



## Review Article

## Neck pain and its global predominance: Analytical review

Mohammad Shebakauser<sup>1,\*</sup>, Sathish Vandanapu<sup>2</sup>, Ali Irani<sup>3</sup>, Mansi Bhartiya<sup>4</sup>, Sabah Taver<sup>4</sup>

<sup>1</sup>Dept. of Physiotherapy, Apex University, Jaipur, Rajasthan, India

<sup>2</sup>ASRAM Medical College, Eluru, Andhra Pradesh, India

<sup>3</sup>Dept. of Physiotherapy and Sports Medicine, Nanavati Super Specialty Hospital, Mumbai, Maharashtra, India

<sup>4</sup>Dept. of Physiotherapy, Sunandan Divatia School of Sciences University, Mumbai, Maharashtra, India



## ARTICLE INFO

## Article history:

Received 05-08-2020

Accepted 07-11-2020

Available online 29-04-2021

## Keywords:

Neck pain

Predominance rate

## ABSTRACT

The background of this study was to determine the predominance of neck pain in the population and to define the variation between studies. Systematically data was collected from following databases PUBMED, PEDro, CINAHL, CIRRIE, NARIC, followed by reference lists of relevant papers. Papers Included for information were of good quality score. Mean value were calculated for day week, month, year, and lifetime), and considered separately for age, gender, quality score, response rate, sample size, anatomical definitions, geography, and publication year. Seventy two papers are taken. Predominant estimates were not changed by age, quality score, sample size, response rate, and different anatomical definitions of NP. NP is a common symptom in the people. As expected, the predominant increase with longer periods and generally women reported more NP.

© This is an open access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## 1. Introduction

Neck pain (NP) is a huge general clinical issue, both to the extent near and dear prosperity and all things considered thriving<sup>1,2</sup> similarly as indirect expense.<sup>3,4</sup> For instance the full scale cost of NP in the Netherlands in 1996 was surveyed to 1% of the hard and fast restorative administrations utilization or 0.1% of the Dutch GDP.<sup>4</sup>

Precise predominance gauges are attractive to fill in as a reason for etiological investigations and medicinal services assessment, and to evaluate the effect of NP when all is said in done populaces. Tragically, commonness concentrates on NP show incredible variety in both quality and results. For example, the point commonness differs between 6% and 22% and 1-year predominance between 1.5%.<sup>5</sup>

Deferent delayed consequences of observational examinations may be a direct result of contrasting differencing of the topic, for example, the neck locale,

NP, and the range of pain. Methodological deference, for instance, non-basically indistinguishable masses tests, deferring 835 response rates, and the general idea of the examinations, may similarly cause inclination and explain the irregularities.<sup>6</sup>

Yet two or three makers have endeavored to solidify little overviews of NP ordinariness in their papers<sup>7</sup>, this composing has never been methodically and critically inspected. We, thus, coordinated an exact and fundamental composing review in order to choose the inescapability of NP in the absolute masses and to perceive domains of methodological assortment between mulls over.

## 2. Resesarch Design

A systematic search was conducted in the PUBMED, PEDRO (Science Direct, 1975–2002), CINAHL (Silverplatter, 1967–2002), CIRRIE (Silverplatter 1967–2002), and NARIC da- tabases (RILOSH, NIOSHTIC2, MHIDAS, HSELINE, CISDOC all

\* Corresponding author.

E-mail address: [sheebaishaq.doc@gmail.com](mailto:sheebaishaq.doc@gmail.com) (M. Shebakauser).

completed 2002/12). The search terms were: 'neck', 'cervical', 'spinal', 'back', 'musculoskeletal', 'pain', 'ache', 'problem', 'complaint', 'prevalence', 'incidence', 'survey', and 'epidemiology' (truncated when appropriate) (the full search strategy can be re-quested from the corresponding author).

The inquiry on MESH/EMTREE terms were equal to the free content pursuit. Due to the different databases just a free content hunt was conceivable. The bibliographic databases were looked, concentrating on titles and abstracts, and significant papers were recovered. Reference arrangements of all the included and rejected papers were efficiently screened for extra papers.

### 2.1. Inclusion criteria

The following criteria were endorsed:

1. Papers in English and printed in peer-reviewed journals
2. Any type of NP predominance reported
3. Study samples representative of the general population ( patient samples were excluded)
4. If more than one article was published based on the same study, only the most relevant was included.

**Table 1:** list of items extracted from each paper

1	Name of authors
2	Country
3	Source
4	Title
5	Study design
6	Objective of study
7	Method of data collection
8	Sampling method and sample data
9	Description of NP
10	Resulting data
11	Quality score
12	Own remarks or conclusion

### 2.2. Evaluation of completeness of the search strategy

To outline our fulfillment of the inquiry procedure, the quantities of recovered and included papers from every database were arranged. Catch recover investigation has recently been utilized in a methodical writing survey,<sup>8</sup> yet isn't viewed as proper in literature views due to the non-independency between the bibliographic databases.<sup>9</sup>

### 2.3. Assessment of fulfillment of the pursuit methodology

To represent our fulfillment of the hunt methodology, the quantities of recovered and included papers from every database were classified. Catch recover investigation

has recently been utilized in an orderly writing survey<sup>8</sup>, however isn't viewed as proper in writing subjects reached) for each examination is introduced. The aggregate and the sexual orientation predominance gauges are introduced or determined if not gave.

**Table 2:** Description of quality criteria

1	Fair-minded randomized populace test (either from statistics
2	rundown, or patient registers) Adequate example size (>1,000)
3	Adequate reaction rate >70%)
4	Exact definition of NP
5	Predominance gauges with 95% CI
6	Examination of non-responders

### 2.4. Assessment of quality scores

A scoring system was made, taking into account two quality scoring structures as of late used for looking over normality focuses on low-back pain[8.9] (Table 2). The quality models focused on delegate people tests, real and reliable outcome measures, and precision of the regularity checks. Quality scores were delegated to each paper uninhibitedly by two investigators (R.F., J.H.) and thusly took a gander at. Any logical inconsistency was settled by discussion, if still unsolved a third expert was fused (K.O.K.). No undertaking at blinding the pundits was made. Each model was weighted also, as we couldn't differentiate which rule is progressively critical for the general quality examination. The quality guidelines were evidently defined from the prior to avoid any inclination. Studies with a score of 1 or 2 centers were considered to be of low quality, some place in the scope of 3 and 5 reasons for mid-go quality, and 6 or 7 motivations behind higher quality

### 2.5. Data assessment and presentation

For each prevalence period, the mean normality checks from homogeneous examination tests reliant on grown-up peoples were resolved and imagined graphically. Inescapability was considered freely for age, sex, quality score, re-sponse rate, test size, anatomical definition, geography, and conveyance year, where material. The typical sexual direction extent was resolved for each inescapability period (for instance the hard and fast number of females with NP detached by the total number of folks with NP).

## 3. Results

Search results in total original papers were included in following<sup>10-20</sup>

Among seventy two papers forty -five papers fulfilling the thought measures were along these lines precluded,

**Table 3:** Search results (number) for each database

	In search strategy	Obtained	Reviewed	Excluded	Total number	Included papers Found in other	Found in three	Found in two	Found only in this database
<b>PubMed</b>	12,120	557	124	45	79	34	12	32	3
<b>PEDro</b>	8,706	273	56	12	44	34	12	31	4
<b>CINAHL</b>	6,799	321	56	5	51	14	10	5	0
<b>CIRRIE</b>	1,548	93	45	15	30	5	5	0	0
<b>NARIC Paper</b>	420	22	3	1	2	0	0	0	0

essentially in light of the fact that data had recently been presented in another paper (16 papers), such an inescapability was not communicated (11 papers), or too wide anatomical definition was used (for instance neck–shoulder–upper-limb) (eight papers). The full overview of dismissed papers is open from the relating maker.

For all intents and purposes a huge part of the assessments (46%) were from western, 23% from the rest of Europe, 16% from Asia, and 11% from North America. Two papers were from Australia and one from Israel.

Most examinations (79%) had unprejudiced, randomized population tests. The model sizes contrasted from 300 to 51,050 individuals. Thirty-seven (66%) of the assessments had test sizes of more than 1,000 subjects. The grungy response rates moved between 15% and 100%<sup>20–22</sup>. Twenty had lacking (<70%) response rates. The six most by and large uncovered kinds of inescapability were 1-year (39%), point (13%), lifetime (13%), 6- months (11%), 1-month (10%), and 1-week (10%). In various assessments, extra principles were added to the inescapability definitions (for instance 'Pain continuing for more than 3 months'). The definition of NP (for instance pain, hurt, risky, delicateness) and the anatomical definition of the neck region also varied between inspectors.

### 3.1. Prominent measures

The predominance measures and contracts ranges for each and every included examination are presented in All around and exactly as expected, the degrees increase with longer inescapability periods. Thus, the mean inescapability measures for the adult peoples show a reliable augmentation with extended prevalence periods.

In investigations<sup>23–25</sup>, the point commonness was introduced running from 5.9% [to 38.7% [27]. For the grown-up populace (15–74 years), the commonness went from 5.9% [4 to 22.2%], with a mean pervasiveness of 7.6%. One investigation concentrated specifically on an old populace (65+ years) with 38.7% point predominance.

### 3.2. One-week measure

The 1-week inescapability was presented in six assessments<sup>26,27</sup>, running from 1.4 to 36% . The NP donation in the last examination was 'waking desolation just as stiffness', which most definitely is the fundamental assessment using such a donation. The mean 1-week measure for the remaining of the examinations (15–90 years) was 12.5%, going from 1.4%<sup>26</sup> to 19.5% .

### 3.3. One-month measure

In six evaluations<sup>28,29</sup>, the 1-month prevalence was introduced. The range for the grown-up individuals was between 15.4% and 41.1%<sup>30,31</sup>, with a mean of 23.3%. One appraisal<sup>32,33</sup> concentrated specifically on young people, with a consistency of 6.9%..

### 3.4. One-year measure

The 1-year measure was evaluated in 42 assessments, the normality ran from 16.7%<sup>34</sup> to 75.1% for the entire adult masses (17–70 years), with a mean of 37.2%. In two assessments on youngsters, prevalence of 15.8% and 22.1%<sup>32</sup> were re-reported. Three assessments focused specifically on more established peoples, with a power go between 8.8%<sup>33</sup> and 11.6%<sup>14</sup>.

### 3.5. Age and sex

Kids announced less agony than the grown-ups for the 1-month<sup>35</sup> and 1-year prevalence<sup>36</sup>, yet more torment for the a half year pervasiveness<sup>31,37</sup>. In concentrates on old populaces, low gauges were accounted for in 1-year prevalence . In any case, in the point commonness old individuals announced more NP than for the staying grown-up populaces<sup>38</sup>.

Ladies detailed more NP than men in 25 (83%) out of 30 examinations<sup>39</sup>.

### 3.6. Quality score

The models scores for every single included investigation are appeared in Table 4. Seven investigations

(13%)<sup>1,8,15,18,21</sup> were of more excellent, 42 examinations (75%) were of mid-range quality, and seven investigations (13%)<sup>2,6,9,28</sup> were of low quality. Just two examinations were doled out greatest focuses<sup>1,18</sup>, though one paper didn't score any focuses whatsoever.

No example between quality scores and commonness gauges was found in any of the pervasiveness time frames (for example studies with low quality scores did not show greater deference in prevalence estimates compared to studies with high scores). In fact, in the study obtaining zero point and the study assigned maximum points<sup>1</sup> nearly identical point prevalence estimates were re-ported

### 3.7. Response rate

No anticipated case of the effect of lacking (<70%) response rate on the inescapability measure was found. A couple of assessments with low response rates itemized high normality measures (point<sup>21</sup>, 1-week<sup>28</sup>, 6- months<sup>21</sup>, and 1-year inescapability), while various examinations point by point low regularity measures 1-week<sup>16</sup> and 1-year regularity<sup>29,34</sup>.

### 3.8. Test size

Studies with insufficient model sizes (under 2000 individuals) didn't differ from concentrates with higher model sizes as per the inescapability checks.

### 3.9. Anatomical donation

The anatomical donation changed between examines, typically either including or notwithstanding the shoulder district. Twelve assessments recalled the shoulder for the anatomical donation of the neck territory. In any case, there were no deference between thinks about fusing or notwithstanding shoulders in any of the transcendence checks.

### 3.10. Geography and prevalence

The mean 1-year normality measures from deferent geological regions subject to equal examinations are presented. The 1-year inescapability was higher in Western countries than in the rest of Europe and Asia. In any case, this was not really significant. The lifetime power measures found in two assessments from the Tokelau Islands (little islands in the South Pacific Ocean) were low and almost zero.

### 3.11. Year of dissemination

All examinations were disseminated some place in the scope of 1980 and 2002, with the larger part (87.5%) of dispersions from 1991 and onwards. None of the transcendence checks showed any unquestionable case of progress after some time (data not showed up).

## 4. Discussion

This is the first broad efficient and essential review on NP predominance and we thusly give reference data to future examinations on NP. But considerable heterogeneity in inescapability checks was found, two examples are clear: first, the typical NP normality measures increase with longer power periods; second, in practically all examinations women uncovered more NP than men.

Deference's in transcendence examinations could be an outcome of a couple of components. To begin with, wording of the requests and usage may affect the results.<sup>35</sup> In a large portion of studies self-made inquiry were used and this may explain a segment of the observed assortment in the inescapability checks. Second, the anatomical definition moves between thinks about (for instance tallying or excepting the shoulder region). Interestingly, no wide deference's between considers including or excepting the shoulder district were seen, and it has been tended to whether neck and neck/shoulder torture can truly be clearly perceived from each other. Finally, methodological nature of an assessment may affect the outcome. Amazingly, this was not the circumstance in our review. Believe it or not, two assessments with very deferent quality scores exhibited commonly a comparative normality measures,<sup>1</sup> demonstrating that evaluations of NP inescapability could be seen as liberated from the idea of individual examinations.

This non appearance of association between's assessment quality and result evaluations may, in any case, be substantial for our scoring system just, simultaneously, since no appraisal of the appropriateness of worth guidelines for epidemiological assessments on the regularity of musculoskeletal issues, for instance, NP exists, this residual parts dark. Lebeouf-Yde and Lauritsen<sup>38</sup> developed a broad course of action of significant worth models for considers looking over low-back torture prevalence, while Lonely and Stratford developed a less Region Number of analyzes followed scoring framework in this way. Regardless, no accord exists concerning what quality scoring framework.

Western	15	46(19–62)
Europe	5	26 (13–39)
Asia	2	13 (0–58)

To be utilized while assessing certainty considers. It is our assumption that scoring frameworks ought to be kept as essential as could reasonably be ordinary and be anything but difficult to utilize. Our quality standards spread key issues that ought to be considered in any epidemiological study. Unexpectedly, more work is required around there.

Past endeavors at researching the piece on NP certainty in like way displayed wide consistency ranges.<sup>3,21</sup> Regardless, these surveys included not many papers. We remembered

72 papers for record of an intelligently complete pursue procedure and different combination/evading measures. More than one database ought to be related with a comprehensive solicitation and one paper was not recovered in any database. In this manner, screening of reference records must be performed for complete recovery of all gigantic literature.

The deferred results of this audit ought to be deciphered in the light of a few constraints. Our pursuit technique was expansive and accomplished different perhaps basic papers. Regardless, since by a long shot the majority of the included assessments had other fundamental concentrations than to investigate NP consistency, the broad premium structure was key so as to recover every single proper appraisal. We didn't prompt a solicitation of diaries by hand, as normality considers are spoken to in different deferent diaries. For instance, the 72 recalled papers for our survey were recovered from 32 different diaries.

However no earlier preparing concerning applying the quality evaluation was driven, no basic coherent irregularities between the raters were seen for any of the papers. Any shrouded uniqueness depended heaps of the papers, and in truth the third journalist was never associated with the quality appraisal.

The mean normality assessments ought to be respected with alert, as our audit displayed an unfathomable heterogeneity among the included assessments. For instance, the hopelessness definition and scope of torment changed, typically by including the shoulder area or developing the length of torment (for example torment enduring over 3 months). Additionally, upper and lower age ranges were not unclear between sharp part for torment recognition between the sexual directions.<sup>39</sup> No other survey has included assessments specifically on teenagers or increasingly prepared people groups.

Homogeneity is a key issue when looking at results from deferent investigates. A touch of the necessities in centers around inevitability are sufficiently giant and unbiased study tests with non-responder assessment, uni-structure and significant anatomical donations, and exact result measures. Our exact investigation obviously indicates a nonappearance of homogeneity in unavailability centers around NP. This is likewise clear in other increasingly humble audits on NP commonness where the combination in the definitions and the lengths of NP,<sup>3,21</sup> comparatively as the model source and age course have been featured as clarifications for the enormous collection in the NP prevalence checks.<sup>3</sup>

Information about amazing quality doesn't in itself in-structure about the effect of NP on people and on society unhindered. To diagram the effect on people, data, for example, torment power, influence on reliably execution, general flourishing status, care seeking after, and co-morbidities ought to be accessible. To survey the comprehension of NP on society everywhere, both direct expenses (for example use of arrangement similarly as

restorative organizations suppliers) and wandering expenses (for example number of days off, diminished bit by bit execution) ought to be given. Such clinically and sociologically important data is difficult to get, and this may to some degree clarify the better than normal collection in outlines utilized.

Opportunity has appeared at appear at a simultaneousness on these issues and grow new normalized instruments that incorporate dynamically huge result checks dependent on our current information. This would empower associations between's different nations and social requests, and, above all, give clinicians, analysts, and government specialists with a basic and sorted out image of both event and effect of NP in the individuals. considers For example, two or three evaluations included 15-year-olds in the grown-up get-together, while others defined adulthood from 20 years old and forward.

Examiner propensity can't be obstructed, as we didn't attempt to stun journalists. This was considering the way that two or three appraisals were by then known to the eyewitnesses, hence making a completely blinded evaluation was inconceivable.

We found that ladies reliably report more NP than men and this is in concurrence with different audits supervising NP.<sup>3,21</sup>

## 5. Conclusion

NP is a regular side effect in the individuals. The normality increments with longer certainty periods and for the most part ladies have more NP. In any event, western nations report higher mean evaluations than in the remainder of Europe and Asia. Studies moves incredibly yet isn't associated with the typicality checks.

## 6. Source of Funding

No financial support was received for the work within this manuscript.

## 7. Conflict of Interest

The authors declare they have no conflict of interest.

## References

1. Côté P, Cassidy JD, Carroll L. The Treatment of Neck and Low Back Pain. *Med Care*. 2001;39(9):956–67. doi:10.1097/00005650-200109000-00006.
2. Daffner SD, Hilibrand AS, Hanscom BS, Brislin BT, Vaccaro AR, Albert TJ, et al. Impact of Neck and Arm Pain on Overall Health Status. *Spine*. 2003;28(17):2030–5. doi:10.1097/01.brs.0000083325.27357.39.
3. Bassols A, Bosch F, Baños JE. How Does the General Population Treat Their Pain? A Survey in Catalonia, Spain. *J Pain Symptom Manage*. 2002;23(4):318–28. doi:10.1016/s0885-3924(01)00415-8.
4. Borghouts JAJ, Koes BW, Vondeling H, Bouter LM. Cost-of-illness of neck pain in The Netherlands in 1996. *Pain*. 1999;80(3):629–636.

- Available from: [https://dx.doi.org/10.1016/s0304-3959\(98\)00268-1](https://dx.doi.org/10.1016/s0304-3959(98)00268-1). doi:10.1016/s0304-3959(98)00268-1.
5. Hagen K, Einarsen C, Zwart JA, Svebak S, Bovim G. The co-occurrence of headache and musculoskeletal symptoms amongst 51 050 adults in Norway. *Eur J Neurol*. 2002;9(5):527–33. doi:10.1046/j.1468-1331.2002.00451.x.
  6. Lock C, Allgar V, Jones K, Marples G, Chandler C, Dawson P, et al. Prevalence of back, neck and shoulder problems in the inner city: implications for the provision of physiotherapy services in primary healthcare. *Physiother Res Int*. 1999;4(3):161–9. doi:10.1002/pri.163.
  7. Rajala U, Keinänen-Kiukaanniemi S, Uusimäki A, Kivelä SL. Musculoskeletal pains and depression in a middle-aged Finnish population. *Pain*. 1995;61(3):451–7. doi:10.1016/0304-3959(94)00206-t.
  8. Loney PL, Chambers LW, Bennett KJ, Roberts JG, Stratford PW. Critical appraisal of the health research literature: prevalence or incidence of a health problem. *Chronic Dis Can*. 1998;19:170–6.
  9. Lau EMC, Sham A, Wong KC. The prevalence of and risk factors for neck pain in Hong Kong Chinese. *J Public Health*. 1996;18(4):396–9. doi:10.1093/oxfordjournals.pubmed.a024536.
  10. Aoyagi K, Ross PD, Huang C, Wasnich RD, Hayashi T, Takemoto T, et al. Prevalence of joint pain is higher among women in rural Japan than urban Japanese-American women in Hawaii. *Ann Rheum Dis*. 1999;58(5):315–9. doi:10.1136/ard.58.5.315.
  11. Andersson HI, Ejlerstsson G, Leden I, Rosenberg C. Chronic pain in a geographically defined general population: studies of differences in age, gender, social class, and pain localization. *Clin J Pain*. 1993;9:174–82.
  12. Bassols A, Bosch F, Campillo M, Cañellas M, Baños JE. An epidemiological comparison of pain complaints in the general population of Catalonia (Spain). *Pain*. 1999;83(1):9–16. doi:10.1016/s0304-3959(99)00069-x.
  13. Birse TM, Lander J. Prevalence of Chronic Pain. *Canadian J Public Health*. 1998;89(2):129–31. doi:10.1007/bf03404405.
  14. Bovim G, Schrader H, Sand T. Neck Pain in the General Population. *Spine*. 1994;19(12):1307–9. doi:10.1097/00007632-199406000-00001.
  15. Mikkelsen M, Salminen JJ, Kautiainen H. Non-specific musculoskeletal pain in preadolescents. Prevalence and 1-year persistence. *Pain*. 1997;73(1):29–35. doi:10.1016/s0304-3959(97)00073-0.
  16. Niemi SM, Levoska S, Rekola KE, Keinänen-Kiukaanniemi SM. Neck and shoulder symptoms of high school students and associated psychosocial factors. *J Adolesc Health*. 1997;20(3):238–42. doi:10.1016/s1054-139x(96)00219-4.
  17. Palmer K, Smith G, Kellingray S, Cooper C. Repeatability and validity of an upper limb and neck discomfort questionnaire: the utility of the standardized Nordic questionnaire. *Occup Med*. 1999;49(3):171–5.
  18. Palmer K, Walker-Bone K, Griffin MJ, Syddall H, Pannett B, Coggon D, et al. Prevalence and occupational associations of neck pain in the British population. *Scand J Work Environ Health*. 2001;27(1):49–56. doi:10.5271/sjweh.586.
  19. Crook J, Rideout E, Browne G. The prevalence of pain complaints in a general population. *Pain*. 1984;18(3):299–314. doi:10.1016/0304-3959(84)90824-8.
  20. March LM, Brnabic AJM, Skinner JC, Schwarz JM, Finnegan T, Druce J, et al. Musculoskeletal disability among elderly people in the community. *Med J Aust*. 1998;168(9):439–42. doi:10.5694/j.1326-5377.1998.tb139023.x.
  21. Brochet B, Michel P, Barberger-Gateau P, Dartigues J. Population-based study of pain in elderly people: a descriptive survey. *Age Ageing*. 1998;27(3):279–84. doi:10.1093/ageing/27.3.279.
  22. Linton SJ, Hellsing AL, Hallden K. A population-based study of spinal pain among 35–45-year-old individuals. Prevalence, sick leave, and health care use. *Spine*. 1998;23:1457–63.
  23. Bergenudd H, Nilsson B. The Prevalence of Locomotor Complaints in Middle Age and Their Relationship to Health and Socioeconomic Factors. *Clin Orthop*. 1994;1(308):264–70. doi:10.1097/00003086-199411000-00037.
  24. Daffner S, Hilibrand AS, Hanscom BS, Brislin BT, Vaccaro AR, Albert TJ, et al. Impact of Neck and Arm Pain on Overall Health Status. *Spine*. 2003;28(17):2030–5. doi:10.1097/01.brs.0000083325.27357.39.
  25. Stendig-Lindberg G. Prevalence of musculoskeletal pain and its socio-demographic correlates in an urban Israeli population sample. *Eur J Phys Med Rehabil*. 1998;8:77–80.
  26. Cardiel MH, Rojas-Serrano J. Community based study to estimate prevalence, burden of illness and help seeking behavior in rheumatic diseases in Mexico City. A COPCORD study. *Clin Exp Rheumatol*. 2002;20:617–24.
  27. Chaiamnuay P, Darmawan J, Muirden KD, Assawanabodee P. Epidemiology of rheumatic disease in rural Thailand: a WHO-ILAR COPCORD study. *J Rheumatol*. 1998;25:1382–7.
  28. Takala J, Sievers K, Klaukka T. Rheumatic symptoms in the middle-aged population in southwestern Finland. *Scand J Rheumatol*. 1982;47:15–29.
  29. Urwin M, Symmons D, Allison T, Brammah T, Busby H, Roxby M, et al. Estimating the burden of musculoskeletal disorders in the community: the comparative prevalence of symptoms at different anatomical sites, and the relation to social deprivation. *Ann Rheum Dis*. 1998;57:649–55.
  30. Mäkela M, Heliövaara M, Sievers K, Impivaara O, Knekt P, Aromaa A, et al. Prevalence, Determinants, and Consequences of Chronic Neck Pain in Finland. *Am J Epidemiol*. 1991;134(11):1356–67. doi:10.1093/oxfordjournals.aje.a116038.
  31. Webb R, Brammah T, Lunt M, Urwin M, Allison T, Symmons D, et al. Prevalence and Predictors of Intense, Chronic, and Disabling Neck and Back Pain in the UK General Population. *Spine*. 2003;28(11):1195–202. doi:10.1097/01.brs.0000067430.49169.01.
  32. Thomas E, Papageorgiou A, Croft PR, Silman AJ. Accuracy of self-reported height and weight: the influence of misclassification on biological associations. In: Proceedings of the Society for Social Medicine's 39th Annual Scientific Meeting; 1995.
  33. Schrader H, Bovim G, Sand T, Obelieniene D, Siurkiene D, Mickeviciene D, et al. Natural evolution of late whiplash syndrome outside the medicolegal context. *Lancet*. 1996;347(9010):1207–11. doi:10.1016/s0140-6736(96)90733-3.
  34. Fredriksson K, Alfredsson L, Koster M, Thorbjörnsson CB, Toomingas A, Torgen M, et al. Risk factors for neck and upper limb disorders: results from 24 years of follow up [published erratum appears in *Occup Environ Med* 1999 May;56(5):358]. *Occup Environ Med*. 1999;56(1):59–66. doi:10.1136/oem.56.1.59.
  35. Wedderkopp N, Leboeuf-Yde C, Andersen LB, Froberg K, Hansen HS. Back Pain Reporting Pattern in a Danish Population-Based Sample of Children and Adolescents. *Spine*. 2001;26(17):1879–83. doi:10.1097/00007632-200109010-00012.
  36. Holmen TL, Barrett-Connor E, Holmen J, Bjerner L. Health Problems in Teenage Daily Smokers versus Nonsmokers, Norway, 1995–1997: The Nord-Trøndelag Health Study. *Am J Epidemiol*. 2000;151(2):148–55. doi:10.1093/oxfordjournals.aje.a010182.
  37. March LM, Brnabic AJM, Skinner JC, Schwarz JM, Finnegan T, Druce J, et al. Musculoskeletal disability among elderly people in the community. *Medical Journal of Australia*. 1998;168(9):439–442. Available from: <https://dx.doi.org/10.5694/j.1326-5377.1998.tb139023.x>. doi:10.5694/j.1326-5377.1998.tb139023.x.
  38. Deans GT, Magalliard JN, Kerr M, Rutherford WH. Neck sprain—a major cause of disability following car accidents. *Injury*. 1987;18(1):10–2. doi:10.1016/0020-1383(87)90375-5.
  39. Donk JVD, Schouten JS, Passchier J, Romunde LKV, Valkenburg HA. The associations of neck pain with radiological abnormalities of the cervical spine and personality traits in a general population. *J Rheumatol*. 1991;18:1884–9.

## Author biography

Mohammad Sheebakauser, Phd. Resident

**Sathish Vandanapu**, Consultant Neurosurgeon

**Ali Irani**, HOD

**Mansi Bhartiya**, Assistant Professor

**Sabah Taver**, Assistant Professor

**Cite this article:** Sheebakauser M, Vandanapu S, Irani A, Bhartiya M, Taver S. Neck pain and its global predominance: Analytical review. *Panacea J Med Sci* 2021;11(1):3-9.