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PURBANCHAL UNIVERSITY HEALTH JOURNAL
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About Us

Background

PUHJ (Purbanchal University Health Journal) is an official journal published by the Faculty of Medical and Allied Sciences of Purbanchal University since 2020 AD. It is a triannual, indexed, peer-reviewed, open-access, international health science journal. (Online at www.puhj.pufomas.edu.np). lt is trying to lndexed at NepJOL, NepMED, and DOAJ as soon as possible after the commencement of its publication.

Vision

To be a leading journal with a high impact factor in health sciences.

Mission

To empower researchers and promote research activities through constant support to fellow researchers for the generation of evidence-based healthcare practices.

Goal

To publish high-quality research articles in the field of biomedical sciences.

Objectives:

- To publish research articles.
- To support the researchers, editors, and reviewers.
- To develop the reviewer pool of researchers.
- To train, support for research proposal writing, and manuscript writing

Types of Articles

We publish Original Research Article (ORA), Case Reports (CR), Case Series (CS), Review Articles (RA), Medical Education (ME), Editorial (E), Viewpoint (VP), Letter to editor (LE), Commentary (C), Pilot Study (PS), Clinical trial (CT). Despite regular articles, we will publish the manuscript having scientific content after the decision of the editorial board. We encourage publishing articles from multispecialty, multicenter, and multinational involvement. About 25% of manuscripts may be rejected by editors before a formal peer-review process starts.

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Hon'ble Devendra Paudel
Minister
Ministry of Education, Science and Technology
Singhadurbar, Kathmandu, Nepal

पत्र संख्या/Let.No.:
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Message from Hon'ble Minister

I would wish to express my sincere congratulations to the editorial team of Purbanchal University Health Journal (PUHJ), on releasing its very first issue. I think that it is a valuable asset to the scientific arena of research within the health sector both nationally and internationally.

Living in an era of science and technology, we know for a proven fact that with the newest enhancement in technology and qualified professionals, the health care system is evolving on a daily basis. Innovations and research are the continual processes of discovering new facts and challenging the older ones. The history of health research in Nepal is not old and is supported by minimal resources. University faculties and students have a huge responsibility to create a more systematic and scientific environment for conducting standard research in our country. I am glad that Purbanchal University has also tried to feature a brick in the research publications of Nepal.

I am sure that PUHJ will act as a great communication platform for health professionals, academicians, and students to present their work and therefore encourage the application of advanced technologies in the field of health sciences.

I hope that the start of PUHJ will act as a milestone for numerous opportunities in the future.

I wish all the success to the whole Editorial Board of PUHJ in their future endeavors.

Best Wishes!

Devendra Paudel
Minister
Ministry of Education, Science and Technology

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PURBANCHAL UNIVERSITY

OFFICE OF THE VICE-CHANCELLOR

Post Box No: 142
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Ref : .....

Date : 2022/04/28

Message from the Vice Chancellor

The research and creative writing papers on health issues not only discourage People from taking tobacco, alcohol, and drugs but also make them aware of the significance of the physical exercise, nutrition, immunization, and even the environmental health. People are keen to follow the health issues more seriously after the emergence of COVID-19 pandemic globally.

It gives me an immense pleasure to know that Faculty of Medical & Allied Sciences is publishing an academic and research-based journal in June, 2022. I congratulate the Research and Publication Committee of the faculty for their incredible efforts.

I expect that the deliberate articles, research and creative papers published in the journal will stand as the useful references for the academic and non-academic readers of the journal.

I thank all the writers for their precious contributions.

I wish the journal team all the best for similar works in the future.

.....

Prof. Yadav Raj Koirala Ph.D.
Vice Chancellor
Purbanchal University

पूर्वाञ्चल विश्वविद्यालय

रजिष्ट्रारको कार्यालय

पो.ब.नं. : १४२
गोठगाउँ, मोरङ, नेपाल

प.सं./च.नं.:-

मिति: 2022/04/28

Message from the Registrar

We live in an era where advances in health and medicine are hard to keep up in textbooks. The presence of a credible platform for sharing knowledge and updated research is of paramount importance to medical students, nurses, physicians, and all health care workers anywhere.

The Faculty of Medical and Allied Sciences at Purbanchal University is always looking for innovative ideas to make relevant health knowledge accessible, especially to the people in Nepal's health sector. As the registrar of Purbanchal University, it gives me immense pleasure to congratulate the Purbanchal University Faculty of Medical and Allied Sciences (PUFOMAS) on publishing its first official health journal – Purbanchal University Health Journal (PUHJ).

I am confident on the editorial team behind the journal. My hope is that this journal becomes a highly desired medium through which multidisciplinary health issues and advances are disseminated. Thank you to everyone who contributed in making this journal a success. My best wishes and congratulations to the entire team for doing a spectacular job!

.....

Nilmani Pokharel
Registrar, Purbanchal University

PURBANCHAL UNIVERSITY

Faculty of Medical and Allied Sciences

Gothgaun, Morang

Ref. No. :.....

Date: 2022/04/28

Messages from the Dean

Purbanchal University has been providing various academic courses in medical and allied sciences since its's foundation year. As the Dean of Purbanchal University Faculty of Medical and Allied Sciences (PUFOMAS), to witness the very first issue of our Purbanchal University of Health Journal (PUHJ) being released is a moment of pride and accomplishment for me. First of all, I extend my heartily congratulations to the team behind this journal from its inception till date. I would also like to thank each editorial member and author who contributed to this journal. We intend to provide a forum for the innovators, academicians, researchers in reporting and publishing their work to their audience. I would like to express my heartfelt thanks to all the officials including the Vice-Chancellor Prof. Dr Yadav Raj Koirala, Registrar Mr. Nil Mani Pokharel and all the officials of Purbanchal University for their unconditional support to this publication.

We are enthusiastic about this new publication effort. As you go through its pages, you will see that researchers from all over Nepal have made contributions. This first issue will excite you and you will find much content to stimulate your thinking.

As new ideas develop in the future, we hope that this journal will be at the forefront of presenting these ideas. If you, as our reader, are also an active researcher and writer in the field, we encourage you to submit manuscripts to our editors.

Dr. Shailesh Mani Pokharel
Dean
Purbanchal University
Faculty of Medical and Allied Sciences

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अनुसन्धान केन्द

प.सं./च.नं.:

मिति: 2022/04/28

Congrats: Faculty of Medical and Allied Sciences

It's pleasant to know that Faculty of Medical and Allied Sciences is publishing a research journal providing a platform catering the needs of its academics working in the fields of Health Sciences. Research journal is a powerful tool in the advancement of knowledge. University is a place not only for the dissemination of existing knowledge but is also a centre for the creation of new knowledge. Research generates new knowledge and knowledge generated in one centre needs to be communicated to the wider circles of the academics as well as to the general public where it can be utilized for the betterment of the society. I hope publication of the Purbanchal University Health Journal as an official journal of the faculty of Medical and Allied Sciences will be able to serve this broader mission at the same time helping academic faculty in their career development and improve their research quality.

Quality and standard of education of a University is often measured by its research output which is reflected in the publication by its faculty. Purbanchal University is trying its best to develop itself as a centre of excellence especially in the field of technical education. Publication of this journal is no doubt a step further in this direction. Scenario of journal publication in Nepal is poor both in terms of quality and regularity. Many of the journals appearing in the market disappear earlier even before creating an impact in their respective fields. I am hopeful that being an official journal of the faculty and with untiring efforts of its dedicated faculty members this journal will be able to stand, maintain regularity and gradually improve its quality to meet the standard to be indexed by reputed international indexing agencies. Attempt of the faculty in itself is praiseworthy and a matter of pride for the University. All my best wishes are with you for the success of your present endeavor.

Prof. Dr. Min Raj Dhakal
Executive director
Research Centre
Purbanchal University

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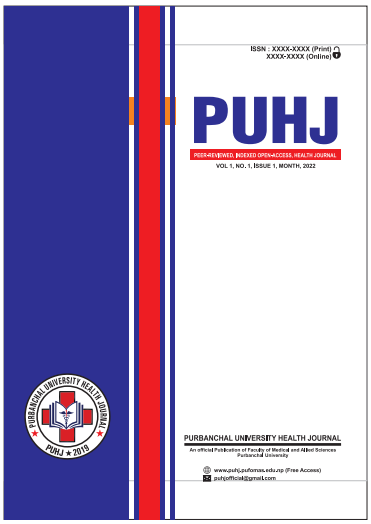

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Research mentorship for young health science students of Nepal

Surya B. Parajuli[1,2], Sulochana Neupane[3], Heera KC[4]

Evidence-based healthcare practice is an emerging trend to provide quality healthcare. Such evidence is synthesized through research. In the current context, the young health science students indulge mostly in acquiring academics and clinical skills. Research as part of learning is given less importance despite having it in the course curricula. The gained knowledge in research is traditional and theoretical based, that emphasized upon completion of course objectives rather than being practical. Healthcare providers having critical thinking, better judgement and decision making skills could only provide quality care which can be adopted by continuous research learning and practicing. This basis is supported by several studies.[1,2] Research learning is one of the processes that helps develop a critical thinker and enhance evidence based practice.

On the positive paradigm, we ought to see students being enthusiastic and motivated to study and conduct research activities. They are searching for good mentors for good research guidance. While on another aspect they lack support, encouragement and enabling environment thus failing to translate their research interest into real research work. A mentorship program is instrumental for the effective and efficient guidance of young students.[3,4] The concept of the mentor-mentee relationship is for the creation of a better bond between learner and teacher. The continuous monitoring and guidance of young students through mentorship have success stories of achieving personal and professional development. The mentor- mentee relationship promotes a research culture and has proven benefit in better portfolio development of students, but the concept of mentor-mentee relationship in health sciences academia is just emerging. This concept was often overlooked in the previous generation and they still hesitate to internalize and accept the concept of mentor-mentee in research.

Globalization in health care demands evidence based practice, best technology and best services to the people. It brings advancement and development along with its challenges as well. Hence, it is of utmost importance to prepare students beforehand to overcome those future challenges and it is best possible through development of research culture. The constant mentorship of young health science students in research activities will help them to learn, conduct, and synthesize the research evidence and practice culturally accepted evidenced based care.

Many health sciences students interested in learning research get frustrated searching for a good mentor. The lack of research culture in academia further challenges the concept of mentorship based research learning and is often neglected. Unlike in other fields, the timing is now to advocate the concept of research mentorship program in health academia. We need to shift from our traditional teaching learning process to modern concepts.

For this, the faculties at first need to accept this concept of research mentorship for better transfer of research skills to young health science students. They themselves need to be well prepared for this initiative. Second, the academia should also work to develop the policies related to research mentorship programs. Third, the research which is the basis for evidence based practice needs to be incorporated in the organizational goal. Fourth, the health curriculum needs to be upgraded with inclusion of this initiative. The organization, academia, faculties and curricula needs to be well prepared to initiate and sustain the concept of research mentorship program.

The young health sciences students have a significant role to bring into practice of research environment in their course curricula. They ought to proactively act on searching for a good mentor. Selection of a good mentor is a first step in research learning. They can witness their faculties, who are actively involved in research activities. They can approach them showing their interest to learn research. Effective research consumes time and there is no early outcome, no direct financial benefits but can form the basis for professional development and synthesis of tools, guidelines and protocols in community and clinical practice. This is a pure scholarly work which needs students' patience, perseverance, strong commitment, dedication, mindfulness, accountability, responsibility and strong communication skills.

Through the mentorship programme, students learn how to communicate for better data collection, data entry, data synthesis, proposal writing, research ethics, basic statistics, gantt chart preparation, referencing, citation etc. They can start their research career as a team member of the main investigator following their faculties. This eventually helps them to conduct research independently as the main investigator.

Research requires a group effort from a multidisciplinary team and it can't be performed independently on a seclusion. We need to favor group work for more effective and efficient research learning and execution of research activities. The hectic course of health science studies further challenges the time management of the health science students. But the students have to search for their effective time to indulge themselves in research learning.
It should be initiated now for future evidence based healthcare practice within the country and abroad. All the stakeholders need to consider this concept seriously. The constant advocacy from all the like minded people will be beneficial in future.

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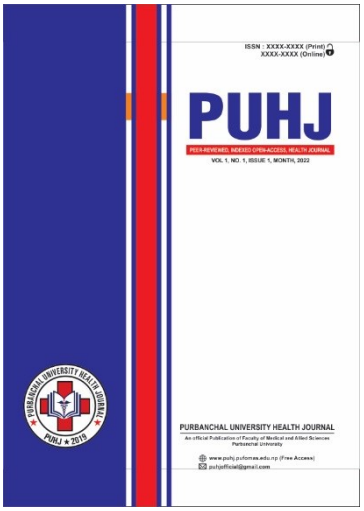

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Assessment of Quality of Life Among Elderly People Residing in Western Nepal

Amrita Khatri[1], Eliza Koirala[2*], Nikita Puri[2]

Abstract

Introduction: Rapidly growing elderly population is witnessing poor health status and decreasing functional capacity affecting overall health of the individuals globally. In Nepal awareness level about special needs of elderly and elderly care (Physical, psychological and social needs) is very low which directly affect the Quality Of Life (QOL) of elderly.

Objective: The objective of the study was to assess the quality of life among elderly people residing in Dhodegaun, Nepalgunj.

Method: It was a cross sectional study conducted at Dhodegaun, Nepalgunj from October 2018 to July 2019 among 100 elderly people. The samples were chosen through consecutive sampling. A standardized and validated WHO Quality of Life- BREF (WHOQOL-BREF) questionnaire was used. Permission for study was taken from Bheri Nursing College, Nepalgunj. Informed consent from each participant was taken. Confidentiality and privacy of participants was maintained in the study.

Result: Majority of respondents (83%) had a fair QOL whereas; none of them had excellent QOL. The QOL score of elderly was found better in the environmental domain (83.36 ±12.34) whereas; social domain was worse (35.36 ± 6.88). The physical and psychological domains of QOL in male were significantly better as compared to females. The physical, psychological and social domains of QOL in married elderly (60-70 years) with absence of disease were significantly better as compared to the age group more than 70 years who were widow/er and had illness. Whereas only the psychological and environmental domain of QOL in elderly people with primary level education was significantly better as compared to illiterate elderly people.

Conclusion: The QOL score was highest in the environmental domain while it was lowest in the social domain. This emphasizes that community people and policy makers should focus on the need for more social support-related interventions among elderly in the community.

Keywords: Ageing, Elderly people, Quality of Life

Introduction

The progressive loss of function along with decreasing fertility and increasing mortality with advancing age is defined as ageing.[1] Ageing is a phenomenon of an unavoidable derangement and developmental changes in the physical, psychological, hormonal and social conditions.[2] To improve the quality of life in elders has become one of the greatest challenge of public health.[3] WHO has defined QOL as an individual's perception of life in the context of culture and value system in which he/she lives and in relation to his/her goals, expectations, standards and concerns.[4]

QOL of elderly people assures different health domain like physical, psychological, social and environmental domains.[5] Various factors in elderly people like poor economy, cultural, illiteracy, inadequate social interaction, health care conditions can result in poor QOL.[6] The most common chronic co morbid conditions like diabetes mellitus, coronary heart disease, hypertension, musculoskeletal disorder and visual problems which causes limitation in functional disabilities and affect the elderlies' QOL in the community.[7]

The number of populations aged >60 years is expected to rise from 900 million (12%) from 2015 to 2 billion (22% of global population) by 2050. [8] There were 2.1 million elderly population alone in Nepal (2011 census). The rapidly growing elderly population globally has increased the risk of challenge to their QOL. The Nepal Government in 9th 5 years plan (1997-2002) policy was to improve the geriatric life by emphasizing actions that would reinforce dignity, economic opportunities, respect and social security for the elderly.[9]

QOL is an important concept in evaluating the well-being of the elderly, which can be compromises in various ways and various factors influence it.[10] Considering the vulnerability and importance of health status in elderly population and due to lack of studies of regarding QOL of elderly in different communities of Nepal, the present study was aimed to assess the QOL among elderly people residing in the Dhodegaun community of Nepalgunj, Nepal. In view of the above, it is imperative to analyze the QOL of elderly so that effective measures to improve the QOL can be implemented at community level.

Method

A cross sectional study was conducted at Dhodegaun-12, Nepalgunj from Oct 2018 to July 2019. The total number of 100 elderly people aged ≥60 years were selected through consecutive sampling. Complete enumeration of the total elderly population in the study area was done as per the family register maintained by the ward office of Dhodegaun-12, Nepalgunj. A total of 150 elderly were noted in the family register in which taking in account the drop out number of 30 and rest 20 elderly as having some forms of mental illness were not taken into consideration. A standardized and validated WHOQOL-BREF questionnaire was used as a research tool. The adapted WHO instrument comprised four domains: Physical, Psychological, Social Relations and Environment domain. Questionnaire was categorized into two parts. Part I: Performa related to demographic characteristics of elderly people. Part II: WHOQOL-BREF questionnaire. It contained 2 items from the overall QOL and General Health and 24 items of satisfaction that divided into 4 domains: Physical Health (7 items), Psychological Health (6 items) Social relationship (3 items) and Environmental Health (8 items). Each item was rated on a 5-point Likert scale. Domain score were scaled in a positive direction (i.e., higher scores denote higher QOL). The mean score of items within each domain was used to calculate the domain score.[4] Face to face interview technique was used to collect data. Permission for study was granted from Bheri Nursing College, Nepalgunj. Informed consent from each participant was taken. Confidentiality and privacy were maintained. After completion of the data collection, data was checked for its completeness and accuracy. The collected was checked, coded and entered in a Microsoft excel

and analyzed by SPSS software. The association between variable was tested by independent t-test and ANOVA and p<0.05 was considered significant.

Result

Table 1: Socio Demography of study participants (n=100)

Characteristics		n (%)
Sex Male		61 (61.0)
Female		39 (39.0)
Age	60-70 Years	86 (86.0)
	>70 Years	14 (14.0)
Ethnicity	Muslim	13 (13.0)
	Terai (Madhesi)	87 (87.0)
Religion	Hindu	87 (87.0)
	Muslim	13 (13.0)
	Married	84 (84.0)
Marital status	Widow	6 (6.0)
	Widower	10 (10.0)
Education status	Illiterate	91 (91.0)
	Primary level	9 (9.0)
If any illness/ Disease	Yes	59 (59.0)
	No	41 (41.0)

More than half (61%) of them were male and majority (86%) belongs to 60-70 years. In the same way most of them (87%) were Terai ethnic groups i.e., they belonged to Madhesi. Most of them (87%) belong to Hindu religion and majority (84%) were married. Similarly, most of them (91%) were illiterate and more than half (59%) were ill (Table 1).

Table 2: Grading of QOL (n=100)[10]

QOL Grades (Score)	n (%)
Excellent (110-89)	0 (0.0)
Good (88-67)	2 (2.0)
Fair (66-45)	83 (83.0)
Poor (44-22)	15 (15.0)

Majority (83%) had fair QOL whereas; none of them had excellent QOL (0.0%) (Table 2).

Table 3: QOL scores of elderly people in each domain (n=100)

Domains of QOL	Mean	SD
Physical domain	74.44	15.31
Psychological domain	62.28	11.41
Social domain	35.36	6.88
Environmental domain	83.36	12.34

The mean QOL score of elderly people was higher (83.36 ±12.34) in the environmental domain whereas the lowest (35.36 ±6.88) in the social domain (Table 3).

Table 4: Association of Socio demographic characteristics with domains of QOL score (n=100)

Variable		Physical (Mean ± SD)	Psychological (Mean ± SD)	Social (Mean ± SD)	Environmental (Mean ± SD)
Sex	Male	78.22±14.22	66.42±10.7	35.93±7.21	85.18±11.87
	Female	68.51±15.25	55.79±9.35	34.46±6.33	80.51±12.68
	t-test (p value)	0.001*	0.001*	0.299	0.064
Age	60-70 Years	76.18±14.99	63.20±11.45	36.13±6.62	84.28±11.99
	>70 Years	63.71±13.17	56.57±9.65	30.57±6.77	77.71±13.47
	t-test (p value)	0.004*	0.043*	0.004*	0.065
Marital Status	Married	76.09±14.52	63.90±10.86	36.71±6.45	84.61±11.47
	Widow	56.00±13.38	48.00±2.52	26.66±4.13	77.33±17.09
	Widower	71.60±16.59	57.20±12.37	29.20±4.23	76.40±14.41
	ANOVA (p value)	0.005*	0.001*	0.000*	0.063
Educational status	Illiterate	73.58±15.26	61.41±11.38	35.07±6.83	81.93±11.72
	Primary level	83.11±13.82	71.11±7.69	38.22±7.24	97.78±9.19
	t-test (p value)	0.075	0.014*	0.193	0.000*
Illness	Present	68.74±14.84	58.84±10.91	34.03±7.02	81.89±13.14
	Absent	82.34±12.02	67.21±10.36	37.26±6.28	85.46±10.90
	t-test (p value)	0.001*	0.001*	0.001*	0.156

*Independent t-test and ANOVA test; *Significant at p value <0.05*

The physical and psychological domains of QOL in male were significantly (P<0.01) better as compared to females. The physical, psychological and social domains of QOL in the age group 60-70 years were significantly (p<0.01; p<0.05 and p<0.01 respectively) better as compared to the age group more than 70 years which indicates that the QOL deteriorates with increasing age. In married elderly people, physical, psychological and social domains of QOL were significantly (p<0.01; p<0.01 and p<0.001 respectively) better as compared to widow and widower. Whereas; only the psychological and environmental domain of QOL in elderly people with educational status was significantly (p<0.05 and p<0.001) better as compared to illiterate elderly people. Elderly people with absence of any kind of illness had significantly (p<0.01) better physical, psychological and social domains of QOL as compared to elderly people with several illness (table 4).

Discussion

In the present study, majority of elderly (61.0%) were male, married (84.0%) and illiterate (91.0%). Most of the elderly (86.0%) were between 60-70 years, belonging to the Terai ethnic group and follow Hindu religion (87.0%) in which half of the elderly (59.0%) had several illnesses. The finding of the present study is supported by another study which revealed that among 76 respondents, 57.9% respondents were male. Out of total respondents, the majority

(44.7%) belonged to the 60-70 years age group. Majority of the respondents (86.9%) were married. Most of the respondents were Hindu (81.6%) by religion.[11] The age of the participants ranged from 60 to 90 years with mean of 68.62 ± 6.59 years which was similar to the studies with Mean age of the study population 65 ± 5 years [12], 68.32 ± 7.35 years [13]. The majority 85.4% of the respondents were of Hindu religion. About 65.1% of them were married.[14-15] Similarly another report shows, majority were married (60.81%), illiterate (63.9%) and Hindus (90%).[10] Another study with similar results of mean age 76.6 ± 9.5 years and 81.6% illiterate revealed the cause of illiteracy was that either they never attended the school or did not complete their primary level education.[16]

In the present study majority of the respondents (83%) had a fair QOL. Similarly in a study majority (84.3%) had a moderate quality of life.[17] A similar study reveals that none of the elderly (0.0%) had Poor, 3.2% had fair, 56% had good and 40.8% had excellent quality of life.[12] The study findings revealed a higher environmental domain score (83.36 ± 12.34) whereas the lowest social domain score (35.36 ± 6.88). Similar findings were seen in the studies where social domain score was comparatively lower than other domains.[18] Some other studies noted higher mean scores for social domain which is in contradict to our study, while other domain scores are comparable.[19] In contrast to our findings, a study has revealed highest social domain score and lowest environmental domain score.[20] Variance in pattern of associated factors which impact QOL in different settings may be the consequence for dissimilar QOL score in various domains. Elderly people from rural settings had lower QOL score in social domain.[21] Low QOL score of elder people in social domain was reported compared to other domains irrespective to their residence.[22]

The physical and psychological domains of QOL in male were significantly better as compared to females. Similar studies conducted in other parts of Nepal also revealed better QOL in elderly males as compared to females.[22-23] This could be because of negative perception on ageing and feelings of ugliness among elderly female, which may lead to low self-confidence.[24] The physical, psychological and social domains of QOL among >70 years age group were more affected which indicates the QOL deteriorates with increasing age which is in agreement with other studies.[22-24] The lower QOL score in physical domain may be due to functional limitations and other illness in comparison to younger age group. The factors like abandonment and negligence, loneliness, thinking limitations and sleep problems may lead to depression which worsens the psychological domain of QOL.[25] The QOL score of couple elderly people living together in all the domains were better as compared to widow and widower which is in support with the numerous studies. The social and emotional support received from their husband, wives, children and relatives may support the couple elderly people for better QOL in various domains.[12, 26] In the context of education, literate elderly people had better QOL in psychological and environmental domains as compared to illiterate elders which is in support of the study which revealed elderly with higher education had better QOL in different domains as compared to uneducated elderly people.[10] Education in elderly people helps them to improve psychological resilience, coping mechanism and manage stressors faced in homes and society which results in better QOL in different domains.[24] In the study elderly people with absence of any kind of illness were found to have better QOL in different domains as compared to the elderly people with several illness. Elderly people are more susceptible to numerous diseases (principally which are chronically degenerative and progressive decrease in functional capacity) which ultimately deteriorates the QOL of different domains.[27]

Due to resources and time constraints, the study was conducted in only one ward of Nepalgunj on a limited of hundred subjects which may not absolutely represent the elderly population of Nepal. This study focused only in an urban community/ that may not be generalized to rural settings. The physical and depressive symptoms and other chronic illness were not addressed by this study.

Conclusion

Quality of life among the elderly people was fair. Among the different domains social domain was more affected in elderly people. The quality of life of elderly decreases with increasing age. Elderly males had better social relations as compared to elderly females. The physical, psychological and social domains of quality of life were affected more in elderly

widow/widower while only the psychological and environmental domains of Quality of life were affected in illiterate elderly people.

Recommendation

The replication of this study can be done with large samples in different settings to validate and generalize the finding. Health education related activity as well as programs that help elderly people improve social relationships should be developed. Further analytical studies will support in understanding the association of factors influencing quality of life.

Conflict of Interest

The author declares no conflict of interest.

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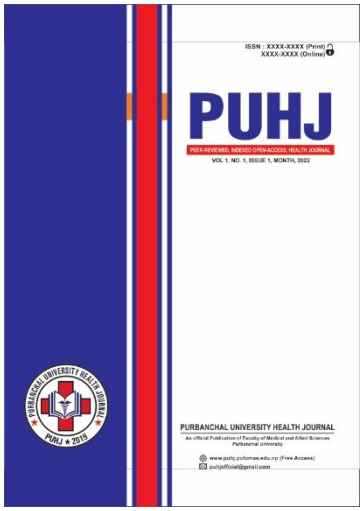

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Assessment of Peak Expiratory Flow Rate in school-going children in selected schools of Morang district, Nepal.

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Abstract

Introduction: Childhood bronchial asthma is an important public health problem in the world. Peak Expiratory Flow Rate (PEFR) can be used as a measurement of the ventilatory function of the lung in community settings.

Objective: The objective of the study was to measure the PEFR of normal children and to study the correlation of PEFR with age, sex, Body Mass Index (BMI), and Body Surface Area (BSA) of school children from class 4-10, in selected schools of Province no.1, Nepal.

Method: A quantitative, descriptive, cross-sectional study was done over 1 year. The sample consisted of 500 school-going children from Province no. 1, Nepal (studying from class 4-10) from 5 schools. A structured questionnaire was used for data collection which was validated with the consultation of experts. Children with medical illnesses were excluded. Height and weight were measured and the technique of measuring PEFR was explained and demonstrated to the subjects. Three acceptable forced expiratory measures were recorded with mini-Wright Flowmeter and the one with the highest reading was taken as a representative value.

Results: It was found that mean age (in years) was 12.6 ± 2.1 for male, 12.4 ± 2.1 for female, mean height (in cm) was 142.5 ± 13.8 for male, 136.6 ± 12.7 for female, mean weight (in kg) was 39.6 ± 10.6 for male, 37.2 ± 10.5 for female, Mean Body mass Index was 18.1 ± 2.8 for male, 18.5 ± 3.0 for female and Mean Body surface area was 1.24 ± 0.24 for male, 1.20 ± 0.20 for female. There was significant correlation of PEFR with age (r=0.711 for male, r=0.681 for female), height (r=0.821 for male, r=0.820 for female),weight (r=0.782 for male, r=0.732 for female), body mass index (r=0.342 for male, r= 0.340 for female) and body surface area (r=0.811 for male, r=0.723 for female).

Conclusion: In this study, the PEFR value ranged from 83 to 499 L/min, and a significant correlation of PEFR was found with age, height, weight, body mass index, and body surface area.

Keywords:
Asthma; Cross-Sectional Studies; Peak Expiratory Flow Rate

Introduction

The prevalence of severe bronchial asthma in children in Nepal was 7.3% as per the study done in Kathmandu.[1] In India, it's prevalence in children was 4-19%.[2,3] The diagnosis is apparent from the symptoms of variable and intermittent airways obstruction manifested by cough and wheezing and is confirmed by objective measurements of lung function. Lung function is especially useful for early diagnosis and for monitoring of the treatment.[3]Airflow limitation with reduced Peak Expiratory Flow Rate (PEFR), Forced Expiratory Volume (FEV1) and Forced Expiratory Volume/ Forced Vital Capacity (FEV1/FVC) ratio; and reversibility with inhaled bronchodilator confirms the diagnosis of bronchial asthma. Measurement of PEFR twice daily may confirm diurnal variation in airflow obstruction.[3] By definition, it is "The largest expiratory flow rate achieved with a maximally forced effort from a position of maximal inspiration, expressed in liters/ min".[4]PEFR can be used as an indicator of response to treatment in asthma. Serial measurements of PEFR can be done in patients admitted to hospital with acute severe asthma and can be recorded. PEFR is the most convenient measurement for use in the diagnosis of exercise induced asthma, where a fall in PEFR of greater than 15% following exercise is considered diagnostic.[5] For making the measurement, the subject breathes out maximally into the peak flow meter after having taken a maximum inspiration. PEFR is obtained after 100–120 millisecond of starting a maximal expiratory effort. So, the expiratory effort is not needed to continue up to residual volume. For assessment of PEFR, at least 5 breathing efforts must be made, out of which 3 of the efforts should fall within 10% of each other. The best of the three efforts is recorded.[4] There are a number of factors which effect PEFR in normal subjects; anthropometry,[2] sex,[7] age,[4] ethnic background, nutritional status, socioeconomic conditions,[8,9] environmental conditions,[10,11,12] presence of respiratory diseases, etc.[6] Hence, there have also been multiple studies in different populations to measure PEFR and their association with different variables all over the world.[13-27] But studies focusing the pediatric population in Nepal are lacking. The main objectives of this study were to measure PEFR of normal children and to study the correlation of PEFR with age, sex and Body Mass Index (BMI), Body Surface Area (BSA) of school children from class 4-10 of selected schools of Province 1, Nepal.

Method

A cross sectional study was conducted from May 2016 – June 2017. The total sample consisted of 500 school going children Morang, Province no. 1, Nepal (studying from class 4-10). Formal permission was taken from the Research Center, Purbanchal University. Five schools were selected by random sampling. The sampling frame comprises all school going children of Morang, Province no. 1, Nepal who are studying from class 4-10. The names of schools selected were: a) Shree Janata Secondary School, Thalaha b) Shree Adarsha Secondary School, Biratnagar c) Shree Durga Secondary school, Majhare d) Shree Janapriya Secondary school, Katahari e) Shree Prajatantra Secondary school, Bhaudaha. Students were also selected by simple random sampling. Hundred students from each 5 schools were taken using multistage sampling of class, 20 students were taken from the list of roll no. of students, using the lottery method. Informed written consent was taken from the students prior to data collection.

Structured questionnaire comprising demographic profile of students, anthropometry, nutrition, presence of any medical condition(s), recordings of PEFR etc. were done. Validity of the questionnaire was maintained by reviewing related literature and consultation with the experts. Pretesting was done in 10% of the sample in similar settings. For all students enrolled in the study, a proforma was filled inquiring about the various symptoms to exclude asthma, cardiac or any other systemic illness. History regarding wheezing, rhinitis, eczema, allergies in present and past was enquired. Any past hospital admissions or requirement of nebulization was also enquired. The presence of a family history of asthma or allergies was also noted. Children with medical illnesses were excluded. A clinical examination was performed to find any physical abnormalities. Inquiries were made about their general health problems, appropriate history was taken, anthropometry was measured, appropriate general physical examination was done. Anthropometric measures were recorded

in each individual including height and weight. Height was measured using a non-stretchable fiber optic tape pasted to a wall. Students were made to stand barefeet, their heels, buttocks and back touching the wall, eyes looking straight forward in the Frankfurt plane and the bi-auricular plane horizontal.[28] A steel ruler was kept firmly over the vertex horizontally to measure the height.[28] Weight was measured by a digital weighing machine, with a minimum precision of 10gm. The weighing scale was corrected for any zero-error before every measurement. Body mass index (BMI) was calculated by the formula: [29]

BMI = weight (kg) / height $(m)^2$

Body surface area (BSA) was measured by using the formula:[30]

BSA= square root [{height (cm) X weight (kg)} / 3600]

PEFR was calculated using Wright's mini peak flow meter.

The technique of measuring PEFR was explained and demonstrated to the subjects. They were taught and demonstrated to hold the peak flow meter with fingers of both hands and to properly seal the flow meter between lips. Then they were instructed to inhale deeply and blow into the mouthpiece of the peak flow meter with maximum effort as far and as fast as possible, and the reading was recorded. This was done in a standing position. Three acceptable forced expiratory measures were recorded and the one with maximum reading was recorded as representative value.

Children with major medical illness related to respiratory, cardiac, renal, nervous, endocrine system, acute respiratory illness, allergic diseases and chest deformity were excluded.

Formal permission was taken from the authority of concerned schools. Information sheet was developed and given to study participants. Informed consent was taken from all the parents of the participants. Confidentiality of the subjects was maintained. Information was used only for research purposes. Data was recorded in a systematic way in the proforma and entered into the master chart in Microsoft Excel. Data was analyzed using SPSS 16.0 statistical package software. Mean, standard deviation, and pearson's correlation coefficient were used for data analysis.

Result

Table 1: Anthropometric profile of students (n= 500)

Characteristics	Male ± SD n=285	Female ± SD n= 215
Mean Age (in years)	12.6 ± 2.1	12.4 ± 2.1
Mean Height (in cm)	142.5 ± 13.8	136.6 ± 12.7
Mean Weight (in kg)	39.6 ± 10.6	37.2 ± 10.5
Mean Body mass index	18.1 ± 2.8	18.5 ± 3.0
Mean Body surface area	1.24 ± 0.24	1.20 ± 0.20

Table 1 shows that the mean age of male students was comparatively more than that of the female students. Similarly, mean height, mean weight and mean body surface area of the male students was also comparatively more in case of male students whereas mean Body mass Index (BMI) was comparatively less in case of male students than the females.

Table 2: Correlation of PEFR with age and anthropometric parameters

Pearson correlation coefficient (r-value)	Sex	Age (years)	Weight (kg)	Height (cm)	BMI	BSA	p - value
	Male	0.711	0.782	0.821	0.342	0.811	0.001
	Female	0.681	0.732	0.820	0.340	0.723	

Table no. 2 presents the result of Pearson correlation analysis of PEFR, for male and female students, with age and anthropometric parameters. PEFR was significantly correlated ($p < 0.001$) with all these parameters. Out of all these parameters, PEFR had maximum correlation with height. Using the Pearson correlation analysis, the correlation coefficient, $r = 0.821$ and 0.820 for females and males respectively ($p< 0.001$); which means it is highly significant. The correlation is more with height than with age, weight, body mass index or body surface area.

Pearson correlation analysis showed a strong correlation of PEFR with these parameters (age, height, weight, BMI, BSA) for both male and female.

Table 3: Distribution of PEFR in different age group students (n=500)

AGE (years)	PEFR			
	Male (n 285)		Female (n 215)	
	Mean (L/min) ± SD	n	Mean (L/min) ± SD	n
8 – 9	190.1 ± 57.2	34	158.5 ± 54.2	25
10 – 11	255.6 ± 76.5	52	218.2 ± 36.2	48
12- 13	294.2 ± 61	83	288.8 ± 48	61
14- 15	382.3 ± 76.9	87	310.9 ± 54.7	70
16- 17	423.8 ± 77.6	29	326.2 ± 28.5	11
Mean	309.2 ± 69.84		260.52 ± 44.32	

Table 3 depicts that PEFR was seen to progressively increase with age, for both male

and female. The values of PEFR were lower in girls than in boys in all age groups.

The mean of the PEFR for particular age groups is also given in table number 4. The Pearson correlation coefficient calculated between age and PEFR shows significant positive correlation, i.e. r = 0.681 ($p<0.001$) for females and r= 0.711 ($p<0.001$) for male.

Table 4: Distribution of PEFR in relation to Weight

Weight (kg)	PEFR MALE		PEFR FEMALE	
	Mean (L/min)	n	Mean (L/min)	n
11-20	152.6 ± 34.6	13	142.6 ± 48	13
21-30	225.5 ± 53.8	63	208.2 ± 44.8	48
31-40	298 ± 54.7	86	272 ± 53.3	74
41-50	384.2 ± 79.7	78	312.6 ± 44	61
51-60	420.6 ± 67.9	39	336.3 ± 50.7	17
61-70	434 ± 65.6	6	370.5 ± 15	2

Table 4 shows the mean of the PEFR for particular weight intervals. The weight has been grouped into intervals of 10 kg. It was observed that the PEFR was higher for males than females in all weight groups. It was observed that there is an increase in PEFR with the increase in weight. Using the Pearson correlation analysis, it was observed that there is significant correlation between weight and PEFR; correlation coefficient (r) = 0.782 ($p<0.001$) for males and 0.732 for females ($p<0.001$).

Table 5: Distribution of PEFR in relation to Height

Height (cm)	PEFR Male		PEFR Female	
	Mean ± SD (L/min)	N	Mean ± SD (L/min)	n
91-100	110 ± 0	2	96.7 ± 13	5
101-120	143.3 ± 22	5	115 ± 40.4	1
121-130	168.5 ± 32.3	14	166.7 ± 35	11
131-140	216 ± 39.5	36	198.2 ± 33	30
141-150	267.6 ± 49.5	54	253.1 ± 43.7	37
151-160	304.7 ± 47.8	68	289.5 ± 48.9	82
161-170	383.7 ± 69	66	320 ± 49.3	47
171-180	427.5 ± 45.6	40	360 ± 0	2
Mean	249.12 ± 38.21		228.43 ± 31.42	

Table no. 5 shows that PEFR was seen to progressively increase with height, for both male and female. The mean of the PEFR for different height intervals observed is given in the above table. The height has been grouped into intervals of 10 cm. The PEFR of boys was seen to be higher in all height groups.

Discussion

The PEFR has been widely recognized as a simple, easy and reliable way of assessing the bronchial asthma severity as well as the response to treatment. The Mini- Wright Peak Flow meter is cheap, can be available easily and its use extends to home-monitoring for asthmatics.[6] Baseline PEFR monitoring and recording can be made compulsory for all asthmatics while they are asymptomatic and clinically free of wheezing. The variations in PEFR daily can serve as a guide to the severity of asthma, effectiveness of the current therapy and the need for any additional treatment. The value of PEFR is decreased in respiratory illnesses with elements of obstructive airways.

Out of 500 children, 56% of the students were male and 43% were female. In our study, PEFR ranged from 83 to 499 L/min. These values were similar to other studies in healthy school children of age group 5 – 15 years where PEFR ranged from 60 – 460 L/min.[14,15,18] The Peak expiratory flow rate increased with increasing height, age, weight, BMI as well as BSA. The PEFR for females for any given age, weight and height was always less than that of male which is similar to the other studies; but is in contrary to one study done by Carson JW in which the PEFR was similar for male and female in pre-pubertal age group.[31] A study done in Nepal also showed that at preadolescence time, PEFR was almost comparable in both sexes but after puberty males obtained significantly higher values than females.[32] In our study also the difference in PEFR between male and female in the age group of 8-10 years was less than for older age groups. The higher value of PEFR in males is a known fact, which is explainable by the difference in lung volumes, lung recoil and muscle strength.[15, 26]

We have found a significant correlation of PEFR with age, height, weight, body mass index, body surface area, out of which height had the strongest correlation. This is similar to all other previous studies and is well known except in some of the Japanese studies where they have used age for interpretation of PEFR values. It is recommended to interpret the PEFR value on the basis of height of the subject as it has found to have strong correlation in comparison to other anthopometric parameters.[21 -26, 33]

The most important strength of this study is its larger sample size. There are some potential limitations of our study. The gold standard for the study of lung function is spirometry and more significant volumes like FEV1, which we have not measured, as it would require more sophisticated equipment and was not possible to collect samples from the community level. Nonetheless, the PEFR is a very important marker of lung function and has been accepted worldwide. Another limitation is that we could not measure PEFR of children less than 8 years as they could not perform the forced expiratory maneuver well.

Conclusion:

In our study, PEFR ranged from 83 to 499 L/min and the PEFR for females for any given age, weight and height was always less than that of male. It was observed that significant correlation of PEFR was found with age, height, weight, body mass index and body surface area, out of which height had the strongest correlation.

Recommendation:

With the inference from this study; we can reliably monitor PEFR in school going children at home; who are diagnosed or suspected as having bronchial asthma or who are on treatment inorder to monitor response to treatment or acute flare up of bronchial asthma. This aids in early diagnosis and proper treatment compliance, as parents can monitor the improvement or fall in PEFR at home. Similarly at residential schools, the teachers can monitor the treatment response or can refer early if the students are suspected for bronchial asthma by monitoring the PEFR. Similar study can be done in other areas of Nepal including samples from other provinces as well so that we can have our national baseline data of PEFR in children.

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Conflict of interest: There are no conflicts of interest in the current study.

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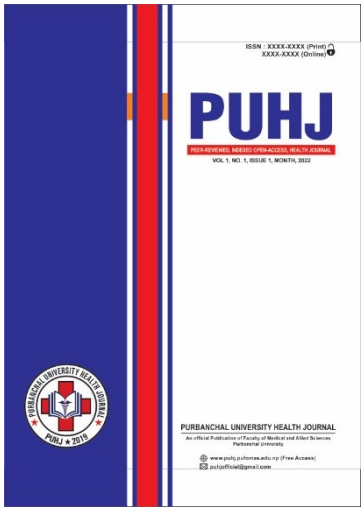

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Assessment of Drug Use Pattern Using WHO Core Drug Use Indicators in Two Primary Health Care Centers of Sunsari District, Eastern Nepal

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Abstract

Introduction: Rational use of drugs is the matter of global concern in today's world. Drug utilization studies are an important tool to evaluate drug utilization practices.

Objective: The objective of this study was to assess drug use patterns in two Primary Health Care Centers (PHCCs), namely Chatara and Itahari PHCC, of Sunsari district using standard WHO core drug use indicators.

Method: A cross-sectional descriptive study was conducted using WHO core drug indicators. Descriptive statistics were used for data analysis.

Result: A total of 609 prescriptions were analyzed. The average number of drugs prescribed was 2.64 (±1.03). Percentage of encounters with at least one antibiotic prescribed was 70.77% whereas encounters with at least one injection prescribed was low 0.66%. The total percentage of drugs prescribed using generic names was found to be 59.93% and the percentage of drugs prescribed from EDL was 68.51%. The average consultation and dispensing time was 6.60 minutes and 99.45 seconds respectively. Only 17.73% of patients had adequate knowledge of the drug whereas none of the drugs were adequately labelled. Percentage of drugs actually dispensed was 64.22%. The total percentage of availability of key drugs in health facilities was 90.63%. The most common morbidity was respiratory tract infections i.e. 129 (21.18%), acid peptic disease (APD) 77 (12.64%), allergies 64 (10.51%) and dental caries 62 (10.18%). A total of 1607 drugs were prescribed in 609 prescriptions. The most commonly prescribed drug class was antimicrobials 449(27.95%) followed by antipyretics 260 (16. 18%).

Conclusion: Among the prescription evaluated, the rational prescribing and dispensing practice was inadequate mainly reflected by high antibiotics encounters, low generic prescribing, inadequate labelling and poor patient's knowledge of drugs. Effective intervention programs are encouraged in these health facilities for the prescribers and the dispensing health personnel for promoting rational use of medicines.

Keywords
Drug utilization, Primary health care center, rational drug use, WHO drug use indicators

Introduction

Studies related to drug use pattern are important to determine whether or not drugs are utilized rationally. Rational use of drugs particularly is concerned about safety, convenience and cost-effective utilization of drugs at all stages of drug use chain.[1] With the passage of time various drug utilization researches have been conducted in many developing countries with the evidence of irrational drug use.[2-5] Poly-pharmacy, non-generic prescribing, improper antibiotics and injections use, self-medication etc. are some of the concerns related to irrational practice behaviors by prescriber as well as the consumers.[6] Drug utilization studies should be performed on regular basis to not only promote rational drug prescribing and dispensing, but also to assess the patient's comprehension about drug use. Previous study in various regions of Nepal shows the problem in the prescription pattern, health facilities problem and deviation in the generic medicine utilizations. [7-10]

In Nepal, the government runs Primary Health Care Centers (PHCCs) that provide basic primary healthcare services to the majority of citizens residing in both rural and urban areas of country. The objective of this study was to evaluate drug prescribing practices, patient care and facility- specific factors in two PHC centers namely Chatara and Itahari PHC, of Sunsari district using WHO standard drug use indicators.

Method

The cross-sectional descriptive study was conducted in Chatara PHCC and Itahari PHCC of Sunsari district starting from September 16, 2014 to February 2015. Sample was selected randomly irrespective of their age and gender. An inclusion criterion includes all outpatients with general illness irrespective of age and gender however; Patient for DOTS, immunization, patients with multiple co-morbidity or critically ill, pre- and post-natal care patients were excluded from the study. The study was carried out by using standard WHO drug use indicators which include prescribing, patient care and facility specific indicators and using recommended methodology of WHO.[11] As per WHO, 600 samples of prescription will be enough to assess drug use pattern in the health facilities.[11] Modified International Network for Rational Use of Drug (INRUD-NEPAL) encounter form was used as a data collection tool.[12] Permission was obtained from the district health office, Sunsari before conducting the study. All relevant data such as patient age, sex, diagnosis, prescription character such as drug name, strength, dose; dispense quantity; patient drug use knowledge about when, how much and how long to use the drug ; adequate labelling indicator as patients name , drug name and when to take the drug was provided or not, were recorded in the data collection form. The consultation time and dispensing time were recorded separately without prescriber and dispenser being aware that they had been observed. A total of 100 (50 from each PHCC) records were considered to determine average consultation and dispensing time. After the data was collected, it was entered into a prescription indicator form, a patient care indicator form, and the parameters were calculated using the recommended techniques. After completion of data collection in either PHCC, data were tabulated in summary reporting sheets and the results were reported to the prescribers and the staff at health care facilities. Necessary advice and suggestions were provided on the lacking areas on the basis of the findings of the study. Data collection statement was also obtained from the study centers. Final Data from both the health facilities were transformed into SPSS version 16 for further analysis using recommended techniques.

Calculation techniques of the core drug use indicators of study was calculated in accordance to WHO Core drug indicator calculation guidelines[11]:

I. Prescribing indicators

1. Average number of drugs per encounter = total number of drugs prescribed / total number of encounters surveyed;

2. Percentage of drugs prescribed by generic name = total number of drugs prescribed by generic name / total number of drugs prescribed * 100
3. Percentage of encounters with an antibiotic prescribed = (number of patient prescription encounters during which an antibiotic was prescribed / total number of encounters surveyed) * 100
4. Percentage of encounters with an injection prescribed = number of patient prescription encounters during which an injection was prescribed / total number of encounters surveyed * 100
5. Percentage of drugs prescribed from essential drugs list = (number of drugs prescribed from essential drugs list [13]/ total number of prescribed drugs) * 100

II Patient care indicators

1. Average consultation time = total time for a sequence of consultations / number of consultations
2. Average dispensing time = total time for dispensing drugs to sequences of patients / number of patient encounters
3. Percentage of drugs actually dispensed = number of drugs that are actually dispensed / total number of drugs prescribed * 100
4. Percentage of drugs adequately labelled = number of drugs dispensed with adequately labelled / total number of drugs dispensed * 100
5. Percentage of patients correct knowledge of drugs = number of patients who can adequately report the dosage schedule (when, how much and how long) for all drugs / total number of patients interviewed * 100

II Health facility indicators

1. Availability of key drugs = (number of specified drugs actually in stock / total number of drugs on the checklist) * 100
2. Availability of copy of essential drugs list or formulary at health facility: yes or no

Key indicator drugs used in study

Disease	Key drugs
Diarrhoea/ dysentery	ORS, metronidazole, cotrimoxazole
Fever/ respiratory tract infection	Paracetamol, amoxicillin, ciprofloxacin
Gastritis	Dried aluminium hydroxide and Mg $(OH)_2$
Skin infection	Povidone iodine, calamine lotion, Gamma benzenehexachloride,
Fungal infection	benzoic acid + salicylic acid
Eye/ear infection	Chloramphenicol eye/ear drops
Respiratory disorder	Salbutamol/aminophylline
Worm infestation	Albendazole
Avitaminosis	Vit B complex

Key drugs selected for the study [13,14]

Result

A total of 609 prescriptions (306 prescriptions from Health facilities 1, 303 Prescriptions from health facilities 2) were received from the both PHCs and they were analyzed for the various parameters which include prescription indicators, patients care indicators and facility indicators. Out of the total number of patients visiting PHCCs i.e. 609, the numbers of females were 346 (56.80%) and male were 263(43.20%). The median age of all the patients was found to be 30 years (IQR 42). The average number of drugs prescribed per encounter from two PHC facilities studied was 2.64 (±1.03). Among total patients, 70.77% received at least one antibiotic in their prescription and 0.66% patients received at least one injection from both health care facilities. Percent of drugs actually dispensed from both the PHCCs was 64.22%. The total percentage of drugs prescribed in generic was 59.93% and total percentage drugs prescribed from EDL was 68.51% respectively (table 1). The average consultation time and the dispensing time were found to be 6.60 (±1.52)

minutes and 99.45 (±31.82) seconds. This study shows that only 17.73% of patients have adequate knowledge of drugs. However, the percentage of patient knowledge on parameter *'when'* was 70.28%, whereas knowledge on parameter '*how much'* and *'duration'* were 64.20% and 18.55% respectively. Both the PHCCs had the availability of an essential drug list. The total percentage availability of key drugs on PHCCs studied was 90.63% as shown in table 1.

Table 1: WHO core drug indicator summary form

Number of cases	Prescribing	609
	Patient care	609 (100 for consultation and dispensing time)
Average number of drugs prescribed (SD)		2.64 (1.03)
Percentage of drugs prescribed by generic name		59.93%
Percentage of encounters with antibiotics		70.77%
Percentage of encounters with injection prescribed		0.66 %
Percentage of drugs prescribed on essential drug list		68.51 %
Average consultation time		6.60 min
Average dispensing time		99.45 sec
Percentage of drugs actually dispensed		64.22 %
Percent correct patient knowledge of drugs		17.73%
Percentage availability of key indicator drugs		90.63 %

***Note**: Percentage of drugs adequately level was Nil. Copy of Essential drug list chart was available in both health facilities*

Table 2. Most commonly prescribed drugs in the PHCs during the study period

According to drug class **Drug class**	**Drugs**	**n**	**Total (N= 1607)**	**%**
Antimicrobials	Amoxicillin	183		
	Ciprofloxacin	64		
	Metronidazole	62		
	Albendazole	36	449	27.95
	Cotrimoxazole	71		
	Azithromycin	19		
	0thers	14		
Antipyretic	Paracetamol	260	260	16.18
Vitamins, minerals and electrolytes	VitaminB-complex	127		
			192	11.95
	ORS	44		
	Zinc sulphate	12		
	Iron	9		
Antiallergics, and antispasmodics	Chlorpheniramine maleate	123	147	9.14
	Hyoscine butyl bromide	20		
	Promethazine	4		
Ulcer protectives	Antacid	74	139	8.65
	Pantoprazole	26		
	Ranitidine	39		
Miscellaneous		420	26.13	

The most commonly prescribed drugs were paracetamol 260 (16.18%) and amoxicillin i.e 183 (11.39). Other prescribed drug was vitamin B complex 127 (7.90%), chlorpheniramine maleate 123 (7.65%), cotrimoxazol 71 (4.42%), antacid 74 (4.60%) and metronidazole 62 (3.86%) as shown in table 2.

Morbidity profile of patients

In our study, the most common diagnosis was Respiratory tract infection 129 (21.18%) (which included both Upper respiratory tract infection (URTI) 82(13.43%) and Lower Respiratory tract infection (LRTI) 47(7.71%) followed by acid peptic disease (APD) i.e. 77 (12.64%); allergy 64 (10.51%), dental caries 62 (10.18%) and others as shown in Table 3

Table 3: Morbidity profile of patients (n=609)

Diagnosis	n(%)
Weakness / headache	29 (4.76)
Fever	25 (4.10)
APD	77 (12.64)
Common cold	26 (4.27)
Dental caries	62 (10.18)
Diarrhoea	26 (4.27)
Respiratory tract infection (URTI (82) /LRTI (47))	129 (21.18)
Conjunctivitis	14 (2.30)
Ear infection	30 (4.93)
UTI	14 (2.30)
Neuromuscular pain	32 (5.25)
Tinea-infection/ fungal infection	26 (4.27)
Allergy	64 (10.51)
Others(wounds/ cuts)	55 (9.03)

**URTI- Upper respiratory tract infection; LRTI- Lower respiratory tract infection; APD- Acid peptic disease ; UTI- Urinary tract Infection*

Discussion

In this study the percentage of distributions of male and female attending PHCs was 43.20% and 56.80% respectively. It also shows that prevalence of disease is not precise with gender. The average number of drugs prescribed in our study was 2.64 which was comparatively higher than the results obtained in other studies at PHCs in Nepal [3,9] but was comparatively lower than that in Pakistan [15] and Bangladesh [16] Where the average drug prescribed were found to be 3.4 and 3.31 respectively. The discrepancies in results could be related to variations in socioeconomic profile as well as morbidity and mortality characteristics of the population. According to WHO recommendation, the average number of drug per prescription 1.6-1.8 is considered as optimal [11], therefore the result from our study reflects some degree of poly-pharmacy. It may be because treatment was based on symptoms rather than the diagnosis and unavailability of Standard Treatment Guidelines (STG).

In this study, the percentage encounter with antibiotics was 70.77% which was higher than that found in PHCCs of Kaski 67% [17] and western Nepal 59.9% [10]. Similar studies in the developing countries like Pakistan, Bangladesh and Bahrain found that antibiotics encountered were found 49.9%, 49.1% and 26.2%. [15,16,18] In our study, This finding may be due to the presence of the intern doctors and Health assistant prescribing, which reflects lack of experience about the rational drug prescribing patterns. According to WHO, 15-25% of antibiotics encountered is expectable in the countries where an infectious disease is more prevalent. [11] It showed the overuse of antibiotics. Irrational use of antibiotics not only increases the risk of antibiotic resistance but also results in economic burden to patients and loss of scarce resources. Absence of antimicrobial susceptibility and culture testing laboratory facilities in PHCCs, lack of determination of severity of illness, peer norms, fear of poor outcomes, lack of awareness related to antibiotic use guidelines resulting in adjudged empirical prescribing of antibiotics were found to be main contributing factors for this irrationality. The percentage of injection prescribed was only 0.66% which was less than that reported in studies in Kaski [3,17] and that reported in other developing countries like Bahrain (8.3%)[18], Pakistan (27.1%)[15], Bangladesh (13.6%)[16] . Previous study in terai district of Nepal shows 13.7% of injections prescribed.[9] Less number of injections in prescriptions was a rational drug use sign and it also decreased the cost of prescription. In the present study, drug prescribe in generic was 59.93% which was similar with the other study conducted in PHC of terai district (63.50%) and that conducted in western Nepal (59%) [9,10] but was comparatively more than the findings in private and tertiary health sectors (19%)[19].In the developing countries like Barhain it was found that 14.3% of drug was prescribe in generic which was very less than our study[18]. Similarly, study in Nigeria reports 49.3% [20] and Madhya Pradesh India reports 60.9% [21] of drugs dispensed in generic form. The WHO recommends generic prescribing because it allows patients to choose from a wider range of drugs options and often helps reduces costs associated with brand variation. Some of the factors which influence

low prescribing of generic drugs are poor regulation and enforcement, less promotion and production of the generic drugs in Nepal.

In our study it was found that 68.51% of drugs were prescribed from EDL. In this study we found OJT students and intern doctors were involved in prescribing the drugs, contributing to prescribing beyond the EDL. Similar study in two PHC of western Nepal found 59.9% and 67% prescribing from EDL.[10,17] In Nigeria and Bangladesh it was found that 90.5% and 62.6% were prescribed from EDL.[16,20] Prescribing from EDL is fundamental as it contains cost effective, rational and evidence based and clinically verified category of drugs that meets the basic health care needs of majority of people. It also ensures the access to and rational utilization of medicines supplied in PHC centers by the government. In our study, excessive usage of antibiotics, antihistamines and various multivitamin formulations which are not listed in Nepal's EDL may have contributed to the low incidence of prescribing from EDL. EDL prescribing practice reduces the unwanted cost and also promotes rational drug use. The drawback of non EDL prescribing was the irregularities of drug supply in health care facilities. Only 64.22% of drugs were dispensed from the both health care facilities. It was due to lack of drug stock and due to poor prescribing knowledge. Similar study in Terai district showed 81% of drugs prescribed were dispensed from PHCC [9]. A similar study in Pakistan reported 90.9% of drugs were dispensed.[17] Drug dispensed in this study was found to be less satisfactory. This was due to inadequate supply of drugs to health care facilities.

In our study, consultation and dispensing time were 6.60 minutes and 99.45 seconds respectively. Similar study in the PHC of Kaski district showed an average consultation time of 2.2 minutes and dispensing time around 42.52 seconds.[3] Similarly previous study in eastern terai district has shown the consultation time of 2.7 minute.[9] This showed that our study centers physician and medical assistants were comparatively providing more consultation time to a patient which is a good approach. Appropriate consultation time results in proper diagnosis and enhanced prescriber judgement. The dispensing time is also satisfactory; this means that dispensing staff were handling the prescription properly during dispensing of drugs. However, only 17.73% patients had the knowledge about the drug dispensed to them which is very less in comparison to similar other study in Nepal where patient's knowledge was found to be 28.6% and 30%.[9,3] Dispensing is the last step of patients contact with the healthcare professionals. At this stage, The drug dispenser should have an obligation to provide adequate information and counselling to the patients regarding proper use of medication prescribed.[22] So there should be the provision of providing proper information of drugs for the rational use of drugs and promotions of drugs. Patient's knowledge, unskilled manpower, inadequate labelling, inadequate counselling by medical personnel and dispensers are the factors that affect the patient's knowledge on doses.

Adequate labelling in our study was found to be nil or zero. Most of the drug utilization studies at PHC in Nepal have similar results.[3,9] Labelling plays a vital role in rational drug use and promotion of drugs. In our study 45.54% was labelled as 'WHEN'. The main reason for this was lack of proper practise of drug labelling. Patient's name and drug name were not included due to lack of system and procedure. In both PHCs there was a copy of EDL or formulary and availability of key drugs was found to be 90.63% which was quite satisfactory. Drug management in these health care facilities was in accordance with the national standard.

In this study, the most common diagnosis was URTI i.e. 82 (13.46%) and APD i.e. 77 (12.64%) and allergy 64 (10.51%). The most commonly prescribed classes of drug were paracetamol 260 (16.18%) and amoxicillin i.e. 183(11.39). Another commonly prescribed drug was vitamin B complex i.e. 127 (7.90%). This finding related to prescribing and disease pattern were similar to

findings obtained by Bajracharya et al in study in Duwakot health center, Nepal where fever, respiratory infection, APD were common morbid conditions and the NSAIDs and antibiotics were commonly prescribed drugs. [23] Study in Tamil Nadu India had also found significant prescription of NSAIDs, multivitamins and antibiotics in their study.[24] However, this study have certain limitation as we did not performed the review of prescription in relation to health problem or diagnosis of the patient and Secondly, the study was conducted in single season therefore the finding related to morbidity pattern might be limited by that particular season.

Conclusion

Among the prescriptions evaluated, the rational prescribing and dispensing practice was inadequate mainly reflected by high antibiotic encounters, low generic prescribing, inadequate labelling and poor patient's knowledge of drugs. Effective intervention programs are encouraged in these health facilities for the prescribers and the dispensing health personnel for promoting rational use of medicines

Recommendation

Promoting rational use in medicine is a fundamental issue to prevent drug use problems. Prescribers are encouraged to prescribe drugs in generic name and maximize use of drugs from EDL or national formulary. Similarly, Training to the pharmacy staff is highly recommended, so that the drug dispensing and appropriate labelling procedure is carried out efficiently.

Conflict of interest

The author declares no conflict of interest.

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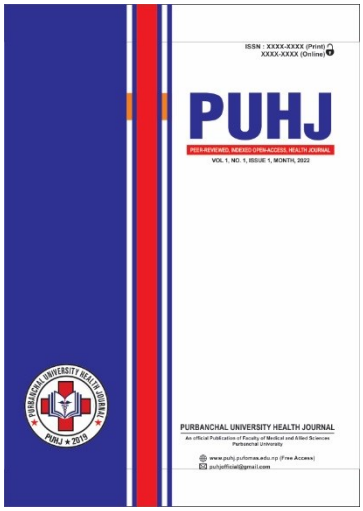

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Visual Status of Professional Drivers in Eastern Nepal

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Abstract

Introduction: Vision is the main sensory input to the brain for driving. Other aspects of visual function like color vision, contrast sensitivity, visual field, night vision, etc and not merely visual acuity should be evaluated before issuing a driving license.

Objective: The objective of the study was to determine the visual status of the professional drivers in Eastern Nepal.

Method: A cross-sectional descriptive study was carried out to assess visual functions like visual acuity, color vision, contrast sensitivity and visual field in 172 drivers who drove long haul commercial passenger vehicles.

Result: More than half of the drivers (51.2%) belonged to the age group 31-40 years. On evaluation of distance Visual Acuity, only one person had uncorrected visual acuity ≤ 6/18 in the better eye. Color vision anomaly was present in 2 persons (1.2%).

Conclusion: Visual status of the professional drivers in Eastern Nepal was normal on assessment of the different visual functions.

Keywords:
Commercial driver, Eastern Nepal, Road traffic accident, Visual status.

Introduction

In recent years there has been a sharp rise in the number of registered motor vehicles in Nepal and so is the number of road traffic accidents. In 2013 the number of registered road traffic accidents were 13,852 with 1,816 fatalities.[1] Cause of road traffic accidents is multifactorial yet human error is considered to be the most important factor.[2] About 95% sensory input required to the brain for driving comes from vision.[3] Therefore assessment of vision becomes one of the important aspects of medical fitness before issuing or renewing a driving license. Though visual acuity is the most commonly employed screening test for issuing a driving license, other aspects of visual functions should be evaluated with importance as well.[4] Visual functions like distance visual acuity, visual field, contrast sensitivity, glare, night vision, motion perception and dynamic visual acuity are all important for the successful performance of driving.[5]

Though there is a global rise in the rate of road traffic accidents, there is a disproportionately greater rise in the developing countries.[6] Although statutory medical examinations are required for commercial passenger vehicle drivers, the medical examinations conducted are not up to the required standard.[2] In a country like Nepal, the medical test performed before issuing or renewal of a driving license is not of the proper standard and barely the distance visual acuity is checked in such medical tests to determine the visual status. The visual status of professional drivers, who drive most of the time and a large number of people are travelling with them, is unknown.

The objective of the study was to determine the visual status of professional drivers in Eastern Nepal.

Method

A cross-sectional study was conducted among professional drivers who drove long haul passenger vehicles and were asked to visit Ophthalmology OPD at BPKIHS to have their ocular examination. The study was carried in the year 2018-2019 over a period of one year. The drivers underwent visual acuity assessment, refraction, color vision, contrast sensitivity and automated visual field assessment.

This study considered 95% CI and 80% power to estimate the sample size. For this purpose the study considered 3.3 % prevalence of drivers with reduced visual acuity.[8] There were about 200 drivers who drove long haul passenger vehicles from Dharan. Finite population sample size formula was used to calculate the sample size. A total of 172 consecutive drivers with a valid license and who drove long haul commercial passenger vehicles at the time of the study were enrolled in the study.

Data was collected and recorded in the pro forma. Visual acuity was recorded using the Snellen and Jagger's chart for near and distance vision. Color vision was recorded with Ishihara color vision chart and visual field recorded with automated Humphrey Visual Field Analyzer. Contrast sensitivity was measured using the Peli Robson chart projected on Auro electronic chart. All the tests were carried in the eye with better distance visual acuity.

Collected data were entered in Microsoft Excel and statistically analyzed by SPSS 2016. Ethical clearance was obtained from the Institutional Review Committee, BP Koirala Institute of Health Sciences.

Result

Visual status of 172 professional drivers were evaluated.

Age distribution of the drivers was as shown in table 1. Most of them (51.2%) belonged to the age group 31-40 years.

Table 1. Age distribution of drivers (n=172)

Age group	n(%)
<31 years	13(7.6)
31-40 years	88(51.2)
41-50 years	64(37.2)
>50 years	7(4.0)

Uncorrected Visual Acuity (UCVA) and Best Corrected Visual Acuity (BCVA) for distance in the better eye is summarized in table 2. Only one person had visual acuity ≤ 6/18 in the better eye. Two persons used glasses for their distance vision correction.

Table 2. Distance visual acuity distribution and use of glasses in drivers (n=172)

Visual Acuity in the better eye	Number for UCVA (%)	Number after BCVA	Use of glasses
6/6	158 (91.9)	169(98.2)	NA
6/9	11(6.3)	2(1.2)	0
6/12	2 (1.2)	1(0.6)	1
6/18	1(0.6)	0(0)	1

UCVA and BCVA for near acuity in the better eye was as shown in table 3. Eight persons used glasses for their near vision acuity correction.

Table 3. Near visual acuity distribution and use of glasses (n=172)

Visual Acuity in the better eye	Number for UCVA (%)	Number after BCVA	Use of glasses
N6	139 (80.8)	171 (99.4)	NA
N8	21 (12.2)	0 (0)	2
N10	10 (5.8)	1 (0.6)	5
N12	1 (0.6)	0 (0)	1
N18	1(0.6)	0 (0)	0

On testing of color vision, deuteranomaly and deuteranopia were observed in 1 person each.

Contrast sensitivity distribution was as shown in table 4. Only 7 persons had contrast sensitivity less than 1.65 log units.

Table 4. Contrast sensitivity distribution among the drivers (n=172)

Contrast sensitivity (log)	n(%)
1.35	1(0.6)
1.5	6(3.5)
1.65	45(26.1)
1.8	119(69.2)
1.95	1(0.6)

On evaluation of the visual field, all persons had normal visual fields except one, who had inferior nasal step visual field defect.

Only 13 persons had visited eye clinics since they started driving as their profession and 10 of them had visited for vision related problems (Table 5). None had visited an eye clinic for routine screening purposes.

Table 5. Ocular examination of drivers (n=172)

Last examination	Number (%)	Reason for examination	Number
< 6 months	4 (2.3)	Regular visit	0
6 months to 1 year	4 (2.3)	Vision related problem	10
> 1 year	5 (2.9)	Other ocular problem	3
None	159 (92.5)	No visit	159

Discussion

In Nepal, a study on the visual status of professional drivers has not been conducted to date. As there are no stringent regulations related to visual status to qualify for a driving license, merely distance visual acuity is measured which usually do not follow the standard assessment guidelines. There is no practice of evaluating other visual functions before issuing or renewal of a driving license. So knowing the visual status of drivers may help to regulate a standard visual status that one should fulfill before obtaining or renewing a driving license.

The study revealed that the majority of the drivers were in the age group 31-40 years. Many studies have shown that commercial drivers in the developing countries are young.[7]

Only one person had uncorrected visual acuity for distance 6/18 or less than 6/18 in the better eye and rest 99.4% had visual acuity 6/12 or more than 6/12 in the better eye. Other studies done in Nigeria and urban Africa also showed that more than 95% drivers had visual acuity 6/12 or better.[8,9] Most countries and jurisdictions consider BCVA 6/12 in the better eye as a driving license endpoint.[10] All drivers had BCVA for distance 6/12 or better in this study. The high percentage of drivers having good visual acuity may be attributed to the young population of the drivers and examination of the better eye.

On evaluation of the near vision acuity 80.8 % had N6 vision. Glasses for near vision were used in 4.6% of the drivers. Though near vision acuity does not have a role in driving, use of

presbyopic glasses may indicate the awareness regarding eye health and the attitude to seek eye health services for other ocular problems.

On the assessment of color vision, 2 (1.2%) persons had color vision anomaly. This was similar to a study where 2.2% of new drivers had congenital color defect vision, which also assessed color vision with Ishihara color vision chart.[3] Color vision tests are not performed all over Nepal while assessing medical fitness for driving and a study from Nepal has recommended to consider it as a prerequisite before issuing a driving license.[11]

Inferior nasal step visual field defect was observed in only 1(0.6%) person. The horizontal visual field is important in driving and many studies have shown a narrowing of the peripheral visual field can hamper the driving performance.[12, 13]

On examination of contrast sensitivity, only 4.1% of the drivers had contrast sensitivity less than 1.65 log units. Studies have reported considerable greater risk of involvement in road crashes for drivers with the Pelli-Robson contrast sensitivity below 1.25 log units.[14] In this study, none of the participants had a contrast sensitivity of less than 1.25 log units. This could be ascribed to the relatively younger age of the drivers in the commercial vehicles.

Only 13 (7.5%) persons had undergone formal ocular examination at eye clinics or health institutions. None of them had gone for regular follow up. They visited only when they had a vision related issue or had some other ocular problem. This indicates that gradually progressive diseases may be undetected until profound visual loss. So detailed ocular examination at the time of issuing a license and periodic examination should be mandatory thereafter.[15]

The limitation of the study was that certain factors of the visual status like depth perception, motion perception, night vision were not evaluated in this study.

Conclusion

Visual status of most of the professional drivers in Eastern Nepal were normal on evaluation of the different visual functions. Most of them did not go through detailed ophthalmic examination as a part of medical fitness before issuing a driving license or renewal of the driving license.

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Conflict of interest:

The author declares no conflict of interest.

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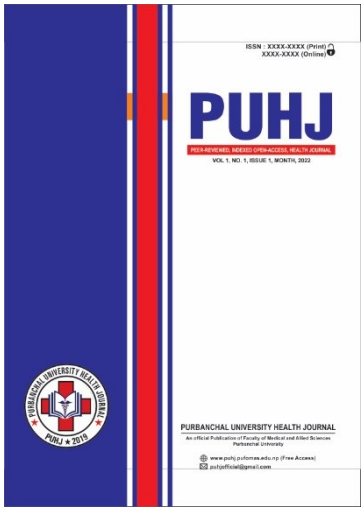

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Awareness of Occupational Health Hazards and First Aid Management of Metal Workers of Patan Industrial Estate, Lalitpur, Nepal

Kalpana Thapa[1*], Radha Devi Bangdel[2], Saraswati Bhandari[3]

Abstract

Introduction
About 270 million workers meet occupational accidents estimated by the International Labor Organization (ILO). Metal workers are also exposed to accidents and injuries. However, there is little awareness on occupational health hazards in developing countries.

Objective
The objective of the study was to assess the level of awareness of occupational health hazards and first aid management of metal workers of Patan Industrial Estate Lalitpur, Nepal.

Method
Descriptive cross-sectional study was carried out among purposively selected 147 industrial metal workers who worked at least six months. By using structured interview schedule data was collected. Data were collected from 21 August 2018 to 16 September 2018. Descriptive and inferential statistics (Chi-square test) were used in data analysis.

Result
The mean age of workers was 34.41 years (±11.85). Most of the workers were male (90.5%), literate (78.2%), iron workers (55.1%). The awareness level regarding occupational health hazards among workers was inadequate. Similarly, the level of awareness regarding first aid management was also inadequate among them. There was no association between the level of awareness on occupational health hazards and socio-demographic variables (age, sex, education and work experience) and further no association between level of awareness on first aid management and demographic variables (age, sex, education and work experience) was found.

Conclusion
The level of awareness on occupational health hazards and first aid management in the present study was inadequate. Therefore, it is recommended to organize the educational program for improving awareness on occupational health hazards and first aid management.

Keywords
Awareness, First aid, Metal workers, Occupational health hazards.

Introduction

Occupational health deals with all area of health and safety in the workplace and emphasis on prevention of hazards .[1] It is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations.[2] Workers spend about one third of their lifetime at workplace and face many occupational hazards.[3] As per ILO estimation, 2.3 million people die every year from work-related accidents and diseases globally. There were 313 million non-fatal accidents per year.[4] It is unfortunate to know that many of these workplace tragedies are preventable. The study was conducted at welding sites, where awareness about occupational health hazards associated with welding was present among 62.6% welders. First aid kit was present at 38.7% sites.[5] Approximately 20000 workers have accidents at workplace every year which lead to about 200 death in Nepal.[4] Proper use of personal protective equipment protects workers from workplace hazards and help avoid injuries and accidents.[7]

First aid is the immediate assistance provided to a sick or injured person until professional help arrives.[8] A study in Greece was conducted among industrial workers about first aid knowledge where significant differences first aid trained and no trained workers.[9] A person can provide the necessary care while waiting for the ambulance to arrive if he learned the first aid management skills.

Sustainable, social and economic development on a global, national and local level is vastly dependent on a healthy workforce. More research study and recording of occupational health and safety issues in the workplace is the persistent need of the country for establishing safe and hazard free work.[11]

First aid covers methods and techniques that enhance practical skills related to prevention, preparedness and the immediate response to health emergencies.[12] As well as less study was found in occupational health hazards and first aid management in industrial areas.

The objectives were to find out the socio-demographic variables of the workers, to assess the level of awareness of occupational health hazards of metal workers, to assess the level of awareness of first aid management of metal workers and to determine the association between socio-demographic variables, awareness of occupational health hazards and first aid management.

Method

Descriptive cross sectional quantitative study design was used to assess the awareness of occupational health hazards and first aid management of metal workers of Patan industrial Estate, Lalitpur Nepal from the period of 21 August 2018 to 16 September 2018. Using non probability purposive sampling technique 147 metal workers were selected as sample. Data collection was taken by using self structured interview question-naires in Nepali version. Ethical approval was taken from Institutional ethical review committee of Patan Academy of Health Sciences Lalitpur, Nepal and verbal informed consent was obtained from workers before data collection. Privacy was ensured by collecting data from each respondents separately. Collected data was checked for accuracy, completeness, scored immediately and were organized properly after each day of data collection and before entry. Collected data were entered into the statistical package for social sciences (SPSS) version 16 for analysis.

Result

Sociodemographic Characteristics of metal workers

Majority of respondents (90.5%) were male. Respondents 29.3% belonged to the age group of< 40 years and the mean age was 34.41±11.85. Most of the respondents were (78.2%) literate, above forty percent (40.8%) were secondary level education. More than fifty percent (55.1%) were iron workers.

Table 1 Awareness on most common injuries and reason behind the injury N=147

Variable	n(%)
Most Common Injuries[a]	
Injuries of hands or fingers	147(100)
Eye injuries	142(96.6)
Fracture	23(15.6)
Sprains	14(9.5)
Reason behind injury[a]	
Cut by sharp objects	147(100)
Burn by flame	144(98)
Electric shock	144(98)
Not use of PPE	135(91.8)

[a]**Multiple Response**

All the workers had injuries in hands or fingers and only 9.5% complained of sprains. Regarding

reason behind injury all respondent mentioned cut by sharp objects where the reason behind injury was not due to the usage of PPE(91.8%).

Table 2. Awareness on Personal Protective Equipments, Necessary to use PPE and Prevent From Accident and Injuries N=147

Variable	n(%)
Personal Protective Equipment[a]	
Hard hat	99(67.3)
Goggles	138(93.9)
Gloves	131(89.1)
Apron	145(98.6)
Mask	146(99.3)
Boot	116(78.9)
Necessary to Use PPE[a]	
Protect from burn	145(98.6)
Protect from current	54(36.7)
Prevent FromAccidents/Injuries[a]	
Wearing hard hat	142(96.6)
Wearing goggles	146(99.3)
Wearing apron	144(98)
Wearing mask	146(99.3)

[a]**Multiple Response**

Workers answered wearing gloves, almost all respondents answered (99.3%) mask and 67.3% hard hat on PPE. Regarding necessary to use PPE all protect from cut injury, protect from eye injury and 36.7% protect from current. Respondents answered all (100%) wearing gloves and 96.6% wearing hard hats to prevent accidents/injuries (Table 2).

Table 3. Level of awareness on Occupational Health Hazard N=147

Level of Awareness	n(%)
Inadequate awareness	54(36.7)
Moderate awareness	49(33.3)
Adequate	44(29.9)

Table 3 shows that only 29.9% respondents had adequate awareness on occupational health hazards.

Table 4. Level of awareness on first aid management N=147

Level of Awareness	n(%)
Inadequate awareness	57(38.8)
Moderate awareness	53(36.1)
Adequate	37(25.2)

Table 4 shows that only 25.2% respondents had adequate level of awareness of first aid management.

Table 5. Association Between Demographic Variables with Level of Awareness on Occupational Health Hazards N=147

Characteristics	Level of awareness: Inadequate Awareness	Level of awareness: Adequate awareness	p-value
	No %	No %	
Age			
0-40 years	36(24.5%)	10(6.8%)	.177
40-80	68(46.3%)	33(22.4%)	
Sex			
Male	41(27.9%)	92(62.6%)	.708
Female	5(3.4%)	9(6.1%)	
Education			
Literate	53(36.1%)	63(42.9%)	.487
Illiterate	12(8.2%)	19(12.9%)	
Literate			
Primary &secondary	33(28.9%)	39(34.2%)	.467
Higher secondary & above	67(58.8%)	75(68.8%)	
Work Exeperience			
0-20	43(29.5%))	2(1.4%)	.121
21-40	88(60.3%)	13(8.9%)	

Note: Chi-square at p-value<0.05

No association between level of awareness on occupational health hazards and demographic variables (age, education, sex and work experience) was found (Table 5).

Table 6. Association between demographic variables with awareness on first aid management N=147

Variables	Level of awareness: Inadequate Awareness n (%)	Level of awareness: Adequate awareness n (%)	p-value
Age(years)			
18-40	16(10.9%)	4(2.7%)	.328
40-80	88(59.9%)	39(26.5%)	
Sex			
Male	20(13.6%)	113(76.9%)	.119
Female	0(0%)	14(9.5%)	
Educational Status			
Literate	70(47.6%)	46(31.3%)	.381
Illiterate	16(10.9%)	15(10.2%)	
Literate			
Primary &secondary	16(13.9%)	17(14.8%)	.616
Higher secondary & above	45(39.1%)	52(45.2%)	
Work Experience			
0-20	17(11.6%)	115(78.2%)	.446
21-40	3(2.0%)	12(8.2%)	

Note: Chi-square at p-value<0.05

Table 5 shows no association between level of awareness on first aid and demographic characteristics (age, education, sex and work experience).

Table 7. Awareness on Commonly Occurred Foreign body, Immediate Action in foreign body, Immediate & Electric Shock, First Aid kit Available and Completeness of Articles N=147

Variable	n(%)
Commonly occurred foreign body	
Foreign body in eye	120(81.7)
Foreign body in nose	5(3.46
Foreign body in ear	6(4.1)
Foreign body in skin	16(10.9)
Immediate action in foreign body	
Remove the foreign body by hand	94(63.9)
Shout for help	35(23.8)
Clean with water	17(11.6)
Other (do nothing, go to hospital)	1(0.7)
Immediate action in electric shock [a]	
Keep the victim in side lying position	131(89.1)
Check respiration	121(82.3)
Remove the victim from danger	90(61.2)
Keep patient warm	68(46.3)
First aid kit available	
No	2(1.4)
Yes	145(98.6)

[a]Multiple response

Workers answered 81.7% foreign body in eye and 4.1% foreign body in ear as commonly occurring foreign body. Regarding immediate action 63.9% remove the foreign body by hand. Respondents answered 89.1% kept the victim in side lying position and 46.3% kept the patient warm on immediate action when exposed to electric shock. 98.6% reported about availability of first aid kit but with incomplete articles.

Discussion

In this study metal workers had inadequate awareness on occupational health hazards. Cut injuries of hands or fingers, eye injuries/foreign body were reported by as most common (96.6%) injuries during metal work. Wearing mask, gloves, goggles, aprons, hard hat and boots were reported by above 90% to prevent accidents/ injuries. Regarding the use of PPE, Always 91(61.9%), Most of time 30 (20.4%), Sometimes 26(17.7%) was reported which is supported by Hassan S.M in 2014 where welders had low levels of awareness and reported of many complaints of occupational health hazards.[13] The most frequent (81.7%) complaint was foreign body in the eye followed by cut (45.7%) and injuries (50%) as this findings was similar to the study done by Yetunde O. Tagurum in 2017.[14] The study of Nairobi metropolitan reported 36% workers were responsible for safety and health[15] and other study in Kathmandu metropolitan city revealed 56% had awareness on occupational health hazards.[16]

Majority (98%) of welders were clearly aware of at least one type of welding hazard or PPE. [17] Another study by Joseph N. in 2017 found awareness about occupational health hazards and association with welding among 97(62.6%) welders[18] Because the workers were aware about morbidity, personal protective equipment and first aid practice. The finding of this study also contradicts with a study done in western Nepal where 90.7% welders were aware of at least one hazard of welding and were aware of it. Only 47.7% workers used one or more types of PPE. A higher work experience, presence of work regulation, job satisfaction were the causes of awareness.[19]

In this study 90.5% workers were male and who were >40 years (29.3%) of age. Only metal workers had adequate levels of awareness on first aid management. There were 98.6% metal work industries that had first aid kits available but without complete articles which is supported by Nitin Joseph, who reported of inadequate awareness knowledge of first aid. [20] First aid kits were available in only five of the nine schools surveyed.[21] Similarly, a study in Dehradun India 17% of students had complete knowledge of first aid,[22] 12.5% were having good knowledge regarding first aid of Punjab,[23] Good knowledge regarding first aid management in India was reported as 25%[24] and 12.5%.[25]This meant that a health education program like health teaching is required on first aid management and training also necessary for workers.

The findings contradict with the study done in Mangalore, India where 85% have good knowledge[26-27] as the respondents had higher education (postgraduate study) the level knowledge.

There is no association between awareness of first aid management and demographic variables was found in our study which is supported by the study done by AL. Samgham 2015, who also reported of no significant association between teachers' knowledge of first aid and demographic variables. So health education programs and training is necessary in first aid management.

Conclusion

Majority of the respondents had inadequate awareness on occupational health hazards and first aid management. No association between demographic variables and occupational health hazards and first aid management. The finding

shows that there is a need of awareness activities on occupational health hazards and first aid management in that Industrial Estate.

Recommendation

An educational intervention, qualitative study on occupational health hazards and first aid management among metal workers can be conducted.

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Conflict of interest: There are no conflicts of interest in the current study.

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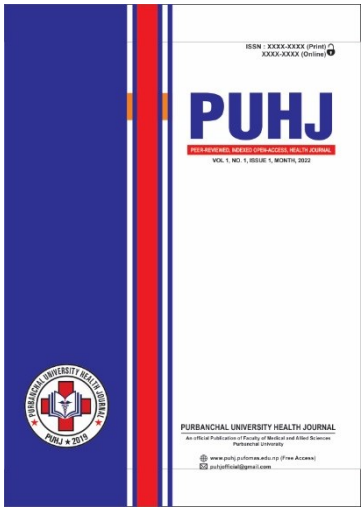

Functional outcome of Dynamic Hip Screw versus Proximal Femoral Nail in treatment of intertrochanteric fracture of the femur

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Abstract

Introduction
Internal fixation is the most appropriate treatment for intertrochanteric fractures. The mainstay treatment of intertrochanteric fracture is fixation with either an extramedullary weight bearing device like DHS (Dynamic Hip Screw) or an intramedullary weight sharing device like PFN (Proximal Femoral Nail). The functional superiority of intramedullary devices over extramedullary devices has already been established. We carried out this study to evaluate the functional outcome of these implants in stable intertrochanteric fractures.

Objective:
To evaluate the functional outcome of Proximal Femoral nail versus Dynamic Hip Screw fixation in Intertrochanteric fracture in Nepalese population aged 50 years and above.

Method
A prospective comparative cross-sectional hospital based study was conducted on 30 patients admitted with intertrochanteric fracture, who were allocated alternatively with DHS or PFN surgery and were followed up for 1 year. The intertrochanteric fractures of Boyd and Griffin type II and III were included in study. The parameters studied were the demographic profile, type and mechanism of injury, tip apex distance, duration of hospital stay, time of union and functional outcome as measured by Harris Hip Score and Palmer and Parker Mobility Score .

Result
The study did not find a statistically significant difference in the functional outcome between these two methods of treatments as measured by Harris Hip Score. However, there was a better functional outcome among the age group 81years and above when operated by PFN.

Conclusion
Patients with Boyd and Griffin type 2 and 3 intertrochanteric fractures will have almost the same mobility score after surgical fixation via either DHS or PFN. However, PFN has better functional outcomes among those aged 81 years and above. These patients will have almost the same mobility score after surgical fixation by either DHS or PFN.

Keywords: Dynamic Hip Screw; Harris Hip Score ; Proximal Femoral Nail

Introduction

Intertrochanteric fracture is one of the commonest fractures encountered by orthopedic surgeons in day to day practice which commonly occurs in the elderly. The reported mortality due to hip fractures is 15% to 30% and it carries significant risks when treatment is delayed or is conservative[1]. The treatment goals for these patients should include restoration of anatomical alignment and maintenance of fracture reduction by internal fixation which is done to allow early mobilization and rehabilitation of patients[2]. With increase in longevity of life in all contemporary societies, the incidence of intertrochanteric fractures is steadily increasing. Horowitz[3] reported a mortality rate of 34.6% for trochanteric fracture treated by traction and 17.5% in internal fixation. The implants designed for fixation of trochanteric fracture can be extramedullary weight bearing device like the Dynamic Hip Screw or an intramedullary weight sharing device like the Proximal Femoral Nail[1].Continued improvement in intramedullary nail design have demonstrated equivalent and even superior result over DHS[4].However no clear difference in functional outcome has been demonstrated.In view of these differences with the two types of implants, we took up the study to compare the results of DHS and PFN in the treatment of intertrochanteric fractures.

Method

This Prospective comparative hospital based clinical study was done over a period of 18 months (November 2012 to April 2014)to compare the functional outcome of intertrochanteric fractures treated with DHS versus PFN. In the study duration, 30 patients aged more than 50 years who presented at Kathmandu Medical College Teaching Hospital were treated with either DHS or PFN." These patients were randomly allocated for DHS and PFN after obtaining an informed written consent. Patients with pathological fractures, polytrauma, type 4 according to Boyd and Griffin[5], having another fracture in the same limb and those who did not give written consent for the study were excluded from the study. After all preoperative preparation, standard PFN and DHS procedures were carried out among the patients randomly. [6] Postoperatively all patients were managed with appropriate analgesics and antibiotics. Check x ray and physiotherapy were done as per patients' comfort. The patient was followed after two weeks for removal of sutures. All patients were reviewed at 6, 12, 18 and 24 weeks. Union time was noted, and the mobility score was calculated using Palmar and Parker score[6]. The final follow up was at 12 months and the function of hip was assessed using Harris Hip Score.[7.] The data were collected using Harris hip score and questionnaire which were not validated.Ethical approval was obtained from the institutional review board. Consent were obtained before participation into the study

The data was analyzed by SPSS software version 11.5 for windows. All values were compared using student's test to show relationships between the variables.

Result

In each DHS and PFN groups, there were 15 patients with mean age of 70.67± 13.5 years. There were no patients with type I fracture according to Boyd and Griffin.

Three patients (10%) got injured in a road traffic accident, while the rest of the patients i.e. 27 (90%) sustained injury as a result of fall from standing height. Mean duration of hospital stay was 11.8±5.45 days in the PFN group and 11.67±3.49 days in the DHS group. The mean hospitalization time was not statistically different in patients managed by two different techniques. (p=0.937)

The mean preinjury mobility score of Palmar and Parker was 8.0± 1.3 in DHS group and 8.53± 0.99 in PFN group which was not significantly different(p value0.219). The mean Palmar and Parker score at final follow up was 7.8± 1.52for DHS group and8.4± 1.24for PFN group which was not significantly different (p=0.247

The Harris Hips scores and union time were comparable in both groups.(p-value = 0.082.)

(Table 1: Outcomes in patients in the two groups)

	DHS	PFN	p value
HHS	90.07±3.6	89.8± 5.6	0.879
Union time (months)	4.01±0.85	3.46±0.81	0.082

In the DHS group, 53.3% of patients had excellent outcomes and 46.7% had good outcomes according to HHS whereas in the PFN group, 60% of patients had excellent, 33.3% patients had good and 6.7 % of patients had fair outcomes. The overall functional outcome as

shown by HHS is not statically significant between PFN and DHS group(p=0.89, CI=95%) which has been tabulated in Table1. We further analysed our results among different age groups. We found that there was a better functional outcome in the PFN group at age more than 81years (p=0.004). We recommend further studies to establish this finding using a larger sample size in multiple centres. The overall functional outcome as shown by HHS is not statistically significant between PFN and DHS group.Total of 6 patients (20%) developed complications. In DHS group 1patient (6.7%) developed preoperative common peroneal nerve palsy which was during application of upper tibial traction. In PFN group 5 patients (33.3%) developed one or the other complications. In this group, 1 patient required blood transfusion for blood loss, 2 patients developed superficial infection and 1 patient each developed hyperkalemia and acute renal failure postoperatively. However, the occurrence of complication between two groups was not statistically significant (p value=0.169)

Figure 1: Xray Showing Union using DHS in AP and Lateral View at 12 months

Figure2: X-ray Showing Union using PFN in lateral and AP View at 12 months

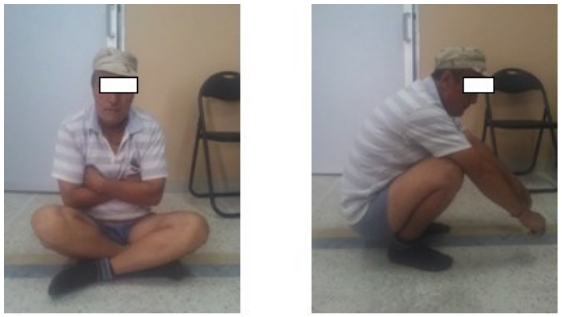

Figure3: patient sitting cross legged and sitting at 12 month (PFN)

Figure4: patient sitting cross legged and sitting at 12 month (DHS)

Discussion

Intertrochanteric fracture treatment in elderly is a challenging job for orthopedic surgeons because of associated complications and morbidity. We assessed the functional outcome in these patients using two different and most commonly used methods of fixation.

We did not detect the difference in union time and functional outcomes in two groups.We did not detect any difference in hospital stay duration in two groups. Most of the studies on intertrochanteric fractures suggested identical hospital stays in both the groups. [8-10]

We found the mean union time was comparable in two groups with 3.46±0.81weeks and 4.01±0.85 weeks respectively for PFN and DHS, in our study. Similar study by Saudan M et al[12] also found the comparable radiological union time in fractures treated with either DHS or PFN. In this series, the mean time of consolidation of fracture was 4.8± 2.2 months in DHS and 4.6 ±2.0 months in PFN group(p value =0.7). Few other studies also suggested the similar trend.[6,13]

We evaluated the functional outcome using Palmar and Parker mobility score and Harris Hip Score. The studies from Parker et al[8]and Pajarinen et al[14] showed there was significant

better mobility for those who were treated with nails. In these two studies there were significantly more patients than in our study. Had our sample size been sufficiently large, we might have detected the significant difference.

Mean Harris Hip Score at 12 months was calculated along with the p value for comparison of the mean in two different groups of patients. The mean HHS was not significantly different in DHS and PFN groups (90.07 vs 89.8) as suggested by p value of 0.879. Review of other literatures showed that the literature is divided and no uniform consensus is found regarding the superiority of one method of fixation over other for type 2 and 3 fractures in terms of HHS.

Karn NK et al[6] in his 94 patients found HHS significantly higher in the PFN group compared to DHS (94 vs 90) with p value of 0.019. He had included an unstable fracture also in his series. In the background of unstable fractures and reverse oblique fractures, the better functional outcome of the nail is obvious as it is an intramedullary device with superior biomechanics. In our study we had excluded type 4 fractures, so the outcome difference was not observed between DHS and PFN.

In the study of Bhakat et al[15], the HHS at 12 months was 92.57 ±3.58 for PFN and 92.1± 3.12 for DHS.Similarly, another study by R Kumar[11] also found similar scores in two groups (93 ±2.1 vs 93 ±2.7 for DHS vs PFN respectively) at 12 months.

The complication rate was not significantly different in two groups. The common complications were blood loss and superficial wound infection. Similar complications have been reported in the literature. Complications like loss of reduction, implant failures and superficial infections have been reported in other researches also in both DHS and PFN group.[10,14.15]We did not find all of these complications in our study, which could be due to small sample size.

Conclusion

DHS and PFN have similar union time and functional outcome as given by HHS, in Boyd and Griffin type 2 and 3 intertrochanteric fractures. These patients will have almost the same mobility score after surgical fixation by either DHS or PFN. However, PFN has better functional outcome in age group 81 and above which can be further explored with a larger sample size.

Recommendation

The future recommendation from our study was that this study should be done in large sample size to confirm the preliminary finding in favor of PFN.

Conflict of interest

No conflict of interest

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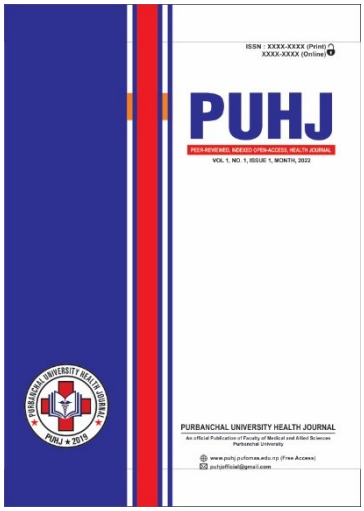

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Adenomatoid Odontogenic Tumor (An Uncommon Tumor): A Case Report

Manish Yadav[1*], Ashutosh Kumar Singh[2], Safal Dhungel[3]

Abstract

Adenomatoid odontogenic tumor (AOT), which appears mostly in young females with highest occurrence in the maxillary region, is a hamartomous benign neoplasm of odontogenic origin. It is a slow growing, asymptomatic lesion but hampering the esthetics. It is mainly related to non-erupted canines. Lesions of this type can be classified as follicular, extra follicular and peripheral lesions. Treatment of these lesions is enucleation and curettage of the affected area. Recurrence is rare. A case of adenomatoid odontogenic tumor in a twelve year old female which was associated with an impacted maxillary left canine teeth has been reported in this paper.

Keywords
Canine; impacted; maxilla; tumor

Introduction

Adenomatoid odontogenic tumors (AOTs) are rare, slow growing, benign, odontogenic, and epithelial tumors. They are characterized by slow but progressive growth without any pain.[1] Adenomatoid Odontogenic Tumor is also called "tumor of two third" because of the occurrence of two third of these cases in young females in the maxillary region which are associated with unerupted canines and are mainly diagnosed in the second decade of life. Here, we describe a follicular type of adenomatoid odontogenic tumor in the anterior maxilla of a twelve year old female patient. [2-5]

Case report

It is one of the rare tumors of the oral cavity. This tumor needs to be diagnosed at an early age and treated accordingly so as to prevent significant facial deformity that may occur in later stages of life. A twelve year old female patient presented to our outpatient department with the chief complaint of swelling on the left side of face for six months. She gave a history of gradual increase in the size of swelling without a history of pain. Extra orally, a swelling with a hard and smooth surface of size approximately 4cm x 3cm was noted on anterior maxilla extending anteroposteriorly from ala of the nose to about 3cm ahead of the tragus of ear , and superoinferiorly about 2cm below the infraorbital rim to ala tragal line with the obliteration of the nasolabial fold on the left side. On intra-oral examination, swelling of approximately 3cm x 2cm was detected extending from left central incisor to left second premolar with firm and smooth surface. The left upper canine was missing. There was no evidence of oro-nasal and oro-antral communication and palatal mucosa was intact. On radiographic examination, well-circumscribed unilocular radiolucent area was seen, involving impacted upper left canine. Also, the floor of the left maxillary sinus appears to be displaced upward in the radiograph. On the basis of clinical and radiographic findings, differential diagnosis of adenomatoid odontogenic tumor, unicystic ameloblastoma and dentigerous cyst were made. Enucleation of the lesion was done under general anesthesia and the specimen was sent for histopathological examination. A final diagnosis of Follicular variant of Adenomatoid odontogenic tumor was confirmed.

Figure 1: Preoperative Extraoral Photograph

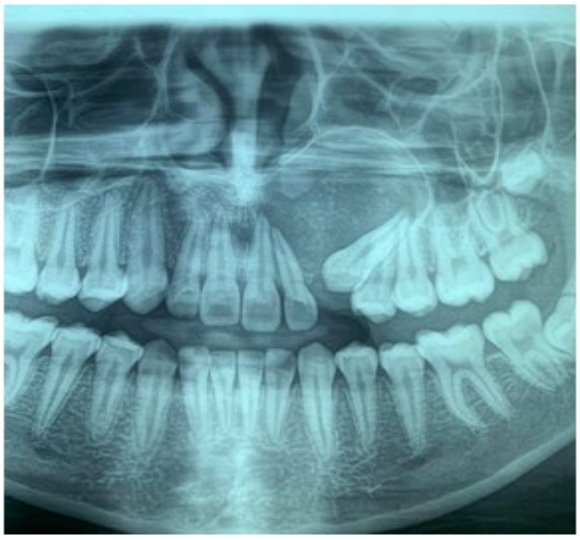

Figure 2: Preoperative panoramic radiography showing well circumscribed radiolucency around the impacted left maxillary canine

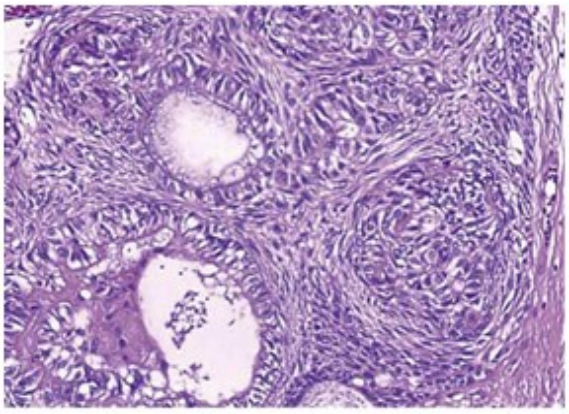

Figure 3: Excised Specimen of size 3cm x 2cm
Figure 4: Histopathological section of excisional biopsy along with impacted canine specimen (10X)

Discussion

Adenomatoid odontogenic tumor (AOT), first described by Dreibaldt as 'Pseudoadenoamelo-blastoma' in 1907 and consecutively by Harbitz as 'Cystic Adamantoma' in 1917, is an uncommon benign epithelial lesion of odontogenic origin. [1, 4, 6] in 1948, it was considered a distinct entity by Stafne and in 1969, Philipsen and Birn called it as 'Adenomatoid Odontogenic Tumor'. [1] AOT was describes as 'A tumor of odontogenic epithelium with duct-like structures and with varying degrees of inductive changes in the connective tissue' by World Health Organization. [7]

Dental lamina, enamel organ, reduced enamel epithelium with its remnants have been cytologically related to AOT. Whether to consider AOT as a hamartoma or neoplasm is still a topic of debate. Radiographically, AOT resembles a dentigerous cyst, which is usually unilocular and radiolucent. However, fine calcifications (snowflake), a feature consistent with AOT is often seen on radiographs that may be helpful in differentiating an AOT from a dentigerous cyst. The unilocular cyst is well demarcated with a smooth cortical border. Most lesions are located on pericoronal and juxta coronal area. Divergence of roots and displacement of teeth without root resorption are often seen. [5] In this case, similar features were present

The tumor may be presented as partly cystic while in some cases, the solid lesion presents itself only as a mass in the wall of a large cyst. Some eosinophilic uncalcified and amorphous material can be found, which is called tumor droplets. [2, 8, 9] In this case the mass was a cystic non solid mass involving the impacted tooth and similar histological features were seen as described by WHO. Conservative surgical enucleation and curettage is the treatment modality of choice since all the variants of AOT are benign and well encapsulated. The tumor should be removed in Toto. Recurrence of this tumor is extremely rare. Also cosmetic disfigurement can be avoided if patient of AOT is diagnosed at early age and provided proper treatment because cortical expansion is very common in AOT. [5, 10] This was a classical follicular variant of AOT with no recurrence after six month follow up period. Patient was satisfied with her facial appearance and no facial asymmetry was seen.

Conclusion

AOT rarely recurs and if it is removed in-Toto, better results are obtained. This also helps satisfy the patient toward the efforts of the clinician. Enucleation and Curettage for AOT has been the most common treatment modality, yet requires histological diagnosis so as to carry out minimally invasive surgery.

Conflict of interest

NIL

Acknowledgment:

We would like to acknowledge Dr. Sandeep Sharma for reporting and helping us in the histopathology

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Purbanchal University Health Journal (PUHJ)

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- Be specific on your recommendation
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- Declare possible conflict of interest
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Book

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