



Vol. 7, Issue 7, 2025

THE CLIFF

Nursing Journal of
Kathmandu University

Yearly, Open Access
Peer Reviewed Journal

PATRON

Ram Kantha Makaju Shrestha

EDITOR

Kunta Devi Pun

ADVISORY BOARD

Rajendra Koju
Manoj Humagain
Deepak Shrestha
Ramesh Makaju
Regina Singh

EDITORIAL BOARD

Chandra Kala Sharma (TU IOM, Maharajgunj)
Ram Saran Mehta (BPKIHS, Dharan))
Subhadra Pradhan (NAIHS, Sano Bharayang)
Geeta Kamal Shrestha (KUSMS, Dhulikhel)
Sabita Pandey (KMCTH, Sinamangal)
Sita Karki (KUSMS, Dhulikhel)
Radha Acharya (KUSMS, Dhulikhel)
Sandhya Shrestha (MCOMS, Pokhara)
Pratima Manandhar (Scheer Memorial Nursing College, Banepa)
Abja Sapkota (NMCTH, Jorpati)
Bandana Pokhrel (LMCTH, Palpa)
Subasna Shrestha (KUSMS, Dhulikhel)
Binu Thapa (KUSMS, Dhulikhel)
Bhawana Shrestha (KUSMS, Dhulikhel)
Bhawana Regmi (KUSMS, Dhulikhel)
Satya Shrestha (KUSMS, Dhulikhel)
Pratibha Chalise (KUSMS, Dhulikhel)

INTERNATIONAL EDITORS

Elisabeth Darj
Norwegian University of Science and Technology
Norway
Poolsuk Janepanish Visutibhan
Mahidol University
Thailand
Pamela Kohler
University of Washington
USA
Lynda Wilson
The University of Alabama at Birmingham School of Nursing
USA
Mette Kildevæld Simonsen
The Deacones

CONTACT US

nursingjournal@kusms.edu.np

Kathmandu University School of Medical
Sciences (KUSMS) Dhulikhel Hospital, Kathmandu
University Hospital. Dhulikhel, Kavre, Nepal
P.O. Box number. 11008, Kathmandu, Nepal
Phone number. 00977 11 490497
Fax. 00977 11 490707

SUBMISSION

<https://dhulikhelhospital.org/images/nursing-journal/nursign-journal-issue-3.pdf> for online manuscript preparation and submission guidelines. Contribution of original unpublished research, social science analysis, scholarly essays, critical commentaries, audits, case reporting, and letters to editors are welcome.

Questions ? **Write nursingjournal@kusms.edu.np**

Copyright

Copyright © 2018 by Kathmandu University School of Medical Sciences. The ideas and opinions expressed by authors of articles summarized, quoted, or published in full text in this Journal represents only opinions of authors and do not necessarily reflect the official policy of Kathmandu University Nursing Journal (THE CLIFF) or the institute with which the author(s) is (are) affiliated, unless so specified.

@Copying done for other than personal or internal reference use - such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale - without the expressed permission of THE CLIFF is prohibited. Request for special permission should be send to nursingjournal@kusms.edu.np

TABLE OF CONTENTS

Vol. 7, Issue 7, 2025

Editorial

- The Importance of Scientific Paper Writing: A Pathway to Academic Development and Scientific Contribution 2

Original Articles

- **Effectiveness of Valsalva Maneuver on Pain Reduction during Intravenous Cannulation among Adult Patients in a Tertiary Level Hospital** 4
Manandhar K, Shrestha S, Acharya R
- **Post-Surgical Pressure Injuries: An Evaluation of Associated Factors in a Tertiary Level Hospital** 10
Dongol N, Acharya R
- **Coping Strategies Used by Hypertensive Patients in Tertiary Level Hospitals** 15
Gupta P, Shakya S
- **Assertiveness and Self-Esteem of Nursing Students of Kathmandu University School of Medical Science Constituent Programme** 15
Parajuli P, Bajracharya J
- **Effectiveness of Nurse Led Pre-operative Teaching on Pre-operative Anxiety Reduction among the Patients Undergoing General Surgery in Tertiary Level Hospital** 28
Prajapati S, Shrestha S
- **Care Burden and Quality of Life of Caregivers of Children with Sickle Cell Disease in a Selected Hospital in Dang** 34
Rawat S, Karki S
- **Illness Perception and Depression among Patients with Diabetes Mellitus Attending Tertiary Level Hospital** 42
Rijal S, Acharya R
- **Depression Literacy and Help-Seeking Behavior among Intermediate-Level Students of a Selected College of Kathmandu, Nepal: A Cross-Sectional Study** 49
Shakya R, Bajracharya J

THE CLIFF

“Nursing Journal of Kathmandu University”

The Importance of Scientific Paper Writing: A Pathway to Academic Development and Scientific Contribution

Bista AP

Professor

Assistant Campus Chief

Maharajgunj Nursing Campus

Institute of Medicine, Tribhuvan University, Nepal

Scientific writing is the central mode of communication used across disciplines to disseminate ideas and persuade others of the validity of scientific arguments. A scientific paper, often referred to as a journal article, is a specialized form of writing with unique features that is typically published in a scholarly journal.¹ There are various types of scientific paper like original article, case reports, technical notes, Meta-analysis and Systemic review and many more which are important in its own salient and particular light because it provides evidence for practices, knowledge dissemination and plays a critical part in defining the boundaries of the discipline.²

All scientific paper writing requires meticulous research, refining and curiosity of the researchers which after publishment enables the researcher share new knowledge and advance their field based on findings that are credible which is assured by process of review. The basic principles which outlines the process of scientific paper formulation from its inception include^{3,4}

1. Selecting a Research Topic: Topic should be original and relevant
2. Review Literature: Study of previous work about related topic
3. Conduct the Study: Based on a framework with ethical approval and integrity
4. Organization of the Paper: Write sections such as Introduction, Methods, Results, and Discussion which is direct and orderly⁵
5. Revise and Edit: Ensure the work for its clarity and accuracy
6. Submit and Peer Review: Send the paper to a journal relevant to topic and experts review it before publication.
7. Publication: Article is available for further reads and cited

With the growing advances of the modern health care system, inculcating a sound evidence based research culture benefits everyone — from the researcher to the entire community. For the researcher it builds critical thinking, confidence, and career growth amidst promoting evidence-based practice.⁶ For the patients the possibility of new innovations provides more effective, safer and compassionate care improving quality of life and satisfaction. Most importantly evidence based findings empowers communities by addressing real health needs, promoting prevention, and improving overall well-being.

As quoted by Albert Szent-Györgyi “Research is to see what everybody else has seen, and to think what nobody else has thought” it is essential that all healthcare professionals are motivated to engage in scientific research that enhances personal knowledge, ensures quality patient care, strengthens the healthcare system, and contributes to the development of a better future for humanity.

The entire process of initiating, conducting, and completing an article publication requires a lot of patience, proper identification of a suitable journal, and skill on the part of the researcher. Hurdles such as article rejection or the need for corrections should be taken positively by the researcher and their team, as these contribute to the development of a better piece of literature that is more relevant and impactful in the context of the present status. Similarly, it is the entire process from brainstorming to reviewing the work with passion that helps create innovations.⁷

Only through proper evidence-based care we can give optimum care to the patients and bridge gaps in existing system for sustainable development of health care so understandings the importance along with active involvement in scientific research work has become the need of today.⁸

REFERENCES:

1. Serra ME. Scientific paper management. How do articles get published in medical journals? Arch Argent Pediatr. 2020 Dec;118(6):433–7.
2. Neubauer BE, Witkop CT, Varpio L. How phenomenology can help us learn from the experiences of others. Perspect Med Educ. 2019 Apr;8(2):90–7.
3. Gemayel R. How to write a scientific paper. FEBS J. 2016 Nov;283(21):3882–5.
4. Snyder N, Foltz C, Lendner M, Vaccaro AR. How to Write an Effective Results Section. Clin Spine Surg. 2019 Aug;32(7):295–6.
5. Kallet RH. How to write the methods section of a research paper. Respir Care. 2004 Oct;49(10):1229–32.
6. Grech V, Cuschieri S. Write a scientific paper (WASP) - a career-critical skill. Early Hum Dev. 2018 Feb;117:96–7.
7. Farrokhyar F, Bianco D, Dao D, Ghert M, Andruszkiewicz N, Sussman J, et al. Impact of research investment on scientific productivity of junior researchers. Transl Behav Med. 2016 Dec;6(4):659–68.
8. Dhillon P. How to write a good scientific review article. FEBS J. 2022 Jul;289(13):3592–602.

Effectiveness of Valsalva Maneuver on Pain Reduction during Intravenous Cannulation among Adult Patients in a Tertiary Level Hospital

Manandhar K^{1,2}, Shrestha S^{2,3}, Acharya R²

¹ Scheer Memorial Adventist Hospital Medical Institute College of Nursing, Banepa, Kavre, Nepal

³ Kathmandu University School of Medical Sciences, Dhulikhel, Kavre, Nepal

² Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Kavre, Nepal

Corresponding Author

Krishnaa Manandhar

Scheer Memorial Adventist Hospital Medical Institute, College of Nursing

Email Id: creeshmdh@gmail.com

Citation

Manandhar K, Shrestha S, Acharya R. Effectiveness of Valsalva Maneuver on Pain Reduction during Intravenous Cannulation among Adult Patients in a Tertiary Level Hospital. *The Cliff*. 2025; 7: 4-9.

ABSTRACT

Background

Pain is the subjective experience of discomfort and is identified as a fifth vital sign by the Pain Association of America. Approximately 1.2 billion peripheral intravenous catheters are inserted annually worldwide. Peripheral intravenous cannulation is often a painful procedure. Pain alleviation is considered as a fundamental human right. Valsalva maneuver is a simple, effective and non-pharmacological technique which can also be used to reduce intravenous cannulation pain.

Objective

To assess the effectiveness of Valsalva Maneuver on pain reduction during intravenous cannulation.

Method

A quasi experimental research design was used to conduct the study at operation theatre of Dhulikhel Hospital, Kathmandu University Hospital. Patients undergoing elective surgery were selected through convenience sampling, where intervention and control group were selected alternatively. Data were collected with interview method. Sample size was 99 and pain score was assessed using modified numerical pain rating scale-Nepali version. The data was analyzed using descriptive and inferential statistics using STATA version 13.

Result

The mean pain score in the intervention group was 2.72(± 1.22 SD) whereas in the control group was 3.83(± 1.28 SD). The result showed significant difference in the pain score between Valsalva maneuver and routine IV cannulation technique (p -value 0.001.)

Conclusion

The study showed that the pain score during IV cannulation was significantly reduced with Valsalva Maneuver and it can be incorporated into daily clinical practice.

KEYWORDS:

IV cannulation, pain, valsalva maneuver

INTRODUCTION

Peripheral Intravenous cannulation (PIVC) is often a painful procedure which has potential to cause significant anxiety, distress, and discomfort, which may deter the patient from seeking medical advices. Fear of cannulation causes vasoconstriction of peripheral vein and leads to failed cannulation.¹ Approximately 1.2 billion peripheral intravenous catheters are inserted annually worldwide.² Peripheral venous access is the backbone of management of inpatients among all age groups.³ The pain experienced during venous cannulation has both somatic and psychological components.^{2,4} Pain has been identified as one of the primary outcome of PIVC insertion and is estimated that 14-38% of adult have a fear of needles.⁵ Inadequate pain relief is unpleasant and interferes with the quality of life.⁶

Nurses can utilize different non pharmacological measures for alleviating peripheral venous cannulation -related pain.⁷ The Valsalva Maneuver (VM) is based on the principle that the persons forces to exhale against a closed glottis and contract abdominal muscles.⁸ It has been known as effective physiological procedure in reducing pain.⁹ VM does not require any equipment, it is easy to learn and is shown to reduce the pain intensity due to the peripheral venous cannulation.^{10,11} VM activates the cardiopulmonary or baroreceptor reflex arch that stimulates a vagal response and initiates antinociceptive effect.^{12,13}

VM not only reduce the intensity of pain but also increase the success rate of IV cannulation, thereby reduce the cost.¹⁴ Researcher has not found any published study regarding effectiveness of Valsalva maneuver in Nepal so far. So, this study was conducted with the aim to assess the effectiveness of VM in pain reduction during IV cannulation in our context.

METHODOLOGY

A quasi-experimental design was used to assess the effectiveness of Valsalva maneuver (VM) in pain reduction during IV cannulation. Ethical approval was obtained from Institutional Review Committee of Kathmandu University School of Medical Sciences (IRC-KUSMS) with approval number 192/22. Enrollment for the study took place from 18th June – 29th July 2023.

Written informed consent was obtained from the participants before the study. We recruited pre-operative patients undergoing elective surgery at main OT block and urology block of Dhulikhel Hospital. Inclusion criteria were the adult patients of age group 20-60 years. Pretesting was performed among 10% of the sample size who were

excluded from the main study. Patients who were willing to participate voluntarily requiring IV cannulation and undergoing elective surgery in Main OT block and Urology block, patient with American Society of Anesthesiologist (ASA) physical status score of I and II and cannulation at dorsal site of the hand and forearm with 18G cannula were included in the study. Exclusion criteria were the patients whose IV cannulation failed in the first attempt (as pain increases with multiple attempts), patients who were not able to speak and communicate and patients who were diagnosed with neurological disorder.

Participants who met the eligibility criteria and provided informed written consent were enrolled in the study. Sample size calculated using formula $n = (\sigma_1^2 + \sigma_2^2) (z_{1-\alpha/2} + z_{1-\beta})^2 / (\mu_0 - \mu_A)^2$, based on previous study⁸ with Power=90% and alpha=5% $\sigma_1 = 1.7$ $\sigma_2 = 1.8$ $\mu_0 = 1.3$ $\mu_A = 3.4$ where σ_1 denotes standard deviation and μ_0 denotes mean pain score of intervention group while σ_2 denotes standard deviation μ_A denotes mean pain score of control group

One hundred and twelve patients were assessed for eligibility, of which 13 were excluded for not meeting inclusion criteria. Convenient sampling technique was used for the study. Simple random sampling (lottery method) was done for the allocation of first participant to either control or intervention group and other were allocated to control and intervention group alternatively in which 51 were included in the intervention and 51 in the control group in which 1 from the intervention and 2 from the control group were excluded due to failed attempt of cannulation in the first attempt. The intervention group received VM during IV cannulation.

Data collection tool contained two parts: a questionnaire for socio-demographic and outcome measures using the modified Numerical Pain Rating Scale-Nepali Version (NPRS-NP)¹⁵ to measure outcome and calculated Cronbach alpha was 0.7 which is acceptable. This scale ranges from 0-10 pain score, where 0 represents no pain and 10 represents unbearable pain.

The researcher herself collected data and instructed about VM maneuver to intervention group to ensure uniformity in data collection. Instruction was provided following same VM protocol to all participants in intervention group, while VM instruction was not received by the participants in the control group. IV cannulation was performed by the nursing staff as per DH protocol. Researcher assessed the pain score during IV cannulation using modified Nepali version (NPRS-NP) after completion of IV cannulation in both groups.

The following intervention was instructed to in intervention group

The patients were kept in the supine position. Nursing staff assessed the site in non-dominant hand of the participants for IV cannulation. Just after applying tourniquet, the researcher instructed the participant to perform VM: Take a deep inhalation through nose with mouth closed, Pinch nostrils with index and thumb finger, try to exhale forcefully with closed mouth and nostrils and hold the breath for the maximum of 20 seconds. (IV cannulation was performed at this time)

Data was analyzed using Stata program version 13. Proportion, frequency, mean and standard deviation were calculated to describe the sample. Chi-square test was used to assess significant associations between the groups. Independent t-test was used to assess pain score among intervention and control group. Linear regression model was used to test the association between pain score and VM during IV cannulation. These models adjusted for age, sex, ethnicity, religion, marital status, level of education, and occupation

RESULTS

Among 102 participants, 51 were in the intervention group who received the VM while 51 were in the control group who received routine care. Two participants from

the control group and 1 from the intervention group were excluded from analysis due to failed cannulation in first attempt.

Table 1 depicted that mean age of the participants in the control group was 41 ± 12.81 years and 42.8 ± 12.9 years is the intervention group. More than half of the participants (50.2%) in the control group and 54.0% in the intervention group were male. Majority of the participants 79.6% were married in the control group whereas 90% participants were married in the intervention group. Regarding ethnicity, majority of the respondents (48.98%) were Brahmin/Chhettri, in the control group and (64.0%) of the respondents were Janajati in the intervention group. Most of the participants (40.8%) had completed secondary level education in the control group and in the intervention group most of the participants (38%) had completed basic level of education. Most of the participants (28.57%) were involved in service and (28.57%) agriculture as their main source of income in the control group while in the intervention group most of the participants (30%) were involved in agriculture. The sociodemographic characteristics of both groups were homogenous. (Table 1)

Table 1: Comparison of the Participants based on the

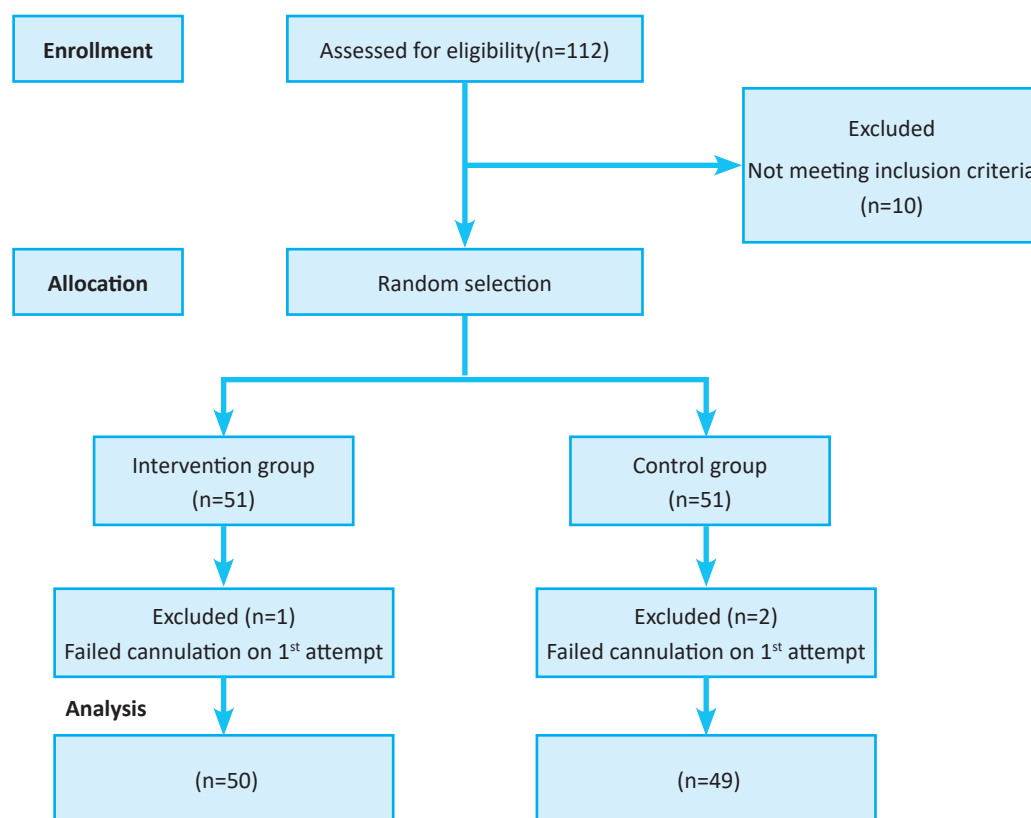


Fig. 1: Consort flow diagram

Socio demographic Variables among Control and Intervention Group

n = 99

Characteristics	Total N=99 n (%)	Control n=49 n (%)	Intervention n=50 n (%)	p-value
Age in years (Mean± SD)	41.90 ± 12.80	41 ± 12.81	42.8 ± 12.9	0.51 ^t
Sex				
Male	56(56.57)	29(59.18)	27 (54.0)	0.6*
Female	43(44.43)	20(40.82)	23(46.0)	
Marriage				
Married	84(84.85)	39(79.59)	45(90.0)	0.1*
Unmarried	15(15.15)	10(20.41)	5(10.0)	
Ethnicity				
Brahmin/Chettri	38(38.38)	24(48.98)	14(28.0)	0.07*
Janajati	54(54.55)	22(44.90)	32(64.0)	
Dalit	4(4.04)	3(6.12)	1(2.0)	
Madhesi	3(3.03)	0	3(6.0)	
Religion				
Hindu	86(86.87)	44(89.80)	42(84.0)	0.39*
Buddhist	13(13.13)	5(10.2)	8(16.0)	
Level of Education				
No Education	17(17.17)	10(20.4)	7((14)	0.2*
Basic Education (1-8)	29(29.29)	10(20.4)	19(38)	
Secondary (9-12)	38(38.38)	20(40.81)	18(36)	
More than Secondary	15(15.15)	9(18.36)	6(12)	
Occupation				
Housewife	11(11.11)	4(8.16)	7(14.0)	0.81*
Service	24(24.24)	14(28.57)	10(20.0)	
Agriculture	29(29.29)	14(28.57)	15(30.0)	
Business	21(21.21)	10(20.41)	11(22.0)	
Driving	6(6.06)	3(6.12)	3(6.0)	
Student	6(6.06)	3(6.12)	3(6.0)	
Daily Wages	2(2.02)	1(2.04)	1(2)	

Note: t= student's test, * Chilt square test

The mean pain score in the intervention group was lower than control group. (Table 2)

Table 2: Pain score of Adult Patients of Intervention and Control Group

n = 99

Characteristics	Combined	Intervention Group (n=50) Mean±SD	Control (n=49) Mean±SD	Mean difference	p -value
Pain Score	3.27±1.36	2.72(±1.22)	3.83(±1.28)	1.11	0.001

There was significant difference in pain score between adults of the control and interventional group ($p < 0.001$). Pain score decreased by 1.05 points in intervention group in comparison to control group (95% CI: -1.57, -0.54) after adjusting for sociodemographic variables (age, sex, marital status, ethnicity, religion, level of education and occupation).

Table 3: Comparison of Pain score between Adult Patients of Intervention and Control Group

n = 99

Characteristics	Univariate Beta Coefficient	95% CI	p-value	Multivariate Beta Coefficient	95% CI	p-value
Control Group	Ref					
Intervention Group	-1.11	-1.61, -.61	0.001	-1.05	-1.57, -0.54	0.001

*Adjusted for age, sex, marital status, ethnicity, religion, level of education and occupation

DISCUSSION

This study was a quasi-experimental research approach to assess effectiveness of Valsalva maneuver on pain reduction during intravenous cannulation among adult patients in a tertiary level hospital.

Findings of the present study highlighted that mean pain score was 2.72 (± 1.22 SD) in the intervention group and 3.83 (± 1.28 SD) in the control group. This finding shows statistically significant difference in pain score between the intervention and the control group.

The study findings also depicted that intervention group has decreased pain by 1.05 point compared to control group (95 % CI: -1.62, -.481) after adjusting for age, sex, ethnicity, religion, level of education and occupation.

The result of the study findings is similar to the study done in Turkey by Alan which also revealed that the patients in the intervention group had less severe pain during PIVC insertion than the patients in the control group with thin the intervention group.⁸

This similar finding might be due to similar age group population, and IV cannulation done in first attempt.

This study findings is in line with the study conducted in India by Gideon regarding Valsalva Maneuver on intensity of pain and anxiety among patients undergoing PIVC where the cannulation site also includes inner and outer aspect of the forearm while the current study includes cannulation only at the dorsum site of hand and forearm. The study in India highlighted that mean score of intensity of pain is lower in the interventional group compared to in the control group with mean difference of 1.02.¹⁶ Thus it can be concluded that with VM reduces IV cannulation pain either at dorsal or palmar site.

Our finding is also consistent with the study conducted in Egypt which showed that mean pain score was lower (2.14 $\pm$ 2.15) in the intervention group compared to the control group (3.64 $\pm$ 2.4) with p-value 0.002. Pain score was assessed using visual analogue pain scale after two minutes of IV cannulation.⁷

A comparative study on the use of VM and eutectic mixture of local anesthetics (EMLA) to relieve venipuncture pain was conducted in Turkey. It highlighted that the success of venipuncture was significantly higher in VM group compared to EMLA group. VM yields similar results to EMLA in term of pain reduction during venipuncture.¹⁷ The present study finding is also supported by another study done by Sundaran et.al. in India. It revealed that mean pain score was lower (1.53 $\pm$ 0.629 SD) in the experimental group compared with the control group (1.87 $\pm$ 0.629 SD) with p-value of 0.045.¹⁴

The result of the present study is also congruence with the study from India by Kadyan et.al which revealed that mean pain score in intervention group was lower (1.3) than those in experimental group (5.56) with $p < 0.05$.²²

Finding of the present study is also in line with the study done by Upasna et.al which highlighted that the Valsalva Maneuver is effective in reduction of pain associated with intravenous cannulation. The result of the study depicted mean pain score of 2.56 $\pm$ 1.227 SD in the intervention group and of control group was 4.56 $\pm$ 1.294 SD.¹⁸ For VM procedure, they instructed participants to blow forcefully to the rubber tubing connected to aneroid blood pressure apparatus raise a needle to dial up to 20 mm of Hg for 20 seconds. But in our study we instructed to hold the breath which does not require any instruments. Thus, holding breath for VM procedure with closed nostrils and mouth can be more cost effective than use of instruments for patients.

Another similar study conducted in India by Sharma. et.al also support the finding of the present study. It showed that the mean pain score in the intervention group was 1.52 $\pm$ 1.249 SD and 6.14 $\pm$ 1.565 SD in the control group which conclude that VM has significant effect in reducing the pain of peripheral intravenous cannulation in adult patients.¹⁹

The present study revealed significant reduction in pain score during IV cannulation with VM procedure that stimulates a vagal response, initiating antinociceptive effect.¹² The reduction of pain in this study also might be as a distraction from pain while participants are focused on holding breath as a part of VM along with the physiological effect of VM.

The strength of this study is that this quasi-experimental research design allowed comparison between intervention and control group. We followed Consolidated Standards of Reporting Trials guideline for the study and pain assessment was done using standard pain assessment tool which are strength of the study. To mention a few limitations of our study, we did not assess anxiety and perception of pain of the participants which might affect the individual pain score.

CONCLUSION

The study finding demonstrated that the VM was effective in reducing pain during IV cannulation among adult patients. The pain score was significantly reduced when IV cannulation was performed with Valsalva maneuver as compared to routine technique. Hence, VM can be incorporated during IV cannulation procedure.

ACKNOWLEDGEMENT

The researcher would like to extend gratitude to Kathmandu University School of Medical Sciences and team from Operation theatre (Main OT block and Urology

block) of Dhulikhel Hospital for the opportunity to conduct this study and also would like to express sincere thanks to all the participants for support and cooperation throughout the study.

REFERENCES

1. McGowan D. Managing Distress and Anxiety. *Br J Nurs*. 2014;23(19):S4–9.
2. van Loon FHJ, Puijn LAPM, van Aarle WH, Dierick-van Daele ATM, Bouwman ARA. Pain upon inserting a peripheral intravenous catheter: Size does not matter. *J Vasc Access*. 2018;19(3):258–65.
3. Vyas V, Sharma A, Goyal S, Kothari N. Infrared vein visualisation devices for ease of intravenous access in children: Hope versus hype. *Anaesthesiol Intensive Ther*. 2021;53(1):69–78.
4. Agarwal A, Sinha PK, Tandon M, Dhiraaj S, Singh U. Evaluating the efficacy of the Valsalva maneuver on venous cannulation pain: A prospective, randomized study. *Anesth Analg*. 2005;101(4):1230–2.
5. Welyczko N. Peripheral intravenous cannulation: Reducing pain and local complications. *Br J Nurs*. 2020;29(8):S12–9.
6. Kadyan R. Assessment and Evaluation of Effectiveness of Valsalva Maneuver on Pain Reduction during IV Cannulation Among Adults. *Int J Heal Sci Res [Internet]*. 2017;7(8):278. Available from: www.ijhsr.org
7. Ahmed H, Eldesoky M, Elesawy FM. Valsalva Maneuver: Reducing Procedural Pain and Anxiety for Patients Undergoing Peripheral Intravenous Cannulation. *Egypt J Nurs Heal Sci*. 2021;2(2):44–63.
8. Alan N, Khorshid L. Evaluation of Efficacy of Valsalva Maneuver During Peripheral Intravenous Cannulation on Pain. *Pain Manag Nurs [Internet]*. 2022;23(2):220–4. Available from: <https://doi.org/10.1016/j.pmn.2021.01.013>
9. Nazemroaya B, Aghadavodi O, Honarmand A, Ahmadian S. A comparative study of valsalva maneuver, lidocaine, and valsalva maneuvers with administration of lidocaine to reduce the pain associated with administration of etomidate during general anesthesia. *Anesthesiol Pain Med*. 2021;11(3).
10. Hassan B, Zahra A, Asadi I, Asgar MR. Comparison of the Effect of EMLA Cream and the Valsalva. 2022;2022.
11. Davtalab E, Naji S, Shahidi S. Comparing the effects of Valsalva maneuver and ice massage at Hoku point methods on pain intensity within the needle insertion to the arteriovenous fistula (AVF) for patients undergoing hemodialysis in the selected hospitals in Isfahan in 2015. *www.ijmrhs.com Int J Med Res Heal Sci [Internet]*. 2016;5(S):101–7. Available from: www.ijmrhs.com
12. Paulsamy P, Alshahrani SH, Al-asbi GM, Venkatesan K, Sethuraj P, Chidambaram K. Effect of Valsalva Maneuver on Pain Perception among Adult Patients Undergoing Spinal Procedures. 2021;4(2):201–5.
13. Saputra M, Harahap IA, Kasiman S. Valsalva Maneuver to Decrease Pain Intensity During Arteriovenous Fistula Insertion in Hemodialysis Patients. *J Keperawatan Indones*. 2020;23(2):136–44.
14. Sundaran Jisha, P., Khan, F., & Bansal P. An experimental study to assess the effectiveness of Valsalva maneuver prior to intravenous cannulation on pain perception among patients undergoing venous cannulation at HAHC hospital in Delhi. *Egypt J Heal Care*. 2016;12(4):530–8.
15. Sharma S, Palanchoke J, Reed D, Haxby Abbott J. Translation, cross-cultural adaptation and psychometric properties of the Nepali versions of numerical pain rating scale and global rating of change. *Health Qual Life Outcomes*. 2017;15(1).
16. Gideon R, Florence S, Ida N, Serina RS. Valsalva maneuver on intensity of pain and anxiety among patients undergoing peripheral intravenous cannulation. *J Nurs Trendz*. 2019;10(2):3.
17. Suren M, Kaya Z, Ozkan F, Erkorkmaz U, Arici S, Karaman S. Comparison of the use of the Valsalva maneuver and the eutectic mixture of local anesthetics (EMLA®) to relieve venipuncture pain: A randomized controlled trial. *J Anesth*. 2013;27(3):407–11.
18. C IV. Reviewed Refereed Open Access International Journal Double-Blind Peer. 2021;08(1):1–13.
19. Sharma. N, George RM. Valsalva maneuver on intensity of pain and anxiety among patients undergoing peripheral intravenous cannulation. *J Nurs Trendz*. 2019;10(2):3.

Post-Surgical Pressure Injuries: An Evaluation of Associated Factors in a Tertiary Level Hospital

Dongol N¹, Acharya R¹

¹ Department of Medical-surgical nursing, Kathmandu University School of Medical Sciences, Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Kavre

Corresponding Author

Neha Dongol

Department of Medical-surgical nursing, Kathmandu University School of Medical Sciences, Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Kavre

E-mail: dglneha5@gmail.com

Citation

Dongol N., Acharya R. Post-Surgical Pressure Injuries: An Evaluation of Associated Factors in a Tertiary Level Hospital. *The Cliff*. 2025; 7: 10-14.

ABSTRACT

Background

Pressure injuries are still a common and devastating hospital-acquired complication for patients following surgery, even with the best practices in place today.

Objectives

To assess pressure injuries and its associated factors of patients following surgery in a tertiary level hospital.

Method

This observational cross-sectional study included 142 patients of surgical and orthopedic departments of Dhulikhel Hospital between 14th July to 16th August, 2024. Data was collected by interviewing patients through a convenience sampling method and using Braden Risk Assessment Tool for observation of pressure injuries. Collected data were analyzed by using descriptive and inferential statistics with STATA version 13.

Results

The findings of the study revealed that 8 (5.6%) out of 142 patients developed pressure injuries. Among the patients, 66.2% had surgery in supine position with mean duration of 189.54 ± 90.92 minutes. Most of the patients with pressure injuries were male (5.9%) and from orthopedic department (9.2%). Logistic regression analysis revealed that patients who were smokers (AOR: 0.17; 95% CI: 0.09 – 0.49), who were under risk group of pre-operative Braden score (AOR: 7.87; 95% CI: 1.23 – 50.01) and longer duration of surgery (AOR: 1.02; 95% CI: 0.00 – 1.03) were associated with occurrence of pressure injuries following surgery.

Conclusion

The study found that few patients had pressure injuries after surgery. To lessen and prevent pressure injuries related to surgery and to standardize care, guidelines and protocols that emphasize preoperative, intraoperative, and postoperative evaluation can be created.

KEYWORDS

Braden Risk Assessment Tool, Pressure Injury, Surgery

INTRODUCTION

Pressure injuries which are mostly detected in bed-ridden patients, are also seen in patients after surgery.¹ The Association of Perioperative Registered Nurses (AORN) states that surgery-related pressure injuries develop in the first 48-to-72 postoperative hours.² A meta-analysis by Li *et al.* indicated that the global prevalence of pressure injury to be 12.8%, with a hospital acquired pressure injury incidence of 8.4%.³ In a systematic review and meta-analysis published on 2016, prevalence of pressure injuries after surgery was reported as Stage 1 (17.02%), stage 2 (6.7%), stage 3 (0.9%) and stage 4 (0.4%) among 9527 patients.⁴

The patient-related factors such as age, gender can increase the rate of occurrence of pressure injuries.⁴ A recent study conducted in Türkiye in 2023, revealed that pressure injuries after surgery was more prominent in male along with progressing age of more than 60 years.⁵ A study revealed that patients of general surgery had more pressure injuries than that of orthopedic department due to longer duration.⁶ Even though there is no ideal tool to assess risk factors of pressure injuries after surgery, the most commonly widely used tool is Braden Scale.^{7,8}

Studies related to pressure injuries following surgery have not been published in the context of our country whereas numerous articles on this topic have been conducted, mostly in western countries. Hence, this study was aimed to assess the proportion of pressure injuries among patients following surgery and to find out association between pressure injuries and risk factors. Nurses play a critical role in the early identification of pressure injuries in post-operative patients. The findings of this study on pressure injuries and associated factors suggest that structured educational interventions by healthcare professionals can significantly contribute to the prevention of intraoperative pressure injuries.

METHODS

An observational cross-sectional study was conducted in Dhulikhel Hospital, among 142 patients undergoing surgery with duration of more than two hours of general and orthopedic departments by using convenience sampling method after obtaining an approval of Institutional Review Committee, Kathmandu University School of Medical Sciences, (IRC 178/23) from 14th July to 16th August, 2024.

After patients were admitted to the pre-operative ward, demographic and clinical data were collected on the day before surgery. Patients with age 18 years and above, undergoing surgery with duration of more than two hours with at least twenty-four hours' hospital stay post-operatively were included in the study. While patients undergoing emergency surgery, not willing to participate and those who had already developed pressure injuries before surgery were excluded from the study. Data were obtained through interviews conducted by the principal investigator after taking written informed consent. Then, after surgery, as a part of morning care, those patients were followed up in the post-operative ward within 24 hours for skin assessment by the principal investigator, with the assistance of other nursing staff using Braden skin assessment flowsheet.

Data was sorted, coded and entered into Microsoft Excel and then to Stata version 13. Data were analyzed using descriptive statistical methods to describe socio-demographic and clinical variables. Logistic regression was used to test the association between pressure injuries among patients following surgery and selected variables. The interpretation of the analyzed data was done to draw inferences and conclusions.

RESULTS

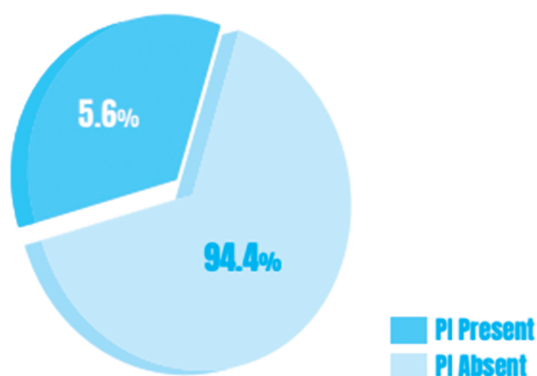
During the study period, a total number of 142 patients were included in the study. More than half of the patients (59.2%) were male and most of them were older than 50 years. More than half of the patients were from the general surgical department (62.0%) and had no comorbidities (69.1%). Regarding body mass index (BMI), 65 (45.7%) patients were overweight. Majority of the patients were non-smokers (83.8%). After assessing the patients for Braden scale score, the majority of the patients were under no risk category of developing pressure injury (81.0%). The mean duration of surgery was 189.54 minutes. More than half of the surgeries (66.2%) were performed in supine position (Table 1).

Regarding pressure injuries, the proportion of pressure injuries among patients following surgery was 8 (5.6%) out of 142 patients (Fig. 1). Among those, 7 (87.5%) patients had first degree pressure injury while 1 (12.5%) developed second degree pressure injury (Table 2).

Table 1: Socio-demographic and Clinical characteristics of patients

n = 12

Characteristics	Frequency	Percentage
Age		
18-28	15	10.6
29-39	30	21.1
40-50	34	23.9
≥51	63	44.4
Gender		
Male	84	59.2
Female	58	40.8
BMI		
Underweight	4	2.9
Normal	58	40.9
Overweight	65	45.7
Obese	15	10.5
Smoking		
Yes	26	16.2
No	116	83.8
Comorbidities		
Yes	45	30.9
No	97	69.1
Department		
Orthopedics	54	38.0
Surgical	88	62.0
Pre-operative Braden score		
No risk	115	81.0
Low risk	25	17.6
Moderate risk	2	1.4
Duration of surgery in minutes		
Mean ± SD	189.54 ± 90.92	
Positioning during surgery		
Supine	94	66.2
Prone	18	12.7
Lateral	10	7.1
Lithotomy	14	9.8
Trendelenburg	6	4.2

**Fig 1:** Proportion of Pressure injuries (PI) among Patients following Surgery (n=142)**Table 2.** Proportion of pressure injuries among patients following surgery

Pressure injury	Frequency	Percentage
Present	8	100
Degree of pressure injury		
▪ First degree	7	87.5
▪ Second degree	1	12.5

The occurrence of pressure injuries following surgery had significant association with smoking (AOR: 0.17, 95% CI 0.09 – 0.49). The odds of having pressure injury is 17% higher among smokers adjusting for age and gender. On the other hand, patients who had scored in risk group of pre-operative Braden Scale (AOR: 7.87, 95% CI: 1.23 – 50.01) had increased odds of developed pressure injury by 7.87 times than those with no risk adjusting for age, gender, department, BMI, smoking and comorbidities. When we compare two groups of patients differing by one minute of duration of surgery, the odds of developing pressure injuries were increased by 1.02 times (AOR: 1.02, 95% CI: 0.00 – 1.03) among those with longer duration of surgery in minutes compared to lower, adjusting for age, department, BMI and comorbidities (Table 3).

DISCUSSION

This study aimed to assess the proportion of pressure injuries following surgery in a tertiary level hospital, which was conducted for the first time in the setting and found to be 5.63% which is similar to the study done in Türkiye in 2023 with the incidence of 6.19%.⁵ Another study done in the same country in 2021, showed similar finding i.e. 6.7%.⁹ The proportion might be lower as support surfaces were used in 67.6% and positioning aids were used in 82.4% during surgery. In a systematic review and meta-analysis done in 2020 among 37,971 patients showed that the overall incidence of pressure injuries following surgery in inpatients was 12% worldwide.¹⁰ Similar study done in 2021 between February 2017 and May 2018 in Türkiye showed magnitude of 24.1% of pressure injuries among patients after surgery.⁶

This study revealed that there is significant association between pressure injury following surgery and smoking history. In contrast, a study done among private foundation university hospital in Türkiye, 2021 (between February 2017 and May 2018), showed that there was no significant association between pressure injury and smoking history ($X^2 = 0.859$; $P = 0.354$). Among 41 patients who developed pressure injury, 29 were non-smokers while 12 were smokers. ⁶ This might be due to involvement of patients with adequate nutritional status as evidenced by normal BMI, albumin level and hemoglobin level in those studies whereas nutritional status was not studied here.

Table 3. Distribution of pressure injuries and association between pressure injuries with sociodemographic and clinical characteristics

n = 142

f (%)	Pressure Injury		COR	95% CI	p-value	AOR	95% CI	p-value
	Yes f (%)	No f (%)						
BMI								
Underweight	0	4 (100)	Ref			Ref		
Normal	3 (5.1)	55 (94.9)	0.16	0.01 – 2.08	0.16	0.09	0.00 – 5.09	0.247
Overweight	4 (6.1)	61 (93.9)	0.14	0.01 – 1.84	0.13	0.13	0.00 – 6.78	0.316
Obese	1 (6.6)	14 (93.4)	0.21	0.01 – 4.47	0.32	0.08	0.00 – 8.33	0.292
Smoking								
Yes	5 (19.3)	21 (80.7)	Ref			Ref		
No	3 (2.6)	113 (97.4)	0.11	0.02 – 0.50	0.004	0.17	0.09 – 0.49	0.006
Comorbidities								
Yes	4 (8.9)	41 (91.1)	Ref			Ref		
No	4 (4.1)	93 (95.9)	0.11	0.02 – 0.50	0.26	0.02	0.00 – 1.54	0.081
Pre-operative Braden score								
No risk	3 (2.7)	112 (97.3)	Ref			Ref		
Risk*	5 (20)	20 (80)	8.48	1.88 – 38.12	0.005	7.87	1.23 – 50.01	0.029
Duration of surgery in minutes								
Mean ± SD			1.01	1.00 – 1.02	0.001	1.02	0.00 – 1.03	0.001

Note: AOR: Absolute odds ratio, BMI: Body Mass Index, CI: Confidence Interval, COR: Crude Odds Ratio, Ref: Reference

*Risk: low risk, moderate risk of Pre-operative Braden Scale

Adjusted variables:

Smoking: age, gender

Pre-operative Braden score: age, gender, department, BMI, smoking, comorbidities

Duration of surgery: age, department, BMI, comorbidities

Likewise, there is significant association between pressure injury and patient related characteristics like pre-operative Braden scale and duration of surgery. A study conducted among 164 patients in a university hospital of Türkiye in 2021, showed that there is significant association between pressure injury with pre-operative Braden score ($X^2 = 13.907$; $P = .001$).⁹ In this study, there is significant association between pressure injury and duration of surgery (AOR 1.02; CI at 95%: 0.00-1.03). A study done in Türkiye in 2023, showed that there is significant association between pressure injury and duration of surgery ($f=79.040$, $p\text{ value}=0001$).⁵

There is no significant association between pressure injury and other characteristics like age, gender, BMI, comorbidities, department and positioning during surgery. Evidences on the relationship between gender and pressure injuries is reported to be controversial.^{6,9} In a cross-descriptive study done in Turkey in 2021 showed that the pressure injuries following surgery was associated with male gender while in a study done in same country in 2015 showed there was association with female gender.^{6,9}

In the same study, it was discovered that the onset of pressure injuries was unaffected by age.⁶ Whereas, a case-control study conducted from January 2018 to December 2020 in Beijing, China, 2022, shows that there is significant association between pressure injury and diabetes ($X^2 = 6.074$; $P = 0.011$).¹¹ This might be resulted as diabetes increases the risk of pressure injury by causing microvascular impairment and delayed wound healing, which reduce tissue tolerance to prolonged pressure and ischemia.

This study has certain limitations that future research could address. Since convenience sampling technique was used to gather data for the study from a specific tertiary level hospital only, so the findings may not be generalizable to the populations in other hospitals throughout Nepal. The study included only patients of surgery and orthopedic departments, therefore the effects of different surgical positions of other specialization could not be evaluated. While collecting data, pre-operative cases that came in the morning shift could not be included in the study as post-operative data were collected during that phase of time.

CONCLUSION

In conclusion, our study showed that few patients had pressure injuries following surgery. It was found that patients with smoking history had significant association with pressure injury. This study finding might help the health care providers to be concerned about the risk factors that may lead to pressure injury following surgery. Since pre-operative Braden score has significant association with occurrence of pressure injury, nurses should be alert with the patients with more risk score. Longer duration of surgery has a direct impact on occurrence of pressure injury. So, suitable supportive devices can be used during

that period. Guidelines and procedures that focus on preoperative, intraoperative and postoperative evaluation can be developed to reduce and prevent surgery-related pressure injuries and to standardize care.

ACKNOWLEDGEMENT

The researchers would like to express sincere thanks to Dhulikhel Hospital and Kathmandu University School of Medical Sciences for their help in conducting this study. The researchers would also like to thank the patients for their participation in the study.

REFERENCES

1. Perrenoud B, Maravic P, Delpy PJJEI. Pressure injury prevention in the operating unit of a Swiss university hospital: a best practice implementation project. 2023;21(1):46
2. İlkan E, Dag GSJJoTV. The incidence and risk factors of pressure injuries in surgical patients. 2023;32(3):383-8.
3. Siotos C, Bonett AM, Damoulakis G, Becerra AZ, Kokosis G, Hood K, et al. Burden of Pressure Injuries: Findings From the Global Burden of Disease Study. 2022;22.
4. Shafipour V, Ramezanpour E, Gorji MA, Moosazadeh M. Prevalence of postoperative pressure ulcer: A systematic review and meta-analysis. Electron Physician. 2016;8(11):3170-6.
5. Tura İ, Arslan S, Türkmen A, Erden SJJoTV. Assessment of the risk factors for intraoperative pressure injuries in patients. 2023.
6. Akan C, SAYIN Y. Prevalence of pressure injuries and risk factors in long-term surgical procedures. 2021.
7. Martinez-Garduno CM, Rodgers J, Phillips R, Gunaratne AW, Drury P, McInnes EJWP, et al. The surgical patients' pressure injury incidence (SPPII) study: A cohort study of surgical patients and processes of care. 2019;27(2):120-8.
8. Webster J, Lister C, Corry J, Holland M, Coleman K, Marquart LJJoW, Ostomy, et al. Incidence and risk factors for surgically acquired pressure ulcers. 2015;42(2):138-44.
9. Yılmaz E, Başlı AA. Assessment of Pressure Injuries Following Surgery: A Descriptive Study. Wound management & prevention. 2021;67(6):27-40.
10. Borojeny LA, Albatineh AN, Dehkordi AH, Gheshlagh RGJJoPM. The incidence of pressure ulcers and its associations in different wards of the hospital: a systematic review and meta-analysis. 2020;11.
11. Lei L, Zhou T, Xu X, Wang L. Munro Pressure Ulcer Risk Assessment Scale in Adult Patients Undergoing General Anesthesia in the Operating Room. J Healthc Eng. 2022; 2022:4157803.

Coping Strategies Used by Hypertensive Patients in Tertiary Level Hospitals

Gupta P¹, Shakya S¹

Kathmandu University
School of Medical Sciences,
Dhulikhel, Kavre, Nepal

Corresponding Author

Pooja Gupta
Bachelor in Nursing Science, 4th Year
School of Medical Sciences, Kathmandu University,
Dhulikhel

Citation

Gupta P. & Shakya S. Coping Strategies Used by Hypertensive Patients in Tertiary Level Hospitals. *The Cliff*. 2025; 7: 15-20.

ABSTRACT

Background

Globally, hypertension affects about 22% of people over the age of 18, and it is thought to be the cause of 9.4 million annual deaths worldwide. It has been suggested that prolonged stressful situations increase the risk of high blood pressure. In general, individuals with hypertension appear to adopt maladaptive, emotion-focused coping to a greater degree than healthy individuals, often mediated by depressive symptoms and leading to poor quality of life.

Objectives

To assess the coping strategies used by hypertensive patients in a tertiary-level hospital.

Method

A quantitative, cross-sectional study design was conducted among 125 hypertensive patients by using convenience sampling method. Brief Coping Orientation to Problems Experienced (COPE) scale was used to collect data using interview technique. Descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (t test and Analysis of Variance test) were applied using Statistical Package for Social Science Version 27 for data analysis.

Results

Among 125 participants, Acceptance (7.66 ± 0.683) was most commonly used coping strategies and Humor (2.00 ± 0.000) was least commonly used. The most commonly used maladaptive strategy was self-distraction (5.89 ± 1.592) whereas Denial (2.14 ± 0.644) was the least used maladaptive coping strategy. Type of family was statistically significant with Adaptive coping strategies ($p = 0.004$). Similarly, family history was statistically significant with adaptive coping strategies with p -value < 0.05 .

Conclusion

In this study the coping strategies used by hypertensive patients were both adaptive and maladaptive coping strategies in different degrees. There was a significant association of adaptive coping strategies with type of family and family history.

KEYWORDS

Coping strategies, Hypertensive Patients

INTRODUCTION

Hypertension is a leading global health issue, affecting approximately 22% of adults aged 18 and over and causing an estimated 9.4 million deaths annually.¹ In Southeast Asia, the prevalence is notably high at 25.1%, ranking third globally. According to estimates from the WHO for 2015, Nepal was in third place in South Asia for the prevalence of hypertension (29.4%).² The study conducted in hypertensive patients from hospitals of Pakistan concluded that, there is a positive correlation between stress coping mechanisms and hypertension.³ The study in 2019 at Rome, Italy conclude that, emotion-oriented coping on cardiovascular health found that active, emotion-oriented coping strategies cause an increase in autonomic activity, which raises heart rate and blood pressure. Emotion-oriented coping strategies are often mediated by depressive symptoms and they lead to poor quality of life.⁴ The study at Bono Regional Hospital in Sunyani, Ghana consisted of 74% females' population. Emotional orientation was utilized most frequently (61.2%), behind Task Oriented Coping (TOC) (58.5%) and Avoidant Coping (AC) (46.2%). Particularly, patients who employed task-oriented coping were more likely to have controlled blood pressure and likely to negatively affect a patient's treatment.⁵ In developing countries, having the ability to cope with stress strategies is a topic of major concern for the general people. Very few studies have been done in Nepal related to coping strategies used by patients with hypertension. So, the aim of this study is to assess coping strategies used by hypertensive patients. The Objective of this study is to assess coping strategies used by hypertensive patients in tertiary level hospitals.

METHODOLOGY

A quantitative approach with descriptive cross-sectional study was conducted from July to August, 2024 in the cardiac outpatient department of Dhulikhel Hospital. An estimated proportion (p) was taken 46.2% based on literature review for sample size calculation and calculated sample size was 125.⁵ Non probability convenience sampling method was used. Patients diagnosed with hypertension, presently who have been using anti-hypertensive medicines for treatment purposes and patients available at the time of data collection were included.

A Semi structured questionnaire was used for data collection about sociodemographic information and structured questionnaire Brief COPE questionnaire was used for coping strategies used by patients with hypertension.⁶ Content validity of the instrument was established by reviewing the literature, consulting research advisor and research teacher. Reliability of

standard tools was measured at 10% of the total sample size (n=12) by using Cronbach Alpha of 0.64. Face to face interview method was used.⁷

Ethical clearance was obtained from IRC-KUSMS. Written consent was taken from each respondent prior to data collection. Privacy and confidentiality of the respondents was maintained and they weren't forced to participate. SPSS version 27 was applied for data analysis. Descriptive statistics (percentage, frequency, mean and standard deviation) and inferential statistics (t test and ANOVA test) were used. A p value less than 0.05 was considered to be significant.

RESULTS

Table 1 presents 125 participants in which more than half of respondents belonged to the middle adult age group (44-60 years) whereas nearly half of respondents belong to the older adults age group (> 60 years of age). More than half of respondents were female regarding religion, three-fourth respondents were Hindu and least of them were Christian. In relation to the education level of respondents nearly half of the respondents were illiterate and nearly two third lived in a joint family. Similarly, employment wise more than one-third of respondents were unemployed. Likewise, nearly one-third of respondents had comorbidity i.e. diabetes, more than one-third respondents had 5-10 years of duration of being diagnosed as hypertension and about two-thirds of respondents had family history of hypertension.

Table 1: Socio demographic information of hypertensive patients (n = 125)

Characteristics	Frequency(F)	Percentage (%)
Age group		
44-60 years	69	55.2
> 60 years	56	44.8
Gender		
Male	58	46.4
Female	67	53.6
Religion		
Hindu	108	86.4
Christian	7	5.6
Buddhist	10	8
Education level		
Illiterate	57	45.6
Basic education (1-8)	33	26.4
Secondary education (9-12)	27	21.6
Higher level (> 12)	8	6.4
Type of family		
Nuclear family	50	40
Joint family	75	60

Characteristics	Frequency(F)	Percentage (%)
Employment status		
Housewife	20	16
Government employee	5	4
Labor	9	7.2
Agriculture	25	20
Business	16	12.8
Unemployment	50	40
Comorbidity		
Diabetes	41	32.8
Renal disease	7	5.6
Coronary heart disease	5	4
Dyslipidemia	16	12.8
Thyroidism	6	4.8
COPD	5	4
Cancer	3	2.4
Others	4	3.2
None	35	28
Duration of being diagnosed		
< 6 months	11	8.8
6-12 months	5	4
1-2 years	29	23.2
5-10 years	46	36.8
>10 years	34	27.2
Family history of hypertension		
Yes	75	60
No	50	40

Table 2 presents the coping strategies used by hypertensive patients. The most commonly used adaptive coping was acceptance, while humor was least commonly used. The most commonly used maladaptive strategy was self-distraction whereas denial was least used maladaptive coping strategy. Higher mean and standard deviation score indicate most commonly used coping strategies by respondents.

Table 2. Types of coping strategies used by hypertensive patients
(n=125)

Coping strategies	Mean $\pm$ SD	Possible score
Adaptive coping strategies	51.2 $\pm$ 5.9	16-64
Religion	6.6 $\pm$ 1.9	2-8
Active coping	6.6 $\pm$ 1.5	2-8
Planning	6.3 $\pm$ 1.5	2-8
Acceptance	7.6 $\pm$ 0.6	2-8
Positive reframing	7.4 $\pm$ 0.9	2-8
Instrumental support	5.8 $\pm$ 1.9	2-8
Emotional support	6.3 $\pm$ 1.8	2-8
Humor	2.0 $\pm$ 0.0	2-8
Maladaptive coping strategies	19.02 $\pm$ 3.2	12-48
Self-distraction	5.8 $\pm$ 1.5	2-8
Self-blaming	3.8 $\pm$ 1.4	2-8
Venting	4.4 $\pm$ 2.4	2-8
Behavioral disengagement	2.3 $\pm$ 0.9	2-8
Denial	2.1 $\pm$ 0.6	2-8
Substance abuse	2.6 $\pm$ 1.5	2-8

Table 3 presents the comparison of mean score of adaptive and maladaptive coping strategies used by hypertensive patients. There are significant differences between mean scores of adaptive coping strategies with type of family (p- 0.004 at 95% CI). There are significant differences between mean scores of adaptive coping strategies with family history (p- 0.010 at 95% CI). Adaptive coping strategies were commonly used by nuclear families compared to joint families as well as Adaptive coping strategies were commonly used by respondents having a positive family history of hypertension than no family history of hypertension. But there is no significant difference between the mean score of coping strategies with other demographic variables.

Table 3. Comparison of mean score of adaptive and maladaptive coping strategies with sociodemographic variables of hypertensive patients

(n= 125)

Characteristics	Mean $\pm$ SD of Adaptive coping strategies	P value	Mean $\pm$ SD of Maladaptive coping strategies	P value
Age group				
40-65 years	51.4 $\pm$ 5.8	0.544	18.7 $\pm$ 3.2	0.176
$\geq$ 66 years	50.7 $\pm$ 6.1		19.5 $\pm$ 3.0	
Gender				
Male	51.21 $\pm$ 5.5	0.987	18.8 $\pm$ 3.3	0.620
Female	51.22 $\pm$ 6.3		19.1 $\pm$ 3.1	
Religion				
Hindu	51.21 $\pm$ 5.9	0.212	19.0 $\pm$ 3.1	0.613
Christian/Buddhist	51.22 $\pm$ 5.8		18.6 $\pm$ 3.8	

Characteristics	Mean $\pm$ SD of Adaptive coping strategies	P value	Mean $\pm$ SD of Maladaptive coping strategies	P value
Educational level				
Illiterate	50.7 $\pm$ 6.2	0.414	19.02 $\pm$ 3.1	0.996
Literate	51.6 $\pm$ 5.7		19.01 $\pm$ 3.3	
Type of family				
Nuclear family	53.0 $\pm$ 5.3	0.004	19.3 $\pm$ 3.0	0.303
Joint family	49.9 $\pm$ 6.0		18.7 $\pm$ 3.2	
Employment status				
Unemployment	50.7 $\pm$ 5.9	0.433	18.6 $\pm$ 2.9	0.342
Employment	51.5 $\pm$ 6.0		19.2 $\pm$ 3.4	
Duration of being diagnosed				
< 6 months	53.1 $\pm$ 4.4	0.232 ^a	19.1 $\pm$ 3.8	0.842 ^a
6-12 months	51.4 $\pm$ 7.09		18.4 $\pm$ 2.9	
1-2 years	50.1 $\pm$ 6.3		18.4 $\pm$ 3.2	
5-10 years	52.39 $\pm$ 5.9		19.1 $\pm$ 3.6	
>10 years	49.8 $\pm$ 5.8		19.3 $\pm$ 2.3	
Family history				
Yes	52.3 $\pm$ 5.6	0.010	19.2 $\pm$ 3.3	0.372
No	49.5 $\pm$ 6.1		18.7 $\pm$ 3.0	
Comorbidity				
Yes	50.7 $\pm$ 6.2	0.122	18.9 $\pm$ 3.2	0.371
No any	52.5 $\pm$ 5.1		19.0 $\pm$ 3.1	

t test* significance at 95% confidence level and ANOVA tests

DISCUSSION

The current study showed inconsistency with the study conducted in Pakistan, among 237 outdoor hypertensive patients among which active coping (6.01 $\pm$ 1.8) was most commonly used adaptive coping strategy and least commonly used maladaptive coping strategies was behavioral disengagement (3.8 $\pm$ 1.9).³ In this study both adaptive and maladaptive coping were utilized by participant in different degrees which may indicates that different data collection techniques and difference in age range of participants results in utilization of different coping strategies.

The current study, shows that most of the respondents used adaptive coping strategies (51.2 $\pm$ 5.9) than maladaptive coping strategies (19.02 $\pm$ 3.2). The present study is consistent with the study conducted in Bangladesh, among 36 young adults with blood pressure shows majority of respondents used adaptive coping strategies (47 $\pm$ 7) than maladaptive coping strategies (22 $\pm$ 5).⁸ The similarity in both studies could be possibly due to sample may have similar age, education level, or socio economic status. Younger or more educated people may more readily adopt adaptive coping.

In current study, overall adaptive coping strategies were most commonly used by females (51.22 $\pm$ 6.3) than that of male (51.21 $\pm$ 5.5) participants. The finding of the current study is consistent with the study conducted in Brazil, among 45 hypertensive individual showed that adaptive coping strategies commonly used by females (32 $\pm$ 71.1) than that of male (13 $\pm$ 28.8).⁹ The similarity in both of the study could be possibly due to the fact that women are more likely than men to employ adaptive coping strategies, such as seeking social support and engaging in emotion-focused coping. Both studies were conducted in South Asian and Brazilian contexts, respectively, where social support networks and community ties play significant roles in coping with stress.

In current study, overall maladaptive coping strategies were most commonly used by participants without comorbidities along with hypertension (19.09 $\pm$ 3.1) as compare to participant who had comorbidities (18.9 $\pm$ 3.2). The current study is consistent with study conducted in Hyderabad, India, among 144 participants with hypertension which shows that participant had no any comorbidity (84 $\pm$ 58.3) were commonly using maladaptive coping strategy as compared to participants

have comorbidity (60 ± 41.7).¹⁰ In both studies, participants without additional comorbidities exhibited higher maladaptive coping scores. This may be because individuals with multiple health conditions might develop more adaptive coping strategies over time, possibly due to increased healthcare interactions and support system.

In current study, overall maladaptive coping strategies were most commonly used by participants who had family history of hypertension (19.2 ± 3.3) and employed (19.2 ± 3.4) as compare to participants who had no family history (18.7 ± 3.0) and unemployed (18.6 ± 2.9). The current study is consistent with study conducted in Singapore, among 506 patients which shows that participants who had family history of hypertension (206 ± 57.9) and employed (167 ± 49.7).¹¹ The similarity between the two studies could be possibly due to the fact that the participants were employed. When stress levels are high and time is scarce, maladaptive coping strategies (such as avoidance, denial, substance abuse, etc.) may be used more frequently. Concerning family history, witnessing family members use maladaptive coping strategies may deter healthier coping strategies.

Association between socio demographic variables with coping strategies.

The result of present study shows there is significant association of adaptive coping strategies with nuclear family ($p=0.004$) which is inconsistent with the study conducted in Pakistan, among 237 outdoor hypertensive patients who were lived in joint family ($P=0.012$).³ The variation could be because coping strategies among hypertensive patients may differ from nation to nation and also to cultural factors.

Similarly, present study shows there is significant association of adaptive coping strategies with family history with hypertension ($p=0.010$) which is consistent with the study conducted in Singapore, among 506 patients ($p < 0.001$).¹¹ The similarity in both of the study could be possibly due to similarity in age group of population i.e. (30-83 years) and most of the participants were literate and had comorbidities like (diabetes, hypercholesterolemia and cardiovascular diseases). As people age, they are likely to develop chronic diseases such as hypertension, diabetes, and cardiovascular diseases and literacy correlates with better health awareness and access to healthcare services.

In present study there was no significant association between age ($P=0.544$) and coping strategies, which is consistent to the study conducted in Bangladesh among 36 young adults with blood pressure ($P=0.547$).⁸ The similarity in both of the study could be due to the likeliness of people of developing their primary coping styles earlier

in life which may persist across adulthood. By the time hypertension is diagnosed individuals may already have stable patterns of coping that aren't so influenced by further aging.

Similarly, present study shows there was no significant association of coping strategies with sex ($P=0.987$) which is inconsistent to the study conducted in Singapore, among 506 patients ($p=0.025$).¹¹ The variation possibly could be due to context of Nepal, if both men and women have similar access to social support, healthcare, counselling, family help, etc., the difference in coping might be less pronounced.

In present study there was no significant association between education ($P=0.414$) and coping strategies which is inconsistent to the study conducted in Rome, Italy, among 529 patients ($P=0.0001$).⁴ The variation could be due to high literacy rate and educational attainment of Italy as compared to Nepal.

Likewise, present study shows no significant association of comorbidity ($P=0.122$) with coping strategies which is consistent to the study conducted in Poland, among 93 hypertensive patients ($P=0.819$).¹² The similarity in both of the study could be possibly due to participants in both studies might have had access to similar levels of psychosocial support and family support.

In present study there was no significant association of employment status ($P=0.433$) with coping strategies which is consistent to the study conducted in Singapore, among 506 patients ($p=0.060$).¹¹ The similarity in both of the study could be possibly due to similar demographic characteristics, such as age, gender, and socioeconomic status.

LIMITATION OF THE STUDY

The generalizability of the results might be limited because the hypertensive patients were selected from only the cardiac outpatient department of Dhulikhel hospital.

CONCLUSION

In this study, hypertensive patients at Dhulikhel Hospital employed both adaptive and maladaptive coping strategies to varying degrees. The most common adaptive coping strategy was acceptance, while the least common adaptive coping strategy was humor. Similarly, self-distraction was the most common maladaptive coping strategy, and denial was the least common. There was a significant association of adaptive coping strategies with type of family and family history.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to Kathmandu University School of Medical Sciences, and

Dr. Kunta Devi Pun, Nursing Director for facilitating this research for academic degree. We also acknowledge Dr. Satya Shrestha, Lecturer, for her statistical assistance and all participants who contributed to this study.

REFERENCE

1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet* [Internet]. 2012 Dec 15 [cited 2025 Oct 10];380(9859):2224–60. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0140673612617668>
2. Vardell E. Global Health Observatory Data Repository. *Med Ref Serv Q* [Internet]. 2020 Jan 2 [cited 2025 Oct 10];39(1):67–74. Available from: <https://www.tandfonline.com/doi/abs/10.1080/02763869.2019.1693231>
3. Lahore GMAOC, Najam N. COPING STRATEGIES OF STRESS USED BY PEOPLE SUFFERING FROM HYPERTENSION Mamoona Mushtaq Mushtaq and Najam. Vol. 45, *Pakistan Journal of Psychology*. 2014.
4. Casagrande M, Boncompagni I, Mingarelli A, Favieri F, Forte G, Germanò R, et al. Coping styles in individuals with hypertension of varying severity. *Stress and Health*. 2019 Oct 1;35(4):560–8.
5. Adoma PO, Ansah EW, Apaak D, Agjei RO, Kumah E, Boateng R, et al. Coping with hypertensive treatment at Bono Regional Hospital in Sunyani, Ghana: a prospective observational cohort study. *Pan Afr Med J*. 2023;45:185.
6. Pty Ltd N. NovoPsych Client Information. 2021.
7. Shakya S, Pornchaikate A, Yeong A, Vongsirimas N, Wattanakitkrileart D. ปัจจัยทำนายอาการซึมเศร้าในผู้ป่วยที่มีภาวะหัวใจล้มเหลวในประเทศไทย Predictors of Depressive Symptoms among Patients with Heart Failure in Nepal นิพนธ์ฉัตรฉบับ Original Article ชารินาแซคยา1 ,อติฉัยพรชัยเกตุโอวของ 2 *, นพพรทองศิริมาศ 2 และดวงรัตน์วัฒนกิจไกรเลิศ 3 บทคัดย่อ [Internet]. Vol. 16, *Thai Pharmaceutical and Health Science Journal*. 2021. Available from: <http://ejournals.swu.ac.th/index.php/pharm/index>
8. Aung S, Musa R, Jamalludin RA, Azarisman SM, Abdullah A. Relationship between coping mechanisms to psychosocial stress with blood pressure in young adults: A pilot study. *Bangladesh Journal of Medical Science*. 2018;17(3):439–45.
9. Torres LA, Paradela RS, Martino LM, da Costa DI, Irigoyen MC. Higher Perceived Stress as an Independent Predictor for Lower Use of Emotion-Focused Coping Strategies in Hypertensive Individuals. *Front Psychol*. 2022 May 24;13.
10. Greenaway KH, Louis WR, Parker SL, Kalokerinos EK, Smith JR, Terry DJ. Measures of Coping for Psychological Well-Being. In: *Measures of Personality and Social Psychological Constructs*. Elsevier Inc.; 2015. p. 322–51.
11. Ariff Fadzil M, Ariaratnam S, Musa R, Public Health Specialist M, Lecturer Suthahar SA, Psychiatrist Mm, et al. Coping styles and lifestyle factors among hypertensive and non-hypertensive subjects [Internet]. Vol. 52, *Singapore Med J*. 2011. Available from: <https://www.researchgate.net/publication/237091601>
12. Popiołek L, Dzieża-Grudnik A, Siga O, Popiołek I, Mołag M, Królczyk J, et al. Coping with stress and hypertension-mediated organ damage. *Archives of Psychiatry and Psychotherapy*. 2019;21(4):27–36.

Assertiveness and Self-Esteem of Nursing Students of Kathmandu University School of Medical Science Constituent Programme

Parajuli P¹, Bajracharya J²

¹ Lifeline Hospital Institute of Health Sciences, Damak, Jhapa

² Kathmandu University
School of Medical Sciences
Dhulikhel, Kavre, Nepal

Corresponding Author

Pratima Parajuli

Email: pratimaparajuli222@gmail.com

Citation

Parajuli P. & Bajracharya J. Assertiveness and Self-Esteem of Nursing Students of Kathmandu University School of Medical Science Constituent Programme. *The Cliff*. 2025; 7: 21-27.

ABSTRACT

Background

Assertiveness and self-esteem are important qualities, but they are commonly lacking in nurses and nursing students. Studies have shown stress and bullying as frequent problems within nursing. So, being assertive is a key attribute as it supports autonomy and professional growth. Assertive nurses are likely to impart effective patient care, advocate for their rights, communicate effectively and refuse unreasonable requests but nurses showing non-assertive behaviour lead to poor communication, increased stress, and low self-esteem. Hence, it was considered vital to assess the assertiveness and self-esteem level of nursing students throughout their nursing programme.

Objectives

The study aimed to assess assertiveness and self-esteem among the nursing students of Kathmandu University School of Medical Science Constituent Programme.

Methods

A descriptive cross-sectional study was conducted among 145 nursing students of KUSMS Constituent Programme, Dhulikhel, Nepal. Stratified proportionate random sampling technique was used to select participants. Data were collected using standard tool. Data analysis was done using descriptive statistics and inferential statistics.

Result

Among 145 nursing students with the mean age 22.09 (SD= ± 2.90), majority of respondents had moderate levels of assertiveness and self-esteem. There is a significant association between assertiveness and year of enrolment. There is a significant association between level of self-esteem with age, total number of siblings, program of study and enrolment year. Assertiveness has a significant positive correlation with self-esteem. ($r = .443$, $p < 0.01$).

Conclusion

Majority of respondents had moderate assertiveness and self-esteem. Assertive behavior should be encouraged through learning methods by nursing educators.

KEYWORDS

Assertiveness, Nursing Students, Self-Concept

INTRODUCTION

Assertiveness is the ability to express one's feelings, opinions, beliefs, and needs directly, ask favours or make request openly, and honestly without violating the personal rights of others.^{1,2} Similarly, Self-esteem means valuing yourself, taking responsibility for your actions, and treating others with respect. Abraham Maslow defined self-esteem as the human need for both external recognition and internal self-respect, including confidence, self-love, and a sense of competence.³

Communication errors have a negative impact on patient safety.⁴ The 21st century with rapid changes has been called a stressful and pressured century. Today, assertiveness promotes effective communication skills for critical quality care and interdisciplinary cohesion and collaboration.⁵ Moreover, poor communication can cause increasing responsibility and risk to professional credibility. Hence, Assertiveness develops communication skills and enhances self-confidence, decision-making skills and supports career performance.⁶ The COVID-19 pandemic has further highlighted the need for resilient, confident, and communicative nurses. Yet, cultural factors, gender roles, academic stress, societal expectations and lack of assertiveness training hinder students' development.^{7,8}

Globally, studies show that many nursing students possess low to moderate levels of these skills.¹¹⁻¹³ Studies in Nepal have shown most nursing students had moderate to low level of assertiveness and self-esteem but high academic stress.^{1,14}

Despite the critical role of assertiveness and self-esteem in patient care and professional growth, Assertiveness and self-esteem has not been investigated extensively among nurses as well as nursing students in Nepal. Therefore, this study was conducted to assess the assertiveness and self-esteem among nursing students of Kathmandu University School of Medical Science Constituent Programme, Dhulikhel. Further, the findings can serve as a guide for Nursing educators and institutions to implement educational intervention regarding the assertiveness skills and self-esteem.

METHODS

This was a quantitative, cross-sectional study conducted among nursing students of Kathmandu University School of Medical Constituent Program, between 1st November to 30th December 2022. Approval from the Institutional Review Committee (IRC), Kathmandu University School of Medical science (KUSMS) – IRC was obtained to conduct the study. The sample size was determined by using the following formula $n_0 = z^2pq/d^2$ and $n = n_0/1+n_0-1/N$.

Estimated prevalence (p) was taken 0.54% based on the literature review.¹⁴ So, the calculated sample size was 145. Nursing students were selected by using stratified proportionate random sampling was used for data collection and MSc Nursing students were excluded.

Purposes and objectives of study was written at the top of questionnaire. Standard Validated tool Begley and Glackens's Assertiveness Questionnaire and Rosenberg self-esteem tool was used.¹⁵ Pre-test was performed on 10% of the total sample size = 14 students who were not be included in the main study.

Permission to collect the data was taken from each respondent by informed consent provided at the beginning of questionnaire. Privacy and confidentiality were maintained, and they were not forced to participate. Data were collected both in classroom settings and duty during duty hours, depending on their availability.

Data was analysed using Statistical Package for Social Science (SPSS) Version 25.0. Data were calculated using descriptive statistics mean, standard deviation, frequency, percentage, median and interquartile range as per need. Nonparametric test was used for comparing the differences between dependent and independent variables. Correlation Coefficient was used to find the relationship between dependent variables.

RESULTS OF THE STUDY

The data was collected from the nursing students of KUSMS Constituent Program. The standard questionnaire was provided to 145 nursing students with the response rate of 100%.

Table 1: Socio-demographic information of the participants

n=145

Characteristics	Frequency	Percentage (%)
Age Group (Mean age = 22.09 SD= ±2.896)		
Less than or equal to 22 years	95	65.5
More than 22 years	50	34.5
Religion		
Hindu	129	89.0
Buddhism	14	9.6
Kirat	2	1.4
Marital Status		
Married	15	10.3
Unmarried	130	89.7
Type of Family		
Nuclear	122	84.1
Extended/Joint	23	15.9

Characteristics	Frequency	Percentage (%)
Birth Order		
First Born /Single	77	53.1
Second Born	33	22.8
Third and above	35	24.1
Total Siblings		
Single	8	5.5
One	33	22.8
Two	65	44.8
Three and above	39	26.9
Study program		
PCL Nursing	26	17.9
BSc. Nursing	68	46.9
BNS	36	24.8
B. Midwifery	15	10.3
Year of Enrollment		
First year	49	33.8
Third year	49	33.8
Fourth year	47	32.4
Permanent address		
Province 1	27	18.6
Province 2	14	9.7
Province 3	75	51.7
Province 4	12	8.3
Province 5	13	9.0
Province 6	1	0.7
Province 7	3	2.1
Nature of accommodation		
Rented Room	46	31.7
Relative's House	1	0.7
Hostel	73	50.3
Own House	25	17.2

Table 1 shows the socio-demographic characteristics of the respondents. Out of 145 respondents, majority of respondents were from the age group 22 or below 22 with mean age of 22.09 ± 2.896 years (Mean $\pm$ SD). Similarly, Majority of students 89.0 % followed Hindu religion. Regarding marital status, majority of the respondents were unmarried 89.7 % and 10.3% were married. Moreover, Majority of the respondents (84.1%) were from nuclear family. Likewise, Data represents birth order in family where slightly more than half (51%) were first born in the

family. Beside this, nearly half of the respondents, 46.9% were studying in BSc. Nursing and most of them were from first year 33.8% whereas same number of subjects were in third year. Permanent address wise: Nearly more than half of the respondents 51.7% were from Province 3 while minority 0.7% respondents were from Province 6. Furthermore, as presented in Table 1, Half of the respondents 50.3%, were presently staying in Hostel.

Table 2: Assertiveness among Nursing Students

n=145

Characteristics	Frequency (f)	Percentages (%)
Low	4	2.8
Moderate	126	86.9
High	15	10.3

Table 2 presents the majority 86.9% of the respondents had moderate assertiveness.

Table 3: Self-Esteem among Nursing Students n=145

Characteristics	Frequency (f)	Percentages (%)
Low	1	0.7
Moderate	89	61.4
High	55	37.9

Table 3 shows Nearly two-thirds 61.4% of the respondents had moderate self-esteem.

Table 4 illustrates significant differences between assertiveness scores among selected sociodemographic variables. A p-value of <0.05 was considered statistically significant. To find out the significant differences, the Mann-Whitney U test and Kruskal Wallis test were used. The test revealed that the distribution of assertiveness scores is same across the age groups ($p = .055$) suggesting that age does not influence assertiveness levels. Likewise, there were no statistically significant differences between assertiveness among religion, marital status, type of family, number of siblings, birth order, study program and accommodation with $p=0.775$, $p = 0.145$, $p = 0.481$, $p = 0.161$, and $p=0.052$ respectively. However, in relation to year of enrolment, there is a significant difference between assertiveness score and year of enrolment ($p = 0.026$ at 95% of CI) indicating that the respondents enrolled in fourth year had higher assertiveness scores, with the median of 77 (Q3 80, Q1 72), compared to those enrolled in first and third years, both with median of 72. This suggests that assertiveness may increase with academic progress.

Table 4: Comparison of difference between assertiveness score among selected variables

n = 145

Characteristics	Median (Q3,Q1)	p-value
Age:(Mean age = 22.09 SD= ±2.90)		
≤ 22	72(78,67)	0.055 [#]
>22	74(82,69)	
Religion:		
Hinduism	72 (79,67)	0.775*
Buddhism	73 (78,69)	
Others: Kirat	77 (Q3,71)	
Marital status:		
Married	75 (85,71)	0.145 [#]
Unmarried	72 (78,67)	
Type of family		
Nuclear	72 (78,67)	0.105 [#]
Extended	76 (81,72)	
Birth order		
First born/Single	72 (78,67)	0.481*
Middle born	74 (82,68)	
Last born	73 (78,67)	
Total number of siblings		
Single	80 (81,67)	0.210*
One	71 (78,69)	
Two	72 (76,66)	
Three and above	73 (82,67)	
Program of study		
PCL nursing	70.5(73,65)	0.052*
Bsc. Nursing	74(80,69)	
BNS	72(78,69)	
B Midwifery	75 (85,68)	
Year of Enrolment		
First year	72 (78,67)	0.026*
Third year	72 (75,66)	
Fourth year	77 (82,70)	
Nature of accommodation		
Rent Room	73 (78,69)	0.300*
Relative’s House	82 (82,82)	
Hostel	72 (78,67)	
Own House	75 (82,66)	

*Kruskal Wallis test

#Mann Whitney test

Table 5: Comparison of difference between self-esteem score among selected socio-demographic variables

n=145

Characteristics	Median (Q3, Q1)	p-value
Age:(Mean age = 22.09 SD= ±2.896)		
≤ 22	18(21,16)	0.001*
>22	21(24,18)	
Religion:		
Hinduism	19 (22,17)	0.149*
Buddhism	17 (22,15)	
Others: Kirant	22(Q3,22)	
Marital status:		
Married	21 (24,18)	0.060 [#]
Unmarried	19 (22,16)	
Type of family		
Nuclear	18 (22,16)	0.007 [#]
Extended	21 (24,18)	
Birth order		
First born/Single	19 (22,17)	0.324*
Middle born	18 (22,16)	
Last born	18 (Q3,17)	
Total number of siblings		
Single	17 (22,16)	0.05*
One	20 (22,17)	
Two	18 (21,16)	
Three and above	20 (24,18)	
Program of study		
PCL nursing	18(20,15.8)	0.027*
Bsc. Nursing	19(22,16)	
BNS	20(23,17)	
B Midwifery	22(24,17)	
Year of Enrolment		
First year	19 (21,17)	0.007*
Third year	18 (20,16)	
Fourth year	21(24,17)	
Nature of accommodation		
Rent Room	18(21,17)	0.148*
Relative's House	25 (25,25)	
Hostel	19 (22,16)	
Own House	20 (24,18)	

*Kruskal Wallis test

#Mann Whitney test

Table 5 presents the significant differences between self-esteem scores and selected sociodemographic variables. A P-value of (<0.05) was considered statistically significant. As shown in Table 5, Self-esteem increases with increasing age as the table shows significant differences between self-

esteem and age “ $p = 0.01$ ”. In contrast, Religion ($p=0.149$), Marital status ($p=0.060$), Type of family ($p=0.007$) and Birth Order ($p=0.520$) had no significant differences with self-esteem at 95% of Confidence Interval. A significant difference was observed between total number of siblings and self-esteem ($p=0.05$), with the respondents who had three and above siblings had more self-esteem than others. Similarly, a significant difference was noted between study program and self-esteem ($p=0.027$), with respondents from Bachelor in Midwifery program having high self-esteem with a median score of 22, compared to other study programs. Furthermore, there was a significant difference between year of enrollment and self-esteem ($p=0.007$). Respondents enrolled in the fourth year had high self-esteem with a median of 21 than those in first year with a median of 19 and third year with a median of 18. Lastly, there is no significant difference between Self-esteem with Permanent address ($p = 0.485$) and Nature of accommodation ($p = 0.148$).

Table 6: Correlation between assertiveness and self-esteem

n=145

Variables	Correlation Coefficient (r)	p-value
Assertiveness	0.443**	< 0.001
Self-esteem		
Spearman's rank Correlation.		

**Correlation is significant at the 0.01 level (2-tailed)

Table 6 states the correlation between assertiveness and self-esteem. A spearman's rho correlation was run to determine the relationship between assertiveness score and self-esteem score which interprets that there was a moderate positive correlation between assertiveness and self-esteem which was statistically significant ($p=0.443$, $p < 0.001$) indicating that if assertiveness increases, self-esteem also increases.

DISCUSSION

This study aimed to assess the level of assertiveness and self-esteem of nursing students. Assertiveness is an ability that makes people openly express their feelings, emotions and needs confidently without being aggressive and reduces helplessness. In nursing, both assertiveness and self-esteem are essential for effective nursing practice, as they enable nurses to gain respect, build self-confidence and become competent in their clinical field.

The current study found that nearly half of the nursing students were enrolled in BSc Nursing program. Most students were 22 years old, with the mean age of 22.09 years. None of the respondents followed Christian religion.

This differs from the findings of Shrestha S in 2015, where more than half students were enrolled in PCL Nursing Program, the most were aged 16-20 years and about one-fourth followed Christian religion.¹

In terms of assertiveness, Most students (86.9%) had a moderate level. This finding is consistent with the previous study in Pokhara, which reported that 96% of nursing students showed moderate assertiveness. This may be due to similarities in sampling population.¹ However, Another study showed that 54.7% of student nurses showed low assertiveness.¹⁶ Additionally, Studies in Ireland and Turkey reported higher level of assertiveness. The contrast may be due to differences in curriculum structure, assertiveness training, and communication practices.¹⁵

Regarding self-esteem, 61.4% of students had moderate self-esteem. This study differs from previous studies conducted in Nepal^{12 17}, where 78% of students had low self-esteem, and majority 95.3% of students had high self-esteem. This might be due to different study design and sampling technique. Likewise, the current findings are similar with study in Pokhara, which showed that majority of nursing students had moderate level of self-esteem.¹

Because assertiveness was originally measured categorically and the small sample size ($n = 145$) resulted in many cells with expected counts less than five during Chi-Square test, Fisher Exact and Monte Carlo Correction, Variables were treated as continuous based on expert guidance. Nonparametric test, Mann – Whitney U Test and Kruskal-Wallis test, were applied to compare the differences.

The findings of the present study showed no significant differences between assertiveness with marital status, type of family, number of siblings, birth order, permanent address and nature of accommodation. This findings are similar with the previous studies conducted which reported no significant association with similar variables.^{1,2} On the contrary, Another study reported significant differences between assertiveness and study program.¹ Likewise, Study in Turkey and Sweden showed that assertiveness increases with age, which contrasts with the current findings. The findings may differ due to variations in sample size or variation in measurement tools or sample size.¹⁸

There was also the significant difference between self-esteem and study program. The findings is consistent with previous studies in Nepal, which reported that Bachelor level students had higher self-esteem than other students. This may be because Bachelor level Students are more confident as they are exposed maturely to clinical fields that contributes their self-esteem.^{1,17} Additionally, there was also significant difference between self-esteem

and number of siblings in this study. These findings are supported by findings of another study in India where students with siblings had high self-esteem.¹⁴ It might be because siblings can influence self-esteem by offering emotional support, encouragement and a sense of validation. However, Another study in Pokhara, reported no significant association between self-esteem and number of siblings.¹

This study also found significant differences between self-esteem and year of enrollment. A similar finding was reported in Ireland, where students in advanced semesters had high confidence, which leads to high self-esteem.¹⁵ The present study did not show significant association between type of family and self-esteem. However, Another study in Nepal, reported that low self-esteem may result from low family support.¹²

Additionally, there was no significant differences with self-esteem among different age groups and marital status. On the contrary, Another study in Jorpati, Nepal reported significant associations between self-esteem and both age and marital status.¹⁷ This may be because with age, one can be more confident and competent. Also, marriage makes people more responsible and give control over one's life.

Data analysis of the current study also revealed a statistically significant strong and positive correlation between assertiveness and self-esteem, consistent with the previous findings.¹ This may be because a strong belief in oneself can make one feel confident, capable and

validated.

In contrast, these results differ from another study, which reported a negative correlation between assertiveness and self-esteem among nursing students.²⁰ This might be due to differences in study design, study settings and sample size. A limitation of this study is that assertiveness and self-esteem scores were not compared across different academic years within the same program level.

CONCLUSION

The findings of the study showed that the majority of nursing students showed moderate levels of assertiveness and self-esteem. Assertiveness scores were significantly higher among students in advanced years. Similarly, self-esteem was also significantly associated with the number of siblings, academic years, and program of study. There was a moderate positive correlation between assertiveness and self-esteem, indicating that if there is high assertiveness there will be high self-esteem. It is recommended that assertiveness skills and techniques should be included in nursing curriculum to enhance students' self-concept and self-esteem. Nursing students can increase assertiveness and self-esteem through training, guidance from mentors and guidance from teachers and peers.

ACKNOWLEDGEMENT

We would like to acknowledge students of Kathmandu University School of Medical Science Constituent Program who found the time to be a part of this research study.

REFERENCES

- Shrestha S. Assertiveness and self-esteem among nursing students of Manipal College of Medical Science of Pokhara, Nepal. *J Chitwan Med Coll.* 2018;8(27):54-5. Available from: <https://www.nepjol.info/index.php/JCMC/article/view/24535>
- Maheshwari SK, Gill KK. Relationship of assertiveness and self-esteem among nurses. *Int J Health Sci Res.* 2015;5(6):440-449. Available from: https://www.researchgate.net/publication/309242420_Relationship_of_Assertiveness_and_Self_Esteem_among_Nurses
- Wikipedia contributors. Self-esteem in hierarchy. *Wikipedia*; 2022 Available from https://en.wikipedia.org/wiki/Self-esteem#cite_note-8-24, Retrieved on 23rd July, 2022
- Omura M, Maguire J, Levett-Jones T, Stone TE. The effectiveness of assertiveness communication training programs for healthcare professionals and students: a systematic review. *Int J Nurs Stud.* 2017;76(August):120-128. 10.1016/j.ijnurstu.2017.09.001 . Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0020748917302006>
- Macaden L. Sc M. Assertiveness in nursing. *Indian Journal of Continuing Nursing Education.* 2005 Jul;6(2):5-8..Available from :https://www.researchgate.net/profile/Leah-Macaden/publication/258209024_Macaden_L_July_-_Dec_2005_Assertiveness_in_Nursing_Indian_Journal_of_Continuing_Nursing_Education_62_5-8/links/556d852c08aec22683056ea6/Macaden-L-July-Dec-2005-Assertiveness-in-Nursing-Indian-Journal-of-Continuing-Nursing-Education-62-5-8.pdf
- Ayhan D, Seki H. Effect of assertiveness training on the nursing students' assertiveness and self-esteem levels: Application of hybrid education in COVID-19 pandemic. *Nurs Forum.* 2021 Oct;56(4):807-815. Available from :<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8242798/>
- Mohebi S, Sharifirad G, Shahsiah M, Botlani S, Matlabi M, Rezaeian M. The effect of assertiveness training on students' academic anxiety. *J Pak Med Assoc.* 2012;62(Suppl 3):S37-41. Available from : https://www.researchgate.net/journal/Journal-of-the-Pakistan-Medical-Association-0030-9982?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InByb2ZpbGUuLCJwYXNjaWVibGljYXRpb24ifX0
- Markid MA, Markani AK, Radfar M, Khalkhali HR. The effect of assertiveness-based intervention program on self-esteem and interpersonal communication skills in nursing students.

- Journal of Advanced Pharmacy Education & Research| Apr-Jun. 2019;9(S2).Available from : https://www.researchgate.net/publication/228437479_The_effect_of_assertiveness_training_on_student%27s_academic_anxiety
9. Saatçi E. COVID-19 Pandemic and health professionals: keep them alive or survive? *Turkish J Fam Pract.* 2020;24(3):153-166. 10.15511/tahd.20.00353. Available from :<https://www.turkailehekderg.org/eng/jvi.aspx?pdire=tahd&plng=eng&un=TAHD-05752&look4=>
 10. Kupsewickz E, Global Self-Esteem and Stress Intensity in a Group of Polish Nurses— *Int J Environ Res Public Health.* 2022 Jan; 19(2): 975. Published online 2022 Jan 15. doi: 10.3390/ijerph19020975. Available from: https://brieflands.com/articles/mcj-80765.html?utm_source=chatgpt.com#Abstract
 11. Hadavi M, AbdorrazaghNejad M. Assertive Behaviors Among Nursing Staff in a Local Hospital in Iran. *Mod Care J.* 2018;15(2):e80765. Available from : <https://doi.org/10.5812/modernc.80765>
 12. Kobya Bulut H. Self-esteem and assertiveness levels of nursing students. In: *European Proceedings of Social and Behavioural Sciences.* 2019:819–827. doi:10.15405/epsbs.2019.04.02.101 Available: https://www.researchgate.net/publication/335609781_Self-Esteem_And_Assertiveness_Levels_Of_Nursing_Students
 13. Acharya RP, Chalise HN. Self esteem and Academic Stress among Nursing Students. *Kathmandu Univ Med J.* 2015; 52(4):298-02. Available from : <https://doi.org/10.3126/kumj.v13i4.16827>
 14. Chakraborty S, Ray A, Mani SK. A Comparative Study regarding Assertiveness, Self-esteem and Leadership Potentiality between Students of Selected Nursing and General College in West Bengal. *Int J Nurse Midwives Res*2020; 7(3): 4. Available from : <https://doi.org/10.24321/2455.9318.202019>
 15. Begley C, Glacken M. Irish nursing students' changing levels of assertiveness during their pre-registration programme. *Nurse education today* 2004, 24. 501-10. 10.1016/j.nedt.2004.06.002.Available from :https://www.researchgate.net/publication/8250789_Irish_nursing_students%27_changing_levels_of_assertiveness_during_their_pre-registration_programme
 16. Rosenberg M. *Society and the Adolescent Self-Image.* Princeton University Press, 1965. Available from :<http://www.jstor.org/stable/j.ctt183pjhh> . Retrieved on 24th July, 2022
 17. Mahmed S M, A.zaki R. Relation Ship between Assertiveness , Psychological Well-Being, with Self Efficacy Among First Year Student Female Nurse ,*Journal of Education and Practice* www.iiste.orgISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.5, No.5, 2014. Available on : https://www.researchgate.net/publication/326274344_Relation_Ship_between_Assertiveness_Psychological_Well-Being_with_Self_Efficacy_Among_First_Year_Student_Female_Nurse
 18. Shrestha K, Limbu G, Twati S, Shrestha P. Study of self-esteem of nursing students in a nursing college in Kathmandu. *GLOBAL JOURNAL OF MEDICINE AND PUBLIC HEALTH*, Volume 7,2018 Issue 6. Available from : <https://gjmedph.com/Uploads/O3-Vo7No6.pdf>
 19. Eskin M. Self-reported assertiveness in Swedish and Turkish adolescents. *Scandinavian Journal of Psychology* 2003; 44, 7-12. Available from https://www.researchgate.net/publication/10886103_Selfreported_assertiveness_in_Swedish_and_Turkish_adolescents_A_cross-cultural_comparison
 20. Chakraborty S, Ray A, Mani SK. A Comparative Study regarding Assertiveness, Self-esteem and Leadership Potentiality between Students of Selected Nursing and General College in West Bengal. *Int J Nurse Midwives Res*2020; 7(3): 4-11. Available from : <https://orcid.org/0000-0003-4177-8401>
 21. Kochhar P, Saini P, Charan GS. Impact of assertiveness training on nursing students: a quasi-experimental study in Amritsar, Punjab. *Biol Forum.* 2023;15(6):148–52. Available from : <https://www.researchtrend.net/bfij/pdf/Impact-of-Assertiveness-Training-on-Nursing-Students-A-Quasi-Experimental-Study-in-Amritsar,-Punjab-Gopal-Singh-Charan-21.pdf>

Effectiveness of Nurse Led Pre-operative Teaching on Pre-operative Anxiety Reduction among the Patients Undergoing General Surgery in Tertiary Level Hospital

Prajapati S^{1,2}, Shrestha S^{1,2}

¹ Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Kavre, Nepal

² Kathmandu University School of Medical Sciences, Dhulikhel, Kavre, Nepal

Corresponding Author

Sahanshila Prajapati
Dhulikhel Hospital, Kathmandu University Hospital
Email Id: prajashila@gmail.com

Citation

Prajapati S. & Shrestha S. Effectiveness of Nurse Led Pre-operative Teaching on Pre-operative Anxiety Reduction among the Patients Undergoing General Surgery in Tertiary Level Hospital. *The Cliff*. 2025; 7: 28-33.

ABSTRACT

Background

Preoperative anxiety is a common among patients during pre-operative phase, primarily caused by insufficient knowledge about surgery, fear of anesthesia, potential complications, side effects, reliance on others, and risk of death.

Objectives

To assess the effectiveness of nurse-led pre-operative teaching on pre-operative anxiety reduction among the patients undergoing general surgery.

Method

A quasi experimental, pretest/posttest study was conducted among 80 general surgery patients at Dhulikhel hospital using convenience sampling. Data was collected using a structured questionnaire to gather information related to socio demographic data and Likert scale for preoperative anxiety. The questionnaire was administered verbally to participants. Preoperative anxiety was measured using the State Anxiety Inventory before and after preoperative teaching. Stata version 13 was used for data analysis. Descriptive and inferential statistics were used for data presentation.

Results

The mean age of the participants was 47.5±14.2 years. Around 68.7% were planned for laparoscopic cholecystectomy and 76.2% did not receive any information regarding their surgery prior to admission. On the day of surgery preoperative mean anxiety score was significantly different by 7 points before and after intervention among the experimental group ($p < 0.001$, 95% CI: 4.2, 9.7) whereas in the control group there was no change. The preoperative anxiety score decreased by -8.8 points in the experimental group compared to the control group ($p < 0.001$, 95% CI: -12.1, -5.6).

Conclusion

Nurse-led preoperative teaching significantly reduced the preoperative anxiety among the patient undergoing general surgery. Therefore, it is recommended that nurses should assume an important role in providing the preoperative information using standardized educational materials tailored to the needs of patients undergoing surgery.

KEYWORDS

General surgery; preoperative anxiety; preoperative teaching; quasi experimental study

INTRODUCTION

World Health Organization (WHO) reported that 4 million surgeries are performed yearly and among them 50% to 75% of patients develop preoperative anxiety.¹ Thus, it is important to use the right approach to prevent preoperative anxiety and possible complications.² Preoperative anxieties can affect 80% of patients but it is under-reported in Nepal. It varies by type of surgeries, often increasing patient's need for desire to acquire information. So adequate provision of information before surgery enhances reducing preoperative anxiety.³

Preoperative anxiety is common in the hospital and managed through nursing interventions like education, counseling and audiovisual materials. Using the correct approach during the perioperative phase is important to prevent complications.⁴

A study suggested preoperative education significantly reduced nausea and vomiting ($P=0.00$) and post intervention anxiety and postoperative pain was positively correlated ($P=0.04$).⁵ A randomized control trial showed 69% of patients had moderate to high level of anxiety before intervention and 70% had reported no to mild anxiety after intervention.⁶ A systematic review reported preoperative education significantly reduces anxiety before surgery ($P<0.05$).⁷

Preoperative nursing teaching is safe and effective way to provide psychological support for patients.⁸ While many studies have explored preoperative stress and anxiety, it remains essential to evaluate the effectiveness of nursing interventions in reducing anxiety.⁸⁻¹⁰ However, studies exploring the effect of nurse-led preoperative teaching on preoperative anxiety are limited and there is no study in Nepal. Thus, this study was conducted to examine the effectiveness of nurse-led preoperative teaching on preoperative anxiety reduction among the patient undergoing general surgery.

METHODOLOGY

This was a quasi-experimental, pretest/posttest study conducted among preoperative surgical patients in Dhulikhel hospital, a tertiary level hospital from 14th July to 23th August 2024. Approval from the institutional review committee (IRC), Kathmandu University School of Medical Sciences (KUSMS) - IRC 179/23 was obtained to conduct this study.

Participants who were unwilling to participate, mentally retarded, cognitive impaired and diagnosed with an anxiety disorder, were excluded from this study. Convenience sampling technique was used to collect data and written informed consent was obtained from the participants

before collecting data. Data was collected using a self-structured questionnaire to gather information related socio-demographic data and clinical characteristics and Likert scale for preoperative anxiety. The questionnaire was administered verbally to participants. The tool used to assess the preoperative anxiety was State anxiety inventory (STAI), standardized and valid tool for assessment of anxiety which was developed by Spielberger et al. This tool had 20 statements which evaluated how participants felt at that point of time and marked them on a 4-point scale (1. not at all, 2. somewhat, 3. moderately so, and 4. very much), scores range between 20 and 80 with the higher scores correlating to higher anxiety.¹¹ Reliability and internal consistency of the tool was tested by calculating Cronbach's Alpha from 10 % pretest sample which was 0.88. The intervention used in this study was nurse led preoperative teaching which was given individually at surgery outpatient department to orient the patients undergoing general surgery. This 15 to 20 minutes teaching was based on self-structured written brochure. Brochure was made in both English and Nepali language by researcher herself. It contained general information related to preoperative preparation, surgical procedure/ type of Anesthesia, setting of operation theatre, postoperative pain management, importance of deep breathing and coughing exercise, lower extremities exercise and early ambulation, postoperative nutrition and hydration and wound care. The content validity of the intervention was done by consulting research advisor, nursing and medical experts in the field of general surgery.

Among 91 participants, 46 participants were included in the experimental group who received structured preoperative teaching individually based on brochures in a standardized manner to maintain consistency across all interviews and 45 participants in the control group who did not receive teaching. Both experimental and control groups were reassessed for the anxiety on the day of surgery at the preoperative ward by using the same tool. Of these, 6 from the experimental and 5 from the control group were lost to follow up for a post experimental anxiety test due to cancelation of surgery. Total participants who completed both pre and post anxiety test were 80.

Data was analyzed using Stata program version 13. Proportions, frequency, mean and standard deviation (SD) were calculated to describe the sample. Chi-square test was used to measure the homogeneity of sociodemographic and clinical variables between experimental and control group. The paired t-test was conducted to compare preoperative anxiety scores before and after intervention among experimental and control groups. Linear regression was used to find out the effectiveness of nurse led preoperative teaching on reduction of preoperative anxiety among the participants.

RESULTS

During the study period, the total number of 80 participants were included in the study. Among them 40 participants were in the experimental group who received the nurse-led preoperative teaching while 40 were in the control group who received routine care. The mean age of the participants was 47.5 ± 14.2 years. More than half of them were female (56.2%) and majority of them

were married (91.2%). Regarding the education level of the participants, more than half were educated with different levels of education. The most common surgery was laparoscopic cholecystectomy (68.7%) and 56.2% of participants had no history of previous surgery. Only a few participants (23.8%) received some information regarding their surgery prior to admission for surgery. The socio demographic and clinical characteristics of both groups were homogeneous. ($p > 0.05$) (Table 1)

Table 1. Distribution of sociodemographic and clinical characteristics of participants (n=80)

Characteristics	Experimental group (n=40)		Control group (n=40)		Total	
	n	%	n	%	n	%
Age in years (mean ± SD)	48.2±15.0		46.9±13.6		47.5±14.2	
Gender						
Female	25	62.5	20	50.0	45	56.2
Male	15	37.5	20	50.0	35	43.8
Marital status						
Unmarried	4	10.0	1	2.5	5	6.3
Married	35	87.5	38	95.0	73	91.2
Widowed	1	2.5	1	2.5	2	2.5
Education level						
No education	20	50.0	12	30.0	32	40
Basic education	3	7.5	5	12.5	8	10
Secondary	6	15.0	11	27.5	17	21.3
Higher secondary	11	27.5	12	30.0	23	8.7
Occupation						
Agriculture	15	37.5	15	37.5	30	37.5
Business	8	20.0	5	12.5	13	16.2
Service	5	12.5	13	32.5	18	22.5
Homemaker	9	22.5	6	15.0	15	18.8
Student	3	7.5	1	2.5	4	5.0
Type of surgery						
Lap cholecystectomy	29	72.5	26	65.0	55	68.7
Hernia operation	9	22.5	9	22.5	18	22.5
CBD exploration	2	5.0	1	2.5	3	3.8
Others	0	0	4	5.0	4	5.0
Information of surgery						
No	33	82.5	28	70.0	61	76.2
Yes	7	17.5	12	30.0	19	23.8
History of previous surgery						
No	26	65.0	19	47.5	45	56.2
Yes	14	35.0	21	52.5	35	43.8
History of Smoking						
No	33	82.5	35	87.5	68	85.0
Yes	7	17.5	5	12.5	12	15.0
History of Alcohol intake						
No	34	85.0	28	70.0	62	77.5
Yes	6	15.0	12	30.0	18	22.5

Characteristics	Experimental group (n=40)		Control group (n=40)		Total	
	n	%	n	%	n	%
Gap of time between pretest and posttest (day)						
1-2 days	21	52.5	24	60.0	45	56.2
3-4 days	14	35.0	14	35.0	28	35.0
≥5 days	5	12.5	2	5.0	7	8.8

Note: Lap=Laparoscopic; CBD=Common bile duct; others=low anterior resection of bowel, excision and limberg flap surgery

There was a statistically significant difference in preoperative anxiety score before and after nurse-led preoperative teaching among experimental group ($p < 0.001$, 95% CI). On the day of surgery, preoperative mean anxiety score was significantly different by 7 points before and after intervention among the experimental group ($p < 0.001$, 95% CI: 4.2, 9.7) whereas in the control group there was no change. (Table 2)

Table 2: Comparison of preoperative anxiety mean score among experimental and control group Before and After Nurse Led Preoperative Teaching (n=80)

Group	Before intervention Mean $\pm$ SD	After intervention Mean $\pm$ SD	Mean diff.	95% CI	p value
Experimental group	33.0 $\pm$ 8.1	26.0 $\pm$ 7.2	7.0	4.2, 9.7	<0.001 ^t
Control Group	35.2 $\pm$ 8.7	35.5 $\pm$ 9.0	-0.3	-2.3, 1.6	0.7 ^t

Note: t=Student's t test

There was significant association between nurse led preoperative teaching and preoperative anxiety ($p < 0.001$, 95% CI). The preoperative anxiety score decreased by -8.8 points in the experimental group compared to the control group (p value <0.001, 95% CI: -12.1, -5.6). (Table 3)

Table 3: Comparison of preoperative anxiety score between experimental and control group following nurse led preoperative teaching (n=80)

Characteristics	Univariate			Multivariate		
	Beta Coefficient	95% CI	P- value	Beta Coefficient	95% CI	P- value
Control Group	Ref.			Ref.		
Experimental group	-9.5	-13.1, -5.8	<0.001	-8.8*	-12.1, -5.6	<0.001

Note: *Adjusted for age, gender, education, marital status, occupation, type of surgery, history of previous surgery, history of smoking, history of alcohol consumption and gap of time between pretest and posttest.

DISCUSSION

This study was the pretest and posttest quasi experimental study design to assess the effectiveness of nurse led preoperative teaching to reduce preoperative anxiety among surgical patients in tertiary care hospital.

This study showed the mean anxiety score of patients undergoing general surgery was 33.0 $\pm$ 8.1 and 35.2 $\pm$ 8.7 in experimental and control respectively before intervention. Similar findings were reported among patients undergoing orthopedic surgery in India.¹² In these both studies, the most of the participants were educated and STAI tool was used to measure anxiety level. In contrast to this finding, the study conducted in Taiwan reported much higher

mean anxiety scores (51.88 in the experimental group and 52.70 in the control group) among patients undergoing neurosurgical procedure.¹³

This study showed a reduction in preoperative anxiety score among patients who received nurse-led preoperative teaching, suggesting a notable beneficial impact of planned education before surgery among patients undergoing surgery. The structured brochure was used as an intervention which covered key surgical aspects. Similar outcomes were seen in the study conducted in Egypt among the participants undergoing open cholecystectomy following teaching session regarding the disease and surgery aspect.⁴ There was also a significant reduction in anxiety score in Spanish patients who viewed the video

regarding preoperative education compared with those who did not, who were scheduled for gynecological, orthopedic, and intra-abdominal surgery.¹⁴ In contrast, a study conducted by Ortiz et al. that reported that preoperative education through educational leaflets did not lower surgery-related anxiety but did enhance patients' satisfaction with their understanding of the preoperative process. This difference may be attributed to the study's observational design, where the impact of patient education handouts was measured proportionately by response of the participants.¹⁵ Similar finding was reported in another study conducted by Gonçalves et al., where there was a weak negative correlation between the preoperative anxiety and preoperative information.¹⁶ This could possibly because of inadequate or poorly tailored content to meet patients' needs. Variation in study design, sample size and sociodemographic characteristics could account for the differing results. Studies also reported that patients tend to perceive themselves to be poorly informed before the surgery.^{15,16} Therefore, it should be noted that nurses should assume an important role in providing adequate information.

In this study, the mean anxiety score was significantly decreased by 7 points in the experimental group after nurse-led preoperative teaching. Similar findings was reported by Rajamani S. which explained the positive impact of preoperative teaching to reduce anxiety of patients undergoing surgery for inguinal hernia.¹⁷ Several studies reported that there was a drop of state-anxiety score mean value on admission who had received preoperative teaching.¹⁸⁻²⁰ However, no change of mean anxiety score was found among control group.¹⁸⁻²⁰ Preoperative education can alleviate patients' anxiety by enhancing patient understanding of surgery.²¹ Individual teaching; interactive session, as practiced in this study was possible to resolve their doubts regarding surgery and it is beneficial in alleviating anxiety. Another quasi-experimental study conducted among the patients scheduled for thyroidectomy stated that there was no significant difference in the mean anxiety scores of the pretest and final test for the experimental and control

groups where the researchers used written educational materials.²²

In several studies, there were different methods to provide information to patients before surgery, and the efficiency and application of each were different based on the demographic characteristics of the patients. Therefore, nurses having more contact with the patients are suggested to have sufficient experience and knowledge in providing information and choosing the appropriate educational methods for educating patients before surgery.

Our study has some limitations. Preoperative teaching was given to each individual separately; this may affect the consistency in mode of delivering the preoperative teaching even if it was based on the brochure prepared by the researcher. Even though there was a well-structured brochure, it was not standardized and validated educational material. The variability in the duration between pretest and post test assessments might introduce several threats to the internal validity of the study evaluating the range of nurse led preoperative teaching on preoperative anxiety.

CONCLUSION

The finding of this study revealed that nurse-led preoperative teaching was effective in reducing preoperative anxiety among patients undergoing general surgery. Use of structured brochure is a simple, safe, low-cost, effective and well-accepted by nurses as a part of surgical care. Hence, it is recommended that nurses should assume an important role in providing the preoperative information using standardized educational materials tailored to the needs of patients undergoing surgery.

ACKNOWLEDGMENT

The researcher would like to express sincere thanks to all the participants of this study for their valuable participation and also would like to acknowledge the support of surgery department at Dhulikhel Hospital and Kathmandu university school of medical sciences to conduct this study.

REFERENCES

- Medina-Garzón M. Effectiveness of a nursing intervention to diminish preoperative anxiety in patients programmed for knee replacement surgery: preventive controlled and randomized clinical trial. *Investigacion y educacion en enfermeria*. 2019;37(2). DOI: 10.17533/udea.iee.v37n2e07
- Roa L, Jumbam DT, Makasa E, Meara JG. Global surgery and the sustainable development goals. *British Journal of Surgery*. 2019;106(2):e44-e52. DOI: <https://doi.org/10.1002/bjs.11044>
- Sigdel S, Ozaki A, Basnet M, Kobashi Y, Pradhan B, Higuchi A, et al. Anxiety evaluation in Nepalese adult patients awaiting cardiac surgery: A prospective observational study. *Medicine*. 2020;99(9). DOI: 10.1097/MD.00000000000019302
- Alhamdoun A, Suliman M, AlBashtawy M. Managing Preoperative Anxiety among Patients Undergoing General Surgery. *EC Psychol Psychiatry*. 2020;9(6):71-4.
- Abd El GwadElkalashy R, Masry S. The effect of preoperative educational intervention on preoperative anxiety and postoperative outcomes in patients undergoing open cholecystectomy. *BJU Int*. 2018;117(1):62-71.
- Al amine Ali ES, Abdallah HM. Effect of preoperative preparation on patients outcome among patients undergoing surgical operations at Almik Nimir Hospital–Sudan. *Int J Res Granthaalayah*. 2020;8(8):346-55. DOI: <https://doi.org/10.29121/granthaalayah.v8.i8.2020.441>
- Alanazi AA. Reducing anxiety in preoperative patients: a systematic review. *British Journal of Nursing*. 2014;23(7):387-93. DOI: 10.12968/bjon.2014.23.7.387
- Ruiz Hernandez C, Gómez-Urquiza JL, Pradas-Hernández L, Vargas Roman K, Suleiman-Martos N, Albendín-García L, et al. Effectiveness of nursing interventions for preoperative anxiety in adults: A systematic review with meta-analysis. *Journal of advanced nursing*. 2021;77(8):3274-85. DOI: 10.1111/jan.14827
- Abate SM, Chekol YA, Basu B. Global prevalence and determinants of preoperative anxiety among surgical patients: A systematic review and meta-analysis. *International Journal of Surgery Open*. 2020; 25:6-16. DOI: 10.1016/j.ijso.2020.05.010
- Çengel K, Andsoy II. The effect of an operating room nurse visit on surgical patient anxiety. *Journal of PeriAnesthesia Nursing*. 2022 Feb 1;37(1):80-5. DOI: <https://doi.org/10.1016/j.jopan.2021.06.004>
- Spielberger CD, Gonzalez-Reigosa F, Martinez-Urrutia A, Natalicio LF, Natalicio DS. The state-trait anxiety inventory. *Revista Interamericana de Psicologia/Interamerican journal of psychology*. 1971;5(3 & 4). <https://doi.org/10.1002/9780470479216.corpsy0943>
- Paripoorani D, Babu V, Poongodi K, Cherian VM. Effectiveness of instructional video on preoperative anxiety of patients undergoing orthopedic surgery. *Indian Journal of continuing nursing education*. 2015;16(2):36.
- Lee CH, Liu JT, Lin SC, Hsu TY, Lin CY, Lin LY. Effects of educational intervention on state anxiety and pain in people undergoing spinal surgery: A randomized controlled trial. *Pain Management Nursing*. 2018 Apr 1;19(2):163-71. DOI: 10.1016/j.pmn.2017.08.004
- West AM, Bittner EA, Ortiz VE. The effects of preoperative, video-assisted anesthesia education in Spanish on Spanish-speaking patients' anxiety, knowledge, and satisfaction: a pilot study. *Journal of clinical anesthesia*. 2014 Jun 1;26(4):325-9. DOI: 10.1016/j.jclinane.2013.12.008
- Ortiz J, Wang S, Elayda MA, Tolpin DA. Preoperative patient education: can we improve satisfaction and reduce anxiety? *Revista brasileira de anestesiologia*. 2015; 65 (1):7-13. DOI: 10.1016/j.bjan.2013.07.009
- Gonçalves, M.A.R., Cerejo, M.D.N.R. and Martins, J.C.A., 2017. The influence of the information provided by nurses on preoperative anxiety. *Revistade Enfermagem Referência*, 4(14), pp.17-25. DOI:10.12707/RIV17023
- Rajamani S, Sahoo KK. Effectiveness of nurse led preoperative awareness program on anxiety of patients undergoing inguinal hernia surgery. *International journal of advanced research in medical, nursing and health sciences*. 2023;1(1):27.
- Lilly, A.E. and Dakshayani, B., 2018. Effect of preoperative teaching on anxiety level of patients with neurosurgery. *Indian Journal of Psychiatric Nursing*, 15(2), pp.1-3. DOI: 10.4103/2231-1505.262432
- Sadati L, Pazouki A, Mehdizadeh A, Shoar S, Tamannaie Z, Chaichian S. Effect of preoperative nursing visit on preoperative anxiety and postoperative complications in candidates for laparoscopic cholecystectomy: a randomized clinical trial. *Scandinavian Journal of caring sciences*. 2013;27(4):994-8. DOI: 10.1111/scs.12022
- Ho CJ, Chen YT, Wu HL, Huang HT, Lin SY. The effects of a patient-specific integrated education program on pain, perioperative anxiety, and functional recovery following total knee replacement. *Journal of personalized medicine*. 2022 Apr 29; 12(5):719. DOI: 10.3390/jpm12050719
- Kruzik N. Benefits of preoperative education for adult elective surgery patients. *AORN Journal*. 2009 Sep 1; 90 (3):381-7. DOI: 10.1016/j.aorn.2009.06.022
- Gezer D, Arslan S. The effect of education on the anxiety level of patients before thyroidectomy. *Journal of PeriAnesthesia Nursing*. 2019 Apr 1;34(2):265-71. DOI: 10.1016/j.jopan.2018.05.017

Care Burden and Quality of Life of Caregivers of Children with Sickle Cell Disease in a Selected Hospital in Dang

Rawat S¹, Karki S²

¹ Kathmandu University School of Medical Sciences
Dhulikhel hospital, Kathmandu University hospital,
Dhulikhel, Kavre, Nepal

Corresponding Author

Samjhana Rawat
Kathmandu University School of Medical Sciences
Dhulikhel hospital, Kathmandu University hospital,
Dhulikhel, Kavre, Nepal
E-mail: samjhanarawat52@gmail.com

Citation

Rawat S. & Karki S. Care Burden and Quality of Life of Caregivers of Children with Sickle Cell Disease in a Selected Hospital in Dang. *The Cliff*. 2025; 7: 34-41.

ABSTRACT

Background

Sickle cell disease is one of the most common genetic diseases worldwide, which causes a perceived burden of care on caregivers and also affects the quality of life of caregivers.

Objectives

The study aimed to assess the level of care burden and quality of life of caregivers of children with Sickle Cell Disease, and its association with socio-demographic variables.

Method and Materials

A cross-sectional study was conducted among 120 caregivers of children with Sickle Cell Disease visiting the pediatric outpatient department of Rapti Academy of Health Sciences, Teaching Hospital, Dang, using a convenience sampling method. The study utilized validated standard tools, including the Zarit Caregiver Burden Interview and TAAQoL (Adult Quality of Life), as well as socio-demographic variables and clinical variables. STATA Version 13 was used for descriptive and inferential statistical analysis.

Results

The findings of the study revealed that out of 120 participants more than three-fifths (63.3%) of caregivers had a mild to moderate burden of care, and the mean score of quality of life was 75.5 ± 13.6 and the highest mean score on fine motor functioning (95.9 ± 9.2) and the lowest on depressive moods (48.4 ± 23.1). Care burden and QoL were moderately negatively correlated ($r = -0.67$). Family relations with the child, other health problems, number of admissions, and number of blood transfusions were the most significant factors of caregivers' burden and quality of life of caregivers of children with SCD.

Conclusion

The Majority of the caregivers had mild to moderate burden of care, and caregivers had a better quality of life, which highlights the importance of managing burdens to improve overall well-being.

KEYWORDS

Caregivers, Care burden, Children, Quality of life, Sickle cell disease

INTRODUCTION

Sickle cell disease (SCD) is one of the most common genetic diseases worldwide. According to the World Health Organization (WHO), over 5% of the world's population has genes of hemoglobinopathies such as SCD, thalassemia, etc. Total births of babies with sickle cell disease increased globally by 13.7%. The number of people living with sickle cell disease globally increased by 41.4%, from 5.46 million in 2000 to 7.74 million in 2021.^{1,2}

The estimated SCD is heavy prevalence in mid and far western regions of Nepal was found to be 30,000, and most of them were Tharus. The prevalence of sickle cell disease in the Tharu population of Dang was 9.3%.^{3,4}

Although SCD has been reported from Pakistan, Sri Lanka, Nepal, Bangladesh, and the Maldives, very little is known about the nature of SCD and the burden of the disease in these countries. The caregivers had to face challenging experiences caring for children with SCD since their management should be family-centered. So, the caregivers faced day-to-day difficulties that affected their quality of life.^{5,6,7}

Similar to many other pediatric chronic illnesses, SCD places a significant burden on children and their families that may manifest as symptoms of depression and anxiety. The prevalence of depression in caregivers of patients with SCD has been reported as high as 68.9%.⁸

A study from Nigeria in 2023 highlighted that factors such as hospitalization, blood transfusions, and episodes of bone pain crises substantially impact caregiver burden.⁹

Assessment of the QoL among caregivers in Saudi Arabia showed that caregivers of children with SCD have impaired sleep quality and unsatisfactory emotional and sexual life as well as a high incidence of anxiousness and feeling of exhaustion, and negative trends regarding fitness and energetic feeling.¹⁰

Caregivers of children with SCD have significantly lower QoL scores on the sub scales of depressive moods, daily activities, and vitality. Sleeping, happiness, and cognitive functioning were negatively affected as well.¹¹

Providing care to family members dealing with chronic illness may result in feelings of burden or strain for caregivers that can diminish their quality of life.¹² Hence, it is of utmost importance to find out the care burden and quality of life of caregivers of children with SCD.

METHODS

A cross-sectional study was conducted among 120 caregivers of children with SCD in the outpatient

department of Rapti Academy of Health Sciences, Teaching Hospital, Dang, from 14th July to 23rd August 2024. Caregivers who provided care for at least 6 months to their children diagnosed with sickle cell disease, including children aged less than 18 years with sickle cell disease included in the study using a convenience sampling technique.

A structured questionnaire was used for data collection. It included socio-demographic information of caregivers and children, clinical variables of children, Zarit Burden Interview (ZBI)¹³, to assess caregivers' burden, and the TNO-AZL Adult Quality of Life questionnaire (TAAQoL)¹⁴ to evaluate caregivers' quality of life. ZBI contains 22 items and is scored on a five-point Likert scale where 0 = "never" and 5 = "almost always." The score ranges from 22 to 88 points, classified in the following way: "no to mild burden": 0-20, "mild to moderate burden": 21- 40, "moderate to severe burden": 41-60, "severe burden": >=61. Quality of life TAAQoL has 12 multi-item multi-scale and scores are obtained by adding item scores within scales and transforming raw scale scores to a 0-100 scale, with higher scores indicating a higher QoL. Pretest was done on 10% total sample size, i.e., 12, with similar characteristics in a similar setting for maintaining its clarity, sequencing, and feasibility.

Data was collected by interview technique and the total time taken for the interview was approximately 45 minutes for each participant. Data were manually entered and coded in a Microsoft Excel sheet and analyzed by STATA version 13. Data was analyzed using descriptive statistical methods (frequency, percentage, mean, and standard deviation). Logistic regression was used to test the association between care burden with selected variables. Linear regression was used to test the association between quality of life with selected variables. Karl Pearson's correlation coefficient was used to find the correlation between care burden and the quality of life of caregivers. An odds ratio for logistic regression and a beta coefficient for linear regression, and $p < 0.05$ was used to establish the statistical significance at a 95% confidence interval.

Ethical approval from the Institutional Review Committee (IRC- KUSMS Approval No- 177/23) was obtained. Written approval was obtained from the administration, hospital director, and head of the Department of Pediatrics of Rapti Academy of Health Sciences, Teaching Hospital. Verbal and written consent were taken from the participants before data collection.

RESULTS

The socio-demographic variables of caregivers of children

and clinical variables of children with SCD are presented in Table 1. Among 120 caregivers in the study more than half were mother 62 (51.7%), all the caregivers were from Tharu ethnicity, 36 (36%) caregivers had no education. Most of the child (87.5%) had social security according to Nepal Government and 42.5% caregivers involved in agriculture. Similarly, most of the caregivers had one child affected by SCD (90%), 48.3% children were from age more or equal to 15 years age. One third of the children (32.5%) were between aged 10 - 14 years when diagnosed with SCD. Common complain of children were fever, headache, limb pain, chest pain, abdominal pain etc.

Table 1: Socio-demographic Variables of Caregivers of Children with Sickle Cell Disease (SCD)

n = 120

Characteristics	Frequency	Percentage
Family relations with children		
Father	53	44.2
Mother	62	51.7
Grandfather	3	2.5
Grandmother	1	0.8
Uncle	1	0.8
Age in completed years		
20- 29	15	12.5
30-39	64	53.4
40-49	34	28.4
≥50	7	5.7
Religion		
Hinduism	117	97.5
Christianity	3	2.5
Ethnicity		
Tharu	120	100.0
Family Type		
Nuclear	70	58.3
Joint	48	40.0
Extended	2	1.7
Educational Level		
No education	36	30.0
Informal education	10	8.3
Basic education (1-8)	48	40.0
Secondary education (9-12)	24	20.0
More than secondary (13+)	2	1.7
Annual Income Status of Family		
Sufficient for less than 6 months	26	21.6

Characteristics	Frequency	Percentage
Sufficient for 12 months	86	71.7
Sufficient for 12 months and extra savings	8	6.7
Social security for children		
None	12	10.0
Insurance	3	2.5
Free treatment	105	87.5
No. of children in family		
One	22	18.4
Two	61	50.8
Three and more	37	30.8
No. of SCD affected children		
One	108	90
Two	10	8.3
Three	2	1.7
Age (completed years) of SCD affected children		
<5	10	8.4
5-9	19	15.8
10-14	33	27.5
≥15	58	48.3
Children Aged diagnosed with SCD (Years)		
<5	27	22.5
5-9	38	31.7
10-14	39	32.5
≥15	16	13.3
Duration of care in Years		
<5	76	63.3
5-9	35	29.2
≥10	9	7.5

Table 2: Clinical Variables of Children Affected with Sickle Cell Disease (SCD)

n=120

Characteristics	Frequency	Percentage
Other Health Problems (Multiple Response)		
Fever	47	39.2
Abdominal pain	14	11.7
Headache	22	18.3
Chest pain	15	12.5
Allergy	15	12.5
Jaundice	7	5.8
Limb pain	24	20.0
Miscellaneous	18	15.0

Characteristics	Frequency	Percentage
No. of hospital admission (In the last 12 months)		
None	67	55.8
One time	24	20.0
Two times	13	10.8
Three or more times	16	13.4
No. of blood transfusion (In the last 12 months)		
None	84	70.0
One time	18	15.0
Two times	10	8.3
Three and more times	8	6.7

The level of caregiver's burden, the majority of the caregivers had mild to moderate burden (63.3%), nearly one third of the caregivers had moderate to severe burden (26.7%), little to no burden (8.3%), and severe burden (1.7%). (Table 3)

Table 3: Level of Care Burden of Caregivers of Children with Sickle Cell Disease (SCD)

n=120

Level of Burden	Frequency	Percentage
No burden (0-20)	10	8.3
Mild to moderate(21-40)	76	63.3
Moderate to severe(41-60)	32	26.7
Severe (≥ 61)	2	1.7
Total burden score (33.99 $\pm$ 11.54) (Min:9, Max:62)		

Note: Likert Scale **Possible score 0-88

The total mean score and the standard deviation of the quality of life of caregivers of children with sickle cell disease were 75.5 (13.6). Regarding the domains of the quality of life, caregivers have obtained higher mean score on fine motor (95.9 $\pm$ 9.2), gross motor (87.4 $\pm$ 19.3), sleep (83.8 $\pm$ 18.6), sexuality (83.2 $\pm$ 24.4), daily activities (80.5 $\pm$ 20.9), pain (80.2 $\pm$ 16) than the total mean score of quality of life whereas caregivers had obtained low mean

score than the total quality of life mean score on social contact (72.2 $\pm$ 17.8), anger (72 $\pm$ 21.6), cognition (68.6 $\pm$ 26), vitality (63.8 $\pm$ 20.4), happiness (61.5 $\pm$ 20.9), and depressive moods (48.4 $\pm$ 23.1). Among the domains of quality of life of caregivers, the highest mean score was on fine motor, and the lowest on depressive moods. (Table 4)

Table 4: Level of Quality of Life of Caregiver of Children with Sickle Cell Disease (SCD)

n=120

Domain of QoL	Mean	SD	Min	Max
Gross Motor	87.4	19.3	20	100
Fine Motor	95.9	9.2	55	100
Cognition	68.6	26	20	100
Sleep	83.8	18.6	25	100
Pain	80.2	16	25	100
Social Contact	72.2	17.8	20	100
Daily Activities	80.5	20.9	30	100
Sexuality (n=118)	83.2	24.4	0	100
Vitality	63.8	20.4	25	100
Happiness	61.5	20.9	25	100
Depressive moods	48.4	23.1	25	100
Anger	72	21.8	25	100
Total Quality of Life	75.5	13.6	42.8	99.04

Note: Likert Scale **Possible score 0-100

Table 5 shows that caregivers of children with additional health problems experienced a significantly higher burden, being 4.3 times more likely to report caregiver burden compared to those whose children had no other health problems ($p = 0.01$). Additionally, the odds of experiencing caregiver burden were 4.6 times higher among caregivers of children who had been hospitalized two or more times compared to those whose children had no hospital admissions, after adjusting for the number of affected children, age of the affected children, and age at diagnosis of sickle cell disease (SCD).

Table 5 Association between clinical variables of Children with SCD and the Care Burden of Caregivers of Children with SCD

n=120

Characteristics	*COR	95% CI	P value	*AOR	95% CI	P value
Other health problems						
None	Ref	-	-	-	-	-
Yes	2.9	1.08 to 7.7	0.03	4.3	1.2 to 14.7	0.01
No of hospital admissions (In the last 12 months)						
None	Ref	-	-	-	-	-
One time	5.4	1.8 to 15.8	0.002	3.4	1.02 to 11.4	0.04
Two or more times	6.01	2.1 to 16.5	0.001	4.6	1.4 to 14.6	0.01
No of blood transfusions (In the last 12 months)						
None	Ref	-	-	-	-	-
One time	3.6	1.2 to 10.5	0.01	2.6	0.83 to 8.4	0.09
Two or more times	2.3	0.7 to 6.8	0.12	1.1	0.3 to 4.1	0.8

*COR crude odds ratio *AOR adjusted odds ratio

*Multivariate model adjusted for the number of affected children, age of affected children, and age of diagnosis of SCD.

*Ref = Reference

Table 6 highlights that caregivers of children with other health problems had a lower quality of life by 7.3 mean score than those who don't have other health problems (p= 0.005) after adjusting for the education level of caregivers, family annual income, and type of family.

Table 6: Association between Quality of Life of Caregivers of Children with SCD and selected variables

n=120

Characteristics	Crude			Adjusted		
	Beta Coeff.	95% CI	p-value	Beta coeff.	95% CI	p-value
No of children in family						
One	Ref	-	-	-	-	-
Two	-2.2	-9.02 to 4.5	0.51	0.2	-6.5 to 7.05	0.94
Three and more	-2.5	-9.9 to 4.7	0.49	1.7	-5.8 to 9.3	0.64
No of SCD-affected children						
One	Ref	-	-	-	-	-
Two	-7.5	-16.5 to 1.3	0.09	-5.5	-14.2 to 3.2	0.21
Three	1.7	-17.5 to 21.01	0.85	9.1	-9.8 to 28.2	0.34
Duration of care in Years						
<5	Ref	-	-	-	-	-
5-9	-0.5	-6.02 to 4.9	0.85	0.5	-4.9 to 6.07	0.83
≥10	-8.4	-17.9 to 1.1	0.08	-5.1	-14.6 to 4.2	0.28
Other Health Problems						
None	Ref	-	-	-	-	-
Yes	-8.7	-8 to -3.7	0.001	-7.3	-12.2 to -2.4	0.005

*CI= Confidence Interval *Ref = Reference

*multivariate analysis model adjusting for the education level of caregivers, family annual income, and type of family

Table 7 explains that the correlation coefficient (r) between "burden" and "Quality of life" is -0.67. The value of -0.67 indicates a moderate negative correlation as one variable increases, the other decreases. Specifically, as "burden" increases, "Quality of life" decreases. Caregivers experienced higher levels of burden are likely to report lower quality of life.

Table 7: Correlation between Care Burden and Quality of Life of Caregivers of Children with SCD

n = 120

Variables	R	p Value
Care burden and Quality of Life	-0.67	<0.001

DISCUSSION

This study reveals that 8.3% of caregivers reported no care burden, while a significant 63.3% experienced mild to moderate care burden.

These findings were in line with other research, such as a 2021 study in Jamaica, which found that 61% of caregivers experienced mild to moderate burden.¹⁵ A similar study in 2023 from Bheri Hospital, Nepalgunj, reported a similar perception among 52.0% of parents.¹⁶ These consistent results suggest a similar population with their socioeconomic, environmental, and cultural factors.

Conversely, some studies have reported different findings. A study in Saudi Arabia indicated that 36.3% of caregivers reported no burden.¹⁷ In 2021, a study in Grenada found that 53.8% of caregivers of children with sickle cell disease indicated no burden.¹⁸ This may be due to cultural differences, varying definitions of caregiver's burden, or differences in the populations studied.

The findings of this study indicate that caregivers report varying levels of quality of life across different domains. Caregivers achieved the highest mean scores in fine motor skills sleep (83.8 ± 18.6), sexuality (83.2 ± 24.4), and daily activities (80.5 ± 20.9). However, they reported lower mean scores in cognition (68.6 ± 26), happiness (61.5 ± 20.9), and depressive moods (48.4 ± 23.1).

Our findings align with existing literature, such as a study conducted in Saudi Arabia, which reported a high mean score for fine motor skills (88.3 ± 17.6).¹⁰ Additionally, research in the Netherlands highlighted a higher incidence of depressive moods and feelings of unhappiness among caregivers.² In contrast, some studies have reported different outcomes. For instance, another Saudi study noted a high mean score for cognitive function (79.3 ± 22.3) but lower scores in sleep (59.5 ± 32.9) and sexuality (60.2 ± 24.9).⁸ Similarly, caregivers in Kenya, particularly those caring for children with sickle cell disease, were found to be significantly affected in their daily activities. That might point to the contextual differences in caregivers' experiences across regions and conditions.

This study highlights a significant association between caregiver burden and the relationship to the child ($p = 0.006$), indicating that caregivers who are more closely related to the child tend to experience higher levels of care burden. This finding is consistent with research conducted in Bheri Hospital, Nepalgunj, which also found a significant association ($p = 0.002$) between the caregiver's relationship to the child and their perceived burden of care.¹⁶

This study found no significant association between caregiver burden and family type ($p = 0.11$). This is noteworthy given the variations reported in other studies. In contrast, another study from Bheri Hospital indicated a significant association between caregiver burden and family type ($p = 0.04$)¹⁶, suggesting that the structure of the family unit may influence the level of burden experienced.

Furthermore, a study conducted in Jamaica in 2021 revealed that variations in age groups did not significantly affect caregiver burden ($p = 0.52$).¹⁵ This result is similar to the present study, as the age group of caregivers is not statistically significant.

The present study reveals a statistically significant association between caregiver burden and several health-related factors, including the presence of other health problems, the number of hospitalizations, and the number of blood transfusions. Supporting these findings, a study in the USA found that caregivers of children with more frequent vaso-occlusive crises reported greater caregiver burden compared to those with less frequent crises.⁸ This indicates the unpredictability and severity of a child's health condition. Similarly, a study from Nigeria in 2023 highlighted that factors such as hospitalization, blood transfusions, and episodes of bone pain crises substantially impact caregiver burden.⁹

This study reveals that a father as caregiver had a significant association with quality of life ($p < 0.001$). Supporting this observation, previous research indicates that mothers often report worse scores regarding negative emotions compared to fathers, with a notable effect size ($B = 16.06$, $p = 0.001$).¹⁰ This could be due to gender roles and additional emotional burden on the mother as a caregiver than on the father.

The results of this study indicate a significant negative moderate correlation between caregiver burden and quality of life, with a correlation coefficient of $r = -0.6777$ ($p < 0.001$). This suggests that as caregiver burden increases, the quality of life for caregivers decreases substantially. These findings are consistent with existing literature, including a study conducted in Campo Grande, which reported a moderate negative correlation ($r = -0.477$, $p = 0.003$) between the quality of life and the caregiver burden.¹¹

The health conditions of caregivers can significantly impact their ability to care for children with sickle cell disease, often increasing the care burden and affecting the caregiver's quality of life, which was not studied in this study.

CONCLUSION

The majority of the caregivers had a mild to moderate care burden. Among the 12 domains of quality of life, the highest mean score was on fine motor, and the lowest on depressive moods of caregivers of children with sickle cell disease. The findings suggest that family relations with the child, age of SCD affected children, children aged diagnosed with SCD, other health problems, number of admissions, and number of blood transfusions were the most significant predictors of caregiver burden. Caregiver relation with child, caregiver education level and occupation, other health problems, number of admissions, and number of blood transfusions were significantly associated with caregiver quality of life. It was found that the mother had a lower quality of life than the father. There was a moderately negative correlation between care burden and the quality of life of caregivers of children with SCD, which highlights the importance of managing burdens to improve overall well-being. The topic was novel and address both care burden and quality of life of caregivers of children with SCD with primary dataset using validated tool. The health conditions of caregivers can significantly impact their ability to care for children

with sickle cell disease, often increasing the care burden and affecting the caregiver's quality of life which was not studied in this study. This study was conducted in only one hospital, and a non-probability sampling technique was used; therefore, the study's findings cannot be generalized to the larger population.

The healthcare providers in the pediatric department should provide proper counseling services and be aware of the significant burden on caregivers, so they can orient them towards appropriate coping mechanisms to reduce the perceived burden and improve quality of life.

ACKNOWLEDGEMENT

I would like to extend my gratitude to all the faculty member of KUSMS for their continuous support and guidance. I extend my gratitude towards Rapti Academy of Health Science for granting me permission for the data collection and all the participants for giving me their valuable time, necessary information, and cooperation for carrying out the study. I am overwhelmed towards my husband, daughter, and entire family members for being backbone and encouragement in entire this study.

REFERENCES

1. Hockenberry MJ, Wilson D, Rodgers CC. Wong's Essentials of Pediatric nursing-e- book: Elsevier Health Sciences, 2021.
2. GBD 2021 Sickle Cell Disease Collaborators. Global, regional, and national prevalence and mortality burden of sickle cell disease, 2000–2021: a systematic analysis from the Global Burden of Disease Study 2021. *Lancet Haematol*. 2023 Aug;10(8):e585–e599. doi:10.1016/S2352-3026(23)00118-7. Epub 2023 Jun 15. Erratum in: *Lancet Haematol*. 2023 Aug;10(8):e574. doi:10.1016/S2352-3026(23)00215-6. PMID:37331373; PMCID:PMC10390339.
3. Pandey S, Shrestha N. Sickle Cell Anaemia among Tharu Population Visiting the Outpatient Department of General Medicine of a Secondary Care Centre: A Descriptive Cross-sectional Study. *JNMA: Journal of the Nepal Medical Association*. 2022 Sep;60(253):774.
4. Marchand M, Gill C, Malhotra AK, Bell C, Busto E, McKeown MD, et al. The assessment and sustainable management of sickle cell disease in the indigenous Tharu population of Nepal. *Hemoglobin*. 2017;41(4-6):278-82.
5. Saxena D, Yasobant S, Golechha M. Situational analysis of sickle cell disease in Gujarat, India. *Indian Journal of Community Medicine*. 2017 Oct 1;42(4):218-21.
6. Van den Tweel XW, Hatzmann J, Ensink E, van der Lee JH, Peters M, Fijnvandraat K, Grootenhuys M. Quality of life of female caregivers of children with sickle cell disease: a survey. *haematologica*. 2008 Apr 1;93(4):588-93.
7. Karadağ G, Güngörmüş Z, Olçar Z. Experiences and problems encountered by families of children with sickle cell anemia. *Journal of Caring Sciences*. 2018 Sep;7(3):125.
8. Kuerten BG, Brotkin S, Bonner MJ, Ayuku DO, Njuguna F, Taylor SM, et al. Psychosocial burden of childhood sickle cell disease on caregivers in Kenya. *Journal of Pediatric Psychology*. 2020;45(5):561-72.
9. Alabi A, Ogundeyi M, Mautin G, Ekundayo A. Psychosocial Burden and Coping Abilities of Caregivers of Children with Sickle Cell Disease Attending Government- Owned Tertiary Health Care Facilities in Ogun State, Southwest Nigeria. *Babcock University Medical Journal*. 2023 Dec 31;6(2):252-66
10. Madani BM, Al Raddadi R, Al Jaouni S, Omer M, Al Awa M-I. Quality of life among caregivers of sickle cell disease patients: a cross-sectional study. *Health and quality of life outcomes*. 2018;16(1):1-9.
11. da Silva LB, Ivo ML, de Souza AS, Pontes ER, Pinto AM, de Araujo OM. The burden and quality of life of caregivers of sickle cell anemia patients taking hydroxyurea versus those not taking hydroxyurea. *Revista brasileira de hematologia e hemoterapia*. 2012;34(4):270-4.
12. Badawy SM, Thompson AA, Lai JS, Penedo FJ, Rychlik K, Liem RI. Health-related quality of life and adherence to hydroxyurea in adolescents and young adults with sickle cell disease. *Pediatric blood & cancer*. 2017;64(6):e26369.
13. Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: correlates of feelings of burden. *The gerontologist*. 1980 Dec 1;20(6):649-55.
14. Bruil J, Fekkes M, Vogels T, Verrips G. TAAQOL Manual Leiden Center for Child Health and Pediatrics LUMC-TNO. Leiden, The Netherlands. 2004.

15. Baker TD, Ford SC, Wilson L, Reid M, Farlane SM. Burdens on caregivers of children ages one to sixteen years living with sickle cell disease attending a specialised clinic in urban, Jamaica. *International Journal of Child & Adolescent Health*. 2021 Jan 1;14(1).
16. Nai S, Ranjitkar UD, Pandey A. Perceived Burden of Care among Parents of Children with Sickle Cell Disease. *Journal of Nepal Health Research Council*. 2023 Dec 13;21(2):197-202.
17. Aloufi Y, Al-Dubai S, Alamri AA, Lodhi A, Alammari SS, Aloufi F. Assessment of Burden on Family Caregivers of Children With Sickle Cell Anemia in Al Madinah Al Munawwarah, Saudi Arabia. *Cureus*. 2024 Aug;16(8).
18. Grygiel A, Ikolo F, Stephen R, Bleasdale D, Robbins-Furman P, Nelson B, et al. Sickle cell disease in Grenada: Quality of life and barriers to care. *Molecular genetics & genomic medicine*. 2021;9(1):e1567

Illness Perception and Depression among Patients with Diabetes Mellitus Attending Tertiary Level Hospital

Rijal S¹, Acharya R²

¹ Pokhara Academy of Health Sciences, Pokhara

² Department of Nursing and Midwifery
Kathmandu University School of Medical Sciences
Dhulikhel

Corresponding Author

Sujata Rijal
sujatarijal@student.kusms.edu.np

Citation

Rijal S. & Acharya R. Illness Perception and Depression among Patients with Diabetes Mellitus Attending Tertiary Level Hospital. *The Cliff*. 2025; 7: 42-48.

ABSTRACT

Background

Background: Illness perception and depression was vital issue in diabetic patient. The coexistence of depression with diabetes worsens the disease outcome.

Objective

To assess the level of illness perception and depression, and to examine their association among patients with diabetes mellitus.

Methods

A cross-sectional study was conducted in the outpatient department in Internal medicine (OPD) of Dhulikhel Hospital in 256 patients meeting inclusion criteria. Systematic random sampling technique with face-to-face interview technique was done. Brief illness perception questionnaire (BIPQ) and Beck Depression Inventory-II tools were used for data collection. Descriptive and inferential statistics were performed using Statistic and Data 14 (STATA 14).

Result

Result identified 35.94% participants had depression and 50% participants had negative illness perception. The adjusted odds of having depression among male participants was 0.44 times lower than those of females similarly the odds of having depression among participants who attended secondary and higher secondary education and was 0.38 and 0.24 times lower than those who had basic level education. The total mean illness perception was 38.71 ± 8.83 with positive correlation between illness perception and depression ($r=0.27$, $p=0.000$).

Conclusion

Study finding confirms half of the participants had negative illness perception, similarly more than one third of the participants had depression, with significant association between level of education and depression, which advocates that persons living with diabetes need comprehensive diabetes educational program. As more than one third of the participants had depression, psychological assessment by health care providers should also be emphasized.

KEYWORDS

BIPQ, Diabetes Mellitus, Depression, Illness Perception

INTRODUCTION

The world was currently witnessing an epidemic of diabetes mellitus. Around world 537 million adults (aged 20-79 years) were living with diabetes, which was predicted to rise to 643 million by 2030 and 783 million by 2045. On the other hand, 1 out of 11 (90 million) adults were living with diabetes in South-East Asia which is expected to reach 113 million by 2030 and 151 million by 2045. These counts were expected to escalate, to a great degree in urban population.¹

The world health organization designates depression as principal cause of disability worldwide. Diabetes and depression in conjunction presents a major clinical challenge. Quality of life was worsen, diabetes self-management was impaired, the incidence of complications was increased and life expectancy was reduced.² The direct effect of illness perception on depression severity was significant (95% CI: 0.0016–0.0410), indicating that illness perception influenced depression among T2DM patients via direct and indirect pathways.³

Despite the essential role of illness perception and depression in optimal management of diabetes, studies have consistently found that prevalence of depression was high. There strong relationship between illness perception and depression with prevalence of depression. All the components of illness perception except personal control had significant relationship with depression. Result indicate that patients were in all probability to get depressed when they knew less about their conditions.⁴ Regardless of all, depression remains unrecognized and untreated in insignificant proportions of patients with diabetes.⁵ As a result, this research aid to assess illness perception and the factors associated with depression among diabetic patients.

METHODS AND MATERIALS

An analytical cross sectional study was conducted in internal medicine outpatient department at Dhulikhel Hospital, Kathmandu University Hospital from 18th June to 29th July 2023.

The study was conducted among patient diagnosed with diabetes mellitus for at least 6 months of duration. The sample size 256 was determined using Cochran's sample size formula $n = p(1-p) / (z/E)^2$. Systematic random sampling technique was used, participants were selected on the basis of Kth term, where $K = N/n$ ($N = 497/n = 256$) i.e. $K = 2$ therefore every 2nd participant was selected. Before selecting a sample, 1st sample was selected through lottery method and face to face interview

was conducted using structured and semi structured questionnaire. The first part of the study questionnaire collected sociodemographic information, behavioral information and information regarding medical history. The content validity of the tool was done by consulting with research preceptor, academic experts and reviewing the literature. The second part assessed illness perception using standard tool Brief illness perception questionnaire (BIPQ). This instrument included eight close ended items and one open ended item, representing nine attribute of illness perception Score for each item ranged from 0-10 and where total score is 0-80. Higher score reflected threatening illness perception except for three attributes, "personal control", "treatment control" and "understanding". For these attribute scoring was reversed. Total mean score was calculated and used as cut off score for illness perception i.e., score ≥ 38.71 indicate negative illness perception. The third part assessed depression. Depression was assessed using Beck depression inventory second edition (BDI-II). It consists of 21 questions; each answer being scored on a scale value 0-3. One statement in each question best describes the way one has been feeling during the past two weeks, including the day questionnaire were administered. Scoring of 16 or above indicate clinical depression. Inclusion criteria includes age above 20 years, diagnosis of type 2 diabetes mellitus.

An ethical clearance was obtained from Institutional Review Committee-KUSMS (Kathmandu University School of Medical Sciences), approval number 195/22. Written consent was taken from each respondents prior to data collection. Privacy, confidentiality and anonymity of the participants was maintained.

The data were processed using software STATA version 14. The data were analyzed using descriptive statistics such as frequency, percentage, mean and standard deviation. Logistic regression analysis was used to analyze the association between selected variables and depression. Pearson's coefficient correlation was used to assess the correlation between illness perception and depression. The interpretation of the analyzed research was done to draw the inferences and conclusion.

RESULTS

Results: Among 256 participants more than half of the participants were age group 41-60 and were male. About half of the participant belonged to Janajati ethnicity. Most of the participants were married and about one third of participants were illiterate with farming being common occupation. Majority of them had family size less than or equal to 7. (Table 1)

Table 1: Sociodemographic characteristics of participants

n=256

Characteristics	Frequency	Percentage
Age in complete years		
20-40yrs	27	10.55
>40-60yrs	144	56.25
>60yrs	85	33.20
Sex		
Male	139	54.3
Female	117	45.7
Ethnicity		
Brahmin	85	33.20
Chhetri	38	14.84
Janajati	115	44.92
Dalit	11	4.30
Others	7	2.73
Marital status		
Married	233	91.02
Unmarried	3	1.17
Widowed	20	7.81
Level of education		
Illiterate	73	28.52
Can read and write	32	12.50
Basic level	48	18.75
Secondary level	65	25.39
Higher education	38	14.84
Occupation		
Job	28	10.93
Business	55	21.48
Farming	93	36.32
Homemaker	51	19.92
Retired	21	8.20
Others	8	3.12
Family size		
Less than or equal to 7	216	84.38
More than 7	40	15.63

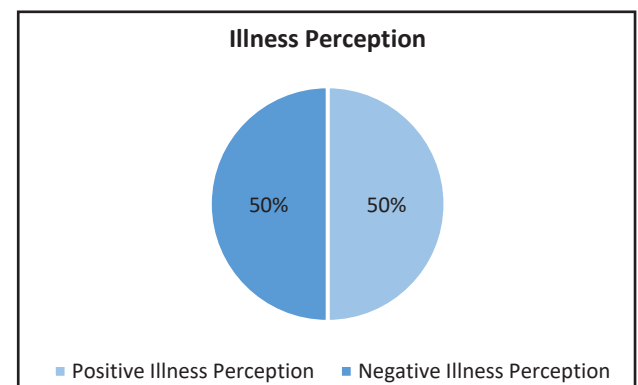
Among total participants about one third of the study participants had smoking habit and consumed alcohol. More than half of the participants had diabetes for 5 years and reported comorbidities. Regarding mode of treatment, majority of the participants used oral hypoglycemic agent.

Table 2: Behavioral characteristics and medical history of participants

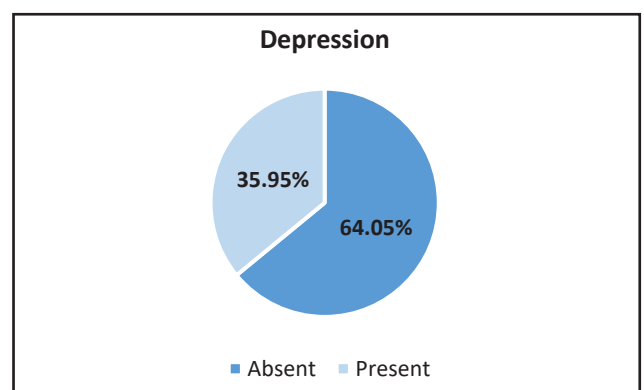
n = 256

Characteristics	Frequency	Percentage
Smoking Habit		
Yes	90	35.16
No	166	64.84
Alcohol consumption		
Yes	80	31.25
No	176	68.75
Duration of disease (years)		
Less than or equal to 5 yrs	134	52.34
More than 5 yrs	122	47.66
Reported comorbidities		
Present	110	57.03
Absent	146	43.97
Mode of treatment		
Oral hypoglycemic agent	229	89.50
Insulin therapy	27	10.50

Half of the study participants had positive illness perception and half of them had negative illness perception. (Figure 1)

**Fig. 1: Illness perception among participants n= 256**

More than one third of the study participants (35.95%) had depression. (Figure 2)

**Fig. 2: Depression status of participants (n= 256)**

There is significant difference between sex and level of education with depression. The odds of having depression among male participants is 0.44 times lower than those compared to females. Likewise, the odds of having depression among participants who attended secondary and higher secondary education and is 0.38 and 0.24 times lower than those who had basic level education (Table 3).

Table 3: Association between depression with sociodemographic, behavioral characteristics and medical history of participants

n=256

Characteristics	Depression		Bivariate			Multivariate		
	Yes n (%)	No	Crude Odds ratio	95% CI	p-value	Adjusted Odds ratio	95% CI	p-value
Age								
20-40yrs	8(8.7%)	19	Ref					
41-60yrs	48(52.2%)	96	1.18	0.483-2.913	0.070	1.23	0.444-3.441	0.684
>60yrs	36(39.13%)	49	1.74	0.686-4.436	0.242	1.99	0.621-6.369	0.246
Sex								
Female	57(61.9%)	60	Ref.					
Male	35(38%)	104	0.35	0.20-0.60	<0.001	0.44	0.215-0.932	0.023
Marital status								
Married	83(90.2%)	150	Ref.					
Unmarried	1(1.09%)	2	0.90	0.08-10.16	0.93	2.31	0.160-33.53	0.538
Widowed	8(8.7%)	12	1.20	0.47-3.17	0.69	0.52	0.187-1.463	0.218
Level of Education								
Basic	19(20.65)	29	Ref.					
Illiterate	42(45.65)	31	2.06	0.98-4.34	0.05	1.33	0.553-3.210	0.50
Can read and write	12(13.04)	20	0.91	0.36-2.30	0.85	0.66	0.254-1.715	0.56
Secondary	13(14.13)	52	0.38	0.16-0.88	0.02	0.35	0.146-0.880	0.025
Higher education	6(6.52)	32	0.28	0.10-0.81	0.01	0.26	0.083-0.863	0.027
Family Size								
≤7	80(86.86%)	136	Ref					
>7	12(13.04%)	28	0.72	0.350-1.514	0.396	0.78	0.33-1.67	0.58
Alcohol Consumption								
No	67(72.83%)	109	Ref.					
Yes	25(27.17%)	55	0.73	0.42-1.29	0.29	0.61	0.27-1.34	0.22
Reported Comorbidities								
Absent	52(56.52%)	94	Ref.					
Present	40(43.48%)	70	1.03	0.61-1.72	0.90	0.83	0.45-1.54	0.57
Mode of Treatment								
Oral Hypoglycemic agent	84(91.30%)	145	Ref.					
Insulin Therapy	8(8.7%)	19	0.72	0.30-1.73	0.47	0.72	0.28-1.83	0.51

There was a weak positive linear relationship between illness perception and depression. (Table 4)

Table 4: Correlation between Illness perception and depression

	Depression Correlation (r)	P- value(p)
Illness Perception	0.276	p=<0.001

DISCUSSION

Illness perception among diabetic cases

The mean illness perception score in the present study was 38.71 ± 8.83 , which was lower than the mean score reported among diabetic patients in Iran (46.39 ± 9.45)⁶ and higher than that observed in a study conducted in Thailand, where the mean score was 29.4 ± 11.6 .⁷ These variations may be attributed to differences in diabetic knowledge and the perception of diabetes as a fatal or dangerous condition. In the current study, among the individual domains of illness perception, the highest mean score was observed for the timeline domain (8.38), indicating that most patients believed their condition to be permanent rather than short term; this finding is consistent with a similar study conducted in Thailand, which reported a mean timeline score of 8.68,⁷ and with other evidence showing that diabetic patients tend to view their disease as chronic. Conversely, the lowest mean score was noted in the treatment control domain (1.94), suggesting limited belief in the effectiveness of treatment; this finding aligns with a study from China examining the relationship between illness perception and depressive symptoms among patients with type 2 diabetes mellitus³, although it contrasts with findings from a study in Croatia, where the median score for the treatment control subscale was reported to be 8.

Depression among diabetic case

The current study found the prevalence of depressive symptoms among diabetic patients to be 35.94%, which is consistent with findings from studies conducted in Nepal in similar settings, where the prevalence of depression among diabetic cases was reported to be 36.4%⁹ and 34%¹⁰ among patients visiting diabetic centers. Comparable results have also been observed in other Nepali studies, reporting prevalence rates of 35.6%, 29.2%, and 27% among patients with diabetes mellitus.^{11, 12, 13} In contrast, lower prevalence rates have been reported in studies from other countries, such as Ethiopia, where 21.3%¹⁴ of diabetic patients were found to have depression, and Jordan, where the prevalence of undiagnosed depression among patients with type 2 diabetes was 19.7%.¹⁵ Conversely, a markedly higher prevalence of depression (87%) was reported in a study conducted in East Africa, particularly Tanzania.¹⁶ These wide variations in the prevalence of depression across studies may be attributed to differences in environmental, cultural, ethnic, and social backgrounds, as well as the use of different assessment tools to measure depression worldwide.

Association between depression and selected sociodemographic variables

In the present study there is significant difference between

level of education (secondary and higher secondary education) with depression ($p=0.025$ and $p=0.027$). This study concludes the odds of having depression among participants who attended secondary and higher secondary education and is 0.38 and 0.24 times lower than those who had basic level education. Higher educational level decreases the odds of being classified as depressed patients which is similar to outcomes published in other studies.^{17,15}

The study conducted by Joshi S in Nepal⁴, R.M. A-A in Jordan¹⁵ and by Rehanguli M¹⁸ in China showed significant difference between lower educational status and depression.

This association with lower educational status among people with type 2 diabetes can be linked to their lesser understanding of the disease severity, drug compliance and dietary regulation which makes them vulnerable to complications.¹⁹

However, in difference, the study conducted by Niraula et al. showed no association between level of education and depression¹⁶ while the study done by Abuhegazy H et al. in Saudi Arabia supported the similar finding.²⁰

Current study, also showed that there was significant relationship between sex and depression. The odds of having depression among male participants was 0.44 times lower than those of females. The increased rate of depression among females was consistent with past research findings.^{15, 21} Another cross-sectional study done over 17 years, identified that female with diabetes mellitus had 2.55 times increased odds to be diagnosed with major depressive disorder compared with women without diabetes while the prevalence of major depressive disorder was significantly smaller in males 1.85 being the odds ratio.²²

Anderson et al. discovered in a meta-analysis including 39 studies that diabetes doubles the risk of depression, with the risk being higher in female.²³ Another systematic review and meta-analysis conducted in Ethiopia identified being women as a significant factor associated with depression.²⁴

The high proportion of depressive symptoms in female participants might have been noticed because of females having low educational status and spending most times as homemaker compared to men. Alongside, having less educational status and spending more time as homemaker have their significant relationship with depression among diabetic patients independently.⁴

Illness perception and depression correlation

This study discloses that there is a positive correlation

between illness perception and depression among diabetic patient, ($r=0.276$, $p=0.000$). This finding is also supported by study done in Nepal which demonstrated a strong relationship between illness perception and depressive symptoms among diabetic cases.⁴ Similar study in China among 939 respondents revealed that illness perception was positively correlated with depression ($r=0.16$, $P < 0.05$).²⁵

Another research conducted in Australia revealed that illness perception had positive linear relationship ($r=0.44$, $p=0.01$) with depression.²⁶

A research conducted in Japan yielded that there is positive correlation ($r=0.31$, $p < .001$) between illness perception and depression which is in line with the present study.²⁷

This could have resulted because of difference in cognitive appraisal, emotional response, coping strategies by the individual across the country.

Strengths

Data were collected by the researcher personally, reducing interviewer bias.

Probability sampling technique was used which constitute unbiased population representation.

The standard and validated tool was used for data collection.

Limitations

Data collection was done through face-to-face interview so that might have resulted in response bias.

As pretesting was also done on same institute where main study is done, so might have resulted in data contamination.

Recommendation

Diabetic patient should be provided with comprehensive diabetes education program for changing poor illness perception, which ultimately helps to prevent development of depression.

Psychological assessment by health care providers should be emphasized along with diabetes management

REFERENCES

1. IDF Diabetes Atlas | Tenth Edition [Internet]. [cited 2022 Aug 3]. Available from: <https://diabetesatlas.org/>
2. Holt RIG, Katon WJ. Dialogue on Diabetes and Depression: Dealing with the double burden of co-morbidity. *J Affect Disord* [Internet]. 2012;142(SUPPL.):S1. Available from: [http://dx.doi.org/10.1016/S0165-0327\(12\)00632-5](http://dx.doi.org/10.1016/S0165-0327(12)00632-5)
3. Li J, Qiu X, Yang X, Zhou J, Zhu X, Zhao E, et al. Relationship between Illness Perception and Depressive Symptoms among Type 2 Diabetes Mellitus Patients in China: A Mediating Role of Coping Style. Hatzigelaki E, editor. *J Diabetes Res* [Internet]. 2020 Oct 15;2020:1–6. Available from: <https://www.hindawi.com/journals/jdr/2020/3142495/>
4. Joshi S, Dhungana RR, Subba UK. Illness Perception and Depressive Symptoms among Persons with Type 2 Diabetes Mellitus: An Analytical Cross-Sectional Study in Clinical Settings in Nepal. *J Diabetes Res* [Internet]. 2015;2015:1–9. Available from: <http://www.hindawi.com/journals/jdr/2015/908374/>
5. Katon WJ. The Comorbidity of Diabetes Mellitus and Depression. *Am J Med* [Internet]. 2008 Nov;121(11):S8–15. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0002934308008632>
6. Bilondi SS, Noghabi AD, Aalami H. The relationship between illness perception and medication adherence in patients with diabetes mellitus type II: illness perception and medication adherence. *J Prev Med Hyg*. 2021;62(4):E966–71.
7. Ngetich E, Pateekhum C, Hashmi A, Nadal IP, Pinyopornpanish K, English M, et al. Illness perceptions, self-care practices, and glycemic control among type 2 diabetes patients in Chiang Mai, Thailand. *Arch Public Heal* [Internet]. 2022 Dec 7;80(1):134. Available from: <https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-022-00888-1>
8. Petriček G, Vrcić-Keglević M, Vuletić G, Cerovečki V, Ožvačić Z, Murgić L. Illness Perception and Cardiovascular Risk Factors in Patients with Type 2 Diabetes: Cross-sectional Questionnaire Study. *Croat Med J* [Internet]. 2009 Dec;50(6):583–93. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2802092/>
9. Paudel S, Khanal SP, Gautam S, Chalise A, Koirala TN, Marahatta SB. Anxiety and depression among people with type 2 diabetes visiting diabetes clinics of Pokhara Metropolitan, Nepal: a cross-sectional study. *BMJ Open* [Internet]. 2023 Jan 27;13(1):e064490. Available from: <https://bmjopen.bmj.com/lookup/doi/10.1136/bmjopen-2022-064490>
10. Pahari DP, Upadhyay R, Sharma CK. Depression among diabetic patients visiting a diabetes center in Nepal. *Heal Prospect*. 2018;17(1):21–5.
11. Thapa S, Lamichhane N, Khadka Mishra D, Author C. Depression among People Living with Type II Diabetes in Kathmandu Valley of Nepal: A Cross-Sectional Study. *Int J Heal Sci Res* [Internet]. 2019;9(September):11. Available from: www.ijhsr.org
12. YONZON P, JOSHI A, GHIMIRE M. Prevalence of Depression among Nepalese Patients with Type 2 Diabetes Attending Endocrine Clinic in Kathmandu, Nepal. *Diabetes* [Internet]. 2018 Jul 1;67(Supplement_1). Available from: https://diabetesjournals.org/diabetes/article/67/Supplement_1/2259-PUB/55886/Prevalence-of-Depression-among-Nepalese-Patients
13. Subedi S, Adhikari A, Paudel K, Shrestha L, Sharma N. Depression in Patients with Diabetes Mellitus: Prevalence & Factors Associated. *J Psychiatr Assoc Nepal*. 2020;9(1):16–22.

14. Engidaw NA, Wubetu AD, Basha EA. Prevalence of depression and its associated factors among patients with diabetes mellitus at Tirunesh-Beijing general hospital, Addis Ababa, Ethiopia. *BMC Public Health* [Internet]. 2020 Dec 22;20(1):266. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8360-2>
15. Al-Amer RM, Sobeh MM, Zayed AA, Al-domi HA. Depression among adults with diabetes in Jordan: risk factors and relationship to blood sugar control. *J Diabetes Complications* [Internet]. 2011 Jul;25(4):247–52. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1056872711000365>
16. Khan ZD, Lutale J, Moledina SM. Prevalence of Depression and Associated Factors among Diabetic Patients in an Outpatient Diabetes Clinic. *Psychiatry J*. 2019;2019:1–6.
17. Katon W, Von Korff M, Ciechanowski P, Russo J, Lin E, Simon G, et al. Behavioral and Clinical Factors Associated With Depression Among Individuals With Diabetes. *Diabetes Care* [Internet]. 2004 Apr 1;27(4):914–20. Available from: <https://diabetesjournals.org/care/article/27/4/914/23255/Behavioral-and-Clinical-Factors-Associated-With>
18. Maimaitituexun R, Chen W, Xiang J, Kaminga AC, Wu XY, Chen L, et al. Prevalence of comorbid depression and associated factors among hospitalized patients with type 2 diabetes mellitus in Hunan, China. *BMC Psychiatry* [Internet]. 2023;23(1):1–11. Available from: <https://doi.org/10.1186/s12888-023-04657-4>
19. Sunny AK, Khanal VK, Sah RB, Ghimire A. Depression among people living with type 2 diabetes in an urbanizing community of Nepal. van Exel E, editor. *PLoS One* [Internet]. 2019 Jun 10;14(6):e0218119. Available from: <https://dx.plos.org/10.1371/journal.pone.0218119>
20. Abuhegazy H, Mujairi A, Banah F, Agdi Y, Elkeshishi H, Kamel A, et al. Depression and Associated Risk Factors Among Type 2 Diabetic Patients: A Cross Sectional Study on a Convenience Sample from the Diabetic Center, Khamis Mushait; Saudi Arabia. *Neuropsychiatr Dis Treat* [Internet]. 2022 Aug;Volume 18:1975–84. Available from: <https://www.dovepress.com/depression-and-associated-risk-factors-among-type-2-diabetic-patients-peer-reviewed-fulltext-article-NDT>
21. Asghar S, Hussain A, Ali SMK, Khan AKA, Magnusson A. Prevalence of depression and diabetes: a population-based study from rural Bangladesh. *Diabet Med* [Internet]. 2007 Aug 2;24(8):872–7. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/j.1464-5491.2007.02136.x>
22. Deischinger C, Dervic E, Leutner M, Kosi-Trebotic L, Klimek P, Kautzky A, et al. Diabetes mellitus is associated with a higher risk for major depressive disorder in women than in men. *BMJ Open Diabetes Res Care*. 2020;8(1).
23. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The Prevalence of Comorbid Depression in Adults With Diabetes. *Diabetes Care* [Internet]. 2001 Jun 1;24(6):1069–78. Available from: <https://diabetesjournals.org/care/article/24/6/1069/22483/The-Prevalence-of-Comorbid-Depression-in-Adults>
24. Tegegne KD, Gebeyehu NA, Kassaw MW. Depression and determinants among diabetes mellitus patients in Ethiopia, a systematic review and meta-analysis. *BMC Psychiatry* [Internet]. 2023 Mar 29;23(1):209. Available from: <https://bmcpsy psychiatry.biomedcentral.com/articles/10.1186/s12888-023-04655-6>
25. Li J, Qiu X, Yang X, Zhou J, Zhu X, Zhao E, et al. Relationship between Illness Perception and Depressive Symptoms among Type 2 Diabetes Mellitus Patients in China: A Mediating Role of Coping Style. *J Diabetes Res*. 2020;2020.
26. Knowles SR, Apputhurai P, O'Brien CL, Ski CF, Thompson DR, Castle DJ. Exploring the relationships between illness perceptions, self-efficacy, coping strategies, psychological distress and quality of life in a cohort of adults with diabetes mellitus. *Psychol Health Med* [Internet]. 2020 Feb 7;25(2):214–28. Available from: <https://www.tandfonline.com/doi/full/10.1080/13548506.2019.1695865>
27. TAJIMA E, HATA K, SUZUKI SI. 67-LB: Factor Structure and Effects of Illness Perception on Depression and Anxiety in Patients with Diabetes. *Diabetes* [Internet]. 2023 Jun 20;72(Supplement_1). Available from: https://diabetesjournals.org/diabetes/article/72/Supplement_1/67-LB/150688/67-LB-Factor-Structure-and-Effects-of-Illness

Depression Literacy and Help-Seeking Behavior among Intermediate-Level Students of a Selected College of Kathmandu, Nepal: A Cross-Sectional Study

Shakya R¹, Bajracharya J¹

¹Kathmandu University School of Medical Sciences,
Dhulikhel, Kavre, Nepal

Corresponding Author

Richa Shakya
Kathmandu University School of Medical Sciences
Dhulikhel, Kavre, Nepal
Email: shakyareeza1@gmail.com

Citation

Shakya R, Bajracharya J. Depression Literacy and Help-Seeking Behavior among Intermediate-Level Students of a Selected College of Kathmandu, Nepal: A Cross-Sectional Study. *The Cliff*. 2025; 7: 49-55.

ABSTRACT

Background

Depression often goes unrecognized and untreated in younger populations. A strong understanding of depression increases the likelihood that students will seek appropriate support when needed.

Objectives

To assess depression literacy and help-seeking behavior among intermediate level students of a selected college of Kathmandu, Nepal.

Methods

A descriptive cross-sectional study was used. Convenience sampling was used to select a college. Study sample was 300 intermediate level students selected by using stratified random sampling. Data collection tool included self-administered questionnaire including Demographic characteristics, Depression literacy and Actual help-seeking questionnaire. STATA version 13 was used for data analysis. Descriptive and inferential statistics (logistic regression) were performed.

Result

Over half of the students (55.3%) had low depression literacy level. Sixty-one percent students reported seeking help during the last 12 months. Depression literacy was significantly associated with help-seeking behavior and grades of students. Help-seeking behavior was significantly associated with depression literacy, faculty of students, past experience of psychological disorder in family member and openness of students to discuss mental health issues in the family.

Conclusion

More than half of the students had low depression literacy level. Help-seeking behavior of students were found to have increased in students with high depression literacy. Measures to strengthen depression literacy by organizing awareness programs, educating on basic facts about depression and how to get help and normalizing conversation about mental health using social media should be emphasized in the college.

KEYWORDS

Depression literacy, Help-seeking behavior, Intermediate level students

INTRODUCTION

Adolescence is a critical developmental stage marked by rapid physical, emotional, and psychological changes.¹ Intermediate-level students, typically in their adolescent years, often experience heightened academic pressure due to challenging coursework, competitive environments, and personal transitions. These stressors place students at increased risk of developing common mental health issues such as depression, anxiety, and stress (DAS).²

Depression is a prevalent mental disorder characterized by persistent sadness, loss of interest, fatigue, and poor concentration, depression ranks among the top causes of disability worldwide, following cardiac and respiratory illnesses.² According to global estimates of WHO, depression is estimated to occur among 1.1% of adolescents aged 10-14 years, and 2.8% of 15-19 year old. Global estimate synthesized from multiple epidemiological studies across different populations in high-income and low- and middle-income countries shows depression is a common mental health disease with prevalence of 4-5% in mid to late adolescence.³ Although it is treatable, it often goes unrecognized, especially in adolescents, leading to long-term negative outcomes including academic failure, substance abuse, and even suicide.⁴

Depression literacy (D-Lit) the knowledge and understanding of depression and its treatment plays a crucial role in early identification and intervention. Higher levels of D-Lit are associated with reduced stigma and increased likelihood of seeking appropriate help.⁵

Help-seeking behavior, whether through formal sources (such as mental health professionals) or informal ones (such as friends and family), is essential for addressing mental health issues.⁵ In Nepal, limited research has been conducted to assess depression literacy and help-seeking behavior among intermediate-level students, particularly in Kathmandu. Therefore, this study aimed to assess depression literacy and help-seeking behavior among intermediate-level students in Kathmandu, Nepal.

METHODS

The study adopted a quantitative, descriptive cross-sectional design to assess the level of depression literacy and help-seeking behavior among intermediate-level students at Kathmandu Model College (KMC), Bagbazar. A total of 300 students were included in the study belonging to science, management and law faculty while students who were absent on the day of data collection, students whose parents refused to give consent and student who refused to give assent to participate were excluded from the study. The sample size was calculated using a standard

formula based on a previous prevalence of depression literacy (22.7%)³, and a 10% non-response rate was added. The disproportionate stratified random sampling technique was applied, with each faculty considered as a separate stratum. Sections were selected through a lottery method, and students were chosen randomly using their roll numbers from the attendance register.

Data were collected between 13th July and 24th August using a self-administered questionnaire, which included three parts: socio-demographic and other variables which included experience of psychological disorder (Self/Peer/family), openness of student to discuss about mental health issues in family and consideration of use of mental health service at college when in distress, standard tool of the Depression Literacy Questionnaire (D-Lit) is a 22-item tool developed by Griffiths et al. (2004) to assess students' knowledge about depression with score ≥ 11 indicating high literacy level, and the Actual Help-Seeking Questionnaire (AHSQ) developed by Rickwood et al. (2005), measures actual help-seeking behavior by asking whether individuals sought help from various sources during the past 12 months. Responses are yes/no; help-seeking is considered present if at least one source is endorsed and absent if none are endorsed. Both tools were translated into Nepali and validated by experts. A pre-test was conducted among 30 students from Kathmandu University High School, and necessary modifications were made based on feedback. The reliability of the tools was confirmed, with Cronbach's alpha scores of 0.70 for D-Lit and 0.89 for AHSQ, indicating good internal consistency.

Prior to data collection, written ethical approval was obtained from the Institutional Review Committee of KUSMS, and written permission was secured from KMC. Informed consent from parents and assent from students were collected, ensuring confidentiality and voluntary participation. Missing data were not identified as data was checked for completeness after data collection. Data was coded and entry was done using Microsoft Excel, and analysis was performed in STATA version 13. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used for summarizing the data. To find association between variables, univariate and multivariate logistic regression analyses were performed, with a significance level set at $p < 0.05$.

RESULTS

The study included 300 students with age group ranging from 14 to 19 with an average age of 16.4 years. Most of the students were female (55.3%). Majority of the students stayed with their parents (60.3%). Most students followed the Hindu religion (91%). The students were almost equally divided between Grade XI (49.3%) and

Grade XII (50.7%). Among students (78.3%) were from science, (19.7%) were from management and (2%) from law faculty. A small number of students had experience with psychological problems either in their family, themselves or their friends, but most (84.3%) had no such experience. More than half of the students (58%) said they could talk about mental health issues with their families. Almost all students (92.7%) said they would consider using mental health services at their college if they were feeling psychological distress. (Table 1)

Table 1. Socio-demographic Characteristics of the Students and other variables n=300

Characteristics	Frequency	Percentage
Age (in completed years)		
14 to 16	158	52.6
17 to 19	142	47.4
Sex		
Male	134	44.7
Female	166	55.3
Place of residency		
Staying with parents	181	60.3
Staying in rent	10	3.3
Staying with relatives	45	15.1
Staying in hostel	64	21.3
Religion		
Hindu	273	91.0
Buddhist	16	5.3
Others (Islam, Christianity, Sikhism)	11	3.7
Grade		
XI	148	49.3
XII	152	50.7
Faculty		
Science	235	78.3
Management	59	19.7
Law	6	2.0
Experience of psychological disorder		
In family	27	9.1
Self	10	3.3
In peers	10	3.3
No	253	84.3
Openness of student to discuss about mental health issues in family		
Yes	174	58.0
No	126	42.0
Consider use of mental health service at college when at distress		
Yes	278	92.7
No	22	7.3

More than half of the students 55.3% possessed low depression literacy levels which suggests a substantial portion of the students lacks essential knowledge about depression. (Table 2)

Table 2. Level of Depression Literacy of Students n=300

Depression Literacy	Frequency	Percentage
Low literacy (score <11)	166	55.3
High literacy (score ≥ 11)	134	44.7

Most of the students 61% reported having engaged in help-seeking behavior for mental health concerns within the past 12 months. Most of the students had reached out to at least one source of support whether formal or informal when experiencing psychological distress. (Table 3)

Table 3. Help-seeking Behavior of Students for Mental Health Services n=300

Help-seeking behavior	Frequency	Percentage
Absent	117	39
Present	183	61

Table 4 shows that students studying in grade XII have 0.6 times low depression literacy level compared to students studying in grade XI with COR= 0.6, 95%CI = 0.3 to 0.9. There was no significant association between depression literacy and age, sex, religion, place of residency and faculty.

Table 4. Association between Depression Literacy and Selected Variables n=300

Characteristics	COR	95% CI	p-value
Age	0.8	0.6 to 1.0	0.139
Sex			
Male	Ref.		
Female	1.2	0.7 to 1.9	0.368
Religion			
Hindu	Ref.		
Buddhist	1.6	0.5 to 4.5	0.340
Others (Islam, Kirat, Christianity)	1.0	0.3 to 3.5	0.922
Place of residency			
With parents	Ref.		
In rent	0.4	0.1 to 1.8	0.262
With relatives	0.7	0.3 to 1.3	0.301
In hostel	0.6	0.3 to 1.2	0.189
Grade			
XI	Ref.		
XII	0.6*	0.3 to 0.9	0.039
Faculty			
Science	Ref.		
Management	1.2	0.7 to 2.2	0.394
Law	2.6	0.4 to 14.7	0.265

Student's experience with psychological disorder, openness of students with family members and student's consideration of use of mental health service at college didn't have significant association with depression literacy.

Students who have sought help are 1.9 times more likely to have higher depression literacy compared to those who have not sought help. (95% CI: 1.1 to 3.0, $p = 0.008$). AOR adjusted for age, sex, religion, place of residency, grade and faculty. (Table 5)

Table 5. Association between Depression Literacy and Selected Variables (multivariate)

n=300

Characteristics	COR	95% CI	p-value	AOR	95% CI	p-value
Experience of psychological disorder						
No	Ref.					
Self	1.8	0.5 to 6.7	0.346	3.0	0.6 to 15.1	0.175
In Peer	0.8	0.2 to 2.9	0.771	1.0	0.2 to 4.7	0.905
In Family	0.8	0.3 to 1.9	0.697	0.6	0.2 to 1.6	0.380
Openness of student to discuss about mental health issues in family						
No	Ref.					
Yes	0.9	0.5 to 1.4	0.686	0.6	0.3 to 1.1	0.161
Consider use of mental health service at college when at distress						
No	Ref.					
Yes	1.8	0.7 to 4.5	0.213	1.7	0.5 to 5.2	0.334
Help-seeking behavior						
Absent	Ref.					
Present	1.9*	1.1 to 3.0	0.008	1.9	1.1 to 3.1	0.010

Students studying in management faculty had 2.6 times higher odds of help-seeking behavior compared to students of science faculty. (COR =2.6 and 95%CI= 1.3 to 5.1). However there was no significant association of age, sex, religion, place of residency, grade with help-seeking behavior of students. (Table 6)

Table 6. Association between Help-seeking Behavior and Selected Variables

n=300

Characteristics	COR	CI	p-value
Age			
	1.1	0.8 to 1.5	0.358
Sex			
Male	Ref.		
Female	0.9	0.6 to 1.5	0.951
Religion			
Hindu	Ref.		
Buddhist	0.7	0.2 to 2.1	0.652
Others (Islam, Kirat, Christainity)	0.5	0.1 to 1.7	0.280
Place of residency			
With parents	Ref.		
In rent	0.9	0.2 to 3.4	0.933
With relatives	0.7	0.4 to 1.5	0.480
In hostel	1.1	0.6 to 2.3	0.698
Grade			
XI	Ref.		
XII	1.2	0.7 to 1.9	0.438
Faculty			
Science	Ref.		
Management	2.6*	1.3 to 5.1	0.004
Law	0.7	0.1 to 3.8	0.732

Table 7. Association between Help-seeking Behavior and Selected Variables (multivariate)

n=300

Characteristics	COR	95% CI	p-value	AOR	95%CI	p-value
Experience of psychological disorder						
No	Ref.					
Self	0.6	0.1 to 2.3	0.543	1.0	0.2 to 4.6	0.974
In peer	0.6	0.1 to 2.3	0.543	0.6	0.1 to 2.6	0.577
In family	2.9*	1.0 to 8.1	0.033	4.4*	1.3 to 14.1	0.012
Openness of student to discuss about mental health issues in family						
No	Ref.					
Yes	1.3	0.8 to 2.2	0.160	1.8*	1.0 to 3.1	0.036
Consider use of mental health service at college when at distress						
No	Ref.					
Yes	0.7	0.2 to 1.8	0.475	0.9	0.3 to 2.8	0.901
Depression literacy						
Low literacy	Ref.					
High literacy	1.9*	1.1 to 3.0	0.008	2.1*	1.2 to 3.6	0.008

Students who had experience of psychological disorder in the family member had 4.4 times higher odds of help-seeking behavior. (COR =4.4 and 95%CI= 1.3 to 14.1). Students who had openness with family member to discuss mental health issue had 1.8 times higher odds of help-seeking behavior. (COR =1.8 and 95%CI= 1.0 to 3.1). Those students who had higher depression literacy had 2.1 times higher odds of help-seeking behavior compared to students who have low depression literacy level. (COR =2.1 and 95%CI= 1.2 to 3.6). AOR adjusted for age, sex, religion, place of residency, grade for multivariate analysis.

DISCUSSION

Depression is still poorly understood by adolescents, particularly concerning its etiology, signs, and symptoms, and treatment of depression. Therefore, many students with depression do not seek help, do not know where to turn, and thus have a negative attitude toward treatment. Thus, this study was intended to assess depression literacy and help-seeking behavior among intermediate level students of a selected college of Kathmandu.

This study found that 55.3% of students had low depression literacy, which is lower than findings from Dhangadi (77.3%) and Tehran (64.4%), but significantly higher than a Nigerian study (95.2%).^{3, 7, 8} Differences in literacy levels could be attributed to variations in age groups, education levels, and assessment tools. No significant association was observed between depression literacy and sex, aligning with studies from Iran and Saudi Arabia, though other studies from India and Malaysia reported higher literacy among females.⁹⁻¹² Similarly, age showed no significant association with literacy, consistent with previous findings.

Interestingly, students in grade XII had significantly lower depression literacy compared to grade XI, which contrasts with international findings that suggest higher education correlates with greater mental health literacy. This difference may stem from the narrow range of grades assessed in the current study. Prior experience with psychological disorders showed no association with literacy, unlike studies in Malaysia and Jordan.^{13, 14}

Regarding help-seeking behavior, current study found that 61% of participants actively sought help for mental health services. This rate is lower than studies from Lalitpur (79%)¹⁵ and Saudi Arabia (75%)⁹, possibly due to differences in sample size and assessment tools. However, it is higher than findings from Southern California (15.7%)¹⁶ and Germany (29.9%)¹⁷, which may reflect cultural variations in help-seeking behavior. Informal sources were predominantly used, with most students seeking help from friends (79.8%) and parents (69.4%), while fewer consulted formal sources such as school nurses (38.8%), medical doctors (25.1%), and psychiatrists (20.3%). Similar preferences for informal help-seeking were reported in studies from Jordan¹⁴, whereas contrasting findings from Pokhara¹⁵ and Nigeria⁸ showed lower reliance on informal sources and greater use of formal services. These variations suggest that cultural context, awareness, and personal comfort significantly influence help-seeking patterns for mental health.

The study found a significant positive association between help-seeking behavior and depression literacy (OR=2.0, CI=1.1–3.4), indicating that students with higher literacy were more likely to seek mental health support. This finding is consistent with studies from Southern California¹⁸ and Saudi Arabia¹¹, which also reported increased help-

seeking among individuals with higher mental health literacy, possibly due to greater awareness and reduced stigma. No significant association was observed between help-seeking behavior and age or gender in the current study; however, contrasting findings from France¹⁷ reported higher help-seeking among older individuals and females, suggesting contextual differences in attitudes and stigma toward mental health. A significant association was identified between help-seeking behavior and prior experience of psychological disorders in family members, consistent with findings from Malaysia¹⁹, indicating that exposure to mental illness may enhance acceptance of mental health services.

Several studies showed significant association between stigma and depression literacy, generally finding that higher levels of literacy are associated with lower level of stigma.^{5, 19-21} Stigma, emotional problems, knowledge about available services are having significant association with help-seeking behavior.^{5, 22, 23} However, this study did not explore other potential factors that may influence depression literacy and help-seeking behavior, such as mental health stigma, knowledge about available services, emotional difficulties, or behavioral barriers. These variables were excluded due to constraints in time, scope and questionnaire length.

CONCLUSION

Based on the findings, it can be concluded that over half of the students had low depression literacy, and a

majority demonstrated help-seeking behavior. Significant associations were found between depression literacy and students' grade level, while help-seeking behavior was notably higher among students with a family history of psychological disorders, those open to discussing mental health within their families, and those with higher depression literacy. Stratified random sampling was done to constitute unbiased population representation. The study underscores the importance of improving depression literacy among students to foster timely and appropriate help-seeking behavior. The study was conducted in a single setting, which may limit the generalizability of the findings. Implementing targeted mental health awareness programs in academic institutions and exploring additional influencing factors such as stigma in future research could contribute to better mental health outcomes for students.

ACKNOWLEDGEMENT

The researchers would like to express sincere gratitude to Kathmandu University School of Medical Sciences for the opportunity to conduct this study as part of the Master of Science in Psychiatric Nursing program. The researchers also acknowledge Mr. Roshan Mahato, Mr. Indra Acharya, Dr. Satya Shrestha, Ms. Prativa Chalise, Ms. Bandana Paneru, Ms. Unika Acharya, and all nursing faculty members for their assistance and suggestions. The researchers are grateful to Kathmandu Model College (KMC), the Principal Mr. Narendra Aryal, coordinators, and staff for facilitating the research, and to the parents for their consent and students for their participation.

REFERENCES

1. Karki S. Education and employment: transitional experiences in Nepal. Oxford (UK): Oxford University Press; 2014.
2. Martín-Rodríguez A, Tornero-Aguilera JF, López-Pérez PJ, Clemente-Suárez VJ. The effect of loneliness on psychological and behavioral profile among high school students in Spain. *Sustainability*. 2021;14(1):168.
3. Kuskusmia R, Nepal S, Khatri M, Maharjan A. Depression literacy among adolescents in selected schools of Dhangadhi Sub-Metropolitan City in Province-7, Nepal. *Asian J Health Sci*. 2021;1(2):15-8.
4. Jellinek MS, Snyder JB. Depression and suicide in children and adolescents. *Pediatr Rev*. 1998;19(8):255-64.
5. Wang C, Cramer KM, Cheng H-L, Do KA. Associations between depression literacy and help-seeking behavior for mental health services among high school students. *Sch Ment Health*. 2019;11:707-18.
6. Dekker MC, Koot HM, van der Ende J, Verhulst FC. Emotional and behavioral problems in children and adolescents with and without intellectual disability. *J Child Psychol Psychiatry*. 2002;43(8):1087-98.
7. Tehrani H, Vali M, Nejatian M, Moshki M, Charoghchian Khorasani E, Jafari A. The status of depression literacy and its relationship with quality of life among Iranian public population: a cross-sectional study. *BMC Psychiatry*. 2022;22(1):1-9.
8. Adeosun II. Adolescent students' knowledge of depression and appropriate help-seeking in Nigeria. *Ind Psychiatry J*. 2016;6(3):1-6.
9. Almanasef M. Mental health literacy and help-seeking behaviours among undergraduate pharmacy students in Abha, Saudi Arabia. *Risk Manag Healthc Policy*. 2021;14:1281-6.
10. Ibrahim N, Phia WJ, Shahar S. Depression literacy program on stigma and mental help-seeking among teens and youth in Malaysia: a control group study. *Asian J Med Res Rev*. 2024;5(1):173-83.
11. Alageel AAS. Prevalence of depressive symptoms and depression literacy (D-Lit) among Saudi postgraduate students. *Middle East Curr Psychiatry*. 2024;31(1):5.
12. Townsend L, Musci R, Stuart E, Heley K, Beaudry MB, Schweizer B, et al. Gender differences in depression literacy and stigma after a randomized controlled evaluation of a universal depression education program. *J Adolesc Health*. 2019;64(4):472-7.

13. Ibrahim N, Amit N, Shahar S, Wee L-H, Ismail R, Khairuddin R, et al. Do depression literacy, mental illness beliefs and stigma influence mental health help-seeking attitude? A cross-sectional study of secondary school and university students from B40 households in Malaysia. *BMC Public Health*. 2019;19:1-8.
14. Aldalaykeh M, Al-Hammouri MM, Rababah J. Predictors of mental health services help-seeking behavior among university students. *Cogent Psychol*. 2019;6(1):1660520.
15. Acharya Y, Regmi U, Paudel P. Association between belief towards mental illness and help seeking behaviour among undergraduate students of Lalitpur district, Nepal. *Int J Public Health Allied Sci*. 2023;83-91.
16. Townsend L, Gearing RE, Polyanskaya O. Influence of health beliefs and stigma on choosing internet support groups over formal mental health services. *Psychiatr Serv*. 2012;63(4):370-6.
17. Gasquet I, Chavance M, Ledoux S, Choquet M. Psychosocial factors associated with help-seeking behavior among depressive adolescents. *Eur Child Adolesc Psychiatry*. 1997;6(3):151-9.
18. Townsend L, Musci R, Stuart E, Heley K, Beaudry MB, Schweizer B, et al. Gender differences in depression literacy and stigma after a randomized controlled evaluation of a universal depression education program. *J Adolesc Health*. 2019;64(4):472-7.
19. Ibrahim N, Mohd Safien A, Siau CS, Shahar S. The effectiveness of a depression literacy program on stigma and mental help-seeking among adolescents in Malaysia: a control group study with 3-month follow-up. *Inquiry*. 2020;57:46958020902332.
20. Singh N, Bist J. A cross-sectional study on depression awareness using the D-Lit. *Int J Ment Health*. 2020;7(4).
21. Wang J, Lai D. The relationship between mental health literacy, personal contacts and personal stigma against depression. *J Affect Disord*. 2008;110(1-2):191-6.
22. Wang C, Barlis J, Do KA, Chen J, Alami S. Barriers to mental health help seeking at school for Asian and Latinx American adolescents. *Sch Ment Health*. 2020;12:182-94.
23. Waumans RC. Factors impacting on treatment-seeking and treatment engagement in adolescents and adults with anxiety and depressive disorders. 2022.

