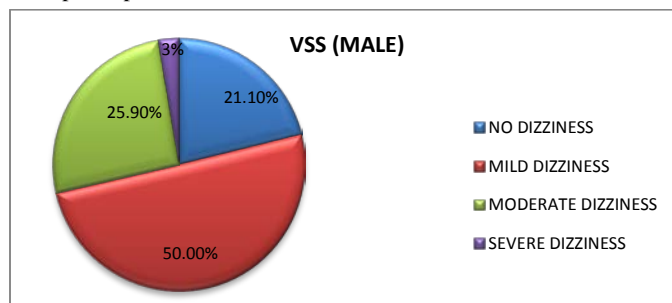
Graph 1. Representation of percentage distribution of dizziness in the overall participants



Graph 2. Representation of percentage distribution of dizziness in the female participants



Graph 3. representation of percentage distribution of dizziness in the male participants



DISCUSSION

Common mechanical neck pain concerns include vertigo and dizziness. In terms of one's internal body orientation and mental representation of space, vestibular and neck proprioception interact linearly. Cervical vertigo is mostly caused by a disturbance in proprioception.¹² With probable cervical origin vertigo, the patient's performance is worse. From the data gathered, it is clear that women are more susceptible to the disease than men are. Women also experience motion sickness at a higher rate than males do. Patients who present with dizziness in the absence of similar episodes as acute and severe dizziness are likely suffering from

motion sickness, which is caused by a mismatch between vestibular, visual, and proprioceptive stimuli.¹³

Acute, severe dizziness is present in the patient who complains of nausea, vomiting, and difficulty moving around. Cervical vertigo was initially described by Ryan and Cope in 1955.⁹ They postulated that the aberrant afferent input to the vestibular nucleus caused by damaged joint receptors in the upper cervical area was the cause of cervical vertigo. The cervical zygapophyseal joints are the most densely innervated of all the spinal joints, indicating a highly developed proprioceptive system. Hulse discovered that the joint capsules of C1 to C3 included 50% of all cervical proprioceptors.¹⁵

The significance of the study's findings and its broader implications for clinical practice and research must be understood in order to fully appreciate this section. According to Meltem Vural et al., nearly half of neck pain patients experience cervicogenic dizziness, with certain biopsychosocial factors having a significant impact on the likelihood (female sex, being a housewife, and having lower education level) and severity (underlying etiology, older age, female sex, educational level, and having higher psychological distress) of concurrent dizziness.⁹

Cervicogenic vertigo is widespread in people with cervical spondylosis, and it is more prevalent in men over the age of 54 and in women over the age of 65,¹¹ according to research by Hamza Dastgir et al. Yacovino, Dario A. et al. Manual and vestibular physical therapy appear to be the most feasible treatment options, despite the fact that it is currently unable to assess the full extent of proprioceptive cervicogenic vertigo.¹⁰

T Brandt et al, Proprioceptive input from the neck participates in the coordination of eye, head, and body posture as well as spatial orientation.¹³

In this study cervical vertigo prevalence is done using vertigo symptom scale and dizziness of the subject is analysed. From the statistical data it is revealed that female are more affected than male. More subjects are of age group 41- 60 years. Out of the total analyzed population more sample were overweight category. Percentage distribution of dizziness in the Overall Participants using vertigo symptom scale revealed that much of them belong to mild and moderate dizziness category than no dizziness and severe dizziness.

CONCLUSION

In conclusion, our cross-sectional study sheds light on the prevalence of cervical vertigo in a diverse population. The findings underscore the need for increased awareness of this condition among healthcare professionals and encourage further research to better understand its underlying mechanisms and optimal management strategies. While limitations exist, the study's contribution to the existing literature is valuable and sets the stage

for future investigations aimed at refining our understanding of cervical vertigo.

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CONFLICT OF INTEREST STATEMENT

Authors declare that there is no conflict of interest for this study

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