

Perception of high school children regarding vertigo

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Running title: Awareness about vertigo towards adolescents

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ABSTRACT

BACKGROUND: Vertigo is a sensation of whirling and loss of balance. It affects the inner ear, brain and sensory nerve. Vertigo can be temporary or long term. Vertigo can happen to any age. The symptoms of vertigo are dizziness, loss of balance, nausea, vomiting. The main aim of this study is to estimate perception, knowledge and attitude towards vertigo among adolescents

MATERIALS AND METHODS: It is a cross sectional survey study. A self administered questionnaire which contains 16 questions and it was circulated through an online platform via google docs among adolescents. The data was collected and statistical analysis was done by SPSS software and pearson chi square was used for association. *P* value of less than 0.05 which is considered statistically significant.

RESULT: Majority of the population were aware about vertigo. 42% of them were female and 58% of them were male. 41% of them know that vertigo causes loss of hearing. 12% of them were not aware that vertigo is the feeling of nausea while in motion

CONCLUSION: This study revealed that the majority of the population were aware about vertigo. Nowadays the occurrence of vertigo is increasing, so this study may help people to gain wide knowledge on vertigo and its symptoms. By increasing the awareness camps, social media, seminars may be reach all kinds of people easily

KEYWORDS: Vertigo, adolescents, awareness, dizziness, nausea, Innovative techniques.

INTRODUCTION

Vertigo is a common disorder. It is a sensation of whirling and loss of balance. It will cause spinning dizziness. The most common cause of vertigo is peripheral disorder. Patients who contain vestibular peripheral vertigo will have depression. This condition will lead to a serious effect on the treatment (1). Dizziness including vertigo can happen at any age. But it is mostly common in people older than 65 years. The term dizziness and vertigo covers a variety of symptoms regarding disorders of spatial orientation and motion perception (2). Dizziness containing patients above 60 years may cause risk of hip and wrist fracture.

Injuries related to fall leads the person to immobile, loss of independence and may increase the fear of falling. Falls are the leading cause of accidental death in persons older than 65 years. Vertigo can be temporary or long term (3). Vertigo in children is mainly caused due to the problem in eardrums because the body's sense of balance is located in the inner ear (4). The common forms of vertigo are Benign paroxysmal positional vertigo (BPPV), phobic vestibular vertigo, central vestibular syndromes, meniere's disease and vestibular neuritis (5).

Vestibular rehabilitation exercise is one of the best methods to treat vertigo. These exercises train the brain to use alternative vision and help to maintain the body balance after this treatment. The patient needs to re-experience the vertigo so that the brain can adapt to a new baseline of vestibular function. The patient with vertigo and dizziness showed that vestibular rehabilitation exercise improved the nystagmus, movement provoked dizziness and subjective index of symptoms and distress (6).

Benign paroxysmal positional vertigo is the most common vestibular vertigo. Hallpike test or diagnostic semont's maneuver is used to diagnose vertigo (7). Semont's liberatory maneuver is the first choice for the treatment of BPPV because it gives a quick and effective result. In children's migraine is the most common cause of recurrent vertigo. Clinical examination for migraines includes ocular motor testing, head impulses and balance test (8). Our team has extensive knowledge and research experience that has translate into high quality publications(9–23)hence, the main aim of this study is to estimate perception, knowledge and attitude towards vertigo among adolescents.

MATERIALS AND METHODS

The self administered study was designed based on awareness. The questionnaire was distributed through online Google Forms to 118 adolescents containing 15 questions. The participants were explained about the purpose of study in detail. The questions were carefully studied and the participants were randomly selected, avoiding asking irrelevant questions. The sampling method is simple random sampling. The measures that have been taken to minimise sampling bias are survey software SPSS. The independent variables are population and gender. The dependent variables are adolescents. Internal validity depends on the standard questionnaire values, expert verification. External validity is to cross verification with pre-existing data.

Questionnaire: 1.gender, 2.what is your age?, 3. Do you know about vertigo?, 4. Do you think that vertigo is a feeling of fainting due to fear of height?, 5. Have you experienced vertigo?, 6. Do you think vertigo is a feeling of nausea while in motion?, 7 .Do you think vertigo is a feeling of vomiting while in motion?, 8. Do you think vertigo is a feeling of drifting to one side while walking?, 9. Do you think vertigo disease is transferred from parents to children?, 10. Do you think vertigo may be accompanied by loss of hearing?, 11. Do you think vertigo may be accompanied by mood swings?, 12. Do you think vertigo may be treated with

physiotherapy?, 13. Do you think vertigo may be associated with migraines?, 14. Do you think vertigo may cause stress or depression?, 15. Do you think vertigo may affect their day to day life activities?

The type of analysis used here is descriptive analysis. Data analysis and collection was done by using SPSS statistics software-23. Descriptive statistics was used to create pie-charts, cross-tabulation representing each variable. Pearson chi square was used for association with gender and p value less than 0.05 considered statistically significant.

RESULT

In this survey about 100 adolescents participated. Results were represented in pie charts and bar graphs. 42% were female and 58% were male. Majority of the participants were aware about vertigo (Figure 1). Majority of the population were aware that vertigo is a feeling of fainting due to fear of height (Figure 2). Majority of the population were aware that vertigo is a feeling of nausea while in motion (Figure 3). Majority of the population were aware that vertigo may be accompanied by loss of hearing. Majority of the population said yes that vertigo may be treated with physiotherapy .

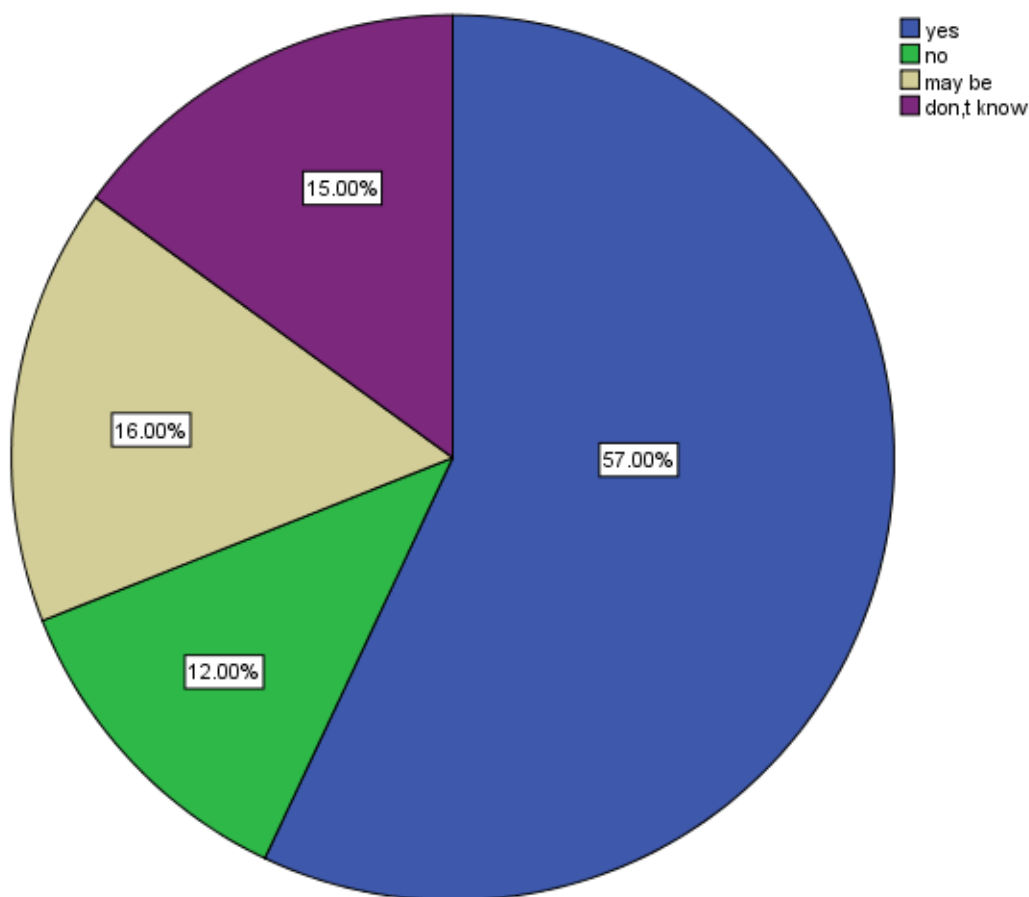


Figure 1: The pie chart showing the percentage distribution of the term vertigo. Blue indicates yes, green indicates no, brown indicates may be and purple indicates don't know. Majority of the participants were aware of vertigo (57%).

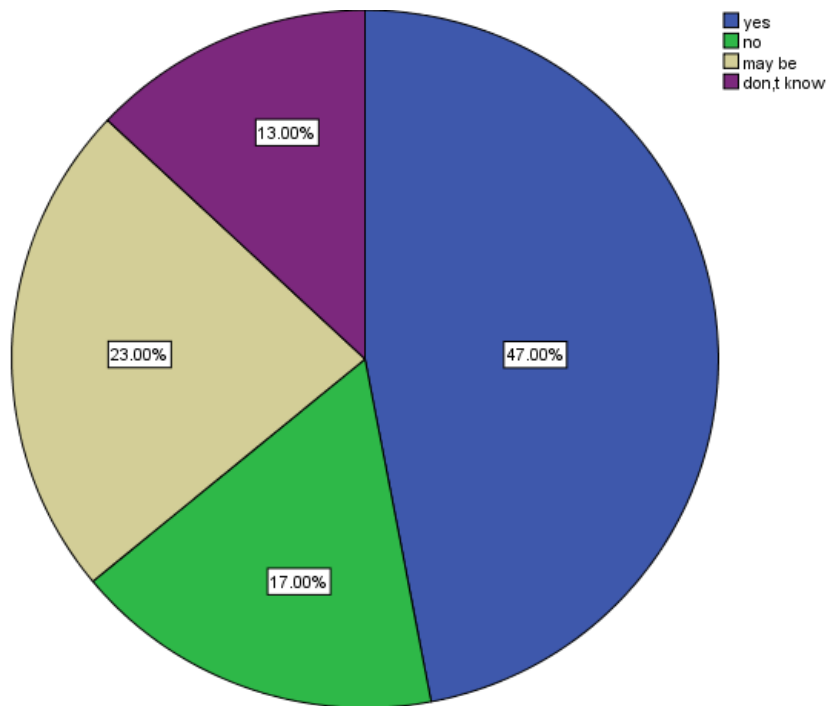


Figure 2: The pie chart showing the percentage of distribution of the term "vertigo due to fear of height". Blue indicates yes, green indicates no, brown indicates may be and purple indicates don't know. Majority of the population were aware that vertigo is a feeling of fainting due to fear of height (47%).

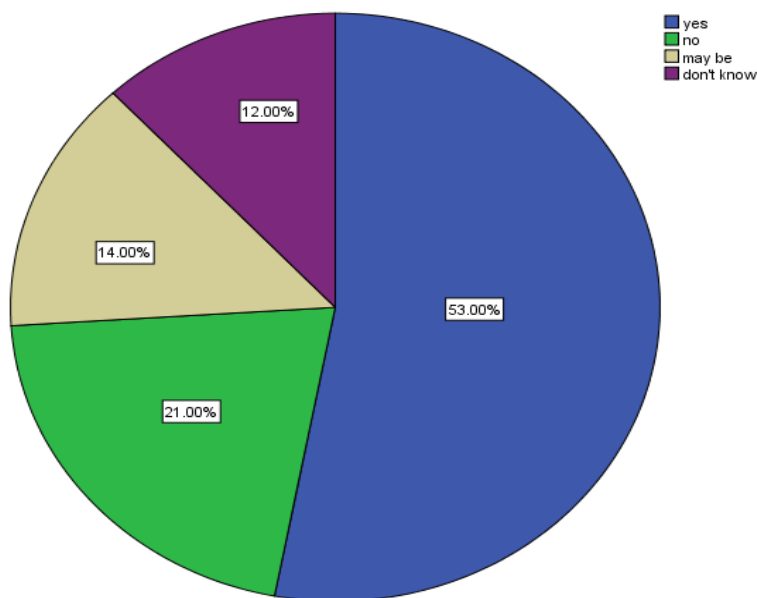
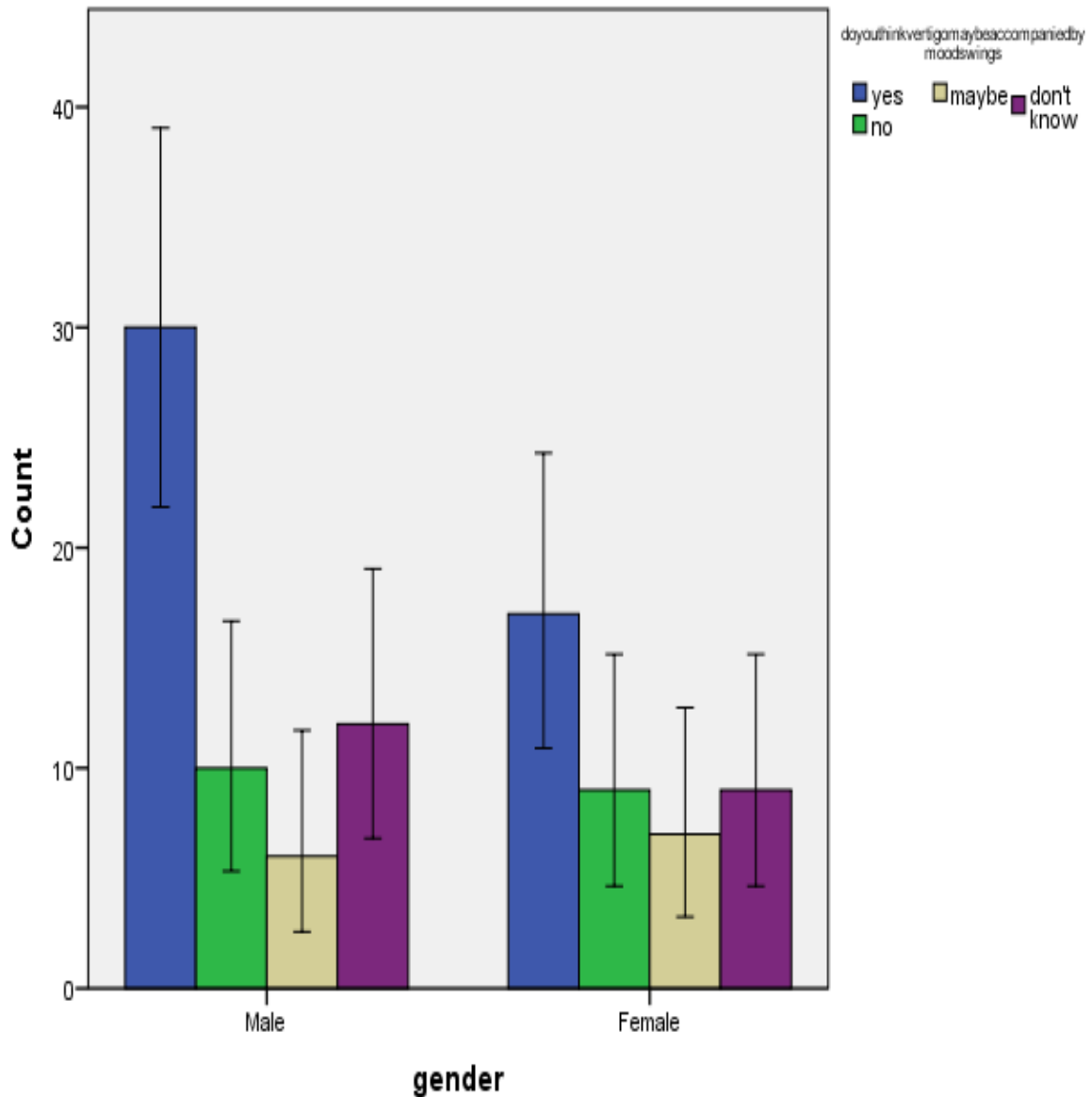


Figure 3: The pie chart showing the percentage distribution of the term "Vertigo is a feeling of nausea while in motion". Blue indicates yes, green indicates no, brown indicates may be and purple indicates don't know. Majority of the population were aware that vertigo is a feeling of nausea while in motion (53%).



Error Bars: 95% CI

Figure 4: The bar graph correlates the gender and vertigo accompanied by mood swings. X axis represents gender and Y axis represents the percentage of the response. Blue indicates yes, green indicates no, brown indicates may be and purple indicates don't know. Majority of male oppose that vertigo accompanied by mood swings. Pearson chi square test shows p value is 0.796 (>0.005) Hence, statistically not significant.

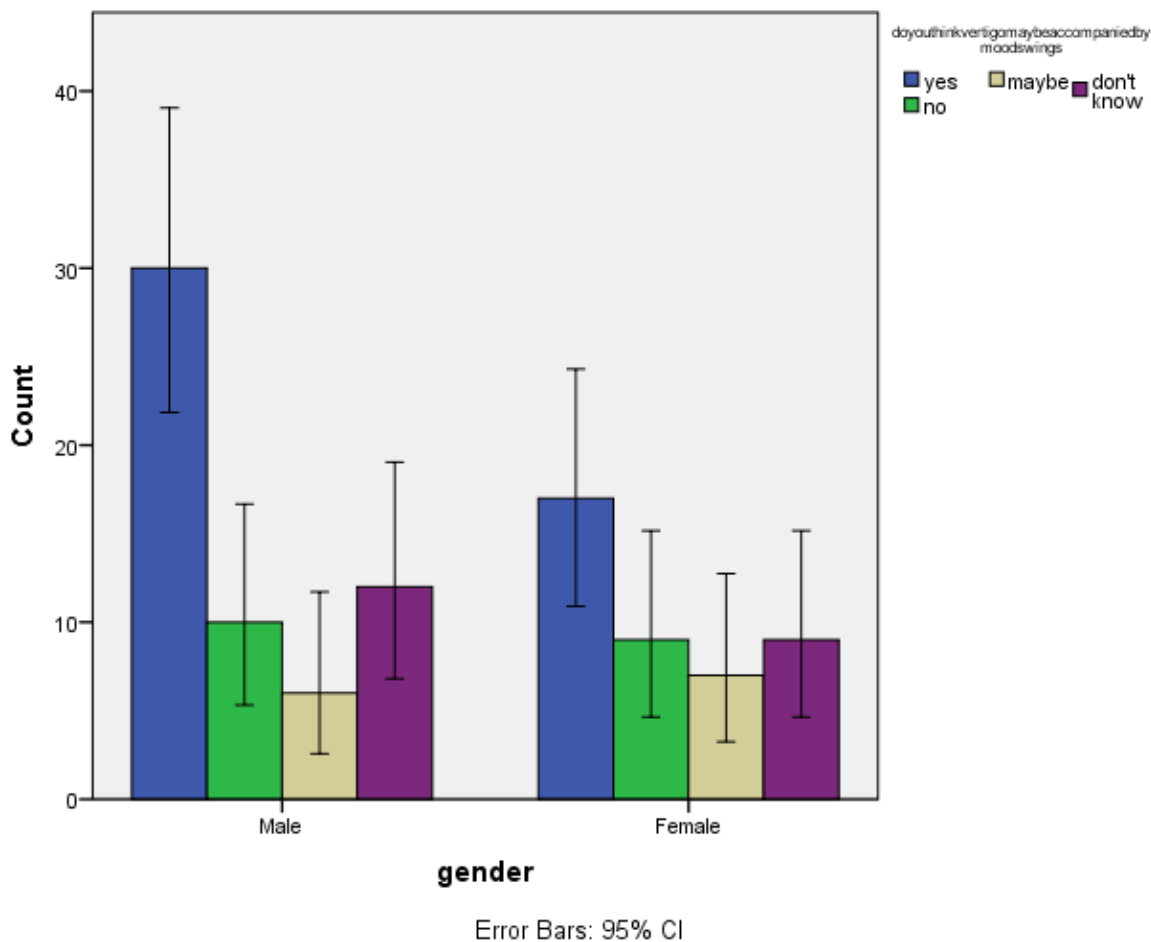


Figure 5: The bar graph correlates the gender and vertigo associated with migraines. X axis represents gender and Y axis represents the percentage of the response. Blue indicates yes, green indicates no, brown indicates may be and purple indicates don't know. 28% of the male responded that vertigo is associated with migraines. Pearson chi square test shows p value is 0.881 (>0.005) Hence, statistically not significant.

DISCUSSION

The survey was conducted among a small scale population. The data collected and statistically analysed by using SPSS software version 23. Our findings of awareness among adolescents with gender. 31% of them were male and 16% of them were female were aware about vertigo, which is statistically insignificant. 30% of the males and 23% of the females responded that vertigo is a feeling of nausea while in motion, 11% of the males and 10% of the females responded that vertigo is not a feeling of nausea while in motion, which is statistically insignificant. A similar article examined that effect on nausea and vertigo induced motion sickness. Nausea was induced by coriolis manoeuvre and vertigo by colorization of the ear (24).

18% of the males and 17% of the females respond that vertigo is not transferred from parents to children, which is statistically insignificant which was similar to previous articles that vertigo is not hereditary disease (25). But it is a common symptom of other syndromes and some of these symptoms involve other genetic disorders (25,26). 29% of the males and 18% of the females respond that vertigo may be accompanied by moodswing, which is statistically insignificant (Figure 4). When compared to previous studies they mention that benign paroxysmal positional vertigo (BPPV) is the most common etiology of recurrent vertigo (27). It is associated with anxiety, depression and other psychiatric disorders (28). 28% of the male and 17% of the females respond that vertigo is associated with migraines., which is statistically insignificant (Figure 5). In a

previous article they mention that vestibular migraine is a nervous system problem (29) that causes dizziness and causes loss of hearing in patients (30). The limitation is that the size of this study sample is small. So further studies need to be done in a large population.

CONCLUSION

This study revealed that the majority of the population were aware about vertigo. Nowadays the occurrence of vertigo is increasing, so this study may help people to gain wide knowledge on vertigo and its symptoms. By increasing the awareness camps, social media, seminars may be reach all kinds of people easily

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AUTHORS CONTRIBUTION:

JAYAVARSHA: Literature, search, data collection, analysis, manuscript drafting.

GAYATRI DEVI: Data verification, manuscript drafting.

REFERENCE:

1. Yuan Q, Yu L, Shi D, Ke X, Zhang H. Anxiety and Depression Among Patients With Different Types of Vestibular Peripheral Vertigo [Internet]. Vol. 94, *Medicine*. 2015. p. e453. Available from: <http://dx.doi.org/10.1097/md.0000000000000453>
2. Website [Internet]. [cited 2021 Mar 11]. Available from: Benign Paroxysmal Positional Vertigo among Elderly Patients in Primary Health Care Ekvall Hansson E. · Månsson N.-O. · Håkansson A. Author affiliations Keywords: Benign paroxysmal positional vertigo Dizziness Primary health care Gerontology 2005;51:386–389 <https://doi.org/10.1159/000088702>
3. Fernández L, Breinbauer HA, Delano PH. Vertigo and Dizziness in the Elderly [Internet]. Vol. 6, *Frontiers in Neurology*. 2015. Available from: <http://dx.doi.org/10.3389/fneur.2015.00144>
4. Eviatar L, Bergtraum M, Randel RM. Post-traumatic vertigo in children: A diagnostic approach [Internet]. Vol. 2, *Pediatric Neurology*. 1986. p. 61–6. Available from: [http://dx.doi.org/10.1016/0887-8994\(86\)90058-5](http://dx.doi.org/10.1016/0887-8994(86)90058-5)
5. Casani AP, Vannucci G, Fattori B, Berrettini S. The Treatment of Horizontal Canal Positional Vertigo: Our Experience in 66 Cases [Internet]. Vol. 112, *The Laryngoscope*. 2002. p. 172–8. Available from: <http://dx.doi.org/10.1097/00005537-200201000-00030>
6. Hain TC, Uddin M. Pharmacological treatment of vertigo. *CNS Drugs*. 2003;17(2):85–100.

7. Website [Internet]. [cited 2021 Mar 11]. Available from: Barriers and facilitators to ED physician use of the test and treatment for BPPV Kevin A. Kerber, Jane Forman, Laura Damschroder, Steven A. Telian, Angela Fagerlin, Patricia Johnson, Devin L. Brown, Lawrence C. An, Lewis B. Morgenstern, William J. Meurer First published May 10, 2017, DOI: <https://doi.org/10.1212/CPJ.0000000000000366>
8. [No title] [Internet]. [cited 2021 Mar 11]. Available from: https://www.researchgate.net/profile/Florian_Heinen/publication/51499440_Vertigo_and_Dizziness_in_Childhood_-_Update_on_Diagnosis_and_Treatment/links/0046351f26d6860769000000.pdf
9. Robert R, Justin Raj C, Krishnan S, Jerome Das S. Growth, theoretical and optical studies on potassium dihydrogen phosphate (KDP) single crystals by modified Sankaranarayanan–Ramasamy (mSR) method. *Physica B Condens Matter*. 2010 Jan 1;405(1):20–4.
10. Danda AK. Comparison of a single noncompression miniplate versus 2 noncompression miniplates in the treatment of mandibular angle fractures: a prospective, randomized clinical trial. *J Oral Maxillofac Surg*. 2010 Jul;68(7):1565–7.
11. Suresh P, Marimuthu K, Ranganathan S, Rajmohan T. Optimization of machining parameters in turning of Al-SiC-Gr hybrid metal matrix composites using grey-fuzzy algorithm. *Trans Nonferrous Met Soc China*. 2014 Sep 1;24(9):2805–14.
12. Neelakantan P, Grotra D, Sharma S. Retreatability of 2 Mineral Trioxide Aggregate–based Root Canal Sealers: A Cone-beam Computed Tomography Analysis. *J Endod*. 2013 Jul 1;39(7):893–6.
13. Putchala MC, Ramani P, Herald J. Sherlin, Premkumar P, Natesan A. Ascorbic acid and its pro-oxidant activity as a therapy for tumours of oral cavity – A systematic review [Internet]. Vol. 58, *Archives of Oral Biology*. 2013. p. 563–74. Available from: <http://dx.doi.org/10.1016/j.archoralbio.2013.01.016>
14. Sajan D, Udaya Lakshmi K, Erdogdu Y, Hubert Joe I. Molecular structure and vibrational spectra of 2,6-bis(benzylidene)cyclohexanone: A density functional theoretical study [Internet]. Vol. 78, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. 2011. p. 113–21. Available from: <http://dx.doi.org/10.1016/j.saa.2010.09.007>
15. Danda AK, Muthusekhar MR, Narayanan V, Baig MF, Siddareddi A. Open versus closed treatment of unilateral subcondylar and condylar neck fractures: a prospective, randomized clinical study. *J Oral Maxillofac Surg*. 2010 Jun;68(6):1238–41.
16. Nasim I, Neelakantan P, Sujeer R, Subbarao CV. Color stability of microfilled, microhybrid and nanocomposite resins—An in vitro study. *J Dent*. 2010 Jan 1;38:e137–42.
17. DeSouza SI, Rashmi MR, Vasanthi AP, Joseph SM, Rodrigues R. Mobile phones: the next step towards healthcare delivery in rural India? *PLoS One*. 2014 Aug 18;9(8):e104895.
18. Sekhar CH, Narayanan V, Baig MF. Role of antimicrobials in third molar surgery: prospective, double blind, randomized, placebo-controlled clinical study. *Br J Oral Maxillofac Surg*. 2001 Apr;39(2):134–7.
19. Govindaraju L, Neelakantan P, Gutmann JL. Effect of root canal irrigating solutions on the compressive strength of tricalcium silicate cements. *Clin Oral Investig*. 2017 Mar;21(2):567–71.
20. Neelakantan P, Varughese AA, Sharma S, Subbarao CV, Zehnder M, De-Deus G. Continuous chelation

- irrigation improves the adhesion of epoxy resin-based root canal sealer to root dentine. *Int Endod J.* 2012 Dec;45(12):1097–102.
21. Panda S, Doraiswamy J, Malaiappan S, Varghese SS, Del Fabbro M. Additive effect of autologous platelet concentrates in treatment of intrabony defects: a systematic review and meta-analysis. *J Investig Clin Dent.* 2016 Feb;7(1):13–26.
 22. Sathivel A, Raghavendran HRB, Srinivasan P, Devaki T. Anti-peroxidative and anti-hyperlipidemic nature of *Ulva lactuca* crude polysaccharide on D-galactosamine induced hepatitis in rats. *Food Chem Toxicol.* 2008 Oct;46(10):3262–7.
 23. Ramadurai N, Gurunathan D, Samuel AV, Subramanian E, Rodrigues SJL. Effectiveness of 2% Articaine as an anesthetic agent in children: randomized controlled trial. *Clin Oral Investig.* 2019 Sep;23(9):3543–50.
 24. Website [Internet]. [cited 2021 Mar 11]. Available from: original article Transdermally Administered Scopolamine vs. Dimenhydrinate I. Effect on Nausea and Vertigo in Experimentally Induced Motion Sickness I. Pyykkö, L. Schalén & V. Jääntti Pages 588-596 | Published online: 18 Feb 2010 Download citation <https://doi.org/10.3109/00016488509182265>
 25. Köping M, Shehata-Dieler W, Schneider D, Cebulla M, Oder D, Müntze J, et al. Characterization of vertigo and hearing loss in patients with Fabry disease. *Orphanet J Rare Dis.* 2018 Aug 15;13(1):137.
 26. Köping M, Schneider D, Hagen R, Schraven S, Rak K, Shehata-Dieler W. Vertigo and hearing loss are common in patients with Fabry Disease but seem to have different pathophysiological patterns [Internet]. *Forschung heute – Zukunft morgen.* 2018. Available from: <http://dx.doi.org/10.1055/s-0038-1640427>
 27. Website [Internet]. [cited 2021 Mar 11]. Available from: Benign paroxysmal positional vertigo (BPPV) predominantly affects the right labyrinth FREE W Damman1, R Kuhweide1, I Dehaene2 Correspondence to: Dr I Dehaene Department of Neurology, AZ St Jan, Riddershove 10, B-8000 Brugge, Belgium; ides.dehaeneazbrugge.be <http://dx.doi.org/10.1136/jnnp.2005.065912>
 28. Khan MMA, Khan MN. Author response for “Effects of psychosocial and socio- environmental factors on anxiety disorder among adolescents in Bangladesh” [Internet]. 2020. Available from: <http://dx.doi.org/10.1002/brb3.1899/v2/response1>
 29. Website [Internet]. [cited 2021 Mar 11]. Available from: SHARE August 25, 2009; 73 (8) ARTICLES Vertigo as a migraine trigger Louisa Murdin, Rosalyn A. Davies, Adolfo M. Bronstein First published August 24, 2009, DOI: <https://doi.org/10.1212/WNL.0b013e3181b38a04>
 30. Hain TC, Cherchi M. Migraine-Associated Vertigo [Internet]. *Dizziness and Vertigo Across the Lifespan.* 2019. p. 135–41. Available from: <http://dx.doi.org/10.1016/b978-0-323-55136-6.00011-3>