eISSN: 3108-074X
Volume: 2
Issue: 1
January - June 2026

Nursing Innovators Journal

Chief-editor: Dr. Meena Ganapathy
Editor: Prof. Laishangbam Bijayalakshmi Devi

Publisher: MKSSS Smt. Bakul Tambat Institute of Nursing Education
www.nijbtine.org

NURSING INNOVATORS JOURNAL

nijbtine.org

For more information, visit: http://mksssbtine.ac.in/

VOLUME 2 ISSUE 1 JANUARY - JUNE 2026

Aim of NIJ

To publish high-quality original research articles in the field of nursing that are novel and innovative in their findings that make substantial theoretical and practical advances in the nursing profession.

PROCESSING CHARGES AND DOI CHARGES APPLICABLE

CONTACT US:
editor.nij@mksssbtine.in
info.nij@mksssbtine.in
nij.itsupport@mksssbtine.in
Contact No. 7498738745

From the Editor's desk. "Charting New Horizons in Nursing Research and Practice"

It is with great pleasure to present the January-June issue 2026 of the Nursing Innovators Journal (NIJ), an open-access, double-blinded, peer-reviewed international journal.

As an open-access e-journal, we are committed to providing quality nursing research content that drives innovation in the nursing profession. Each article has gone through rigorous editorial review, including a plagiarism scan, an AI detection scan, double-blinded peer reviews, and final editing. In this issue, we also commemorate International Nurses Day 2026 by recognizing the enduring legacy of Florence Nightingale and aligning with the global vision of empowering nurses to lead transformative changes in healthcare.

This January-June 2026 Volume 2, Issue 1, highlights the contemporary priorities in the field of nursing practice, education, patient safety, community health, and AI in nursing practice. Themes such as stroke prevention, breastfeeding promotion, anaemia awareness, pain management, mindfulness, patient safety, sports-related anxiety, and artificial intelligence readiness reflect the expanding scope of nursing research in addressing emerging healthcare challenges. Together, these contributions underscore the nursing profession's commitment to innovation, compassionate care, health promotion, and the advancement of quality healthcare delivery across diverse populations.

In this era of rapid technological advancement, rising global health emergencies, economic crisis, climate-related health risks, and growing mental health concerns, researchers must be prepared to undertake issues that are forward-looking, informed, resilient, and innovative, and health care practices adaptable to the changing landscape. Nurse research needs to chart a new horizon of care that is adaptive, evolving in scope, and humane in approach. Finding the right balance within this kaleidoscope of human needs is the fundamental question that nurse researchers must seek to answer. It is time to chart a new horizon.

NIJ and its editorial board are committed to providing genuine content for the readers that is based on authentic and original research and academic expertise. We ensure this commitment through our double-blinded peer-reviewed process and stringent SOP editorial process to bring out issues of high-quality academic research based on methodological rigor and its findings for the profession and public at large.

The views and opinions expressed in the published articles are solely those of the authors and do not necessarily reflect the views of the editor, editorial board, publisher, or affiliated institutions. The journal assumes no responsibility for any consequences arising from the use of the published content. On behalf of the editorial team, I extend our sincere appreciation to all contributors and readers for their continued support.

Warm regards,

Prof. Laishangbam Bijayalakshmi Devi

Editor, Nursing Innovators Journal, MKSSSBTINE, Pune

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Florence Nightingale and the ICN Theme of 2026: Our Nurses. Our Future. Empowered Nurses Save Lives.

Dr. Meena Ganapathy
Professor cum Principal, Maharshi Karve Stree Shikshan Samstha's Smt. Bakul Tambat Institute of Nursing Education
Email: meena.ganapathy@maharshikarve.org

Abstract: *International Nurses Day is celebrated on 12th May every year on the birth anniversary of Florence Nightingale, who professionalized nursing. Her self-empowerment and the journey of empowering nursing are foundational for every nurse. This year's theme is Our Nurses. Our future. The phrase "Empowered Nurses Save Lives" is very apt and aligns with Florence's development as a nurse. This paper delves into the growth of Florence as an empowered nurse and gives insight to young nurses as to how, individually and collectively, we can empower ourselves and save lives every second, sometimes dramatically and generally gently.*

I. Introduction:
The International Council of Nurses (ICN) officially established this observance of Nurses Day on May 12th in 1974, recognizing the need to spotlight the critical contributions of nurses across the globe. Over the decades, this day has become much more than a historical tribute; it now serves as a platform to raise awareness, advocate for better working conditions, and inspire future generations to take up the profession with pride and purpose. The theme *"Our Nurses. Our Future."* reminds us that nurses are not just part of the system-they are its heartbeat.[1]
This theme is not aspirational for nurses but foundational. It reflects reality, responsibility, and most importantly, possibility. This paper is a personal reflection on Florence Nightingale and how she shaped modern nursing, so that today's nurses can honor this theme by empowering themselves, individually and collectively.

II. Florence Nightingale's early life before nursing:
"I attribute my success to this; I never gave or took any excuse." This was Florence's response to her success. In that one sentence, we witness conviction, discipline, and an uncompromising attitude toward purpose. Ms. Nightingale was born in 1820 to an English aristocratic family in Florence, Italy, and was named after the city. The Nightingales owned several homes: a country home called Lea Hurst in Derbyshire; a townhouse in London; and Embley Park, a large and lavish home located in Hampshire, outside of London.[2] Brought up among such advantages, it was only natural to suppose that Florence would show a proper appreciation of them by doing her duty in that state of life unto which it had pleased God to call her-in other words, by marrying, after a fitting number of dances and dinner-parties, an eligible gentleman, and living happily ever afterward.[3]

Florence learned languages, Greek, Latin, German, French, and Italian, as well as history and philosophy, mathematics, and statistics. Her life revolved around reading, traveling abroad, and enjoying the aristocratic life. During this time, she was described as restless, strange, passionate, obstinate, and miserable.[3] As a child, Florence was very close to God. She would write that she had conversations with God. But she had no clarity as to what her calling was.

Florence and Marriage:
Though she was engaged to be married to Richard Monckton Milnes, an aspiring politician and poet from an aristocratic family, from ages 21 to 30, Florence was not convinced of the regular aristocratic wifely duties. At the age of twenty-five, she wrote about her desire for meaningful work instead of wasting time on trivial pursuits. Later in life, she reflected: ***"Unless there is someone who is discontented with what they have, the world would never reach for anything better."***

This idea is powerful. It tells us that progress towards purpose begins with a sense of restlessness- a desire to do more, to be more, and to improve the world around us.
She broke off her nine-year engagement to pursue a career in nursing.
"I have an intellectual nature which requires satisfaction, and that would find it in him. I have a passionate nature that requires satisfaction, and I would find it in him. I have a moral, an active nature which requires satisfaction and that would not find it in his life."[4]

Florence Nightingale wrote the following tortured note upon her final refusal of Richard Monckton Milnes's proposal of marriage: "I know I could not bear his life," she wrote, "that to be nailed to a continuation, an exaggeration of my present life without hope of another would be intolerable to me- that voluntarily to put it out of my power ever to be able to seize the chance of forming for myself a true and rich life would seem to be like suicide."[2]

Florence and her Calling:
Florence liked caring for sick people and animals. She would visit hospitals to understand how care was provided to patients. It is important to note that, in the culture of the time, nursing the sick did not have the noble connotation it has in modern day. It was one of the lowest possible professions when not attached to a religious institution. Nevertheless, encounters with sickness and death within her own family, coupled with her observations of the deplorable conditions in hospitals and workhouses, ignited her fervent commitment to improving the standards of healthcare and sanitation. These experiences laid the foundation for Nightingale's lifelong crusade for healthcare reform and her unwavering dedication to the welfare of the sick and infirm.

A profession, a trade, a necessary occupation, something to fill and employ all my faculties, I have always felt essential to me; I have always longed for it, consciously or not. The first thought I can remember, and the last, was nursing work... Florence Nightingale, cited in Cook (1913).[5] Her mother and sister were so repelled by her interest. At 30, she left her home after a conflict with them to train as a nurse at Kaiserwerth in Germany for three months. At 31, she became a matron in an institution caring for sick governesses. There, she realized that unorganized self-sacrifice was not enough- what was needed was structured effort, knowledge, and systemic improvement. She observed sharply, ***"People sacrifice themselves without purpose. Their sacrifice makes the selfish more selfish, the lazy lazier, and the narrow narrower."***

The Scutari Transformation
Crimean War: In 1854, Britain, France, and Turkey declared war on Russia, beginning the Crimean War. In September, during one of the struggles in Alma, Russia was defeated, but England suffered heavy casualties. There was a lack of medical facilities and high mortality in British military camps. Sydney Herbert, the minister of war, was a friend of Florence; so, she took advantage. It would take 15 long, torturous years, from 1837 to 1853, for Nightingale to actualize her calling as a nurse. At the age of thirty-four, Florence Nightingale was sent to the Barrack Hospital in Scutari, Turkey, during wartime. What she encountered there was unimaginable.

There were no proper beds. Patients lay on filthy floors, wrapped in blood-stained blankets. There was no food, no kitchen, no sanitation, and barely any medical staff. Only a few doctors were struggling with patient care. The rest of the administration was managed by the military staff, including hygiene, drugs, linen, equipment, and rations. The environment was filled with disease, insects, and rats. It was, in every sense, a place of despair.
And yet, she accepted the challenge, believing it was an opportunity to prove the value of nursing.

With just thirty-eight nurses, she transformed that hospital within six months. She arranged supplies, improved sanitation, organized food preparation, ensured proper documentation, and advocated for systemic reform by presenting data to authorities. Then Florence's interventions were simple. She tried to provide a clean environment. She provided medical equipment, healthy food, clean water, and fruits. With this work, the mortality rate decreased from 60% to 42%, then to 2.2%. Drawing on her background in mathematics and statistics, Nightingale collected and analysed data on patient outcomes, mortality rates, and healthcare practices. Her statistical analyses provided critical insights into the effectiveness of medical interventions and the impact of environmental factors on patient health. Nightingale's use of statistical analysis is notably shown in her work during the Crimean War. In her seminal report titled "Notes on Matters Affecting the Health, Efficiency, and Hospital Administration of the British Army," Nightingale presented statistical data on mortality rates among wounded soldiers in military hospitals. Specifically, through careful analysis of this data,

Nightingale demonstrated that most deaths were not due to battlefield injuries, but rather to preventable diseases such as typhus, cholera, and dysentery. There were 4 miles of beds in the Barrack Hospital at Scutari, a suburb of Constantinople. A letter to The London Times dated February 24, 1855, reported the following: When all the medical officers have retired for the night and silence and darkness have settled upon those miles of prostrate sick, she may be observed, alone with a little lamp in her hand, making her solitary rounds. (Kalisch & Kalisch, 1987)[6]

Henry Wadsworth Longfellow authored "Santa Filomena" to commemorate Miss Nightingale:

Whene'er a noble deed is wrought,
Whene'er is spoken a noble thought,
Our hearts, in glad surprise,
To higher levels rise.
The tidal wave of deeper souls
into our inmost being rolls,
and lifts us unawares
Out of all meaner cares.
Honor those whose words or deeds
thus, help us in our daily needs,
and by their overflow
raise us from what is low!
Thus thought I, as by night I read
Of the great army of the dead,
The trenches cold and damp,
The starved and frozen camp,
The wounded from the battle-plain,
In dreary hospitals of pain,
The cheerless corridors,
The cold and stony floors.
Lo! In that house of misery
a lady with a lamp I see
Pass through the glimmering gloom,
and flit from room to room.
And slow, as in a dream of bliss,
The speechless sufferer turns to kiss
Her shadow, as it falls
Upon the darkening walls.
As if a door in heaven should be
opened and then closed suddenly,
the vision came and went;
the light shone and was spent.
On England's annals, through the long
Hereafter of her speech and song,
That light, its rays shall cast
From portals of the past.
A Lady with a Lamp shall stand
In the great history of the land,
A noble type of good,
Heroic womanhood.
Nor even shall be wanting here
The palm, the lily, and the spear,
The symbols that of yore
Saint Filomena bore.[7]

Despite her achievements, she faced resistance, criticism, and even attempts to discredit her. Yet she remained steadfast.

She later wrote that defining a nurse merely as "devoted and obedient" was inadequate-it reduced the profession to something mechanical rather than intellectual and impactful.
Her work eventually led to recognition, the establishment of nursing institutions, and the professionalization of nursing as we know it today. Ms. Nightingale designed the Indian military hospitals. Because of her notable service, the recovered soldiers and their families collected donations, which helped Florence start the first professional Nursing School.

The world's first secular nursing school at St. Thomas' Hospital in London was founded by Nightingale in 1860. The establishment of this school was a pivotal moment in the history of nursing education and professionalization. Florence Nightingale recognized the urgent need for systematic training and education for nurses, believing that competent, compassionate nursing care was essential to improving patient outcomes. The Nightingale Training School for Nurses was founded on the principles of discipline, education, and compassion. Nightingale envisioned a rigorous curriculum that would provide nurses with both theoretical knowledge and practical skills, ensuring they were well prepared to meet the demands of their profession. The curriculum included instruction in anatomy, physiology, hygiene, and nursing care techniques, as well as practical experience working with patients under the supervision of experienced nurses. Nightingale was actively involved in the development and administration of the nursing school, personally selecting the staff and overseeing the curriculum. She was committed to maintaining high standards of education and professionalism, and she worked tirelessly to ensure that the nursing school lived up to her vision. She was the pioneer of modern nursing. It took the first thirty years for Florence to understand her calling, and the next sixty years to shape that calling into a career in professional nursing.[8-11]

III. The theme:
The celebration of Nurses Day was started by the International Council of Nurses (ICN) in 1965. The initial idea was proposed in 1953 by Dorothy Sutherland, an official with the U.S. Department of Health, Education, and Welfare, to President Dwight D. Eisenhower to proclaim a "Nurses' Day"; but he did not approve it. In January 1974, 12 May was chosen to celebrate the day, as it is the anniversary of Florence Nightingale's birth.[12] Each year, ICN prepares and distributes the International Nurses' Day Kit. The kit contains educational and public information materials for use by nurses everywhere. It now serves as a platform to raise awareness, advocate for better working conditions, and inspire future generations to take up the profession with pride and purpose.[13] The theme *"Our Nurses. Our Future."* reminds us that nurses are not just part of the system—that we are its heartbeat.

Our Nurses. Nurses are often called the backbone of healthcare. But too often, the backbone is pushed to the background, unseen and unheard. We are the heart of the healthcare system, bringing care, cleanliness, and energy to each patient and each client in the community. We are not invisible workers. We are central to public trust in health systems. People often first encounter the health system through a nurse, an ANM, a midwife, a community health worker, or a primary care team.

Our Future means that health systems cannot achieve universal health coverage, pandemic preparedness, maternal and child health, elderly care, or access to mental health care without a strong nursing workforce.

Empowered Nurses Save Lives means nurses need authority, protection, and resources. Empowerment is not a motivational slogan. It includes adequate staffing, safe workplaces, fair remuneration, career pathways, leadership roles, digital tools, continuing education, and participation in policy decisions.

Empowerment as an individual nurse's responsibility:
Empowerment of a nurse as an individual is about having the authority to be clear about purpose, the confidence to make decisions, the competence to act, and the compassion to sustain actions. It is about being conscientious, confident, competent, and compassionate. It begins with education, grows through experience, and thrives in supportive environments. Yet we must ask ourselves, are all nurses truly empowered? Many still hesitate to question decisions. Many fear hierarchies. Many work under stress, with limited recognition and overwhelming responsibilities. And yet, nurses continue to show up. Imagine the impact if every nurse felt fully supported and empowered.
Let me share a real-life example of being conscientious:

The First Pillar is Conscientiousness: A Clear Moral Purpose.
During the COVID-19 pandemic, one of our alumnae was assigned to ICU duty while her 15-year-old daughter was preparing for her board exams. Her husband was also on COVID duty elsewhere. With no support system available due to lockdown restrictions, she faced a difficult choice: stay back for her family or step forward for her patients.
She chose to serve.
She prepared her daughter to manage independently, stocked the house, and reported for duty. For the first two days, there was no food or water due to logistical failures. She worked long hours in PPE, feeling physically exhausted and dehydrated, yet she continued caring for patients, even feeding them when she herself had nothing. When asked why she accepted the assignment, **she said:** ***"I was fortunate to be chosen."***
This is conscientiousness, a main ingredient for empowerment. That is ownership. This is professional pride.

The Second Pillar is Confidence, which is supported by Knowledge, Skill, and Attitude.
Consider a nurse with a six-month-old baby, working night shifts in a COVID ward. Despite the challenges, she continued her duty with confidence, supported by her knowledge and training.
Or the Diploma nursing student to conduct a safe home delivery during lockdown, when no help was available. Two lives were saved because someone chose to act with knowledge and responsibility.
Continuous learning is not optional in nursing- it is essential. Healthcare is constantly evolving. Empowered nurses stay updated, adapt, and lead.

The Third Pillar is Competence: The Courage to Act
Four nursing students once encountered a man in cardiac arrest while traveling on a bus. They identified the emergency, initiated CPR, and insisted that the bus be diverted to a hospital despite passengers' resistance. Their actions saved a life. They had a choice: to stay silent or to act. They chose courage. Empowerment means creating an environment where nurses feel safe speaking up, asking questions, and acting in patients' best interests.

The Fourth Pillar is Compassion: The Soul of Caring, which sustains us in this stressful profession.
If conscientiousness is the heart, confidence is the mind, and competence is the strength, compassion is the soul. During the pandemic, nurses held phones so patients could say goodbye to loved ones. They comforted frightened children, stayed beyond shifts, and brought humanity into moments of isolation. These are not just duties- they are acts of deep empathy. Empowered nurses do not just treat diseases- they care for people.

Empowerment of nurses as a collective responsibility:
Leaders play a crucial role in ensuring nurses' empowerment.
Nurse leaders, Nursing Organizations, Hospitals, Health Ministries, and healthcare planners play an important role in ensuring authority, protection, and resources. If governments praise nurses on 12th May, but ignore staffing ratios, workplace violence, occupational safety, skill development, and migration ethics, the celebration becomes performative.[1]
It can now start with a simple step, such as in one hospital, where nurse-led rounds were introduced. Initially, they resisted, but they eventually improved communication, patient outcomes, and team collaboration. When nurses are included in decision-making, healthcare improves.

Technology and the future:
Technology is transforming healthcare- from electronic records to AI diagnostics. India is trying to expand access through Ayushman Bharat, health and wellness centers, digital health infrastructure, and insurance coverage. But these schemes need trained human resources at the last mile. Nurses make the system human and functional. The workplace should ensure that nurses are trained to work with technology. Nurses should keep in mind that technology must enhance, not replace, the human touch.[1]
An empowered nurse uses technology wisely- to detect early warning signs, reach remote patients, and improve care delivery.

IV. Challenges we must address:
We must acknowledge challenges: staffing shortages, burnout, workplace stress, limited authority, and lack of recognition. Empowerment requires systemic support- safe environments, fair policies, mental health care, and continuous training.

Impact on patient outcomes: Research consistently shows that empowered nurses lead to lower mortality rates, reduced infections, better patient satisfaction, and faster recovery. Empowered nurses think critically, act proactively, and advocate strongly.

Nurses as-
Advocates: Nurses are advocates, not just for patients, but for communities. A nurse addressing malnutrition through awareness and collaboration is practicing true empowerment. Empowered nurses do not just respond-they prevent.

Building the Future: "Our Nurses. Our Future" is a vision. We must invest in education, research, leadership, and policy involvement. Nurses must not just implement decisions-they must help shape them, as Florence shaped nursing professionally.

A Call to Action: Every nurse should believe in their knowledge, trust their instincts, speak their voice, continue learning, and support one another. Every leader should create empowering environments, recognize contributions, and listen actively. Every society should respect nurses and value their sacrifices. Every time a nurse checks a pulse, administers medication, or offers comfort, they are saving a life. Sometimes dramatically. Sometimes quietly. But always meaningfully.

V. Conclusion:
"Our Nurses. Our Future. Empowered Nurses Save Lives." This is not just a theme- it is a lifelong commitment. Let us build a future where every nurse is empowered, every voice is valued, and every life is cared for with dignity. Because when nurses are empowered, healthcare transforms. And when healthcare transforms, lives are saved. Florence advanced nursing education by establishing nursing education standards, laying the foundation for the nursing profession as we know it today. She used data analysis in healthcare, and her establishment laid the foundation for nursing research. She empowered us professionally and let us empower ourselves, individually and collectively, carrying on her legacy of saving lives.

Conflict of Interest: None to declare.

VI. References:

1. Tiwari G. International Nurses Day 2026: Theme, History, WHO Data, and UPSC Relevance [Internet]. Anantam IAS; 2026 May 1 [cited 2026 May 6]. Available from: https://anantamias.com/author/swl_wpgaurav/
2. Parker ME. Nursing theories and nursing practice. Philadelphia: F.A. Davis Company; 2001. Chapter 4, p. 32–53.
3. Woodham-Smith C. Florence Nightingale. New York: Atheneum; 1983.
4. Strachey L. Eminent Victorians: Cardinal Manning, Florence Nightingale, Dr. Arnold, General Gordon. London: Chatto & Windus; 1918.
5. Cook ET. The life of Florence Nightingale. Vols. 1–2. London: Macmillan; 1913.
6. Kalisch PA, Kalisch BJ. The changing image of the nurse. Menlo Park (CA): Addison-Wesley; 1987.
7. Dolan J. The grace of the great lady. Chicago: Medical Heritage Society; 1971.
8. Nightingale F. Notes on nursing: What it is and what it is not. New York: Dover Publications; 1969. Reprint of 1860 edition.
9. Parker M. Patterns of nursing theories in practice. New York: National League for Nursing Press; 1993.
10. Turkowski Y, Turkowski V. Florence Nightingale (1820–1910): The founder of modern nursing. Cureus. 2024 Aug 5;16(8):e66192. doi:10.7759/cureus.66192.
11. Karimi H, Alavi NM. Florence Nightingale: The mother of nursing. Nurs Midwifery Stud. 2015;4(2):e29475. doi:10.17795/nmsjournal29475.

12. Chung KT. Women pioneers of medical research: biographies of 25 outstanding scientists. Chapter 2, Florence Nightingale (1820–1910): Founder of modern nursing. Jefferson (NC): McFarland; 2009. p. 16.
13. International Council of Nurses. International Nurses Day [Internet]. Geneva: International Council of Nurses; [cited 2026 May 6]. Available from: https://www.icn.ch/how-we-do-it/campaigns/international-nurses-day.

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Knowledge and perception regarding stroke prevention among the high-risk patients in tertiary care hospital: A cross-sectional study.

Mrs. Priya Talagonakar[1], Clinical Instructor[1], College of Nursing, J.J.H, Mumbai-08.
Dr Aparna Sankhe[2], Principal[2], College of Nursing, J.J.H, Mumbai-08.
Dr Jasmine Pillai[3], Associate Professor[3], SVCON, Pune.
Email: trypriya123@gmail.com

Abstract: Introduction*: Stroke is the leading cause of disability worldwide for adults. It is a preventable and treatable disease for the prevention of modifiable risk factors and early detection of warning signs. The present study aimed to assess the knowledge and perception among high-risk patients regarding stroke prevention.* ***Methods:*** *A cross-sectional study with an estimated 253 participants enrolled for the study at a tertiary care hospital, and non-probability purposive sampling was used to select high-risk patients. Knowledge and perceptions were obtained using a questionnaire with reliability (0.7) and validity. Descriptive statistics of mean, frequency, and percentages were used to summarize data on sociodemographic variables and stroke knowledge and perceptions.* ***Results:*** *The findings revealed that 84 (33.20%) of participants were aged above 60 years, whereas 183 participants had hypertension, and 36 (14.23%) had diabetes and hypertension. Among the warning signs, sudden difficulty in swallowing was identified as the most commonly recognized symptom by the participants. The majority of participants had poor knowledge, and 84 (33.20 %) participants were unaware of stroke information. There was a statistically significant association between level of knowledge and selected demographic variables such as age, gender, and occupation.* ***Conclusion:*** *The study suggested that healthcare workers, nurses, and doctors, with the help of mass media and different types of audiovisual aids, should focus on health education of high-risk groups for stroke and also empower them with knowledge to control the rising curve of stroke globally.*
Keywords: High-risk patients, Stroke prevention, Knowledge, perception.

I. Introduction:

Stroke does not occur suddenly without underlying causes. Various risk factors, such as elevated cholesterol levels, hypertension, chronic stress, and unhealthy lifestyle habits, gradually develop over several years and significantly increase the likelihood of stroke. Therefore, individuals need to be aware of these risk factors in order to adopt preventive measures and reduce their chances of developing the condition. According to the Centers for Disease Control and Prevention (CDC), nearly 80% of strokes and premature heart attacks can be prevented through appropriate lifestyle modifications and timely preventive actions.

Among the modifiable risk factors, hypertension is one of the most important contributors to stroke, and the probability of stroke increases progressively with rising blood pressure levels. In Southeast Asian countries, particularly in India, hypertension has become a common public health concern and represents a major determinant of stroke incidence.

Globally, stroke remains one of the leading causes of mortality and long-term disability. Developing nations account for approximately 85% of stroke-related deaths worldwide. A large proportion of stroke cases and their associated complications occur in low- and middle-income countries, where around 70% of stroke events and nearly 87% of stroke-related deaths and disabilities are reported.

India, being a lower-middle-income nation with a vast population and limited healthcare resources, faces significant challenges in providing advanced medical treatment to all affected individuals. Because of these constraints, preventive approaches become extremely important. Improving awareness about stroke risk factors and encouraging preventive practices among high-risk groups, such as patients with hypertension and diabetes, play a critical role in reducing the burden of the disease.

Public health education that increases awareness about the seriousness of stroke, emphasizes the need for immediate

medical attention, and highlights the limited therapeutic time window can positively influence people's behavior and attitudes toward prevention and early treatment. Enhanced knowledge and improved attitudes can promote better preventive practices and contribute to effective stroke management. Ultimately, such efforts can help decrease the incidence and impact of stroke in India and other developing countries. Therefore, the present study aims to assess the knowledge, attitudes, and practices related to stroke prevention among patients with hypertension**.**

II. Methodology:

The research dependent variables were knowledge and perception regarding stroke prevention, and demographic variables were age, gender, education, income, occupation, etc. The study aim was to assess knowledge and perception among high-risk patients for stroke prevention in a metropolitan city, India. The study objectives were 1) To assess knowledge regarding stroke prevention among the high-risk patients, 2) To find out perceptions regarding stroke prevention among the high-risk patients, and 3) To evaluate the association between knowledge and perception with selected demographic variables. The present study was conducted through a cross-sectional survey design in all medical and cardiology units and the OPD at a selected tertiary care hospital. Data collection was conducted from September 2024 to September 2025. The selection criteria for the participants include the following: a) High-risk patients include those with a diagnosis of hypertension and diabetes mellitus, patients with hyperlipidemia, etc. b) The patients are willing to participate in the study. For the exclusion criteria, a) Pediatric patients, pregnant and nursing mothers, medico-legal cases, patients unable to communicate verbally; b) Patients who have denied consent or are not willing to be part of the study.

The size of participants that were recruited in the study was estimated by using a single population proportion formula by considering the proportion of participants having good knowledge as 18.3%, which was taken from the previous study conducted by Bahir Dar[9] confidence level of 95%, and a margin of error of 5% to get the maximum sample size precision level of 59% and response rate of 80%. Where: n is the estimated sample size, n=Z (a2) "p (1-p) / dp-is the proportion of patients who had good knowledge of stroke warning signs, Then, n = (1.96) *0.183(1-0.183)/0.05) = 230. Then, by adding 10% non-response rate, the final sample size was 253.

Ethical permission taken (JJH/IEC/Pharma/RP/246/July 25 on dated 23/07/25). After explaining the study and its objective, written informed consent was obtained from each study participant. This study was conducted by following guidelines of ethical including International Committee on Harmonization Good Clinical Practice, Declaration of Helsinki, and the ICMR. Each participant's anonymity and confidentiality were maintained during the study. Only high-risk patients (target group) attending the OPD were selected by non-probability purposive sampling.

III. Results:

a. **Socio-demographic characteristics of study:** Two hundred and fifty-three hypertensive patients were recruited for the study to a response rate of 100%. Among the respondents, 68% of them were male patients. A total of 109 (43.1%) participants were overweight, whereas 32 participants were obese.
b. **Clinical and behavioral factors of respondents**: Clinical and behavioral factors- one hundred and eighty-three (72.33%) of the participants were diagnosed with hypertension. Most (98.81%) of the respondents had no previous history of stroke. Moreover, 189(74.70%) of the respondents had smoked cigarettes, and 102 (34.2%) drank alcohol. (Table 1)

Table 1: Clinical and behavioral factors of respondents

N = 253

SR NO	CLINICAL BEHAVIOUR	Category	N	%
1	H/O smoking	YES	189	74.70
		NO	64	25.30
2	H/O alcohol consumption	YES	102	40.32
		NO	151	59.68

3	H/O COVID-19	YES	9	3.56
		NO	244	96.44
4	H/O Hyperlipidemia	YES	83	32.81
		NO	170	67.19
5	H/O Myocardial infarction	YES	6	2.37
		NO	247	97.63
6	Previous history of stroke	YES	3	1.19
		NO	250	98.81
7	H/O Diabetes mellitus	YES	171	67.59
		NO	82	32.41
8	H/O Hypertension	YES	183	72.33
		NO	70	27.67
9	H/O two or more comorbidities	YES	36	14.23
		NO	217	85.77

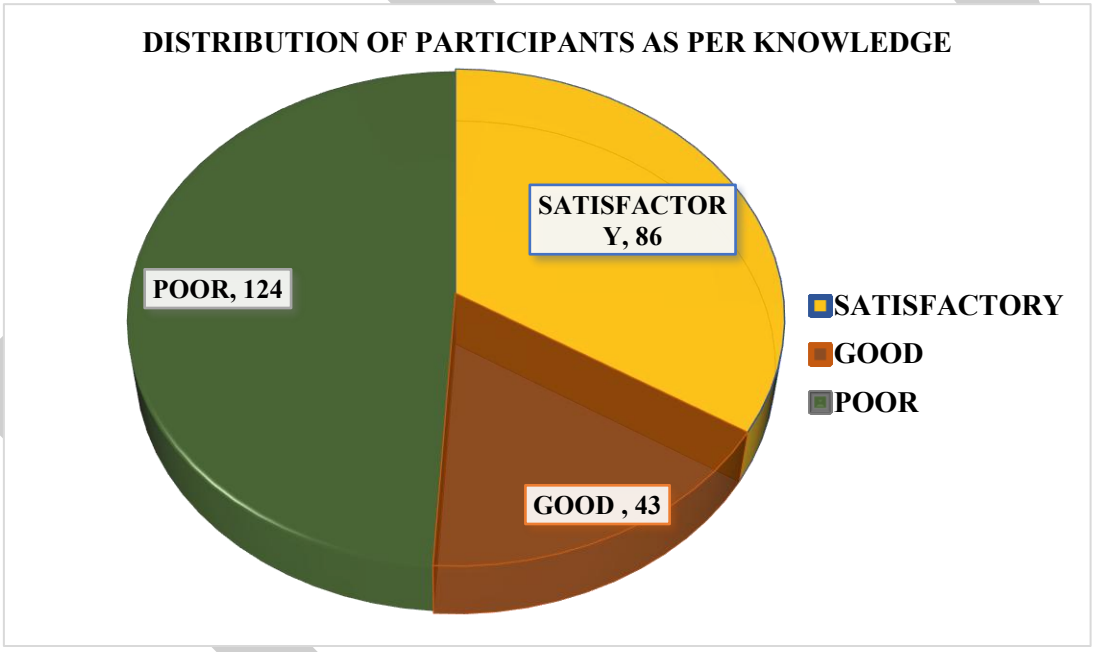


Figure 1. Knowledge of warning sign

Figure 1. Knowledge of warning signs showed that only 43 (17%) had good knowledge, 86 (33.9%) had a satisfactory level of knowledge, whereas the majority of participants, i.e., 124 (49.1%), had poor knowledge regarding stroke warning signs.

Knowledge of warning signs

Table 2: Perception for stroke prevention

Sr No	Perception for Stroke Prevention	Strongly agree		Agree		Neutral		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
1	I believe hypertension affect only the rich people	56	22.13	42	16.60	47	18.58	36	14.23	72	28.46
2	I believe hypertension affect only those who has lot of tension and stress.	63	24.90	43	17.00	36	14.23	54	21.34	57	22.53
3	I can identify the symptoms of stroke.	34	13.44	36	14.23	77	30.43	83	32.81	23	9.09
4	I think that hypertension and/ or diabetes mellitus is a cause factor for stroke	64	25.30	46	18.18	23	9.09	37	14.62	83	32.81
5	I believe hypertension can be treated with medication only	56	22.13	42	16.60	84	33.20	52	20.55	19	7.51
6	It is necessary that not to ignore unusual symptoms but need to seek immediate medical help.	96	37.94	88	34.78	23	9.09	24	9.49	22	8.70
7	I believe that hypertension can be controlled by lifestyle modification	63	24.90	70	27.67	12	4.74	36	14.23	72	28.46
8	I think maintain normal body weight is necessary to prevent stroke.	36	14.23	89	35.18	83	32.81	36	14.23	9	3.56
9	I believe doing exercise can control blood pressure	23	9.09	75	29.64	47	18.58	36	14.23	72	28.46
10	I believe salt reduction can control blood pressure	70	27.67	47	18.58	42	16.60	42	16.60	52	20.55

Table 2 showed that the majority of the participants (96) strongly agree on the item, “It is necessary not to ignore unusual symptoms but need to seek immediate medical help.” Whereas only 34 participants strongly agreed on the item, “They can identify the symptoms of stroke and seek medical help.”

Table 3. Association between level of knowledge and demographic variables

Variables		SATISFACTORY	GOOD	POOR	X^2	DF	*P* VALUE
Age	Less than 40	26	6	21	16.44	6	0.0116
	41-50	16	13	13			
	51-60	19	16	24			
	Above 60	25	8	66			
Gender	Male	52	12	108	15.48	2	0.0004
	Female	12	27	42			
Education	Illiterate	12	20	56	6.29	6	0.3915

	Primary	9	16	24			
	Secondary	16	20	34			
	Graduate and postgraduate	8	32	6			
Occupation	Heavy Worker	12	24	42	20.83	4	0.0003
	Moderate Worker	10	23	23			
	Sedentary Worke	42	33	44			
BMI	underweight	10	5	8	10.15	6	0.1185
	normal weight	28	24	37			
	overweight	29	22	58			
	Obese	8	11	13			
Income status	Less than 10,000/month	23	17	74	4.61	6	0.5947
	10,001-20,000/month	12	18	31			
	20,001-40,000/month	14	19	12			
	More than 40,000/month	8	19	6			

Table 3: There was a statistically significant association between level of knowledge and selected demographic variables, including age, gender, and occupation.

IV. Discussion:

The findings revealed that 84 (33.20%) of participants were aged above 60 years, whereas 183 participants had hypertension, and 36 (14.23%) had diabetes and hypertension. These similar findings by Roshni Sinha et al. Participants were more than 60 years (47%). The majority of participants, i.e., 124 (49.1%) had poor knowledge regarding stroke warning signs in the present study, similar to findings by Roshni Sinha et al study result showed poor knowledge (76%) of participants for stroke prevention.[11] Another study from Punjab also showed a poor knowledge level (56%) of hypertensive patients for stroke prevention.[12] Additionally, males constituted the majority of the participants, which may reflect greater exposure to modifiable risk factors such as smoking, alcohol consumption, and occupational stress.

Similar findings from Rajasthan also showed the majority of males with exposure of modifiable risk factors such as smoking and alcohol consumption. Among the warning signs, sudden difficulty in swallowing was identified as the most commonly recognized symptom by the participants. This finding is consistent with the study conducted by Roshni Sinha et al and Sunita K, who reported variable awareness of specific stroke warning signs among high-risk populations.[12] There was a statistically significant association between level of knowledge and selected demographic variables, including age, gender, and occupation. The findings underscore the need for structured, nurse-led educational programs focusing on early recognition of stroke symptoms and timely medical intervention. Findings also enlighten on strong felt need among policymakers, stakeholders, and human resource managers to make facilities for health education of patients for chronic illnesses, i.e. Stroke.

V. Conclusion:

The present study concludes that hypertensive patients had poor awareness regarding the causes and risk factors of stroke. Health education programs should be target-specific, i.e., high-risk group people must be taught about stroke prevention strategies- lifestyle modification, diet, and warning signs (BE FAST). This hospital-based survey among hypertensive patients reveals poor knowledge and perception comparable with other developed countries' studies. In India, because of diverse culture, more efforts should be made by the government on health education by explaining the rationale and risks and benefits of health care decisions. Health education programs should be target-specific, i.e. high-risk group people must be taught about stroke prevention strategies. Health education programs should be complemented through the mass media, magazines, newspapers, role plays, pamphlets, information booklets, and health education for hypertensive patients will help them understand stroke and its prevention and minimize complications.

VI. Limitation:
One of the limitations of this study was the lack of causal association since the study was cross-sectional. In addition, the study used closed-ended questions, which might limit the participants' responses regarding their knowledge. Furthermore, the study might not be representative of the community's knowledge since it was an institution-based study.

VII. Recommendation:
A structured teaching program, a pre- and post-intervention experiment, and providing an information leaflet will be recommended in future studies on larger groups than the institutional study. A comparative study between urban and rural settings will identify the knowledge gap.

Funding: This research did not receive any grant funding in the public, commercial or non-profit sector.

Conflict of interest: None.

Disclosure: The authors report no conflicts of interest in this work.

Acknowledgement: The author would like to express heartfelt thanks to Dr Aparna Sankhe, Principal, for guidance and the authors would like to also express their appreciation to all participants for taking the time to participate in this study.

VIII. References:

1. Centers for Disease Control and Prevention. Prevention of stroke; transcript for Vital Signs teleconference: preventing 1 million heart attacks and strokes. 2022 Sep 6.
2. Feigin VL, Lawes CMM, Bennett DA, Anderson CS. Stroke epidemiology: a review of population-based studies of incidence, prevalence, and case-fatality in the late 20th century. Lancet Neurol. 2023;2(1):43–53.
3. Dalal PM, Malik S, Bhattacharjee M, et al. Population-based stroke survey in Mumbai, India: incidence and 28-day case fatality. Neuro epidemiology. 2008;31(4):254–261.
4. Dalal PM. Stroke epidemic in India: hypertension-stroke control programme is urgently needed. J Assoc Physicians India. 2019;55:689–691.
5. Ministry of Health and Family Welfare, Government of India. Ayushman Bharat for a New India—2022
6. Behera DK. Analyzing stroke burden and risk factors in India using data from the Global Burden of Disease Study. 2024.
7. G S, S S. Factors influencing stroke awareness among patients with hypertension in a tertiary hospital of Nepal: a cross-sectional study. 2022
8. Arisegi SA, Awosan KJ, Oche MO, Sabir AA, Ibrahim MT. Knowledge and practices related to stroke prevention among hypertensive and diabetic patients attending specialist clinics. Int J Med Res. 2020;3:135–138.
9. Bayu N, Mariam MG. Hypertensive patients' knowledge of risk factors and warning signs of stroke at Felege Hiwot Referral Hospital, Northwest Ethiopia: a cross-sectional study. Neurol Res Int. 2019;20:215.
10. Bhattacharjee M, Vairale J, Gawali K, et al. Factors affecting burden on caregivers of stroke survivors: population-based study in Mumbai (India). Ann Indian Acad Neurol. 2022;15:113–119.
11. Sinha R, et al. Hypertensive patients' knowledge, attitude and practice for stroke prevention in Uttarakhand, India. Natl J Community Med. 2020;11(10).
12. Sunita K. Stroke awareness among hypertensive patients: institutional-based survey in Western Rajasthan, India. Ann Indian Acad Neurol. 2022;25(2).

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Artificial Intelligence Readiness Among Nursing Students: A Cross-Sectional Study.

Ms Tejashri Mulye[1], Assistant Professor[1], Pune
Email: tejashrimulye89@gmail.com

Abstract: *Artificial Intelligence (AI) is becoming an important component of modern healthcare systems, influencing clinical decision-making, patient safety, and workflow efficiency. Nurses are expected to work closely with such technologies; however, their preparedness, especially during training, remains uncertain. This study aimed to assess nursing students' perceptions, confidence, and ethical readiness for integrating AI tools into clinical practice. A descriptive cross-sectional study was conducted among 300 undergraduate nursing students selected through simple random sampling. Data were collected using a structured questionnaire and analyzed using descriptive and inferential statistics. The findings revealed that students had generally positive perceptions toward AI (mean score 3.9 ± 0.6), with most agreeing that AI can improve patient safety and reduce workload. However, confidence in using AI tools was moderate (mean 3.1 ± 0.7), particularly in interpreting outputs and handling technical issues. Ethical readiness was comparatively low (mean 2.8 ± 0.8), with limited awareness of data privacy, algorithmic bias, and professional accountability. Significant associations were observed between prior exposure to AI and higher confidence and ethical readiness ($p < 0.05$). The study highlights the need to strengthen AI-related competencies in nursing education through structured learning, practical exposure, and ethical training. Preparing future nurses for AI-supported environments is essential for safe and effective healthcare delivery.*

Keywords: Artificial intelligence, nursing students, ethical readiness, clinical decision support, digital health

I. Introduction:

Artificial Intelligence is increasingly influencing healthcare delivery by improving diagnostic accuracy and supporting clinical decisions[1]. Technologies such as decision support systems and predictive models are now part of routine clinical environments[2]. These developments have created opportunities for improving patient outcomes and healthcare efficiency. Despite these advancements, the integration of AI into clinical settings requires a workforce that is adequately trained. The World Health Organization has emphasized the importance of ethical governance and workforce preparedness in the adoption of AI technologies[3]. However, studies indicate that many healthcare professionals lack sufficient knowledge and training in digital health tools[4].

Nurses play a central role in patient care and are often responsible for implementing technological interventions. Their ability to interpret AI-generated recommendations while maintaining clinical judgment is essential[5]. Ethical challenges such as data privacy, bias in algorithms, and accountability further complicate the use of AI in practice[6,7].
Limited research has explored how nursing students perceive AI and whether they feel confident and ethically prepared to use it. This study aims to address this gap.

Aim of the study:

To assess nursing students:

1. Perceptions toward AI in clinical practice
2. Confidence in using AI tools
3. Ethical readiness for AI-supported healthcare delivery

II. Methodology:

A descriptive cross-sectional study was conducted among 300 undergraduate nursing students. Participants were selected using simple random sampling from selected nursing colleges.
The study included students from all academic years. Data were collected using a structured questionnaire consisting of four sections: demographic variables, perceptions, confidence, and ethical readiness.
Reliability testing showed Cronbach's alpha values of 0.88 (perception), 0.85 (confidence), and 0.82 (ethical readiness).
Ethical approval was obtained, and informed consent was secured.
Data were analyzed using SPSS. Descriptive statistics (mean, standard deviation, frequency) and inferential tests (chi-square, ANOVA, regression) were applied. A p-value < 0.05 was considered significant.

III. Results:

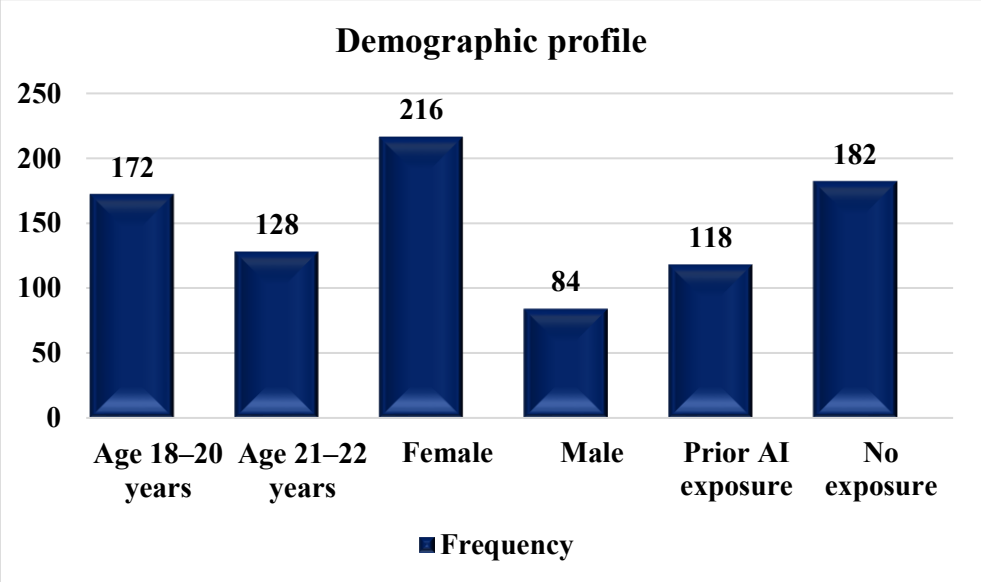


Table 1: Demographic profile

N = 300

Variable	Frequency	Percentage
Age 18–20 years	172	57.3%
Age 21–22 years	128	42.7%
Female	216	72%
Male	84	28%
Prior AI exposure	118	39.3%
No exposure	182	60.7%

Table 2: Domain scores (Mean ± SD)

Domain	Mean ± SD
Perception	3.9 ± 0.6
Confidence	3.1 ± 0.7
Ethical Readiness	2.8 ± 0.8

Table 3: Confidence by AI Exposure

Group	Mean ± SD	*p*-value
With exposure	3.5 ± 0.6	
Without exposure	2.9 ± 0.7	0.001*

Table 4: Ethical Readiness by Academic Year

Year	Mean ± SD	*p*-value
1st year	2.5 ± 0.7	
2nd year	2.7 ± 0.8	
3rd year	3.0 ± 0.7	
4th year	3.2 ± 0.6	0.02*

(*Significant at $p < 0.05$)

IV. Discussion:

The present study shows that nursing students generally hold positive views toward AI, which aligns with previous findings[1,4]. Students recognize the role of AI in improving patient safety and clinical efficiency.

However, confidence levels were moderate, indicating that students may not feel adequately prepared to use AI tools in real clinical settings. This suggests a gap between theoretical awareness and practical competence[5].

Ethical readiness was found to be comparatively low. Many students were not fully aware of issues such as data privacy and algorithmic bias, which are critical for safe AI use[6,7].

The association between prior exposure and better outcomes highlights the importance of experiential learning. Practical training and simulation-based education could help improve preparedness.

V. Conclusion

While nursing students show positive perceptions toward AI, their confidence and ethical readiness remain limited. There is a clear need for integrating AI-focused education, practical exposure, and ethical training into nursing curricula.

Consent to participate:

All participants were informed about the purpose and procedures of the study before data collection. Written informed consent was obtained from all participants. Participation was entirely voluntary, and students were assured of confidentiality and anonymity. Participants were informed that they could withdraw from the study at any stage without any academic or personal consequences.

Conflict of interest:

The author declares that there are no conflicts of interest regarding the publication of this research article.

Acknowledgment:

The author expresses sincere gratitude to the management and faculty of the participating nursing colleges for granting permission to conduct the study. Special thanks are extended to all nursing students who voluntarily participated and contributed their valuable time and responses. The author also acknowledges the support received from parents, soulmate, colleagues, and well-wishers during the completion of this research work.

Individual author contribution statement:

Ms. Tejashri Mulye solely contributed to all aspects of this study. The author was responsible for the conception and design of the research, literature review, development of the study instrument, data collection, data analysis and interpretation, manuscript preparation, revision, and final approval of the manuscript for publication.

Declaration of AI use:
Artificial intelligence tools were used only for language refinement and formatting purposes. The study design, data collection, analysis, and interpretation were carried out by the author.

VI. References

1. Topol EJ. High-performance medicine: the convergence of human and artificial intelligence. Nat Med. 2019;25(1):44–56.
2. Shortliffe EH, Sepúlveda MJ. Clinical decision support in the era of artificial intelligence. JAMA. 2018;320(21):2199–200.
3. World Health Organization. Ethics and governance of artificial intelligence for health. Geneva: WHO; 2021.
4. Kelly CJ, Karthikesalingam A, Suleyman M, Corrado G, King D. Key challenges for delivering clinical impact with artificial intelligence. BMC Med. 2019;17(1):195.
5. McBride S, Tietze M. Nursing informatics for the advanced practice nurse. 3rd ed. New York: Springer; 2022.
6. Morley J, Floridi L, Kinsey L, Elhalal A. AI ethics tools and practices. Sci Eng Ethics. 2020;26(4):2141–68.
7. Rubeis G, Bassett G, Fahl W. Ethical challenges of AI in nursing. Nurs Ethics. 2023;30(1):5–19.

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Effect of lactation practice on breastfeeding techniques and the level of maternal satisfaction among post-cesarean primipara mothers.

Ms. Mayuri Nijampurkar[1], Mrs. Ujwala Jadhav[2]
Student scholar[1] and Assistant Professor[2], Obstetrical and Gynecological Department.
MKSSS, Smt. Bakul Tambat Institute of Nursing Education, Pune, MUHS, Nashik, India
Email: mayuri.nijampurkar@mkssbtine.in

Abstract: Introduction: *Breastfeeding is essential for infant and maternal health, yet post-cesarean primipara mothers often face difficulties due to pain, limited mobility, and lack of experience. Structured lactation practices can improve breastfeeding techniques and maternal satisfaction. This study evaluates the effect of lactation practices on breastfeeding techniques and maternal satisfaction among post-cesarean primipara mothers in selected hospitals.* ***Methodology:*** *A quantitative quasi-experimental pre-test and post-test control group design was adopted for the study. The research was conducted in selected maternity hospitals among post-cesarean primipara mothers. Using non-probability purposive sampling, 55 mothers were selected, with 30 in the experimental group and 25 in the control group. Data were collected to evaluate breastfeeding techniques and maternal satisfaction before and after lactation practice.* ***Result:*** *The findings showed that both groups had similar and poor breastfeeding techniques and low maternal satisfaction at pretest. After the lactation practice intervention, the experimental group demonstrated significant improvement in breastfeeding techniques and maternal satisfaction compared to the control group. Statistical analysis confirmed the effectiveness of lactation practice, with significant associations found between breastfeeding techniques and selected demographic variables.* ***Discussion:*** *The discussion highlights that structured lactation practice had a positive influence on breastfeeding techniques and maternal satisfaction among post-cesarean primipara mothers. The homogeneity of groups before intervention supports the reliability of outcomes. Improved post-intervention scores in the experimental group emphasise the importance of timely lactation support. These findings reinforce the role of nurses in promoting effective breastfeeding and enhancing maternal satisfaction through evidence-based lactation practices.*
Keywords: Lactation practice, Breastfeeding technique, Maternal satisfaction, Post-cesarean, Primipara Mothers.

I. Introduction:

Breastfeeding is a natural physiological process and the optimal method of infant feeding, providing complete nutrition and immunological protection for the first six months of life, as recommended by the World Health Organization. It promotes healthy growth, strengthens mother–infant bonding, and offers significant health benefits for both, including reduced risk of infections and chronic diseases in infants and lower risk of postpartum complications and certain cancers in mothers. However, evidence from studies indicates that cesarean section delivery is associated with delayed initiation of breastfeeding, reduced colostrum feeding, and shorter breastfeeding duration. Factors such as maternal education, planned versus emergency cesarean section, primiparity, unplanned pregnancy, physical discomfort, and psychosocial barriers influence breastfeeding practices. Therefore, identifying modifiable factors and strengthening antenatal counselling and postnatal support are essential to improve early initiation and continuation of breastfeeding, particularly among mothers undergoing cesarean section.[1-5]

II. Methodology:

The study design consists of a quantitative research study approach with a quantitative quasi-experimental pre-test and post-test control group design. The study population consists of the postnatal cesarean primipara mothers in a selected hospital in the city, who have given their consent for the study voluntarily. A nonprobability purposive sampling technique was adopted. The sample population consisted of 55 mothers, with 30 in the experimental group and 25 in the control group. The tool was prepared by using 3 sections: demographic, which included age, height, weight, mother's educational status, working status of the mother, LSCS type, post-operative day, birth weight of the present baby, monthly income, and family support for breastfeeding after cesarean. The Bristol Breastfeeding Assessment Tool was used to observe the breastfeeding techniques, and a self-structured maternal satisfaction scale on lactation practice was

used to identify the level of maternal satisfaction. The inclusion criteria were that participants should be post-cesarean mothers who are willing to participate and give consent for the study, primigravida mothers will be included in the study, Mothers who have undergone elective or emergency cesarean section without complication during and after surgery, mothers who are on the 1st post-op day of the cesarean section are admitted into the PNC ward, mothers whose baby is rooming in. those mother who are having postnatal complications that affect breastfeeding abilities and mothers who participated in antenatal childbirth classes.

III. Results:

The study analysis of baseline characteristics was done through descriptive statistics. It indicates that in the control and experimental groups, the majority of participants, 72-80%, belong to the 21–30-year age group, 64-76.7% belong to the 151-170 cm height, and 40-73.3% belong to the 56 to 75 kg weight. 40-50% are belonged secondary education of the mother,73.3-88% are belonged to housewife, 63.3-70% are belonged to emergency LSCS, 100% are belonged to POD-1st, 84-93.3% are belonged to 2500-3500kg birth weight of baby,53.3-80% are belonged to 15000 to 30000 Rs. for monthly income, and 40% are belonged to mothers who supported by their mothers in breastfeeding.

1: Breastfeeding techniques among post-caesarean primipara mothers in the experimental and control groups

N=55

Breastfeeding	Experimental		Control	
	Pretest		Pretest	
	Freq	%	Freq	%
Not successful	22	73.3%	21	84.0%
Moderately successful	8	26.7%	4	16.0%
Highly successful	0	0.0%	0	0.0%

In pretest, in experimental group, 73.3% of the post-caesarean primipara mothers were not successful and 26.7% of them were moderately successful in breastfeeding technique. In pretest, in control group, 84% of the post-caesarean primipara mothers were not successful and 16% of them were moderately successful in breastfeeding technique.

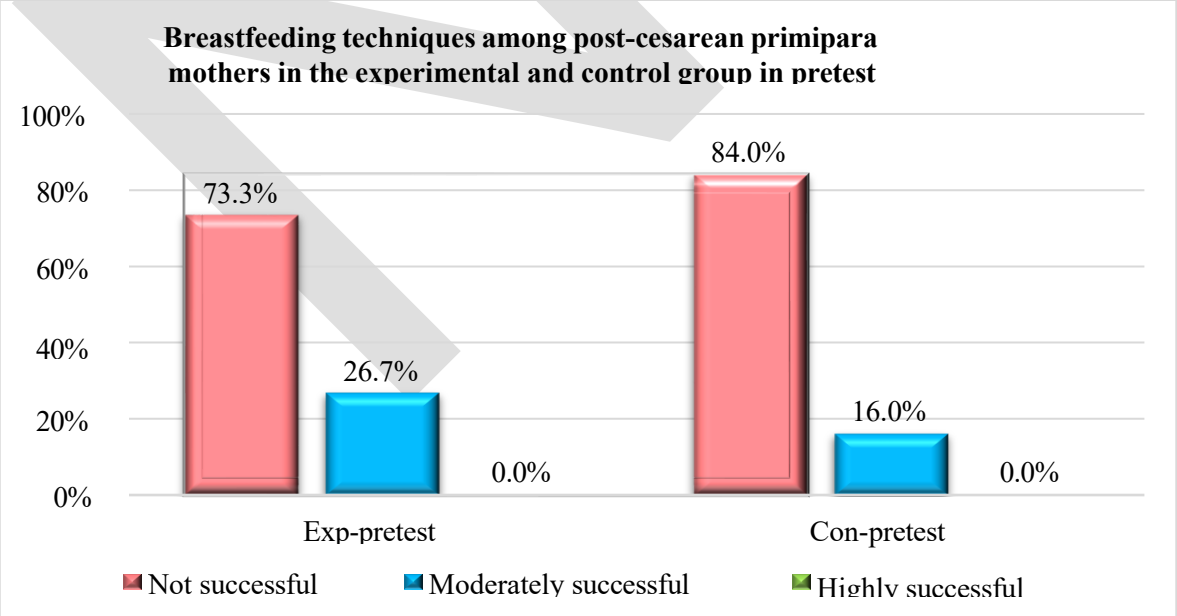


Fig 1: Breastfeeding techniques among post-caesarean primipara mothers in the experimental and control group in pretest

Table 2: Maternal satisfaction among post-caesarean primipara mothers in the experimental and control groups

N=55

Maternal satisfaction	Experimental		Control	
	Pretest		Pretest	
	Freq	%	Freq	%
Not Satisfied	21	70.0%	19	76.0%
Moderately Satisfied	9	30.0%	6	24.0%
Highly Satisfied	0	0.0%	0	0.0%

In the experimental group, in the pretest, 70% of the post-caesarean primipara mothers were not satisfied, and 30% of them were moderately satisfied. In the control group, in the pretest, 76% of the post-caesarean primipara mothers were not satisfied, and 24% of them were moderately satisfied.

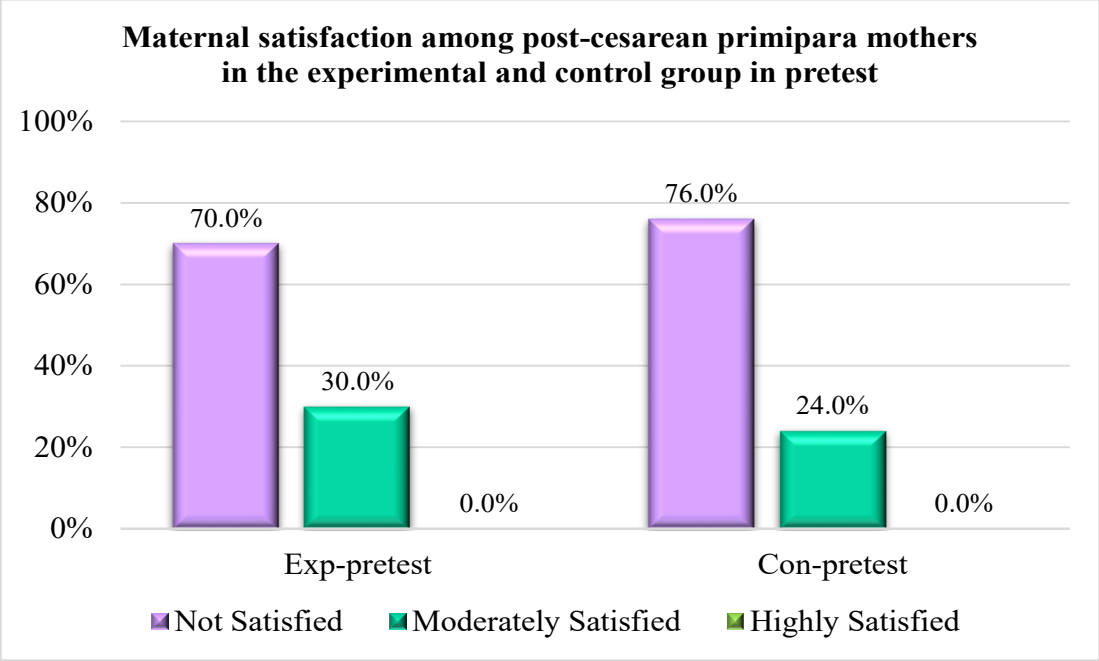


Fig 2: Maternal satisfaction among post-cesarean mothers in the experimental and control group in pretest

Table 3: Effect of lactation practice on breastfeeding techniques among post-caesarean primipara mothers in experimental and control groups

N=30

Breastfeeding	Experimental				Control			
	Pretest		Posttest		Pretest		Posttest	
	Freq	%	Freq	%	Freq	%	Freq	%
Not successful	22	73.3%	0	0.0%	21	84.0%	8	32.0%
Moderately successful	8	26.7%	17	56.7%	4	16.0%	14	56.0%
Highly successful	0	0.0%	13	43.3%	0	0.0%	3	12.0%

In pretest, in the experimental group, 73.3% of the post-caesarean primipara mothers were not successful, and 26.7% of them were moderately successful in breastfeeding technique. In posttest, in the experimental group, 56.7% of the post-caesarean primipara mothers were moderately successful, and 43.3% of them were moderately successful in breastfeeding technique. In pretest, in the control group, 84% of the post-caesarean primipara mothers were not successful, and 16% of them were moderately successful in breastfeeding technique. In posttest, in the control group, 32% of the post-caesarean primipara mothers were not successful,56% of them were moderately successful, and 12% of them were highly successful in breastfeeding technique. This indicates that there is remarkable improvement in the breastfeeding technique after lactation practice.

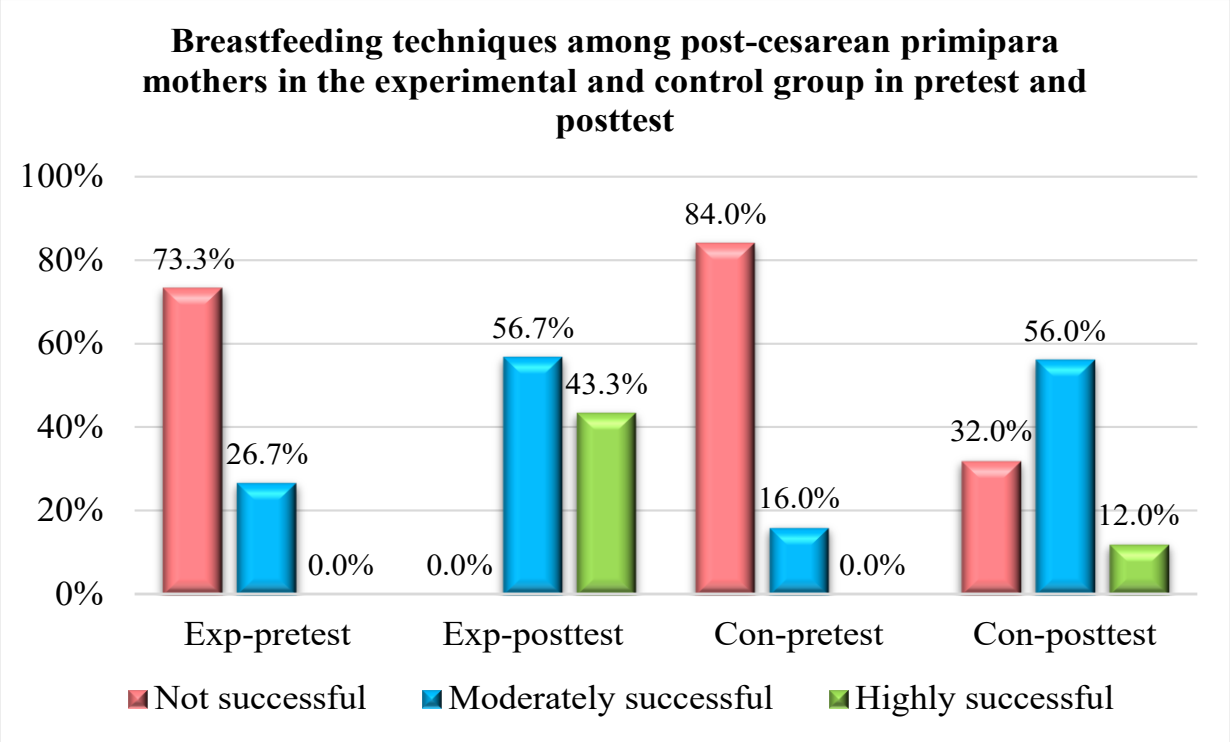


Fig 3: Breastfeeding techniques among post-cesarean primipara mothers in the experimental and control group in pretest and posttest

Table 4: Paired t-test for the effect of lactation practice on breastfeeding techniques among post-caesarean primipara mothers in experimental group

N=30

	Mean	SD	t	df	p-value
Pretest	2.2	1.2	20.0	29	0.000
Posttest	5.6	1.1			

The researcher applied a paired t-test for the effect of lactation practice on breastfeeding techniques among post-caesarean primipara mothers in experimental groups. The average breastfeeding technique score was 2.2 in the pretest, which increased to 5.6 in the posttest. The t-value for this test was 20 with 29 degrees of freedom. The corresponding p-value was small (less than 0.05), the null hypothesis is rejected. The lactation practice is significantly effective in improving the breastfeeding technique among post- caesarean primipara mothers.

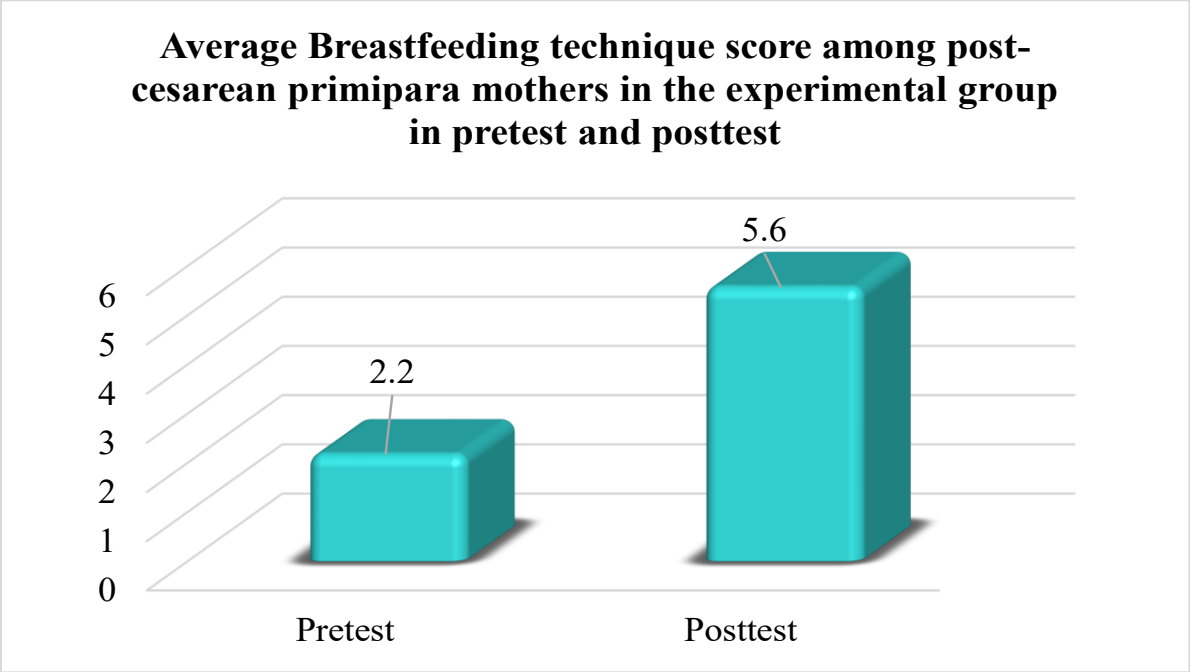


Fig 4: Average breastfeeding technique score among post-cesarean primipara mothers in the experimental group in pretest and posttest

Table 5: Effect of lactation practice on the level of maternal satisfaction among post-caesarean primipara mothers in experimental and control groups

N=55

Maternal satisfaction	Experimental				Control			
	Pretest		Posttest		Pretest		Posttest	
	Freq	%	Freq	%	Freq	%	Freq	%
Not Satisfied	21	70.0%	0	0.0%	19	76.0%	9	36.0%
Moderately Satisfied	9	30.0%	10	33.3%	6	24.0%	14	56.0%
Highly Satisfied	0	0.0%	20	66.7%	0	0.0%	2	8.0%

In the experimental group, in pretest, 70% of the post-caesarean primipara mothers were not satisfied and 30% of them were moderately satisfied. In posttest, 33.3% of the post-caesarean primipara mothers were moderately satisfied and 66.7% of them were highly satisfied. In control group, in pretest, 76% of the post-caesarean primipara mothers were not satisfied and 24% of them were moderately satisfied. In posttest, 36% of the post-caesarean primipara mothers were not satisfied and 56% of them were moderately satisfied. This indicates that there is remarkable improvement in the maternal satisfaction after lactation practice.

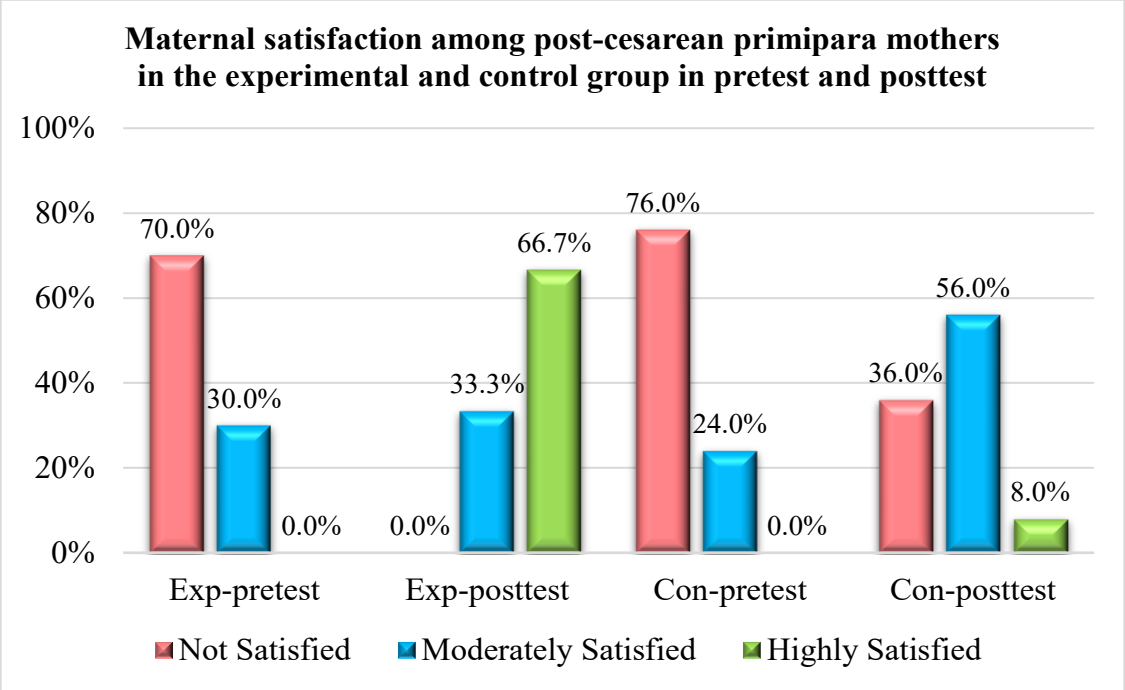


Fig 5: Maternal satisfaction among post-caesarean primipara mothers in the experimental and control group in pretest and posttest

Table 6: Paired t-test for the effect of lactation practice on maternal satisfaction among post-caesarean primipara mothers in experimental

N=30

	Mean	**SD**	**t**	**df**	***p*-value**
Pretest	24.6	6.2	29.0	29	0.000
Posttest	55.7	6.4			

Researcher applied paired t-test for the effect of lactation practice on maternal satisfaction among post-caesarean primipara mothers in experimental groups. Average on maternal satisfaction score was 24.6 in pretest which increased to 55.7 in the post test. T-value for this test was 29 with 29 degrees of freedom. The corresponding p-value was small (less than 0.05), the null hypothesis is rejected. It is evident that the lactation practice is significantly effective in improving the on maternal satisfaction among post- caesarean primipara mothers.

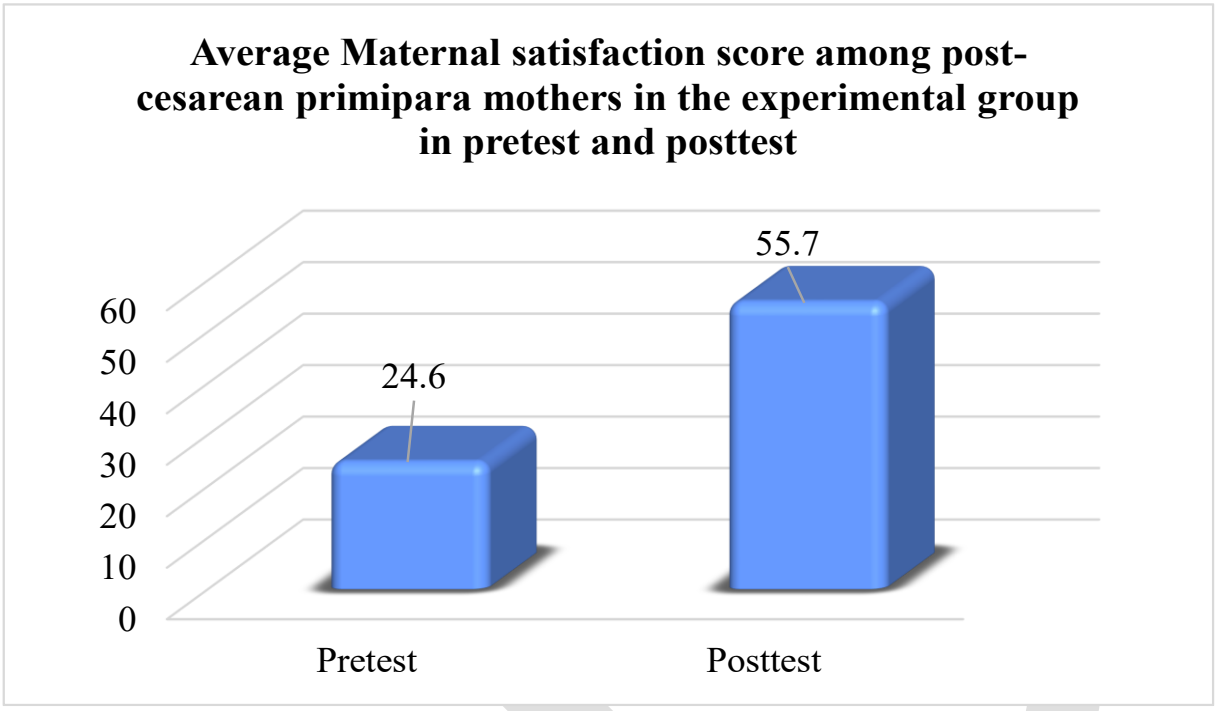


Fig 6: Average maternal satisfaction score among post-caesarean primipara mothers in the experimental group in pretest and posttest

Table 7: Comparison of the effect of lactation practice on breastfeeding techniques among post-caesarean primipara mothers between the experimental and control groups

N=55

Group	Mean	SD	t	df	p-value
Experimental	3.4	0.9	5.9	53	0.000
Control	2.1	0.7			

Researcher applied Two sample t-test for the comparison of the effect of lactation practice on breastfeeding techniques among post-caesarean primipara mothers in the experimental and control groups. The average change in the breastfeeding technique score was 3.4 in the experimental group, which was to 2.1 in the post-test. The t-value for this test was 5.9 with 53 degrees of freedom. The corresponding p-value was small (less than 0.05), and the null hypothesis is rejected. The average change in the breastfeeding technique score in the experimental group was significantly higher than that in the control group. The lactation practice is significantly effective in improving the breastfeeding technique among post- caesarean primipara mothers.

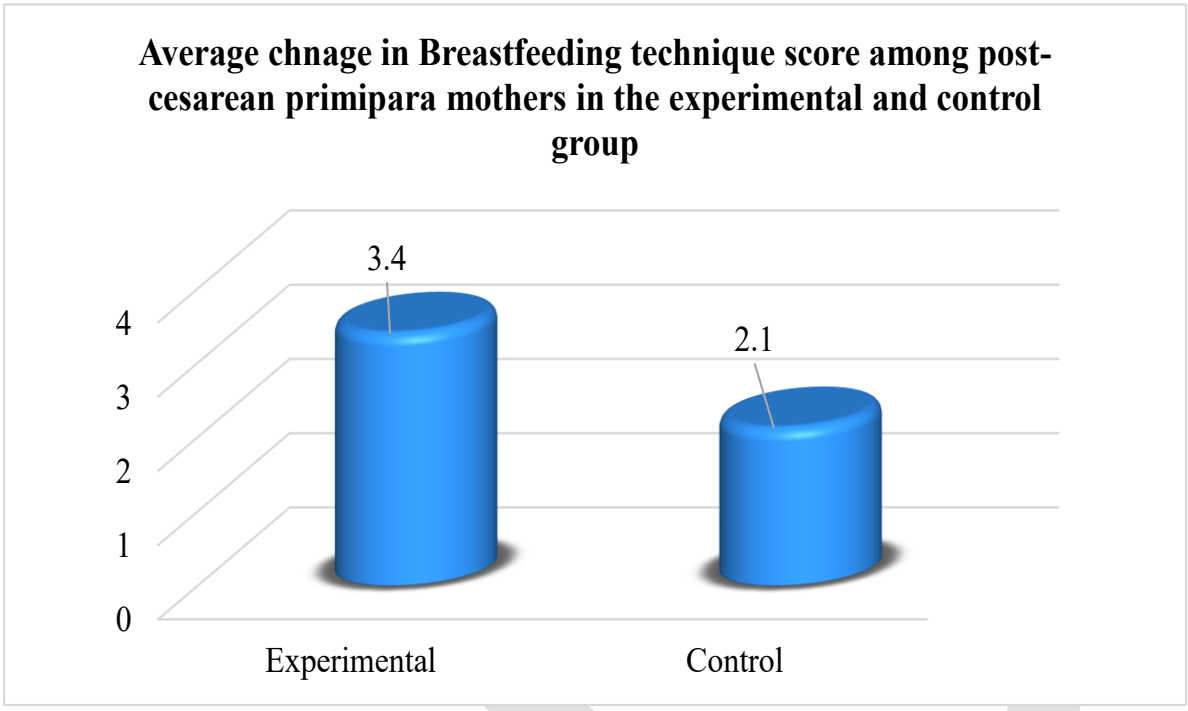


Fig 7: Average change in breastfeeding technique score among post cesarean primipara mothers in the experimental and control group

Table 8: Comparison of effect of lactation practice on the level of maternal satisfaction among post-caesarean primipara mothers between the experimental and control groups

N=55

Group	Mean	SD	t	df	*p*-value
Experimental	31.1	5.9	7.4	53	0.000
Control	15.0	9.5			

Researcher applied Two sample t-test for the comparison of the effect of lactation practice on maternal satisfaction among post-caesarean primipara mothers in the experimental and control groups. The average change in maternal satisfaction score was 31.1 in the experimental group, which was to 15 in the post-test. The t-value for this test was 7.4 with 53 degrees of freedom. The corresponding p-value was small (less than 0.05), the null hypothesis is rejected. The average change in maternal satisfaction score in the experimental group was significantly higher than that in the control group. The lactation practice is significantly effective in improving the maternal satisfaction among post- caesarean primipara mothers.

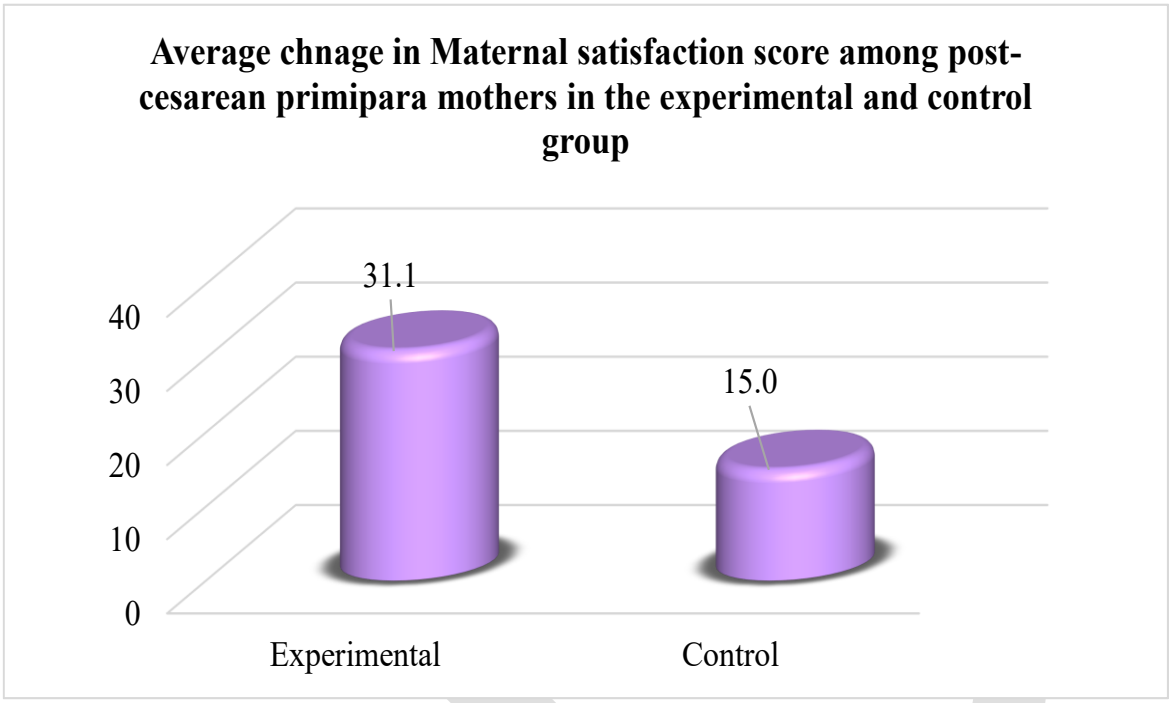


Fig 8: Average change in maternal satisfaction score among post cesarean primipara mothers in the experimental and control group

Also, Fisher's exact test for the association of breastfeeding techniques with selected background variables among post-caesarean primipara mothers, in that p-values corresponding to weight and monthly income were small (less than 0.05), the demographic variables weight and monthly income were found to have a significant association with the breastfeeding technique among post-caesarean primipara mothers. Again, Fisher's exact test for the association of maternal satisfaction with selected background variables among post-caesarean primipara mothers, in that p-values corresponding to height, weight, mother's education and LSCS type were small (less than 0.05), the demographic variables height, weight, mother's education and LSCS type were found to have significant association with the maternal satisfaction among post-caesarean primipara mothers.

IV. Discussion:

The purpose of the present study is to find out the effect of lactation practice on the breastfeeding technique and the level of maternal satisfaction among post-cesarean primipara mothers in the selected hospital of the city. It was clear from the study findings that the lactation practice was effective in improving breastfeeding techniques and increasing the level of maternal satisfaction among post-cesarean primipara mothers.

Aktürk NB, Kolcu M. (2023) conducted a study on the effect of postnatal breastfeeding education given to women on breastfeeding self-efficacy and breastfeeding success. This study aimed to examine the impact of postnatal breastfeeding education on breastfeeding self-efficacy and success among women who had either a normal vaginal delivery or a cesarean section. A pretest-posttest randomized controlled quasi-experimental design was used, with 76 participants in total 38 in the intervention group and 38 in the control group. These women gave birth at a women's and children's diseases training and research hospital. Data were gathered using an introductory information form, a breastfeeding knowledge assessment form, the LATCH scale, and a postnatal breastfeeding self-efficacy scale. The results revealed that, after the educational intervention, the women in the intervention group showed statistically significant improvements in their breastfeeding knowledge, LATCH scores, and self-efficacy compared to the control group ($p<0.05$). The study concluded that postnatal breastfeeding education effectively enhances breastfeeding knowledge, increases breastfeeding success, and boosts self-efficacy in breastfeeding.[6]

V. Summary and conclusion:

The study found that the experimental and control groups were homogeneous, with no significant difference in breastfeeding adequacy scores before the intervention. After the intervention, post-caesarean primipara mothers in the experimental group showed significant improvement in breastfeeding technique and maternal satisfaction compared to the control group. Statistical tests (two-sample t-test and Fisher's exact test) confirmed the effectiveness of lactation practice. The findings also revealed significant associations between certain demographic variables and study outcomes. Weight and monthly income were significantly associated with breastfeeding technique. Additionally, height, weight, monthly income, mother's education, and type of LSCS were significantly associated with the level of maternal satisfaction.

Consent to participate:
The procedure of the study was explained to all participants in a language they could understand. Written informed consent was obtained from the participants, and they willingly agreed to participate in the study.

Conflict of interest:
There are no conflicts of interest to declare.

Acknowledgment:
The authors express their sincere gratitude to research guide Mrs. Ujwala Jadhav (Assistant professor, MKSSS, Smt. Bakul Tambat institute of nursing education, Pune) for their valuable guidance, continuous support, and encouragement throughout this research study, also thankful to Ms. Jenny Ingram (Professor of Maternal and Infant Health, Centre for Academic Child Health, Bristol Medical School, University of Bristol) for granting permission to use the research tool for the study. Their assistance and cooperation greatly contributed to the completion of this research.

Individual author contribution statement:
All authors contributed substantially to the study. The authors were involved in the study conception and design, data collection, data analysis and interpretation, manuscript preparation, review, and final approval of the manuscript.

Declaration of AI:
Artificial Intelligence (AI) tools were used only for language modification and grammatical correction of the manuscript. All study design, data collection, analysis, interpretation, and conclusions were performed and verified by the authors, who take full responsibility for the content of this manuscript.

Ethical consideration: Permission was obtained from the ethical committee and informed consent from the participants.

Funding: No funding received

VI. References:

1. Kalarikkal SM, Pfleghaar JL. Breastfeeding. [Updated 2023 Apr 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan- Available from: https://www.ncbi.nlm.nih.gov/books/NBK534767/
2. https://www.health.qld.gov.au/clinical-ractice/guidelinesprocedures/clinical staff/maternity/nutrition/breastfeeding/importance.
3. Bizon AM, Giugliani C, Giugliani ER. Women's satisfaction with breastfeeding and risk of exclusive breastfeeding interruption. Nutrients. 2023 Dec 11;15(24):5062.
4. De Senna AF, Giugliani C, Avilla J, Bizon AM, Martins AC, Giugliani ER. Maternal satisfaction with breastfeeding in the first month postpartum and associated factors. International breastfeeding journal. 2020 Dec;15:1-1.
5. Aditi A, Jaiswal AK, Qamar A. Gap in breast feeding practices between caesarean and normal deliveries. Int J Pregn Child Birth. 2022;8(3):48-53.
6. Aktürk NB, Kolcu M. The effect of postnatal breastfeeding education given to women on breastfeeding self-efficacy and breastfeeding success. Revista da Associacao Medica Brasileira. 2023 Aug 21;69(8):e20230217.

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

From bedside to safer care: Impact of an Integrated Digital Safety System on patient awareness.

Mrs. Jovita Annie Alex[1], Assistant Lecturer[1], K. J. Somaiya School & College of Nursing
Mrs. China Mongjam[2], Tutor[2], K. J. Somaiya School & College of Nursing

Abstract: ***Background:*** *Patient safety is a core component of quality nursing care. Despite established hospital safety protocols, preventable adverse events continue to occur, often due to inadequate patient awareness and limited engagement in safety practices. Conventional patient education methods, such as brief verbal instructions and printed leaflets, are frequently inconsistent and poorly retained. Bedside-integrated digital safety systems provide an innovative, patient-centred approach to deliver standardized and easily accessible safety information at the point of care.* ***Aim:*** *To assess the effectiveness of a bedside-integrated digital safety system in improving patient awareness of selected hospital safety protocols among patients in selected hospitals.* ***Methods:*** *A quantitative quasi-experimental research design with experimental and control groups was adopted. Eighty-four adult patients admitted to medical wards were selected using simple random sampling and allocated equally to experimental (n = 42) and control (n = 42) groups. Baseline awareness was assessed using a structured questionnaire. The experimental group received a bedside-integrated digital safety system, while the control group received routine care. Post-test assessment was conducted after the intervention. Descriptive and inferential statistics were used for data analysis.* ***Results:*** *The experimental group demonstrated a significantly higher mean post-test awareness score (22.31 ± 2.83) compared to the control group (6.24 ± 2.69). The difference between groups was highly statistically significant ($t = 26.64$, $p < 0.001$), indicating the effectiveness of the bedside-integrated digital safety system.* ***Conclusion:*** *Bedside-integrated digital safety education is an effective strategy to enhance patient awareness of hospital safety protocols. Incorporating such systems into routine nursing practice can promote patient participation, strengthen safety culture, and contribute to safer hospital care.*

Keywords: Patient safety, digital health, bedside education, patient awareness, nursing innovation, quasi-experimental study.

I. Introduction:

Patient safety remains a global priority and a fundamental responsibility of nurses and healthcare organizations. Hospitals are complex environments where patients are exposed to multiple risks, including falls, healthcare-associated infections, medication errors, intravenous line complications, and pressure injuries. Many of these adverse events are preventable when patients are adequately informed and actively involved in their own care[1]. Nurses play a pivotal role in educating patients about safety protocols during hospitalization. However, traditional patient education methods often rely on brief verbal explanations provided during admission or routine care. These approaches may be ineffective due to time constraints, high patient turnover, anxiety, illness severity, and information overload, leading to poor retention of safety information[3]. Advances in digital health technologies offer new opportunities to enhance patient education and engagement. Bedside-integrated digital safety systems allow patients to access structured safety information at their convenience, enabling repeated exposure and self-paced learning. Such systems align with the principles of patient-centred care and shared responsibility for safety[2]. Although digital tools are being adopted in various aspects of healthcare, evidence regarding their effectiveness in improving inpatient awareness of safety protocols remains limited, particularly in the Indian context. Nurse innovators are increasingly exploring technology-enabled solutions to strengthen patient education and safety outcomes. This study was therefore undertaken to evaluate the effectiveness of a bedside-integrated digital safety system in improving patient awareness of selected hospital safety protocols. The present study's problem statement was "A quasi-experimental study to assess the effectiveness of a bedside-integrated digital safety system in improving patient awareness of selected hospital safety protocols among patients in selected hospitals." Objectives of the study were: 1) To assess the baseline level of patient awareness regarding selected hospital safety protocols. 2) To evaluate the effectiveness of a bedside-integrated digital safety system on patient awareness, and 3) To compare post-intervention awareness levels between the experimental and control groups. The study hypothesis was that there would be a statistically significant difference in post-test awareness scores between patients who receive the bedside-integrated digital safety system and those who receive routine care.

II. Review of literature:

Patient awareness and engagement are recognized as key contributors to improved safety outcomes. Studies conducted in hospital settings report that patients often have a limited understanding of safety measures such as fall prevention strategies, hand hygiene practices, and device-related care, which increases vulnerability to preventable complications[2]. Educational interventions have consistently demonstrated positive effects on patient knowledge when structured and patient-centered approaches are used. Traditional teaching methods, while widely practiced, may not adequately address individual learning needs, or ensure consistent delivery of information[4]. Digital health interventions, including mobile applications, QR code–based education, and bedside digital platforms, have shown promise in improving accessibility, knowledge retention, and patient satisfaction. Research indicates that digital tools enable repeated access to information and visual reinforcement, resulting in better understanding compared to one-time verbal explanations[5]. Despite growing interest in digital education, many studies focus on outpatient education or chronic disease management. There is limited empirical evidence examining the impact of bedside-integrated digital safety systems during hospitalization, highlighting the need for further research in inpatient settings[6].

III. Methodology:

The present study used a quantitative quasi-experimental research design with experimental and control groups to evaluate the effectiveness of the bedside-integrated digital safety system. The study was conducted in the medical wards of selected hospitals. The population comprised adult patients admitted to medical wards. A total of 84 patients were selected using simple random sampling and equally allocated to experimental (n = 42) and control (n =42) groups. The inclusion and exclusion Criteria were patients aged 18 years and above who were clinically stable, able to understand the study language, and willing to participate. Critically ill patients and those with cognitive impairment was excluded from the study. Intervention focuses on the bedside-integrated digital safety system, which consisted of digital content accessible at the patient's bedside. The content covered selected hospital safety protocols, including fall prevention, hand hygiene, intravenous line care, and skin care. Patients in the experimental group were oriented to the system and encouraged to access the content during their hospital stay. The control group received routine verbal instructions as per standard nursing practice. Data were collected for patient awareness, measured by using a structured questionnaire developed based on hospital safety protocols. The tool was validated by subject experts and demonstrated acceptable reliability. Before data collection, informed consent was obtained. Baseline awareness was assessed for both groups before the intervention. The digital safety system was then implemented in the form of a QR code for the experimental group. Post-test assessment was conducted after the intervention period for both groups. Descriptive statistics were used to summarize demographic variables and awareness scores. An independent t-test was used to compare post-test awareness scores between the experimental and control groups.

IV. Results:

Table 1: Demographic profile

Age	Frequency	Percentage
18-30 years	21	25
31-45 years	27	32
46-60 years	23	27
>60 years	13	15
Gender	**Frequency**	**Percentage**
Female	42	50
Male	42	50
Education	**Frequency**	**Percentage**
No formal education	18	21

Primary	18	21
Secondary	34	40
Graduate	12	14
Post Graduate	2	2

The descriptive analysis of demographic variables revealed that 32% of the participants belonged to the 31–45 years age group, indicating that a considerable proportion of the study population comprised middle-aged adults. With respect to educational status, the majority of participants had completed secondary education, suggesting a moderate level of formal education among the respondents. Both the experimental and control groups were comparable at baseline, ensuring the validity of subsequent outcome comparisons.

Table 2: Comparison of post-test awareness scores between experimental and control groups

Group	n	Mean ± SD	t-value	*p*-value
Experimental	42	22.31 ± 2.83	26.64	< 0.001
Control	42	6.24 ± 2.69		

Table 2 indicates a highly statistically significant difference in post-test awareness scores between the experimental and control groups. It illustrates the marked difference in mean post-test awareness scores between the experimental and control groups, demonstrating the effectiveness of the bedside-integrated digital safety system.

V. Discussion:

The findings of the present study indicate that bedside-integrated digital safety education significantly improves patient awareness of hospital safety protocols. The results support existing evidence that digital and technology-assisted educational interventions enhance patient understanding and engagement[5]. The substantial difference in awareness scores between the experimental and control groups suggests that continuous access to safety information at the bedside plays a crucial role in reinforcing learning. Digital systems allow patients to revisit information multiple times, which supports better retention compared to traditional verbal instructions[3]. Improved patient awareness is an essential step toward fostering safer behaviours and reducing preventable adverse events. By empowering patients with accessible safety information, bedside digital systems promote shared responsibility for safety and align with patient-centered care principles advocated by global safety organizations[2].

VI. Implications for nursing practice:

The study highlights the importance of integrating digital innovations into nursing practice to strengthen patient education. Bedside-integrated digital safety systems can support nurses by reinforcing safety messages, reducing variability in teaching, and enhancing patient participation. Adoption of such systems may contribute to improved safety culture and quality of care in hospital settings.

VII. Limitations:

The study assessed short-term awareness outcomes and did not evaluate long-term retention or actual safety behaviours. The findings may not be generalizable beyond similar hospital settings.

VIII. Conclusion:

The bedside-integrated digital safety system was found to be an effective intervention for improving patient awareness of selected hospital safety protocols. Incorporating digital safety education at the bedside represents a practical nursing

innovation that can enhance patient engagement, support safer practices, and contribute to improved quality of hospital care.

Declaration:
The author declares that there is no conflict of interest related to this study or its publication. This study did not receive any specific financial support from any funding agency in the public, commercial, or profit sectors. During the preparation of this manuscript, artificial intelligence tools were used only for language editing and grammar improvement. The research idea, study design, data collection, data analysis, interpretation of results, and preparation of the manuscript were carried out by the author. The author takes full responsibility for the accuracy and originality of the work.

Informed consent:
Written informed consent was obtained from all participants prior to their enrolment in the study. Participants were informed about the purpose of the study, the procedures involved, their right to withdraw at any stage without any consequences, and the confidentiality of the information provided. Participation was entirely voluntary.

Conflict of interest:
The authors declare that there are no conflicts of interest related to this study.

Acknowledgment:
The authors express their sincere gratitude to the hospital administration, nursing staff, and all the participants who willingly took part in this study. Special thanks are extended to the experts who validated the research tool and to all individuals who provided guidance and support during the conduct of the study.

Individual author contribution statement:
Author 1: Conceptualization of the study, development of the intervention, data collection, data analysis, interpretation of findings, and manuscript preparation.

Author 2: Assistance with methodology, validation of the research tool, and review of the final manuscript.

IX. References:

1. World Health Organization. Global patient safety action plan 2021–2030: towards eliminating avoidable harm in health care. Geneva: World Health Organization; 2024.
2. World Health Organization. Patient safety fact sheet. Geneva: World Health Organization; 2024.
3. Polit DF, Beck CT. Nursing research: generating and assessing evidence for nursing practice. 11th ed. Philadelphia: Wolters Kluwer; 2021.
4. Grove SK, Gray JR, Burns N. Understanding nursing research: building an evidence-based practice. 8th ed. St. Louis: Elsevier; 2021.
5. Journal of Medical Internet Research. Digital health interventions and patient engagement in hospital settings. J Med Internet Res. 2024.
6. BMC Nursing. Digital innovations in nursing practice and patient safety outcomes. BMC Nurs. 2024.

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Exploration and description of sports-specific cognitive and somatic anxiety in collegiate women aged 18–25 years.

Dr. Meena Ganapathy[1], Mrs. Shailaja M J Mathews[2], Mrs. Shital Padalkar[3]
Professor cum Principal[1], Assistant Professor [2,3]
Maharshi Karve Stree Shikshan Samstha's Smt. Bakul Tambat Institute of Nursing Education
Email: meena.ganapathy@maharshikarve.org

Abstract: *Anxiety is a common psychological experience among student-athletes and may present as somatic symptoms (physical manifestations) and cognitive symptoms (worry and concentration disruption). This study aimed to assess the levels of somatic and cognitive anxiety among women college athletes and examine their relationship with selected socio-demographic and sports-related variables. A descriptive correlational design was adopted with a sample of 345 women student-athletes. Data were collected using a structured background questionnaire and a standardized sport anxiety scale measuring somatic and cognitive components. Descriptive statistics and Pearson's correlation analysis were applied. Findings revealed that most participants experienced mild somatic anxiety (62.3%) and mild cognitive anxiety (64.9%), while severe anxiety was reported by only 1 - 2% of students, respectively. Most participants were aged 18–20 years (56.2%), enrolled in professional degree programs (76.2%), and actively engaged in team (80.6%) and outdoor sports (75.4%), primarily at the local competition level. Somatic anxiety showed significant correlations with age (r = 0.024), course/program (r = 0.021), education level (r = 0.017), year of study (r = 0.052), and previous sports experience (r = 0.027). These values indicate that demographic and academic characteristics have a significant association with somatic anxiety levels among athletes. No correlations with the type of family, frequency of participation, or type of sport. Cognitive anxiety demonstrated a weak negative correlation with previous sports experience (r = –0.160), indicating that greater competitive experience may slightly reduce cognitive anxiety. A Positive relationship was found with a previous history of anxiety or stress (r = 0.025). Overall, cognitive anxiety is more strongly influenced by previous history of anxiety or stress than by academic progression and competitive exposure, and by basic demographic factors. The study concludes that mild anxiety is prevalent and highlights the need for psychological skill development programs to support women athletes' well-being and performance.*
Keywords*:* ***Sport Anxiety; Somatic Anxiety; Cognitive Anxiety; Concentration Disruption; Women Student-Athletes; College Athletes; Competitive Sports; Psychological Well-being; Sports Participation; Correlational Study.***

I. Introduction:

Sports competition environments place athletes under significant psychological pressure, particularly at the collegiate level, where athletic, academic, and social demands converge. Anxiety is one of the most frequently studied psychological constructs in sport due to its consistent relationship with performance outcomes and athlete well-being[1]. Female collegiate athletes have been shown to experience higher levels of competitive anxiety compared to their male counterparts[2].

Sports-specific anxiety refers to anxiety responses that arise in competitive athletic contexts and is divided into cognitive and somatic components[3]. The age range of 18–25 years represents a critical developmental period marked by identity formation, increased autonomy, and heightened performance expectations. This study aims to explore and describe the manifestations of cognitive and somatic anxiety in collegiate women athletes within this age group.

II. Background:

Anxiety in sports is multidimensional, typically categorized into Somatic Anxiety (the physiological "fight or flight" response) and Cognitive Anxiety (the mental component involving worry and concentration disruption). Cognitive anxiety involves mental processes such as worry, negative self-talk, and fear of evaluation, whereas somatic anxiety refers to physiological responses, including increased heart rate, muscle tension, and sweating.

Among college athletes participating in intercollegiate sports competitions, anxiety is prominent due to the complex demands placed upon them. These athletes must balance academic responsibilities with rigorous training schedules,

performance expectations, and competitive pressures. Previous studies have indicated that competition-related anxiety tends to intensify as the importance of the event increases, particularly in high-stakes intercollegiate tournaments where performance outcomes may influence scholarships, team selection, and future career opportunities[4].

III. Need for the study:

While general anxiety is well-documented, sports-specific anxiety requires more exploration for several reasons:

- **Performance Impact:** Cognitive anxiety (worry) tends to have a linear negative relationship with performance, whereas somatic anxiety (arousal) often follows an inverted-U pattern.
- **Gender-Specific Data:** Much of the foundational sports psychology literature was historically centred on male athletes. There is a need for contemporary data specifically focused on women in the current collegiate landscape.
- **Mental Health Advocacy:** Identifying how these two types of anxiety manifest can help athletic departments move beyond "toughing it out" and toward targeted psychological interventions, such as mindfulness (for cognitive) or progressive muscle relaxation (for somatic).

  Existing literature suggests that college athletes may experience unique stressors, including academic evaluation, social adjustment, and transitional life challenges, which can interact with competitive anxiety and affect both performance and mental well-being[5].

  There is a need to explore how cognitive and somatic anxiety manifest in this population and how these anxiety dimensions vary across factors such as gender, type of sport, and competitive experience. Understanding these variations can help coaches, sports psychologists, and educators design targeted psychological interventions and support systems[6].

  Additionally, increasing awareness of mental health concerns in collegiate sports underscores the importance of empirical investigations into anxiety-related issues. Identifying the prevalence and nature of cognitive and somatic anxiety among intercollegiate athletes can contribute to early identification of at-risk individuals and promote the development of effective coping strategies[7].

  Therefore, the present study seeks to address these gaps in the literature by systematically examining cognitive and somatic anxiety among college students participating in intercollegiate sports competitions. The findings are expected to provide valuable insights for enhancing athletic performance, psychological resilience, and overall well-being within collegiate sports programs.

Aim of the study:

The primary aim of this research is to explore and describe the prevalence and intensity of cognitive and somatic anxiety among collegiate female athletes aged 18–25.

Objectives of the study:

1. Assess the level of sport-specific cognitive anxiety among collegiate women athletes aged 18–25 years.
2. Assess the level of sport-specific somatic anxiety among collegiate women athletes aged 18–25 years.
3. Associate sports-specific cognitive anxiety with selected background variables among collegiate women athletes aged 18–25 years.
4. Associate sports-specific somatic anxiety with selected background variables among collegiate women athletes aged 18–25 years.

Sports-Specific Anxiety:

Cognitive Anxiety:

Cognitive anxiety encompasses the mental aspects of anxiety associated with performance evaluation. It includes worry, negative expectations, fear of failure, and difficulty concentrating.

Somatic Anxiety:

Somatic anxiety refers to the physiological symptoms associated with anxiety, such as increased heart rate, muscle tension, sweating, trembling, and gastrointestinal discomfort[3]. These symptoms are typically more pronounced immediately before or during competition and are linked to activation of the autonomic nervous system.

Measurement of Cognitive and Somatic Anxiety:
In this study, the Sports-specific anxiety was assessed using a validated self-report instrument, the Sport Anxiety Scale-2 (SAS-2), for measuring cognitive and somatic anxiety, which assesses trait anxiety specific to sport performance.

IV. Review of literature:

Sport anxiety has emerged as a significant psychological factor influencing both athletic performance and overall well-being among student-athletes. Beyond competition outcomes, elevated anxiety interferes with concentration, coping capacity, and emotional health, thereby affecting academic and sport functioning simultaneously. Using Grounded in Self-Determination Theory, Zhang et al. demonstrated that sport anxiety negatively predicts subjective happiness among college athletes, with concentration disruption showing the strongest detrimental effect. Satisfaction of basic psychological needs—competence, autonomy, and relatedness—partially mediated this relationship, indicating that psychological need fulfilment buffers the adverse impact of anxiety on well-being. Gender and sport-type differences were also observed, with females and team-sport athletes reporting higher anxiety levels[8]. Similarly, Contreras et al. identified significant positive associations between sport anxiety, perceived stress, and neuroticism in NCAA student-athletes. Anxiety and stress predicted dysfunctional coping strategies, while problem-focused coping remained unaffected, suggesting that heightened anxiety contributes to maladaptive psychological responses[9]. Research by Mercader-Rubio et al. further emphasized motivational mechanisms, reporting that self-efficacy and satisfaction of basic psychological needs were strongly interrelated. Autonomous motivation was associated with better performance and lower somatic anxiety, whereas controlled motivation contributed to increased anxiety, underscoring the protective role of self-determined behaviour in competitive contexts[10]. Expanding the social dimension of sport participation, Gabrys and Wontorczyk found that fear of negative evaluation and worry predicted athletes' sensitivity to supporters' behaviours. Athletes with lower freedom from worry were more reactive to negative social feedback, indicating that cognitive components of anxiety amplify environmental stressors[11]. Psychological skills have also been identified as important moderators. Sagar and Nethravathi reported that mental skills such as self-talk, confidence building, and goal setting were associated with lower anxiety levels among indoor and outdoor sports players, highlighting the value of psychological training interventions[12]. Gender and sport-type differences have been consistently documented. Correia and Rosado observed that female athletes and those participating in individual sports exhibited higher general sport anxiety, suggesting that personal responsibility and performance pressure may heighten vulnerability[13]. Supporting the multidimensional nature of anxiety, Grossbard et al. validated the three-factor structure of the Sport Anxiety Scale-2—somatic anxiety, worry, and concentration disruption—across age and gender groups, confirming the construct's stability in youth populations1[4]. Cross-cultural evidence also indicates contextual influences. A comparative study of Indian and Polish athletes revealed higher anxiety levels among those with elevated body mass index, suggesting that physical health and lifestyle factors interact with competitive anxiety, particularly in post-pandemic settings[15].
Collectively, these findings indicate that sport anxiety is multidimensional and linked with stress, personality traits, coping styles, and social evaluation. However, protective factors such as self-efficacy, psychological need satisfaction, and mental skills training consistently mitigate its negative effects. Thus, interventions that foster autonomy support, competence, and adaptive coping may enhance both performance and psychological well-being among athletes.

V. Methodology:

Research Design:
The present study is a descriptive and correlational research design to explore sport-specific cognitive and somatic anxiety among collegiate women athletes.

Sample Population:
The study population consisted of collegiate women athletes aged 18–25 years who actively participated in intercollegiate sports competitions.

Sample Size:
A sample of 345 collegiate women athletes was selected for the study, depending on availability and inclusion criteria.

Sampling Technique:
The sample will be selected using purposive sampling, ensuring that participants meet the criteria of age, gender, and active participation in sports competition.

Inclusion Criteria:
1. Female athletes aged between 18 and 25 years
2. Actively representing their college in sports competitions.
3. Participation in at least one sports competition event during the data collection period.
4. Those who are willing to participate in the research study.

Exclusion criteria:
1. Athletes with current injuries preventing competition
2. Athletes undergoing psychological treatment for anxiety disorders
3. Those who are not willing to participate in the research study.

Ethical considerations:
Participation will be voluntary.
Confidentiality and anonymity will be strictly maintained.
Data will be used solely for academic and research purposes.
Permission for this study was obtained at the Institutional Ethical Committee meeting.

Tools for data collection:
Section-I Demographic profile
Section-II Standardized Sports Anxiety Scale-2 (SAS-2)
The Sports Anxiety Scale-2 (SAS-2), developed by Smith et al., was used to measure sport-specific anxiety[1]. The scale consists of twenty-one items divided into three subscales:

- Somatic Anxiety
- Worry / Cognitive Anxiety
- Concentration Disruption

Responses were recorded on a 4-point Likert scale ranging from Not at all[1] to Very much[4]. Higher scores indicate higher levels of sport-specific anxiety. The SAS-2 has demonstrated strong reliability and validity among adolescent and collegiate athlete populations[1,2]. Permission was obtained from the tool's authors to use the instrument in the present study.

Procedure:
Permission was obtained from college authorities and sports teachers before data collection. Participants were informed about the purpose of the study and assured of confidentiality. Written informed consent will be obtained. The Google Form was sent to the sports teachers and administered before the competition. Participants were instructed to respond honestly about how they felt before the competition. The questionnaire was administered in a quiet setting and completed within 10–15 minutes.

V. Statistical result:
The data will be analysed using descriptive statistics and inferential statistics.

Table No. 1: Background variables

N = 345

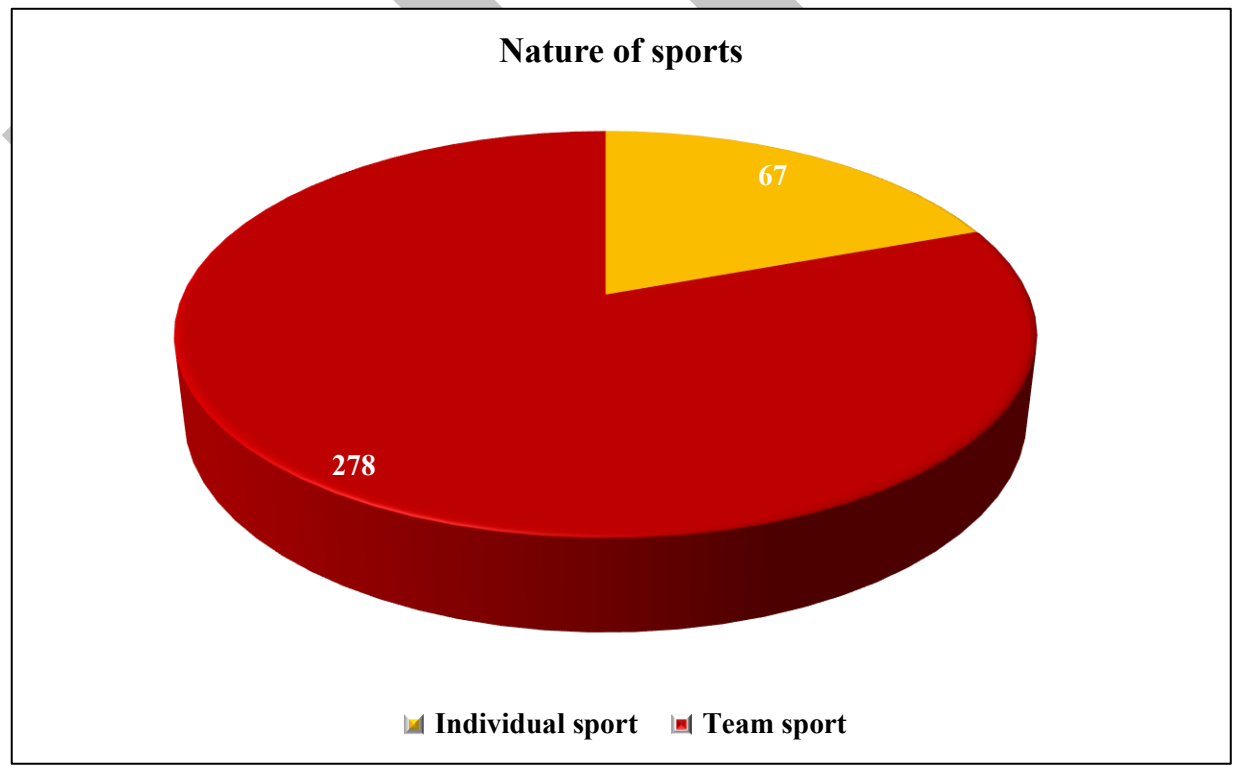
Item No	Item	Frequency (f)	Percentage (%)
1. Age in years			
	<18	10	2.9
	18–20	194	56.2
	20–22	127	36.8
	More than 22	14	4.1
2. Course/Program of study			
	Arts	20	5.8
	Science	35	10.1

Commerce	27	7.8
Professional	263	76.2
3. Education level		
Diploma	59	17.1
Degree	267	77.4
4. Year of study		
First Year	118	34.2
Second Year	111	32.2
Third Year	89	25.8
5. Place of residence		
Urban	195	56.5
Rural	122	35.4
Semi-urban	28	8.1
6. Type of family		
Nuclear	184	53.3
Joint	145	42
Extended	3	0.9
Single parent	3	0.9
7. Living with family during studies		
Yes	176	51
No (MKSSS Hostel/ Private hostel)	169	49
8. Nature of Sports		
Individual sport	67	19.4
Team sport	278	80.6
9. Type of sports		
Indoor	85	24.6
Outdoor	260	75.4
10. Name of the Sports		
Chess	12	5.4
Cross country	23	10.4
Discuss throw	15	6.8
Long jump	9	4.1
100 m running	20	9
Short put	12	5.4
Basketball	14	6.3
Badminton	10	4.5
Cricket	63	28.4
Kho-Kho	47	21.2
Volleyball	38	17.1
4*100 m relay	22	9.9
Surya namaskar	31	14
Yog asana	17	7.7
Carrom	14	6.3
11. Previous experience in sports competitions		
Yes	264	76.5
No	81	23.5
12. Level of competition		
Local	289	83.8
State	45	3
National	9	2.6

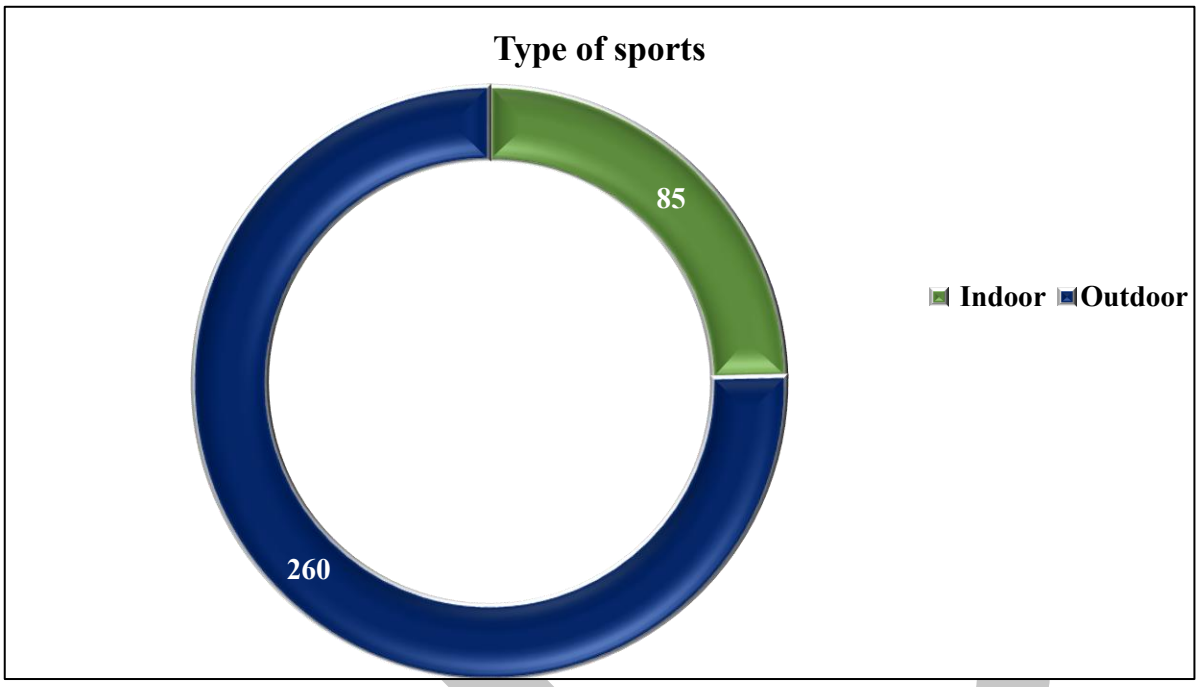
International	2	0.6
13. Frequency of participation in sports competitions		
First time	70	20.3
Occasionally	142	41.2
Regularly	133	38.6
14. Any previous history of anxiety or stress (self-reported)		
Yes	309	89.6
No	36	10.4

The study included 345 college student-athletes, aged 18–20 years (56.2%), followed by 20–22 years (36.8%), indicating that most participants were in the undergraduate age group. A large majority were enrolled in professional courses (76.2%) and pursuing degree programs (77.4%). Students were fairly distributed across years of study, with first-year students forming the largest group (34.2%).

More than half of the participants were from urban areas (56.5%) and from nuclear families (53.3%). About 51% lived with their families, while 49% stayed in hostels, suggesting a balance in living arrangements that may influence social support and stress levels. Sports participation was team-based (80.6%) and outdoor-oriented (75.4%). Cricket (28.4%), Kho-Kho (21.2%), and Volleyball (17.1%) were the most played sports. Most students (76.5%) had previous competition experience, primarily at the local level (83.8%). Participation was mostly occasional (41.2%) or regular (38.6%). Notably, 89.6% of participants reported a previous history of anxiety or stress, highlighting a high prevalence of psychological concerns among college athletes and underscoring the need for mental health support within sports settings.



Graph no 1: Participation in individual and team sports.



Graph no 2: Participation in indoor and outdoor sports.

Section-II

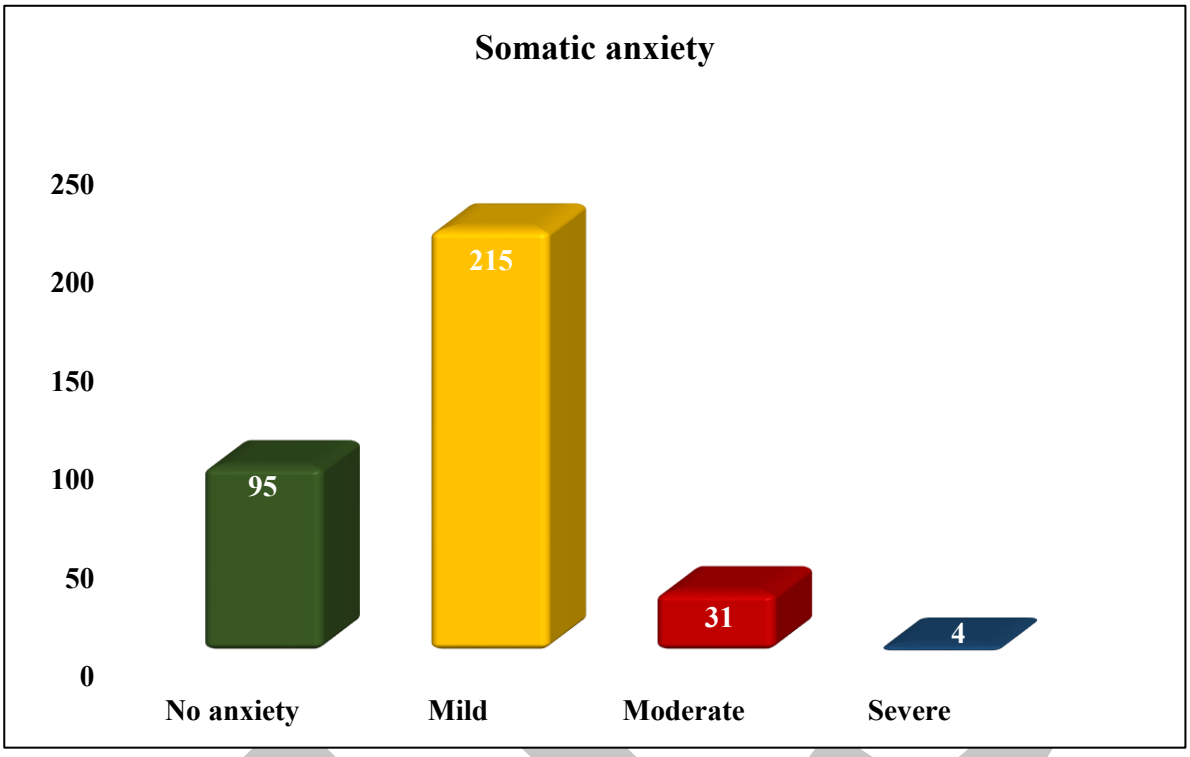
Somatic anxiety in athletes

Table no 2: Somatic anxiety in athletes

N = 345

Score	Somatic Scale	Frequency (f)	Percentage (%)
0-9	No anxiety	95	27.5
10-18	Mild	215	62.3
19-27	Moderate	31	8.9
28-36	Severe	4	1.1

The table presents respondents' levels of somatic anxiety (physical symptoms of anxiety). The distribution of somatic anxiety scores shows that most participants experienced mild somatic anxiety. Out of the total sample, 215 students (62.3%) fell within the mild range (scores 10–18), indicating the presence of physical symptoms of anxiety such as increased heart rate, sweating, or muscle tension at a manageable level. About 95 participants (27.5%) reported no somatic anxiety (scores 0–9), suggesting that over one-fourth of the athletes did not experience noticeable physical anxiety symptoms. A smaller proportion, 31 students (8.9%), experienced moderate anxiety (scores 19–27), reflecting more pronounced physical symptoms that could potentially interfere with performance. Only 4 participants (1.1%) reported severe somatic anxiety (scores 28–36), indicating very high levels of physical distress. Overall, while severe anxiety is rare, a considerable majority of students experience at least mild somatic symptoms, highlighting the importance of monitoring physical manifestations of anxiety among college athletes to prevent performance impairment and promote well-being.



Graph no 3: Participation in indoor and outdoor sports.

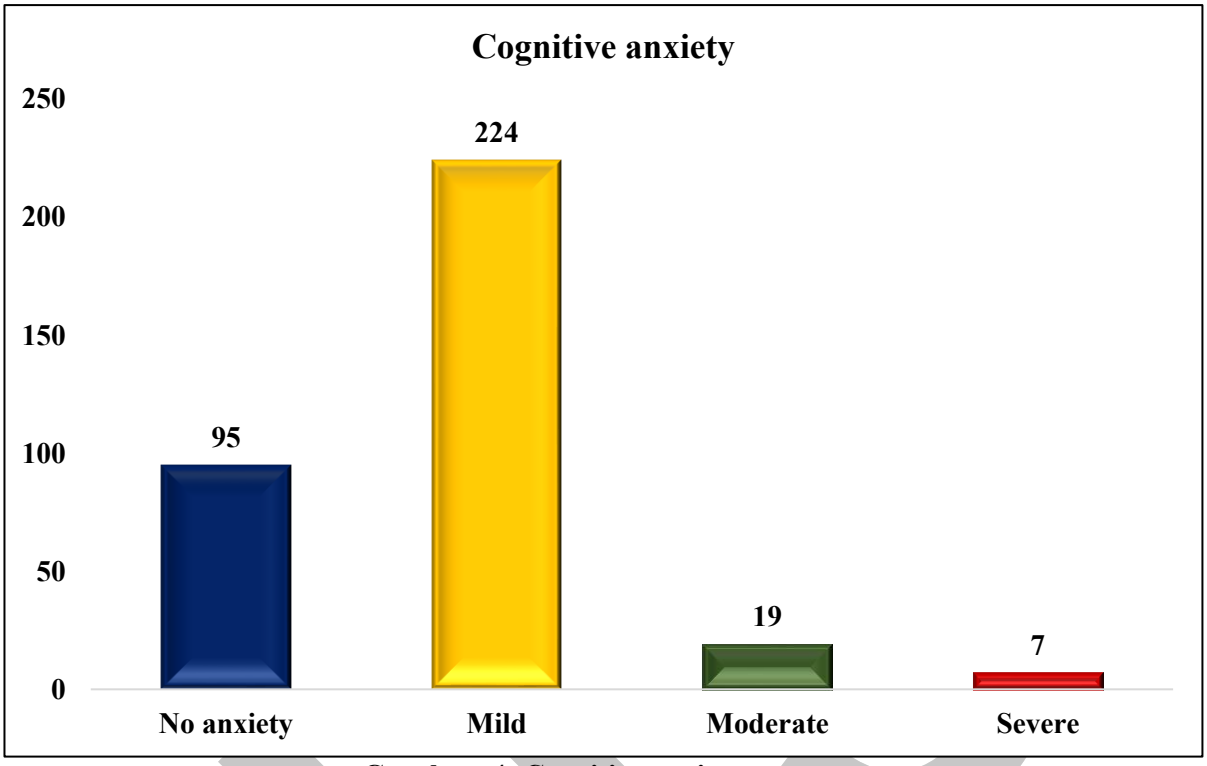
Cognitive anxiety in athletes

Table no 3: Cognitive anxiety in athletes

N = 345

Score	Cognitive Anxiety	Frequency (f)	Percentage (%)
0-12	No anxiety	95	27.5
13-24	Mild	224	64.9
25-36	Moderate	19	5.5
37-48	Severe	7	2.02

The table above presents the distribution of respondents across four levels of anxiety based on their cognitive scale scores. (0–48) The distribution of cognitive anxiety (concentration disruption) among athletes shows that most participants experienced mild levels of cognitive symptoms. A majority of 224 students (64.9%) scored in the mild range (13–24), indicating occasional difficulties with concentration, intrusive thoughts, or minor performance-related worries that may not severely impair functioning. Approximately 95 participants (27.5%) reported no cognitive anxiety (0–12), suggesting that over one-fourth of the athletes maintained stable focus and minimal worry during sports participation. A smaller proportion, 19 students (5.5%), experienced moderate cognitive anxiety (25–36), reflecting noticeable concentration problems and heightened worry that could interfere with decision-making and performance. Only seven participants (2.0%) fell into the severe category (37–48), indicating significant cognitive disruption and persistent worry that may affect athletic performance. Overall, while severe cognitive anxiety is low, two-thirds of athletes experience mild cognitive symptoms. This suggests that worry and concentration disruption are common but manageable among college athletes, highlighting the importance of psychological skills training, such as focus enhancement and cognitive restructuring, to optimize performance and mental well-being.



Graph no 4: Cognitive anxiety.

Table no. 4 Correlation of somatic anxiety with background variables

	Domain	r
	Age (in years)	0.024
Somatic anxiety	Course/Program of study	**0.021**
	Education level	**0.017**
	Year of study	**0.052**
	Place of residence	0.338
	Type of family	0.427
	Living with family during studies	0.354
	Nature of sports	0.380
	Type of sport	0.378
	Previous experience in sports competitions	**0.027**
	Level of competition	0.316
	Frequency of participation in sports competitions	0.382
	Any previous history of anxiety or stress (self-reported)	0.094

Correlation of somatic anxiety with background variables:

The Pearson correlation analysis between somatic anxiety and selected background variables shows low to moderate relationships. Significant correlations were observed with age (r = 0.024), course/program (r = 0.021), education level (r = 0.017), year of study (r = 0.052), and previous sports experience (r = 0.027). These values indicate that demographic and academic characteristics have a significant association with somatic anxiety levels among athletes.

No correlation was found with previous history of anxiety or stress (r = 0.094), suggesting no relationship between past psychological concerns and current somatic symptoms. No correlations were observed with sport-related and environmental variables, such as: Type of family (r = 0.427), Frequency of participation in competitions (r = 0.382),

Participating in (team/individual) (r = 0.380), Type of sport (r = 0.378), Living with family (r = 0.354), Place of residence (r = 0.338) and Level of competition (r = 0.316)

These findings suggest that somatic anxiety is not influenced by sports participation patterns, competition exposure, and family/social environment as much as by basic demographic factors. Overall, sports context and social background have no stronger relationship with physical anxiety symptoms among college athletes.

Table no. 5: Correlation of cognitive anxiety with background variables

	Domain	r
Cognitive anxiety	Age (in years)	0.244
	Course/Program of study	0.457
	Education level	0.239
	Year of study	0.536
	Type of family	0.241
	Living with family during studies	0.332
	Nature of sports	0.228
	Type of sports	0.258
	Previous experience in sports competitions	-0.160
	Level of competition	0.282
	Frequency of participation in sports competitions	0.380
	Any previous history of anxiety or stress (self-reported)	**0.025**

Correlation of cognitive anxiety with background variables:

The Pearson correlation analysis indicates that cognitive anxiety (worry and concentration disruption) shows no strong associations with several academic and sports-related variables.

No correlation was observed with year of study (r = 0.536), suggesting that cognitive anxiety does not increase as students progress academically. Similarly, course/program of study (r = 0.457) shows no moderate-to-strong relationship, suggesting that the type of academic program may not influence levels of worry or concentration difficulties.

No correlations were found with: Frequency of participation in competitions (r = 0.380), Living with family during studies (r = 0.332), Level of competition (r = 0.282), Place of residence (r = 0.271), Type of sport (r = 0.258), Age (r = 0.244), Education level (r = 0.239), Type of family (r = 0.241), and participating in (team/individual event) (r = 0.228)

A weak negative correlation was observed with previous sports experience (r = –0.160), indicating that greater competitive experience may slightly reduce cognitive anxiety. A Positive relationship was found with a previous history of anxiety or stress (r = 0.025).

Overall, cognitive anxiety is more strongly influenced by previous history of anxiety or stress than by academic progression and competitive exposure, and by basic demographic factors.

VI. Discussion:

Several studies have reported mild to moderate levels of somatic and cognitive anxiety among women student-athletes, particularly in competitive settings. Research using the Sport Anxiety Scale-2 (SAS-2) demonstrated that female collegiate athletes commonly report symptoms of worry and concentration disruption, with most scores falling in the mild to moderate range rather than severe categories[16]. These findings align with the study. Similarly, validation studies of the SAS-2 across young athletes confirmed that cognitive anxiety (worry) and somatic anxiety are distinct but co-occurring components in sport settings, with female athletes often showing slightly elevated but non-clinical levels[17].

Studies using the Competitive State Anxiety Inventory-2 (CSAI-2) among female college athletes have also shown that somatic anxiety (e.g., sweating, muscle tension) and cognitive anxiety (e.g., negative expectations, self-doubt) are typically present at manageable intensities before competition (18). Research on female soccer players aged 18–25 years found moderate mean scores in both somatic and cognitive dimensions, suggesting that anxiety symptoms are common but not severe[19].

Systematic reviews on gender differences in sport anxiety indicate that women athletes report higher cognitive worry than men, yet most fall within mild to moderate ranges rather than clinical severity[20]. Research using the Sport Anxiety

Scale-2 (SAS-2) has shown that younger athletes report higher somatic anxiety compared to older athletes, suggesting that age is inversely related to physical symptoms such as muscle tension and increased heart rate before competition[16]. Similarly, Grossbard et al. found that competitive anxiety dimensions, including somatic anxiety, vary across developmental stages, with younger and less experienced athletes demonstrating higher scores[17].

Educational level has also been associated with anxiety differences. Studies indicate that athletes with higher academic levels tend to report lower overall competitive anxiety, due to better coping skills and emotional regulation[21]. Academic demands related to course type (e.g., professional programs) have been linked to elevated stress levels, which may contribute to somatic anxiety manifestations in women students[22].

Regarding the previous history of anxiety, research suggests that individuals with prior anxiety symptoms are more likely to experience heightened somatic responses during competitive situations[23]. Pre-existing anxiety vulnerability may intensify physiological arousal in sports contexts. Overall, evidence indicates that younger age, lower educational level, demanding academic programs, and prior anxiety history are associated with increased somatic sports anxiety among women athletes. In this study, students' history of previous anxiety was positively correlated with cognitive anxiety. Research examining female student-athletes found that self-reported anxiety symptoms were positively correlated with cognitive components of sport anxiety, indicating that athletes who acknowledged past anxiety episodes exhibited higher levels of worry and intrusive thoughts in competitive contexts[24].

A longitudinal study involving elite adolescent athletes found that baseline anxiety symptoms predicted greater cognitive anxiety responses over time, especially in female athletes, illustrating that previous psychological distress contributes to sport-specific cognitive anxiety[25]. Meta-analytic evidence on anxiety in athletes also indicates that individuals with a history of anxiety disorders exhibit higher cognitive anxiety and concentration disruption compared to those without such a history, with consistent patterns across sports and competitive levels[20].

VII. Conclusion:

Mild to moderate sports-specific cognitive and somatic anxiety are prevalent psychological experiences among collegiate women aged 18–25 years. Findings revealed that most participants experienced mild somatic anxiety and mild cognitive anxiety. Somatic anxiety showed significant correlations with age, course/program, education level, year of study, and previous sports experience. This indicates that demographic and academic characteristics have a significant association with somatic anxiety levels among athletes. No correlations with family type, participation frequency, or sport type. Cognitive anxiety demonstrated a weak negative correlation with previous sports experience, indicating that greater competitive experience may slightly reduce cognitive anxiety. A Positive relationship was found with a previous history of anxiety or stress. Overall, cognitive anxiety is more strongly influenced by previous history of anxiety or stress than by academic progression and competitive exposure, and by basic demographic factors. The study concludes that mild anxiety is prevalent and highlights the need for psychological skill development programs to support women athletes' well-being and performance.

Consent to participate: Informed consent was obtained from the participants. All methods were performed in accordance with the relevant guidelines and regulations.

Conflicts of interest: None.

Acknowledgement: The authors would like to express their appreciation to all students for taking the time to participate in the research study and sharing their experiences.

Individual author contribution statement: Dr. Meena Ganapathy was the primary author and was involved in all stages of the study, including conceptualization, methodology, data analysis, and manuscript drafting. Mrs. Shailaja Mathews and Mrs. Shital Padalkar performed the statistical analysis, created the figures, literature review, and wrote the manuscript. All authors read and approved the final manuscript.

Declaration of generative AI and AI-assisted technologies in the writing process: During the preparation of this work, the authors have used ChatGPT (OpenAI) to improve readability and language.

VIII. References:

1. Craft LL, Magyar TM, Becker BJ, Feltz DL. The relationship between the Competitive State Anxiety Inventory-2 and sport performance: A meta-analysis. Journal of sport and exercise psychology. 2003 Mar 1;25(1):44-65.
2. Smith RE, Smoll FL, Cumming SP, Grossbard JR. Measurement of multidimensional sport performance anxiety in children and adults: The Sport Anxiety Scale-2. Journal of sport and exercise psychology. 2006 Dec 1;28(4):479-501.
3. Smith RE, Smoll FL, Schutz RW. Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. Anxiety research. 1990 May 1;2(4):263-80.
4. Martin JJ, Gill DL. The relationships among competitive orientation, sport-confidence, self-efficacy, anxiety, and performance. Journal of sport and exercise psychology. 1991 Jun 1;13(2):149-59.
5. Stevens RE, Loudon DL, Yow DA, Bowden WW, Humphrey JH. Stress in college athletics: Causes, consequences, coping. Routledge; 2013 Oct 8.
6. Woodman TI, Hardy LE. The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. Journal of sports sciences. 2003 Jan 1;21(6):443-57.
7. Reardon CL, Hainline B, Aron CM, Baron D, Baum AL, Bindra A, Budgett R, Campriani N, Castaldelli-Maia JM, Currie A, Derevensky JL. Mental health in elite athletes: International Olympic Committee consensus statement (2019). British journal of sports medicine. 2019 Jun 1;53(11):667-99.
8. Zhang Z, Chen X, Xu L, Qin X, Veloo A. Sport anxiety and subjective happiness of college athletes: a self-determination theory perspective. Frontiers in psychology. 2024 Jul 24;15:1400094.
9. Contreras DW, Granquist MD, Martin LA. Stress, sport anxiety, neuroticism, and coping in student-athletes: implications for patient mental health. Journal of athletic training. 2023 Sep 1;58(9):733-9.
10. Mercader-Rubio I, Ángel NG, Silva S, Brito-Costa S. Levels of somatic anxiety, cognitive anxiety, and self-efficacy in university athletes from a Spanish public university and their relationship with basic psychological needs. International Journal of Environmental Research and Public Health. 2023 Jan 29;20(3):2415. https://doi.org/10.3390/ ijerph20032415
11. Gabrys K, Wontorczyk A. Sport anxiety, fear of negative evaluation, stress and coping as predictors of athlete's sensitivity to the behavior of supporters. International journal of environmental research and public health. 2023 Jun 8;20(12):6084. https://doi.org/10.3390/ ijerph20126084
12. Shiv Sagar G, Nethravathi R. Sports anxiety and psychological skills among sports players. International Journal of Novel Research and Development. 2022 Jul;7(7):748–754. ISSN: 2456-4184.
13. Correia M, Rosado A. Anxiety in athletes: Gender and type of sport differences. International Journal of Psychological Research. 2019 Jun;12(1):9-17.
14. Grossbard JR, Smith RE, Smoll FL, Cumming SP. Competitive anxiety in young athletes: Differentiating somatic anxiety, worry, and concentration disruption. Anxiety, Stress, & Coping. 2009 Mar 1;22(2):153-66. https://doi.org/10.1080/10615800802020643
15. Rawat K, Błachnio A. Cross-cultural comparison of sports anxiety among Indian and Polish sports players in a post-COVID world: a pilot study. Health Psychology Report. 2024 Jan 11;13(2):191.https://doi.org/10.5114/hpr/175880
16. Smith RE, Smoll FL, Cumming SP, Grossbard JR. Measurement of multidimensional sport performance anxiety in children and adults: The Sport Anxiety Scale-2. Journal of sport and exercise psychology. 2006 Dec 1;28(4):479-501.
17. Grossbard JR, Smith RE, Smoll FL, Cumming SP. Competitive anxiety in young athletes: Differentiating somatic anxiety, worry, and concentration disruption. Anxiety Stress Coping. 2009;22(2):153-166.
18. Martens R, Vealey RS, Burton D. Competitive anxiety in sport. Champaign (IL): Human Kinetics; 1990.
19. Ramis Y, Torregrosa M, Viladrich C, Cruz J. The relationship between competitive anxiety and performance in young athletes. Psychol Sport Exerc. 2010;11(4):301-308.
20. Woodman TI, Hardy LE. The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. Journal of sports sciences. 2003 Jan 1;21(6):443-57.
21. Correia M, Rosado A, Serpa S, Ferreira V. Fear of failure in athletes: gender, age, and type of sport differences. Revista Iberoamericana de Psicologia del Ejercicio y el Deporte. 2017;12(2):185-193.
22. Beiter R, Nash R, McCrady M, Rhoades D, Linscomb M, Clarahan M, Sammut S. The prevalence and correlates of depression, anxiety, and stress in a sample of college students. Journal of affective disorders. 2015 Mar 1;173:90-6.

23. Reardon CL, Hainline B, Aron CM, Baron D, Baum AL, Bindra A, Budgett R, Campriani N, Castaldelli-Maia JM, Currie A, Derevensky JL. Mental health in elite athletes: International Olympic Committee consensus statement (2019). British journal of sports medicine. 2019 Jun 1;53(11):667-99.
24. Mellalieu S, Hanton S, editors. Advances in applied sport psychology. London: Taylor & Francis; 2008.
25. Rice SM, Purcell R, De Silva S, Mawren D, McGorry PD, Parker AG. The mental health of elite athletes: A narrative systematic review. Sports medicine. 2016 Sep;46(9):133

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Efficacy of music therapy on alleviating level of pain among pediatric cancer patients receiving chemotherapy.

Mr. Adinath Ramesh Aghav[1], Mrs. Saravana Bavani[2]
M.Sc. Nursing, St. Andrews College of Nursing, Pune, India[1]
Dept. of pediatric nursing, St. Andrews college of Nursing, Pune, India[2]

Abstract: ***Introduction:*** *Pain is a distressing and common symptom experienced by pediatric cancer patients undergoing chemotherapy, often affecting their physical, psychological, and emotional well-being. Music therapy, a non-invasive intervention, has been increasingly recognized for its potential in pain reduction and psychological comfort.* ***Objectives:****1) To assess the level of pain among pediatric cancer patients receiving chemotherapy both in Experimental & control groups. 2) To assess the post level of pain among pediatric cancer patients receiving chemotherapy after intervention in the experimental group only and nothing in the control group. 3) To evaluate the effectiveness of music therapy on the level of pain among pediatric cancer patients receiving chemotherapy by comparing the pre & post level of pain between the experimental & control group. 4) To find out the association between selected demographic variables & level of pain among pediatric cancer patients receiving Chemotherapy both in the experimental & control group.* ***Methodology:*** *A quasi-experimental design was adopted. Pediatric cancer patients undergoing chemotherapy were selected by using a purposive sampling technique and assigned to two groups: 30 in experimental and 30 in control. The experimental group received music therapy sessions- recorded instrumental music (Veena and Flute, which had a combination of the traditional Indian raga Ananda Bhairavi, which is believed to have therapeutic effects) and modern contemporary tunes music session for 30 minutes during chemotherapy on 3 consecutive days, while the control group continued with routine care. Pre and post-level of Pain were assessed using numerical pain scales in both groups.* ***Results:*** *The results indicate a substantial reduction in pain among the experimental group, with mean pain scores decreasing significantly from 4.8 to 1.03 ($p < 0.00001$). In contrast, the control group showed no significant change in pain levels {pre-test mean 4.9, post-test mean 5.13, (p-value 0.2106)}.* ***Discussion and Conclusion:*** *The study supports the hypothesis that music therapy is effective in reducing pain among pediatric cancer patients receiving chemotherapy. As a safe, cost-effective, and child-friendly intervention, music therapy can be incorporated into routine care to improve the overall treatment experience.*

Keywords: Music therapy, pediatric cancer, chemotherapy, pain management, quasi-experimental study

I. Introduction:

Childhood cancer remains a major public health challenge, with an estimated 400,000 new cases diagnosed globally each year in children and adolescents (0–19 years). In India, pediatric oncology services report 50,000–60,000 new childhood cancer cases annually, with many concentrated in tertiary centers in large cities creating high procedural and treatment-related symptom burdens.[1, 2]

Pain is among the most frequent and distressing symptoms during chemotherapy, with studies showing 40–70% of pediatric patient's experience moderate to severe pain during treatment and procedures, which adversely affects adherence, heightens anxiety, and worsens overall quality of life [3]

II. Methodology:

- Research Approach- Quantitative Approach
- Research Design- "Quasi-Experimental Design"
- Setting- Selected Cancer Hospitals of the City
- Population- Paediatric Cancer Patients Receiving Chemotherapy
- Sample And Sample Size- 60 Patients (30 Patients in Experimental & 30 Patients in Control Group)
- Sampling Technique- Non-Probability Purposive Sampling Technique
- Tools/Instruments- Numerical Pain Scale

Sampling criteria:

A. Inclusion criteria:

2. The gender included (Male, Female & Transgender) with age group 7 years to 18 years.
3. Paediatric Cancer Patient's receiving chemotherapy cycle 1 to 4
4. Paediatric Cancer Patients willing to participate in the study

B. Exclusion Criteria:

1. Paediatric Cancer patients with severe other health conditions
2. Paediatric Cancer patients with hearing deficits.
3. Paediatric Cancer patients with cognitive impairments
4. Those patients receiving concurrent pain management therapies

III. Results:

a) Section i: Demographic variables distribution

b) Section ii: Assess the pre-level of pain among pediatric cancer patients receiving chemotherapy in both the experimental & control groups

c) Section iii: Assess the post level of pain among pediatric cancer patients receiving chemotherapy both in experimental & control group

d) Section iv: Evaluate the effectiveness of music therapy on the level of pain among pediatric cancer patients receiving chemotherapy by comparing the pre & posttest level of pain between experimental & control group.

e) Section v: Association between selected demographical variables & level of pain among pediatric cancer patients receiving chemotherapy both in experimental & control group

SECTION-I

Table 1 Demographic variables distribution **N=60**

Demographic variables	Experimental group		Control group	
	f	%	f	%
1. Age of Child in years				
a. 7 years- 10 years	13	43.33	11	36.67
b. 11 years-14 years	11	36.67	13	43.33
c. 15 years-18 years	6	20.00	6	20.00
2. Gender				
a. Male	16	53.33	14	46.67
b. Female	14	46.67	16	53.33
c. Transgender	0	0.00	0	0.00
3. Education status of participants				
a. No formal education	5	16.67	6	20.00
b. Primary education	19	63.33	19	63.33
c. Secondary education	4	13.33	3	10.00
d. Higher secondary	2	6.67	2	6.67
4. Area of living				
a. Rural	18	60.00	15	50.00
b. Urban	12	40.00	15	50.00
5. Duration of illness				
a. 1 month- 6 months	11	36.67	12	40.00
b. 6 Month- 12 months	18	60.00	16	53.33
c. > 12 Months	1	3.33	2	6.67
6. Stages of Cancer				
a. 1st stage	8	26.67	5	16.67
b. 2nd stage	14	46.67	14	46.67
c. 3rd stage	5	16.67	8	26.67

d. 4th stage	3	10.00	3	10.00
7. Chemotherapy cycle				
a. 1-2	17	56.67	15	50.00
b. 3-4	13	43.33	15	50.00
8. Type of cancer				
a. Blood cancer	21	70.00	24	80.00
b. Other cancer	9	30.00	6	20.00

The demographic distribution of participants in both the experimental and control groups was fairly comparable across all variables. In terms of age, the majority of children in both groups fell in the 7–14 years range, with 43.33% in the experimental group and 36.67% in the control group aged 7–10 years. With respect to gender, the experimental group had a slightly higher proportion of males (53.33%) compared to the control group (46.67%), while females were more represented in the control group (53.33%). Regarding education, most participants in both groups had primary education (63.33%). In terms of area of living, the majority of the experimental group resided in rural areas (60%), whereas the control group showed an equal distribution between rural (50%) and urban (50%) areas. The duration of illness indicated that most children had been ill for 6–12 months (60% experimental, 53.33% control. Analysis of cancer stages showed that most children were in the 2nd stage in both groups (46.67. Chemotherapy cycles were nearly evenly distributed, with a slight majority in the 1–2 cycle category in the experimental group (56.67%), while the control group had equal distribution. Finally, the type of cancer revealed that blood cancer was predominant among participants, affecting 70% of the experimental group and 80% of the control group.

N=60

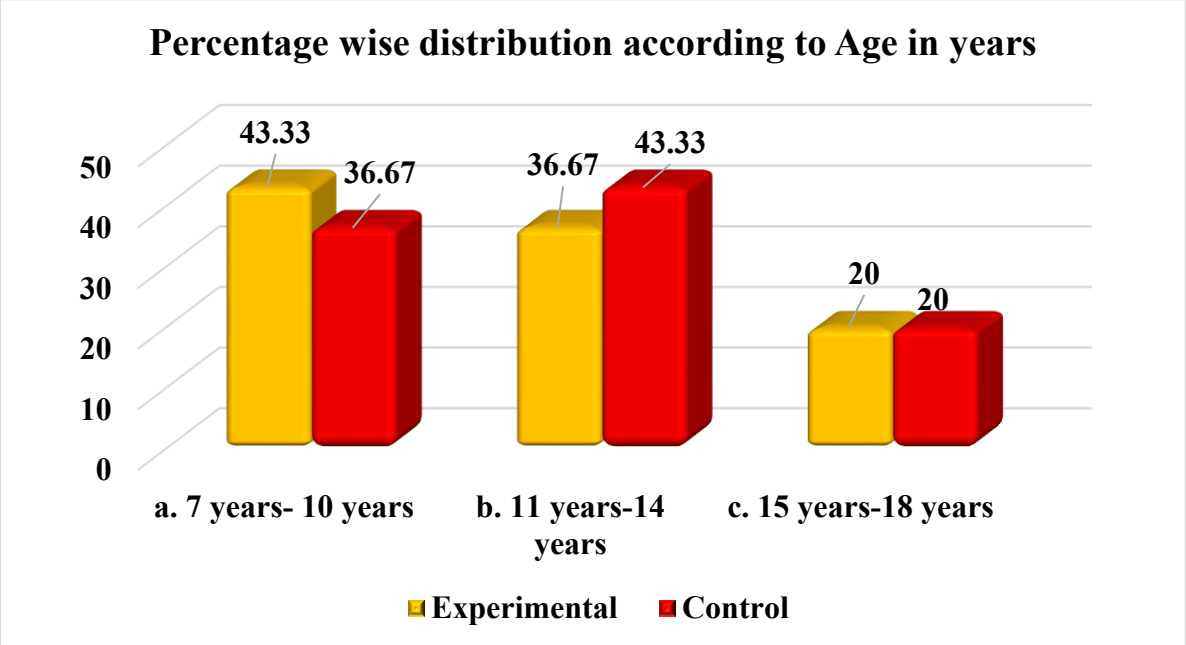


Figure 1: Percentage-wise distribution according to Age in years

In the 7–10 years category, the majority of participants belong to the Experimental group (43.33%) compared to the Control group (36.67%). In the 11–14 years category, the Control group has a higher proportion (43.33%) than the Experimental group (36.67%). In the 15–18 years category, both groups have an equal proportion (20%)

N=60

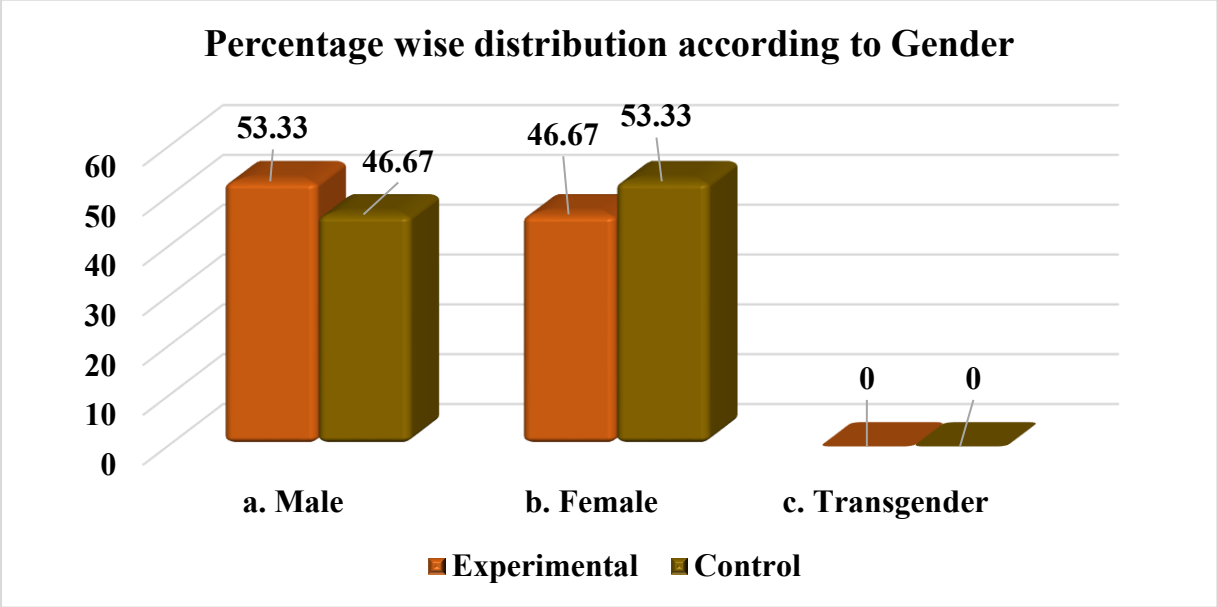


Figure 2: Percentage-wise distribution according to Gender

In the experimental group, males (53.33%) were slightly higher than females (46.67%), while in the control group, females (53.33%) outnumbered males (46.67%).

N=60

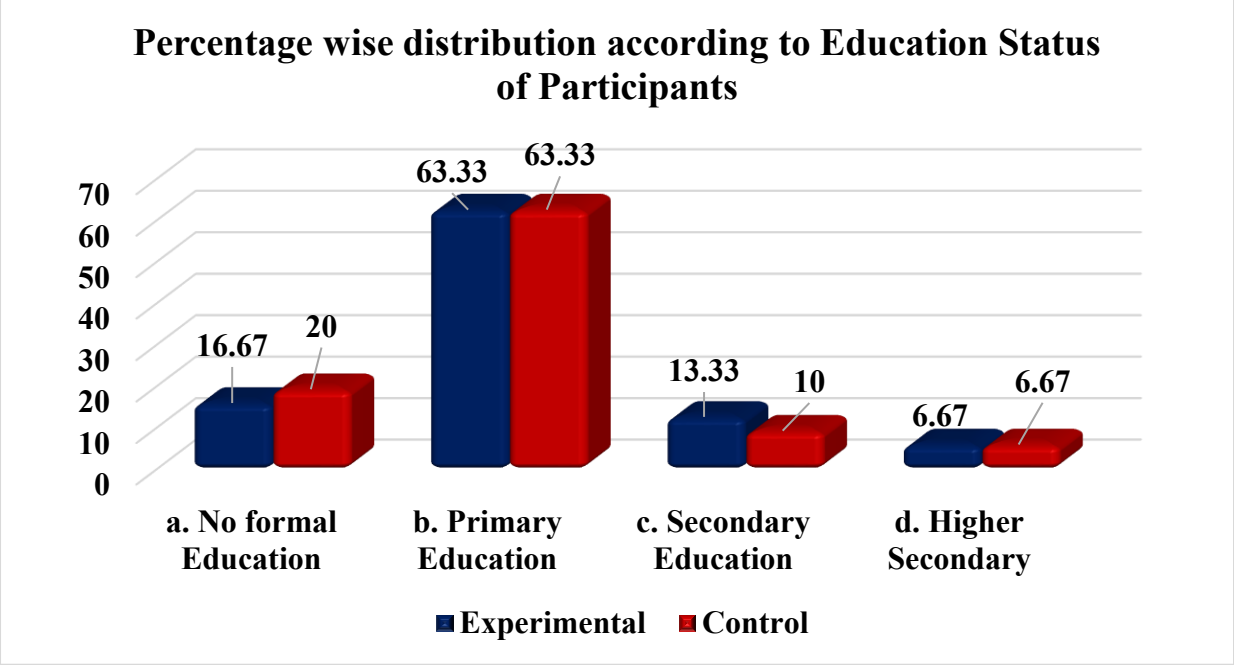


Figure 3: Percentage-wise distribution according to Education Status of Participants

The majority in both experimental and control groups had primary education (63.33%). A smaller proportion had no formal education (16.67% experimental, 20% control), followed by secondary education (13.33% experimental, 10% control). Only 6.67% in each group had higher secondary education.

N=60

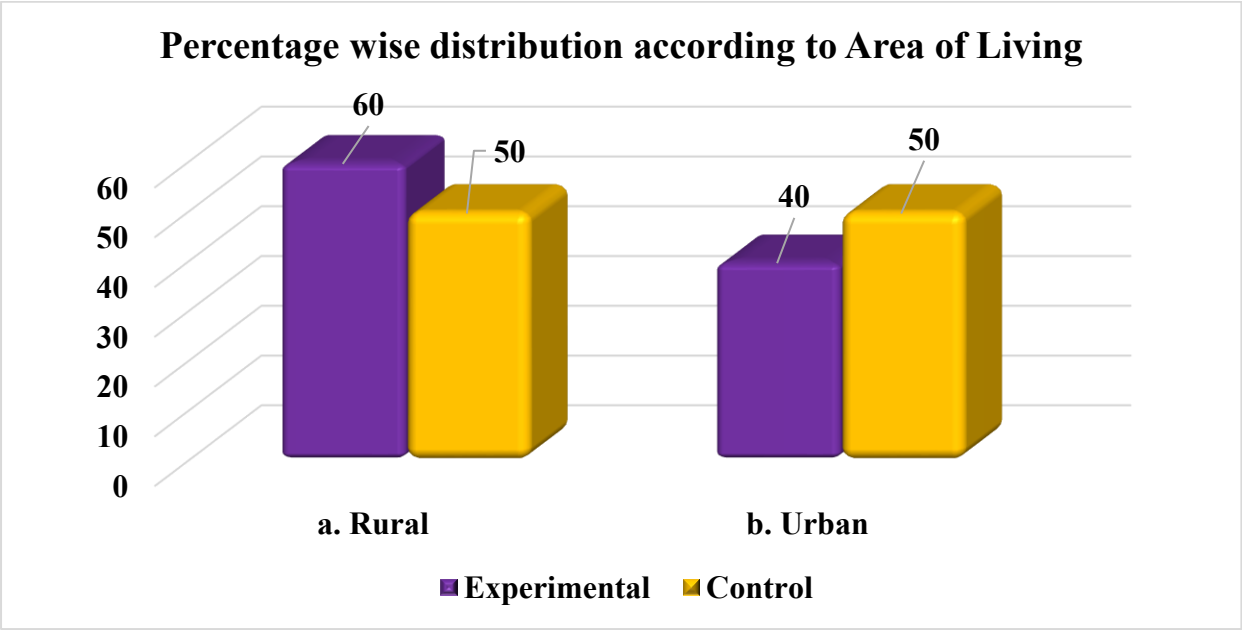


Figure 4: Percentage-wise distribution according to Area of Living

The majority were from rural areas (60%), while 40% were from urban areas. In the control group, participants were equally distributed between rural (50%) and urban (50%) areas.

N=60

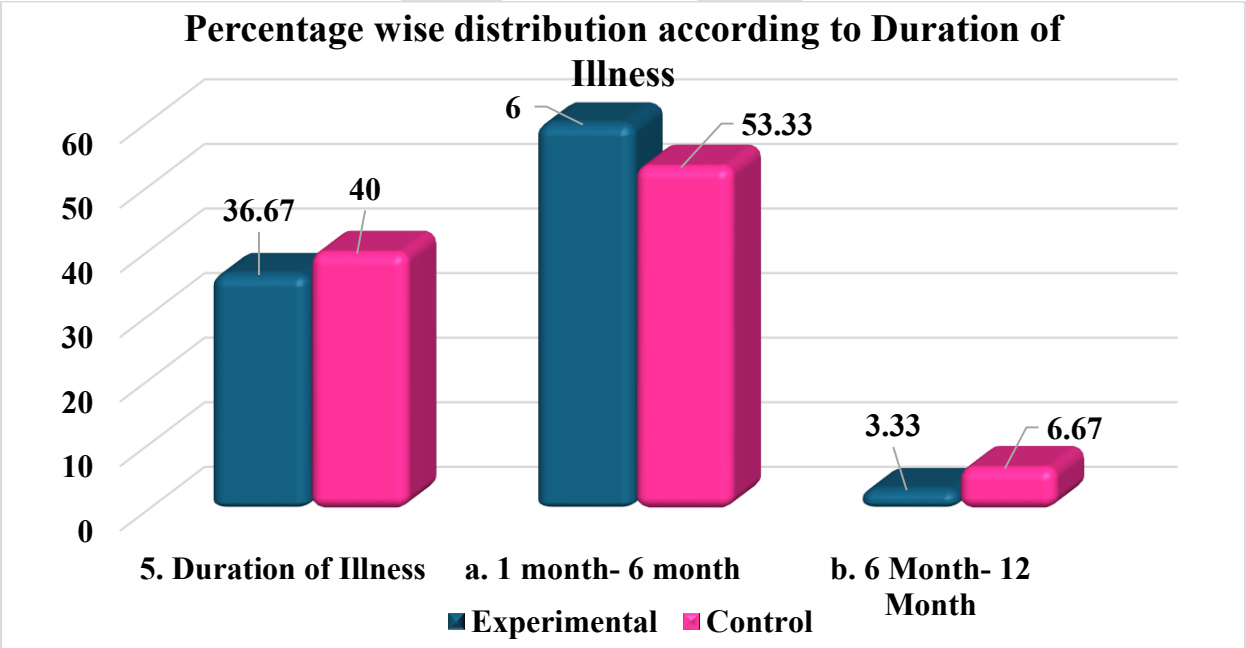


Figure 5: Percentage-wise distribution according to Duration of Illness

The majority in both groups had illness for 1–6 months (60% experimental, 53.33% control). Around 36.67% (experimental) and 40% (control) reported illness less than a month. A small proportion had illness for 6–12 months (3.33% experimental, 6.67% control).

N=60

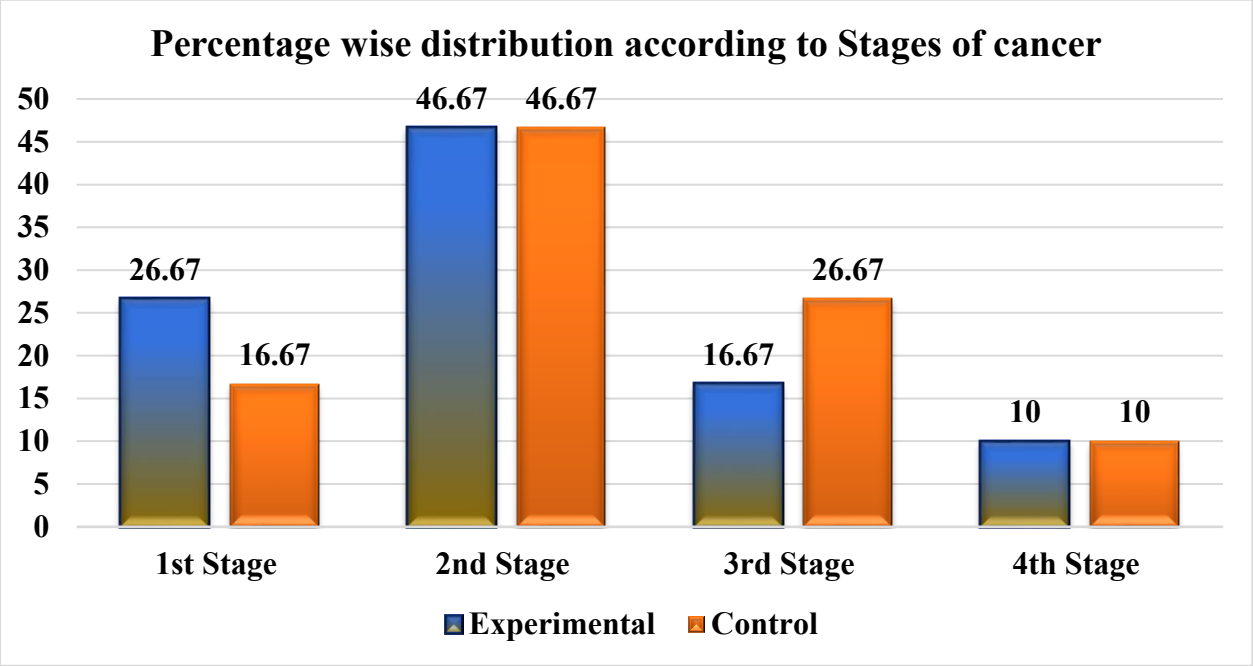


Figure 6: Percentage-wise distribution according to Stages of cancer

The majority in both groups were in the 3rd stage (46.67%). In the 2nd stage, 26.67% were from the experimental group and 16.67% from the control group. In the 4th stage, 16.67% were from the experimental group and 26.67% from the control group. A smaller proportion (10% each) were in the 1st stage.

N=60

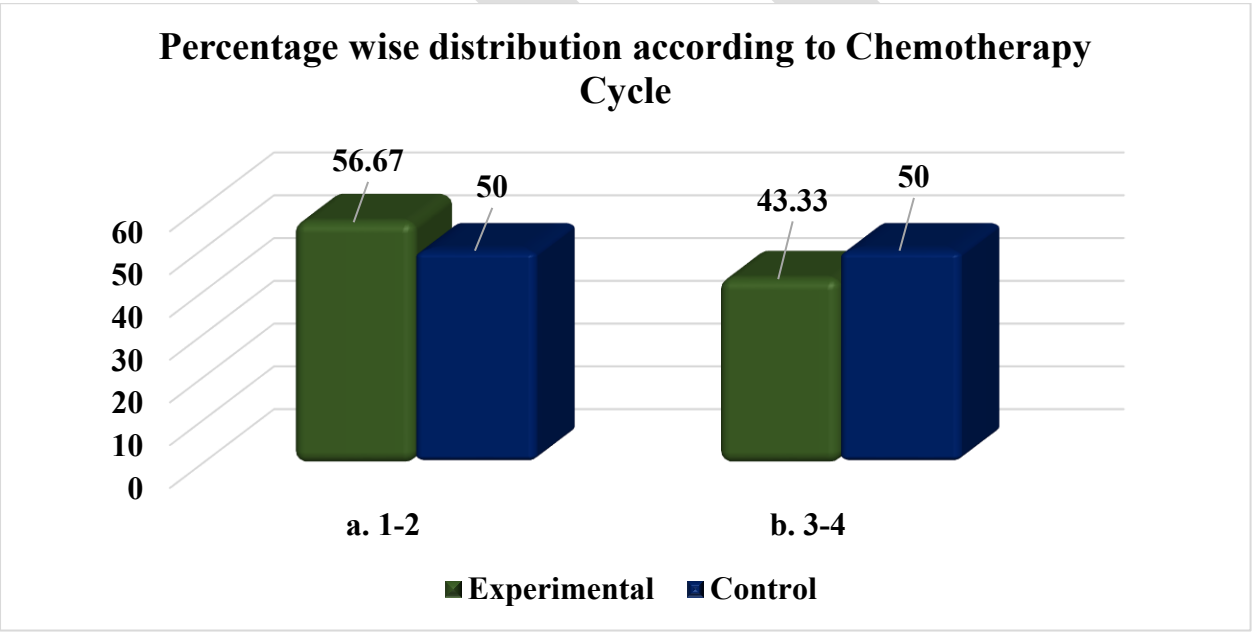


Figure 7: Percentage-wise distribution according to Chemotherapy Cycle.

In the experimental group, a higher proportion were in cycle 1–2 (56.67%), while 43.33% were in cycle 3–4. In the control group, participants were evenly distributed between cycle 1–2 (50%) and cycle 3–4 (50%).

N=60

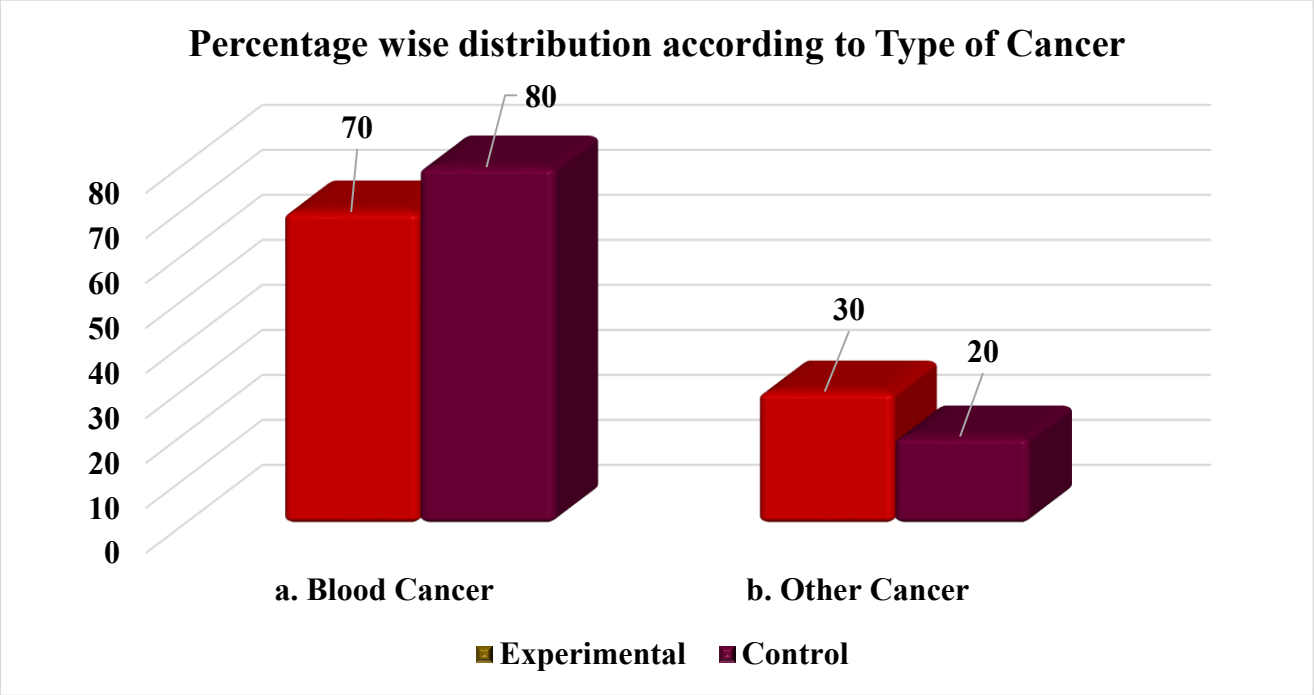


Figure 8: Percentage-wise distribution according to Type of Cancer

In the experimental group, 70% had blood cancer, and 30% had other cancers, while in the control group, 80% had blood cancer and 20% had other cancers.

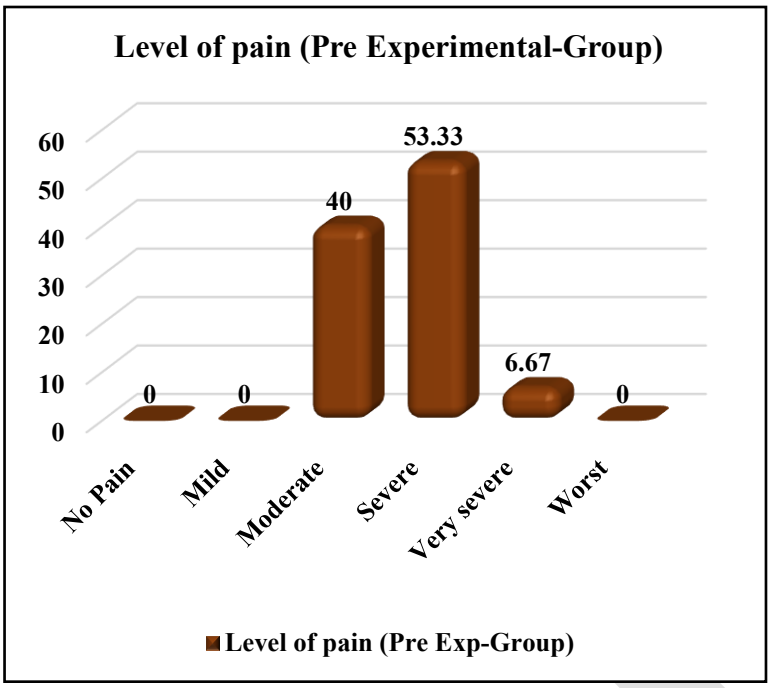
SECTION II

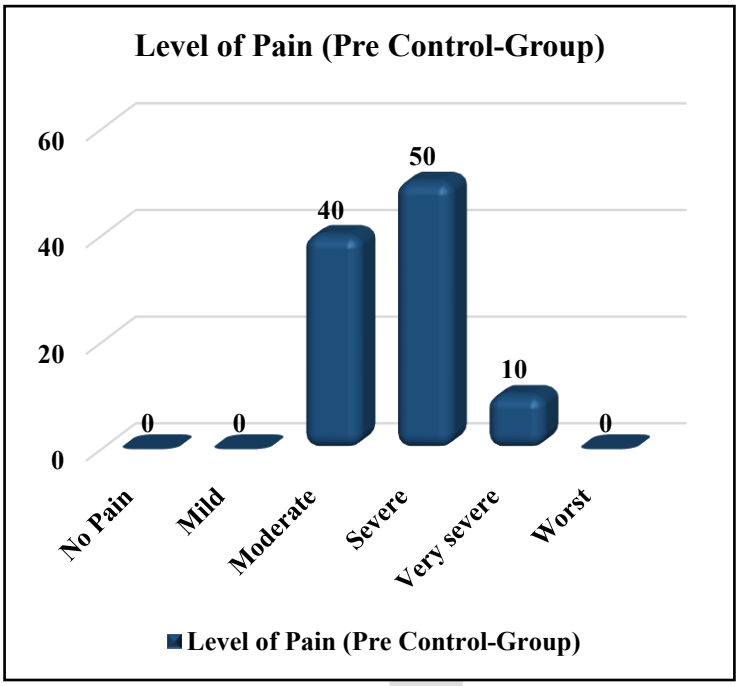
Table 2 Assess pre-test level of pain among pediatric cancer patients receiving chemotherapy in experimental group & control group

N=60

Pre-test of level of pain	Experimental group				Control group			
	f	%	Mean	SD	f	%	Mean	SD
No Pain (0)	0	0	4.8	1.19	0	0.00	4.9	1.21
Mild (1-2)	0	0			0	0.00		
Moderate (3-4)	12	40			12	40.00		
Severe (5-6)	16	53.3			15	50.00		
Very severe (7-8)	2	6.67			3	10.00		
Worst (9-10)	0	0			0	0.00		

In both experimental and control groups, the majority reported severe pain (53.3% and 50%), followed by moderate pain (40% each). A small proportion experienced very severe pain (6.67% experimental, 10% control). The mean pain scores were almost similar in both groups (4.8 experimental, 4.9 control), indicating comparable baseline pain levels.





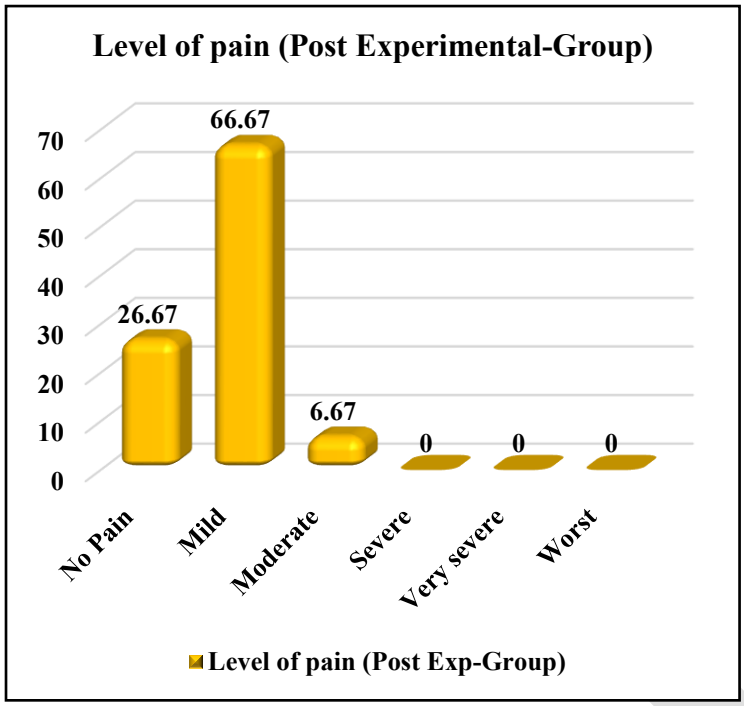
SECTION III

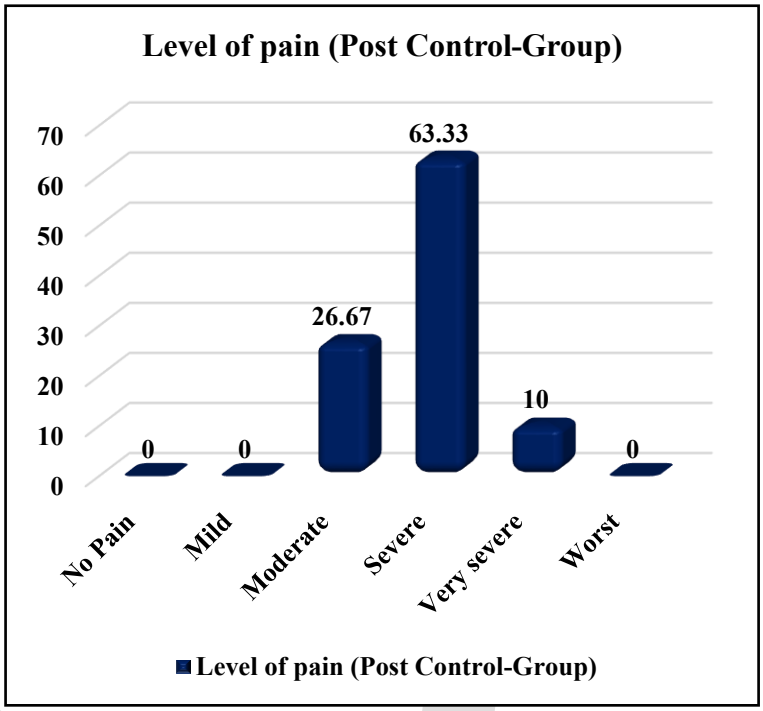
Table 3: Assess post-test level of pain among pediatric cancer patients receiving chemotherapy in experimental group & control group

N=60

POST TEST Level of Pain	Experimental group				Control group			
	f	%	Mean	SD	f	%	Mean	SD
No Pain (0)	8	26.67	1.03	0.85	0	0.00	5.13	1.01
Mild (1-2)	20	66.67			0	0.00		
Moderate (3-4)	2	6.67			8	26.67		
Severe (5-6)	0	0.00			19	63.33		
Very severe (7-8)	0	0.00			3	10.00		
Worst (9-10)	0	0.00			0	0.00		

In the experimental group, most participants reported mild pain (66.67%), and 26.67% had no pain, with a mean pain score of 1.03 ± 0.85. In contrast, in the control group, the majority experienced severe pain (63.33%), followed by moderate pain (26.67%) and very severe pain (10%), with a higher mean score of 5.13 ± 1.01. Overall, the experimental group showed markedly lower pain levels compared to the control group.





SECTION IV

Table 4. Effectiveness of music therapy on the level of pain among pediatric cancer patients receiving chemotherapy by comparing the pre & posttest level of pain between experimental group

N=30

Effectiveness of Music Therapy (Experimental Group)	Mean	SD	DF	T test calculated value	*P* value	Remark
Pre-test experimental	4.8	1.19	29	14.14	<.00001	Significant
Post-test experimental	1.03	0.85				

The table presents the results on the effectiveness of music therapy in the experimental group. The findings indicate that the mean pain score before intervention (pre-test) was 4.8 (SD = 1.19), reflecting a moderate to severe level of pain among participants. After the administration of music therapy, the mean pain score reduced sharply to 1.03 (SD = 0.85), indicating that most participants experienced very mild or no pain levels post-intervention. The paired t-test value of 14.14 with 29 degrees of freedom was found to be highly significant ($p < .00001$), confirming that the observed reduction in pain was statistically significant.

Table 5: Effectiveness of music therapy on the level of pain among pediatric cancer patients receiving Chemotherapy by comparing the pre & posttest level of pain between control group

N=30

Effectiveness of Music Therapy (Control Group)	Mean	SD	DF	T test calculated value	P value	Remark
Pre-test Control	4.9	1.21	29	-0.81	0.2106	Not significant
Post-test Control	5.13	1.01	29			

The table shows the effectiveness of music therapy in the control group, comparing pre-test and post-test pain scores. The mean pain score in the pre-test was 4.9 (SD = 1.21), while in the post-test it slightly increased to 5.13 (SD = 1.01). The calculated t value was -0.81 with a p value of 0.2106, which is greater than the conventional significance level ($p > 0.05$).

Table 6: Effectiveness of music therapy on the level of pain among pediatric cancer patients receiving chemotherapy by comparing the posttest level of pain between experimental & control group

N=60

Effectiveness of Music Therapy	Mean	SD	DF	T test calculated value	P value	Remark
Post Test Experimental	1.03	0.85	29	17.03	<.00001	significant
Post test Control	5.13	1.01				

The post-test mean pain score was much lower in the experimental group (1.03 ± 0.85) compared to the control group (5.13 ± 1.01). The calculated t-value (17.03) with $p < .00001$ indicates a highly significant difference. This shows that music therapy was highly effective in reducing pain among participants compared to the control group.

SECTION V

Table 7: Association between selected demographical variables & level of pain among pediatric cancer patients receiving chemotherapy in experimental group

N=30

Experimental Group	Moderate Pain	Severe Pain	Very Severe Pain	DF	Chi square table value	Chi square calculated Value	P value	Remark
1. Age of Child in years				4	9.488	4.325	0.364	NS
a. 7 years- 10 years	5	8	0					
b. 11 years-14 years	3	6	2					
c. 15 years-18 years	4	2	0					
2. Gender								
a. Male	7	7	2					
b. Female	5	9	0					
c. Transgender	0	0	0					
3. Education Status of Participants				6	12.592	3.549	0.737	NS
a. No formal Education	1	4	0					
b. Primary Education	7	10	2					
c. Secondary Education	2	2	0					
d. Higher Secondary	2	0	0					
4. Area of Living				2	5.991	0.139	0.933	NS
a. Rural	7	10	1					
b. Urban	5	6	1					
5. Duration of Illness								
a. 1 month- 6 month	5	5	1					
b. 6 Month- 12 Month	6	11	1					
c. > 12 Months	1	0	0					
6. Stages of Cancer				6	12.592	5.954	0.428	NS
a. 1st Stage	3	4	1					
b. 2nd Stage	4	10	0					
c. 3rd Stage	2	2	1					
d. 4th Stage	3	0	0					

7. Chemotherapy Cycle				2	5.991	0.475	0.789	NS
a. 1-2	6	10	1					
b. 3-4	6	6	1					
8. Type of Cancer				2	5.991	0.536	0.765	NS
a. Blood Cancer	9	11	1					
b. Other Cancer	3	5	1					

The findings from Table 4.7 indicate that there is no statistically significant association between selected demographic variables and the level of pain among pediatric cancer patients receiving chemotherapy in the experimental group.

Table 8 Association Between Selected Demographical Variables & Level of Pain Among Pediatric Cancer Patients Receiving Chemotherapy in Control Group

N=30

Control Group	Moderate Pain	Severe Pain	Very Severe Pain	DF	Chi square table value	Chi square calculated Value	P value	Remark
1. Age of Child in years				4	9.488	1.649	0.8	NS
a. 7 years- 10 years	5	4	2					
b. 11 years-14 years	5	8	1					
c. 15 years-18 years	2	3	0					
2. Gender				4	9.488	3.817	0.431	NS
a. Male	3	9	2					
b. Female	9	6	1					
c. Transgender	0	0	0					
3. Education Status of Participants				6	12.592	2.65	0.851	NS
a. No formal Education	4	2	0					
b. Primary Education	6	10	3					
c. Secondary Education	1	2	0					
d. Higher Secondary	1	1	0					
4. Area of Living				2	5.991	0.4	0.819	NS
a. Rural	6	7	2					
b. Urban	6	8	1					
5. Duration of Illness				4	9.488	6.381	0.172	NS
a. 1 month- 6 month	8	4	0					
b. 6 Month- 12 Month	3	10	3					
c. > 12 Months	1	1	0					
6. Stages of Cancer				6	12.592	2.667	0.849	NS
a. 1st Stage	2	2	1					
b. 2nd Stage	6	8	0					
c. 3rd Stage	3	4	1					
d. 4th Stage	1	1	1					
7. Chemotherapy Cycle				2	5.991	5.1	0.078	NS
a. 1-2	3	9	3					
b. 3-4	9	6	0					

8. Type of Cancer				2	5.991	0.938	0.626	NS
a. Blood Cancer	9	13	2					
b. Other Cancer	3	2	1					

The findings from the chi-square analysis in the control group reveal that there was no statistically significant association between pain levels and any of the selected demographic variables.

IV. Implications:

- **Nursing practice: -**
  In addition to pain relief, music therapy helps reduce anxiety, stress, and fear associated with chemotherapy, promoting emotional well-being. It also enhances overall patient satisfaction and comfort during hospitalization.
- **Nursing Administration: -**
  The allocation of resources, such as hiring trained music therapists, creating safe and child-friendly therapy spaces, and providing appropriate music equipment, is essential for the successful implementation of this therapy.
- **Nursing Education: -**
  Nursing education programs should include modules on non-pharmacological pain management, with a focuson music therapy technique.
  Incorporating evidence-based practices, like music therapy, into education can encourage innovative approaches to pediatric pain management.
- **Nursing Research: -**
  The study provides a foundation for further research on the effectiveness of music therapy in paediatric oncology settings.
  Researchers can explore the long-term effects of music therapy on pain, anxiety and quality of life.

Ethical consideration:

- The study was evaluated and approved by the ethics committee of the institution.
- The formal Permission obtained from the hospital authority
- Participants have right to withdraw from the study at any time.
- A written informed consent/Assents was obtained from each participant/parent of both the groups before commencement of the study.
- Anonymity and confidentiality of the participants was ensured by coding the data.
- Information acquired from the participants was used only for the purpose of the study and was kept confidential.

V. Recommendation:

- Provide training for nurses and healthcare providers on music therapy and other non-pharmacological interventions.
- Encourage family participation in music therapy sessions to support the child emotionally.
- Conduct further studies with larger samples across multiple hospitals for better generalizability.
- Explore combined effects of music therapy with other complementary interventions.

VI. Conclusion:

This quasi-experimental study demonstrates that music therapy is an effective, non-pharmacological intervention for reducing pain in pediatric cancer patients undergoing chemotherapy. The significant reduction in pain scores in the experimental group, compared to the control group, highlights the therapy's potential to complement medical treatments and enhance patient comfort.

Conflicts of interest: None to declare

Funding: None

VII. References:

1. World Health Organization. Childhood cancer [Internet]. Geneva: WHO; 2021 [cited 2025 Sep 2]. Available from: https://www.who.int/news-room/fact-sheets/detail/childhood-cancer.
2. Wong, K. C., Tan, B. W. Z., Tong, J. W. K., & Chan, M. Y. (2021). The Role of Music Therapy for Children Undergoing Cancer Treatment in Singapore. *Healthcare (Basel, Switzerland)*, *9*(12), 1761. https://doi.org/10.3390/healthcare9121761.
3. Tollabzadeh, M. (2023). Effect of music therapy on pain, anxiety, perceived stress, and biochemical parameters in hospitals among patients with cancer. *Journal of Cancer Care*, 28(3), 201-210. https://doi.org/10.1016/j.jcc.2023.01.006
4. Ahmed, M. M. (2021). Effect of video games, drawing, and storytelling on happiness and relaxation among children undergoing chemotherapy. *Journal of Pediatric Nursing*, 44(3), 100-108. https://doi.org/10.1016/j.pedn.2021.03.004
5. Abd El, R. (2018). Effect of distraction technique on pain control for children receiving chemo-radiotherapy. *Pediatric Nursing Journal*, 34(6), 311-317. https://doi.org/10.1016/j.pedn.2018.06.005
6. Mohamed, M., et al. (2023). Impact of music therapy on quality of life in children with cancer. *Pediatric Oncology Nursing Journal*, 35(3), 202-209. https://doi.org/10.1016/j.pon.2023.02.007.
7. Kaur N, Kesava J. A quasi-experimental study to assess the effectiveness of music therapy on pain level among cancer patients admitted to regional cancer hospital Indira Gandhi Medical College, Shimla, Himachal Pradesh. BLDE Univ J Health Sci [Internet]. 2018;3(2):108. Available from: https://journals.lww.com/blde/abstract/2018/03020/a_quasi_experimental_study_to_assess_the.9.aspx.
8. Krishnaswamy, Priyadharshini & Nair, Shoba. (2016). Effect of Music Therapy on Pain and Anxiety Levels of Cancer Patients: A Pilot Study. Indian Journal of Palliative Care. 22. 307. 10.4103/0973-1075.18504.

Volume 2, Issue 1, January - June 2026 ISSN:3108-074X (Online)

Level of mindfulness among nursing students and faculty in nursing educational institutes: A comparative study.

Prof Bijayalakshmi Devi[1], Ms Akshata Tendulkar[2], and Mrs Shital Padalkar[3],
Maharshi Karve Stree Shikshan Samstha's
Smt. Bakul Tambat Institute of Nursing Education, Karvenagar, Pune, India
Email: akshata.tendulkar@mkssbtine.in)

Abstract: *Stress is an inevitable part of the lives of nursing students and faculty. To implement effective stress management interventions, it is essential to identify the factors associated with stress. Mindfulness, a component of social-emotional competence, may protect both students and educators from burnout and its adverse consequences.* ***Aim of the study*** *is to assess and compare the level of mindfulness among nursing students and faculty in nursing educational institutes, and to determine the association between baseline mindfulness levels and selected demographic variables.* ***Materials and methods:*** *A quantitative research approach with a descriptive survey design was adopted. A total of 60 participants (30 students and 30 faculty) were selected using purposive sampling. Data were collected using a self-administered questionnaire consisting of two sections: Section I included demographic variables, and Section II included the standardized Mindful Attention Awareness Scale (MAAS) with 15 items.* ***Result:*** *Among students, 50% demonstrated a high level of mindfulness, with a mean score of 5.44 and a standard deviation of 0.37. Faculty participants showed a mean mindfulness score of 4.16 with a standard deviation of 0.80. The overall mindfulness score (N=60) had a mean of 72.10 and a standard deviation of 13.45. A statistically significant association was found between employment status and level of mindfulness.* ***Discussion and conclusion:*** *The findings indicate that nursing students have higher levels of mindfulness compared to faculty. This suggests a need for faculty to enhance mindfulness practices through appropriate interventions. Regular mindfulness practice is recommended for both students and faculty to improve their professional performance and overall well-being.*

Keywords: Mindfulness, Nursing Students, Nursing Faculty, Comparative Study

I. Introduction:

Stress is an inevitable part of nursing students' lives. Effective stress management interventions for nursing students require a clear understanding of the factors associated with their stress. On the other hand, educators are faced with the difficult task of meeting the academic, social, and emotional needs of diverse learners in their classrooms, which becomes even more challenging in the present context of high-stakes testing and teacher accountability. Many educators experience stress and burnout; therefore, identifying factors that promote health and well-being among teachers and school staff is critical. Mindfulness is one aspect of social-emotional competence that may protect students and teachers from experiencing burnout and its negative consequences.[1,2] Mindfulness is the basic human ability to be fully present, aware of where a person is and what they are doing, and not overly reactive or overwhelmed by what is happening around them. Primarily, mindfulness involves becoming aware of one's mental, emotional, and physical processes. Although mindfulness is something all human beings naturally possess, it becomes more accessible when practiced daily. Whenever a person brings awareness to their direct experiences through senses or to their state of mind through thoughts and emotions, they are being mindful. Growing research suggests that training the mind in mindfulness can remodel the brain's physical structure. Mindfulness teaches individuals to focus on the present moment by noticing when the mind wanders and gently bringing attention back, often to breathing. It is a state where one can rest and stabilize the mind.[2]

II. Review of literature:

Rayan A. studied mindfulness, self-efficacy, and stress among final-year nursing students. The purpose of the study was to examine the relationship between stress, self-efficacy, and mindfulness among final-year nursing students while controlling for demographic variables. A descriptive correlational research design was used. A total of 200 university students were selected from four randomly chosen universities in Jordan. The participants provided demographic details

:and completed questionnaires assessing stress, self-efficacy, and mindfulness. The findings indicated that female and married students reported higher levels of stress compared to others. Stress showed a negative correlation with both self-efficacy and mindfulness. Furthermore, mindfulness contributed to 13% of the variance in stress levels, demographic variables accounted for 10%, and self-efficacy explained 24% of the variance. The study concluded that students with high stress levels may benefit from psychosocial interventions aimed at improving mindfulness and self-efficacy.[3]

Ahmadi A et al. (2014) conducted a study to examine mindfulness and related factors among undergraduate students. The purpose was to investigate the status of mindfulness among students. A total of 273 undergraduate students in their first semester participated. The study used the Mindful Attention Awareness Scale (MAAS). The study reported a mean mindfulness score of 3.77, and mindfulness was not significantly correlated with variables such as age, gender, religion, race, family background, or educational level. However, a weak correlation was found between mindfulness and health conditions (α = .04, two-tailed). The study suggested that improving health conditions and mental well-being may enhance mindfulness among students.[4]

Abenavoli RM et al. (2013) conducted a study to examine the protective effects of mindfulness against burnout among educators. A total of 64 educators completed self-report measures on mindfulness, burnout, affect, sleep-related impairment, physical symptoms, stress, and ambition. Results showed strong negative associations between mindfulness and components of burnout such as emotional exhaustion, depersonalization, and reduced personal accomplishment. The relationship was partially mediated by affect and physical health factors. The study concluded that mindfulness promotes resilience among educators.[5]

Luken M and Sammons A (2016) conducted a systematic review on mindfulness practices for reducing job burnout. Eight studies met the inclusion criteria. The quality of studies was assessed using the Physiotherapy Evidence Database scale. Six studies showed statistically significant reductions in burnout after mindfulness interventions. The review concluded that mindfulness practices are effective in reducing burnout among healthcare professionals and teachers.[6]

Luong MT et al. (2019) conducted a study to explore the benefits of mindfulness among students and teachers in three German high schools. A total of 81 students and 90 teachers participated. A mixed-methods approach was used, including pre-, post-, and follow-up assessments. Students showed significant improvements in stress, anxiety, and emotional competencies, whereas teachers showed moderate improvement mainly in mindfulness. The study highlighted the benefits of mindfulness for both groups, with stronger effects observed among students.[7]

Objectives of the study:

Primary Objectives were to assess the level of mindfulness among nursing students and nursing faculty, to compare the level of mindfulness between nursing students and faculty in nursing educational institutes. The secondary objective was to associate the baseline level of mindfulness of nursing students and faculty with selected background variables. Research question: Is there any difference in the level of mindfulness between nursing students and faculty in nursing educational institutes? In this present study, mindfulness refers to a deliberate act of paying attention to thoughts, actions, feelings, and surroundings.

Hypotheses of the study:

H_{01}: There is no difference in the level of mindfulness between nursing students and faculty in a nursing educational institute.

H_1: There is a difference in the level of mindfulness between nursing students and faculty in a nursing educational institute.

III. Methodology:

The present study used a quantitative approach with a descriptive comparative survey research design. The population included nursing students and nursing faculty in a selected nursing educational setting. The sample size was 60 (30 nursing students and 30 nursing faculty), selected using a non-probability purposive sampling technique.

The data collection tool included the standardized Mindful Attention Awareness Scale (MAAS).

The tool consisted of two sections:

- Section I: Demographic variables (age, gender, and educational status—student/faculty)
- Section II: MAAS (15 items)

The reliability of the MAAS tool was established using Cronbach's alpha (r = 0.62), which was considered acceptable. The Institutional Ethics Committee approved the study. Permission was obtained from the selected institute. Participants were recruited after eligibility was confirmed, and the study was explained to them. Written informed consent was obtained prior to data collection.

Participants who consented were provided with the questionnaire. The MAAS scale was administered to 30 nursing students and 30 nursing faculty in a conducive environment. Participants were instructed on how to complete the questionnaire and were seated comfortably during the process.

Inclusion criteria:

- Participants aged 18 years and above
- Participants who provided informed consent
- Participants able to read, write, and understand English

Exclusion criteria:

- Medically unfit Participants
- Participants absent during data collection

Withdrawal criteria:

- Participants who did not follow the research protocol
- Participants who chose to withdraw due to personal reasons

IV. Results:

Section A: Demographic variables

Table 1: Frequency and percentage distribution of demographic variables

N = 60

Sr. No	Variables	Frequency	Percentage (%)
1	**Age (years)**		
	18–27	38	63.3
	28–37	12	20.0
	38–47	8	13.3
	48–57	1	1.7
	≥58	1	1.7
2	**Educational Status**		
	GNM Student	30	50.0
	B.Sc. Nursing	3	5.0
	P.B.B.Sc. Nursing	15	25.0
	M.Sc. Nursing	11	18.3
	Ph.D. Nursing	1	1.7
3	**Employment Status**		
	Student	30	50.0
	Faculty	30	50.0
4	**Gender**		
	Female	60	100
	Male	0	0

Table 1 indicates that the majority of participants (63.3%) were in the age group of 18–27 years. Participants aged 28–37 years accounted for 20%, while 13.3% were between 38–47 years. Only 1.7% each belonged to the 48–57 years and ≥58 years categories. The mean age score was **1.58**, with a standard deviation of **0.907**. With regard to educational status, half of the participants (50%) were GNM students. Among faculty, 5% had B.Sc. Nursing, 25% P.B.B.Sc., 18.3%

M.Sc., and 1.7% Ph.D. qualifications. The mean score for educational status was **1.17** (SD = **1.278**).

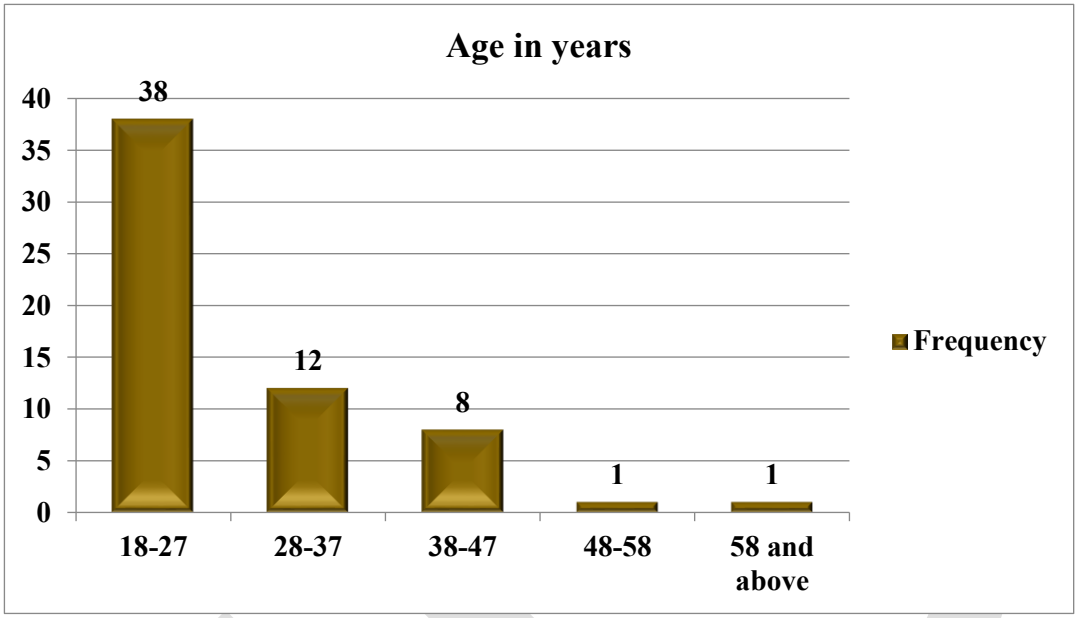


Figure 1: Distribution of participants according to age

Equal representation was observed in employment status, with 50% students and 50% faculty (Mean = **1.50**, SD = **0.504**). All participants were female.

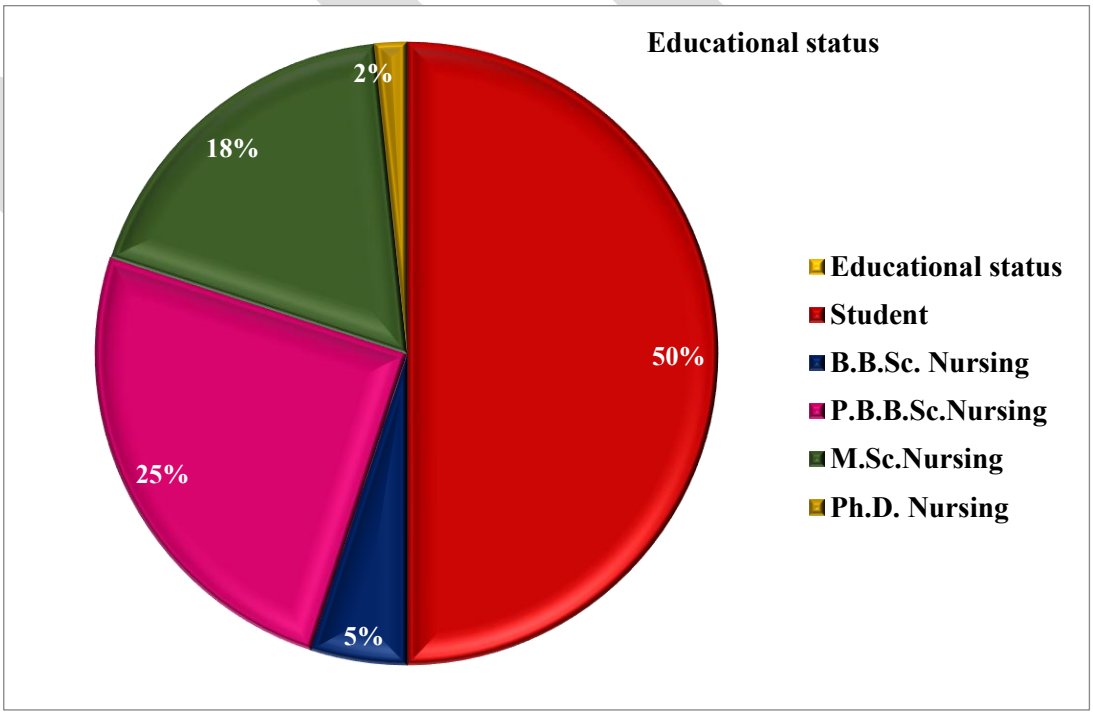


Figure 2: Distribution of participants according to educational status

The figure shows that most participants (63.3%) belonged to the 18–27 years age group, followed by 28–37 years (20%) and 38–47 years (13.3%). Very few participants were above 48 years (1.7% each).
The figure illustrates that 50% of participants were GNM students. Among faculty, the highest proportion had P.B.B.Sc.

Nursing (25%), followed by M.Sc. Nursing (18.3%), B.Sc. Nursing (5%), and Ph.D. (1.7%).

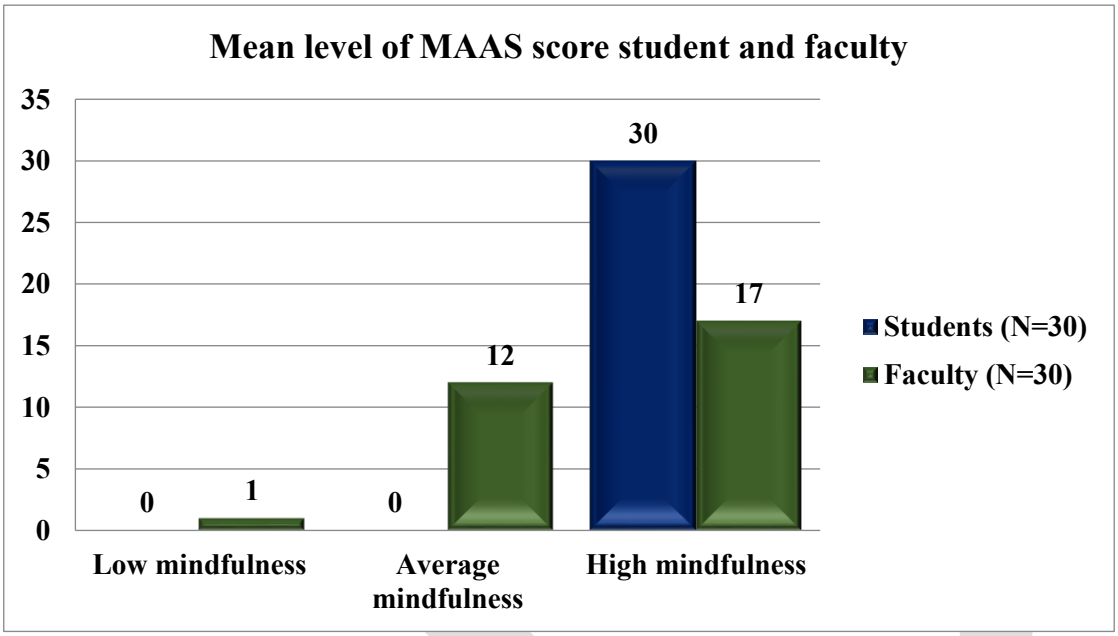


Figure 3: Level of mindfulness among students and faculty

Section B: Level of mindfulness

Table 2: Comparison of level of mindfulness (MAAS scores) among students and faculty

N =60

Level of Mindfulness	Students (n=30)	(%)	Faculty (n=30)	(%)
Low	0	0	1	3.3
Average	0	0	12	40.0
High	30	100	17	56.7

Table 2 shows that all students (100%) had a high level of mindfulness. Among faculty, 56.7% demonstrated high mindfulness, 40% had an average level, and 3.3% had a low level of mindfulness.
The figure depicts that students uniformly exhibited high mindfulness levels, whereas faculty members showed variation across low, average, and high levels.

Section C: Descriptive statistics of mindfulness

Table 3: Mean and standard deviation of mindfulness scores

N = 60

Sr. No	Variable	Mean	Standard Deviation
1	Students' mindfulness score	5.4489	0.37791
2	Faculty mindfulness score	4.1644	0.80052
3	Overall mindfulness score	72.10	13.45514

Table 3 shows that the mean mindfulness score among students was **5.4489** (SD = **0.37791**), which is higher than that of faculty (**Mean = 4.1644**, SD = **0.80052**). The overall mindfulness score for all participants was **72.10** with a standard deviation of **13.45514**.

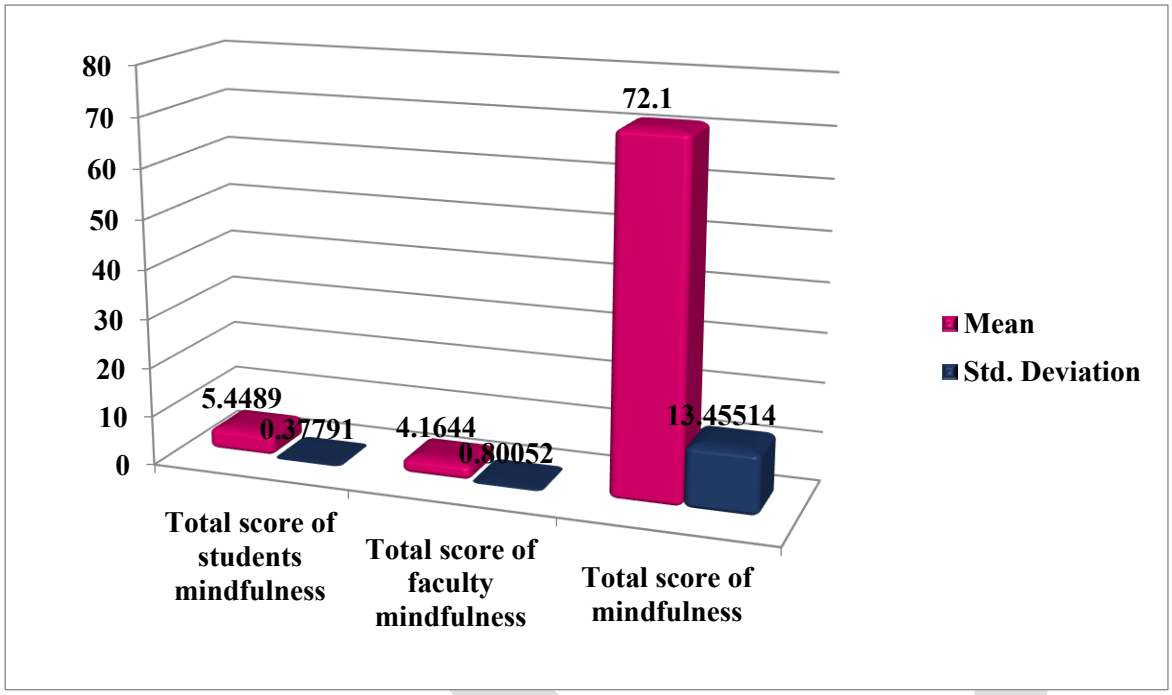


Figure 4: Mean mindfulness scores of participants

The figure indicates that students had higher mean mindfulness scores compared to faculty members.

Section D: Association between variables and mindfulness

Table 4: Association between selected variables and level of mindfulness

Variables	Chi-square (χ^2)	p-value	Remark
Age	115.08	0.610	Not Significant
Educational Status	125.67	0.343	Not Significant
Employment Status	45.80	0.032	Significant

(Level of significance: p < 0.05)

Table 4 shows that there was no statistically significant association between age and level of mindfulness (p = 0.610), and educational status and level of mindfulness (p = 0.343). However, a statistically significant association was found between employment status and level of mindfulness (p = 0.032).

V. Recommendations:

The researcher recommends that similar studies can be conducted to enhance mindfulness through short mindfulness exercises among faculty and students as part of mental health activities. Also studies larger sample size and with different designs should be conducted.

VI. Discussion and conclusion:

Based on the findings of the present research analysis, it can be concluded that all student participants reported a high level of mindfulness. The total mindfulness score of students (n = 30) showed a mean of 5.44 and a standard deviation of 0.37, indicating a higher level of mindfulness compared to faculty members.

In contrast, faculty mindfulness levels were distributed across three categories: low (1.7%), average (20.0%), and high (28.3%). The total mindfulness score of faculty (n = 30) showed a mean of 4.16 and a standard deviation of 0.80.

The results revealed no significant association between selected demographic variables such as age and educational status with the level of mindfulness. However, a significant association was found between employment status and the level of mindfulness.

The findings also indicate that students tend to have higher mindfulness levels than faculty when assessed using the

MAAS scale. This suggests that faculty members may benefit from actively practicing mindfulness through various methods. Therefore, it is recommended that both nursing students and faculty engage in regular mindfulness practices to improve their professional effectiveness and personal well-being.

Conflicts of interest: None to declare

Funding: None

VII. Reference:

1. American Psychological Association. Mindfulness meditation: A research-proven way to reduce stress [Internet]. Washington (DC): American Psychological Association; 2019 [cited 2026 May 7]. Available from: APA Mindfulness (apa.org)
2. Suryawanshi PS. A Study to Evaluate the Effectiveness of Mindfulness movement to overcome the Stress among First Year Nursing students in selected Nursing College, Maharashtra. International Journal of Advances in Nursing Management. 2023 Mar 31.
3. Rayan A. Mindfulness, self-efficacy, and stress among final-year nursing students. Journal of psychosocial nursing and mental health services. 2019 Apr 1;57(4):49-55. https://doi.org/10.3928/02793695-20181031-01
4. Ahmadi A, Mustaffa MS, Haghdoost AA, Alavi M. Mindfulness and related factors among undergraduate students. Procedia-Social and Behavioral Sciences. 2014 Dec 23;159:20-4.
5. Abenavoli RM, Jennings PA, Greenberg MT, Harris AR, Katz DA. The protective effects of mindfulness against burnout among educators. Psychology of Education Review. 2013;37(2):57-69.
6. Luken M, Sammons A. Systematic review of mindfulness practice for reducing job burnout. The American Journal of Occupational Therapy. 2016 Mar 1;70(2):7002250020p1-0. https://doi.org/10.5014/ajot.2016.016956
7. Luong MT, Gouda S, Bauer J, Schmidt S. Exploring mindfulness benefits for students and teachers in three german high schools. Mindfulness. 2019 Dec;10:2682-702
8. Miller K. The Mindful Attention Awareness Scale (MAAS) [Internet]. PositivePsychology.com; 2019 Aug 28 [cited 2026 May 7]. Available from: PositivePsychology.com (positivepsychology.com)

Volume 2, Issue 1, January-June 2026 ISSN:3108-074X (Online)

Prevalence of anemia among women in selected urban area.

Mrs. Ashwini Pravin Shinde[1]
Assistant Professor[1], Community Health Nursing, MKSSSBTINE, Pune
Email: ashwini.bhosale@mkssbtine.in

Abstract: ***Background:*** *Anaemia is a prevalent nutritional deficiency and a major public health problem among women worldwide, particularly among women of reproductive age due to increased iron requirements during menstruation, pregnancy, and lactation[1]. Inadequate dietary intake, poor nutritional practices, and socio-economic factors further contribute to the high burden of anaemia among women[2]. Despite improved access to healthcare facilities, women living in urban areas remain at considerable risk due to unhealthy dietary patterns, increased consumption of processed foods with low iron content, sedentary lifestyles, and limited awareness of iron-rich diets[3]. Anaemia adversely affects women's physical and mental health, work capacity, and overall quality of life. Understanding its prevalence and association with socio-demographic factors among urban women is essential for developing effective, evidence-based preventive and interventional strategies[1,2].* ***Objectives:*** *The general objective of the study was to assess the prevalence of anaemia among women in a selected urban area. The specific objectives included: determining the prevalence of anaemia, assessing the socio-demographic profile of women (including age, education, occupation, marital status, income, and dietary patterns), and exploring the association between anaemia and selected socio-demographic variables.* ***Methods:*** *A descriptive cross-sectional study was conducted among 345 women aged 18–55 years residing in a selected urban area. Data collection involved a structured questionnaire to obtain socio-demographic information and dietary habits, and haemoglobin estimation to determine anaemia status. Descriptive statistics such as frequencies, percentages, and mean values were used to summarize the data, and the Chi-square test was applied to examine the association between anaemia and socio-demographic factors.* ***Results:*** *The study found that 40% of the women were anaemic. Higher prevalence was observed among illiterate women (59.4%) and housewives (41.5%). Women in the age group 26–35 years had the highest prevalence (42.1%). Married women had a slightly higher prevalence (42.6%) compared to unmarried (32.5%) and widowed women (41.2%). Education showed a marginally significant association with anaemia ($p = 0.06$), while other socio-demographic factors such as age, occupation, and marital status were not significantly associated.* ***Conclusion:*** *Anaemia is a prevalent health problem among urban women, particularly affecting those with lower education and poor dietary practices. The study highlights the need for community-based awareness programs, nutritional counselling, and periodic screening to reduce anaemia prevalence and improve women's health in urban areas.*
Keywords: Anaemia, Women, Prevalence, Urban Area, Socio-demographic Factors, Dietary Patterns.

I. Introduction:

Anaemia is a major global public health problem, particularly affecting women of reproductive age[1]. It is characterized by a reduction in haemoglobin concentration, leading to decreased oxygen-carrying capacity of the blood[4]. Women are more vulnerable due to physiological factors such as menstruation, pregnancy, and lactation, along with nutritional deficiencies and socio-economic constraints[2]. Globally, anaemia affects a significant proportion of pregnant and non-pregnant women and remains a major contributor to maternal morbidity and mortality[1,5]. Rapid urbanization has resulted in unhealthy dietary habits, reduced intake of iron-rich foods, sedentary lifestyles, and limited nutritional awareness among urban women, further increasing the risk of anaemia[3,6]. Anaemia adversely affects physical health, mental well-being, work productivity, and overall quality of life[7]. Therefore, understanding the prevalence of anaemia among urban women is essential for effective preventive and promotive health planning[8].

Need for the study:

Anaemia is one of the most common nutritional deficiencies affecting women worldwide, especially in developing countries[1,2]. Despite improved access to healthcare, urban women often experience dietary imbalances, lifestyle-related deficiencies, and inadequate awareness of nutritional requirements, increasing their susceptibility to anaemia[3]. Anaemia negatively impacts physical health, immunity, cognitive function, productivity, and overall quality of life[7]. Identifying the prevalence of anaemia and its association with socio-demographic factors among women in urban areas is crucial for generating baseline data. Such evidence is essential for planning targeted nutritional programs, awareness campaigns, and preventive strategies to reduce morbidity and promote the well-being of urban women[8].

Objectives of the study:

General objective:

- To assess the prevalence of anemia among women in a selected urban area.

Specific objectives:

- To determine the prevalence of anemia among women in the selected urban area.
- To assess the socio-demographic profile of women in the selected urban area (age, education, occupation, marital status, income, and dietary pattern).
- To find the association between the prevalence of anemia and selected socio-demographic variables.

Hypothesis:

Null hypothesis (H_0):

- There is no significant association between the prevalence of anemia and selected socio-demographic variables (age, education, occupation, marital status, income, and dietary pattern) among women in the selected urban area.

Alternative hypothesis (H_1):

- There is a significant association between the prevalence of anemia and selected socio-demographic variables (age, education, occupation, marital status, income, and dietary pattern) among women in the selected urban area.

Assumptions:

1. Women in the selected urban area are willing to participate and provide accurate information.
2. Hemoglobin levels measured or reported reflect the current anemia status of the participants.
3. Socio-demographic factors such as age, education, occupation, marital status, income, and dietary pattern influence the prevalence of anemia.
4. The findings of the study can be generalized to similar urban populations.

II. Methodology:

Research design

The study adopted a descriptive research design to assess the prevalence of anemia among women in a selected urban area. Descriptive studies are used to systematically describe the characteristics of a population and the prevalence of health conditions without manipulating variables.

Research approach:

A quantitative approach was used to collect numerical data regarding hemoglobin levels, socio-demographic variables, and dietary patterns. This approach allows statistical analysis to determine prevalence and associations.

Study setting:

The study was conducted in a selected urban area [name of city/area], which represents typical urban living conditions. This area was chosen due to its accessibility, diversity in socio-economic status, and availability of women in the targeted age group (18–55 years).

Population:

The target population included all women aged 18–55 years residing in the selected urban area. These women were considered eligible if they were willing to participate and provided information about their socio-demographic characteristics and dietary patterns.

Sample size:

The sample size for the study was 345 women. This size was considered sufficient to estimate the prevalence of anemia with acceptable accuracy in the selected urban population.

Sampling technique:

A convenient sampling technique was used to select participants. Women who met the inclusion criteria and were

available during the data collection period were approached and included in the study.

Inclusion criteria:

1. Women aged 18–55 years.
2. Residents of the selected urban area for at least 6 months.
3. Women willing to participate and provide information about their health and diet.

Exclusion criteria:

1. Women with chronic illnesses or severe medical conditions affecting hemoglobin levels.
2. Pregnant women with complications that might influence anemia prevalence.
3. Women who were unwilling to participate.

Data collection tools:

- Structured Questionnaire: To collect socio-demographic data (age, education, occupation, marital status, income, dietary pattern).
- Hemoglobin Estimation: Hemoglobin levels were obtained from medical records or measured using a standardized method to determine anemia status.

Data collection procedure:

- Permission was obtained from local authorities and ethical clearance from the institutional review board.
- Women were approached in the selected urban area, and the purpose of the study was explained.
- Written informed consent was obtained from participants.
- Socio-demographic information and dietary patterns were collected using the structured questionnaire.
- Hemoglobin levels were recorded to identify anemia.
- Data were compiled, coded, and analyzed statistically.

Data analysis:

- Descriptive statistics such as frequencies, percentages, and mean values were used to describe socio-demographic variables and prevalence of anemia.
- Chi-square test was used to determine the association between anemia and selected socio-demographic variables.

III. Result:

Socio-Demographic Profile of Women

Table 1: Age-wise distribution of study participants

N = 345

Variable	Category	Frequency (f)	Percentage (%)
Age (years)	18–25	86	25%
	26–35	121	35%
	36–45	86	25%
	46–55	52	15%

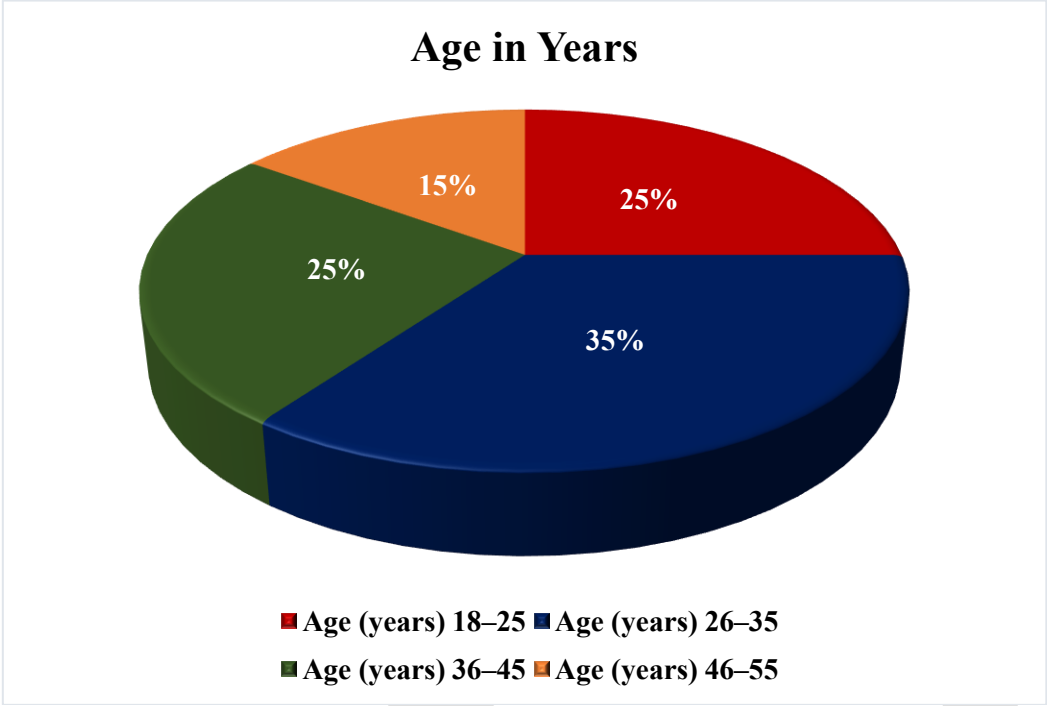


Figure 1: Age-wise distribution of women participants (N = 345)

The age-wise distribution of the women shows that the highest proportion of participants belonged to the 26–35 years age group (35%). This was followed by women aged 18–25, who constituted 25% of the sample. The findings indicate that the majority of the study participants were in the reproductive age group.

Table 2: Distribution of women according to educational status

N = 345

Variable	Category	Frequency (f)	Percentage (%)
Education	Illiterate	69	20%
	Primary	104	30%
	Secondary	121	35%
	Graduate & above	51	15%

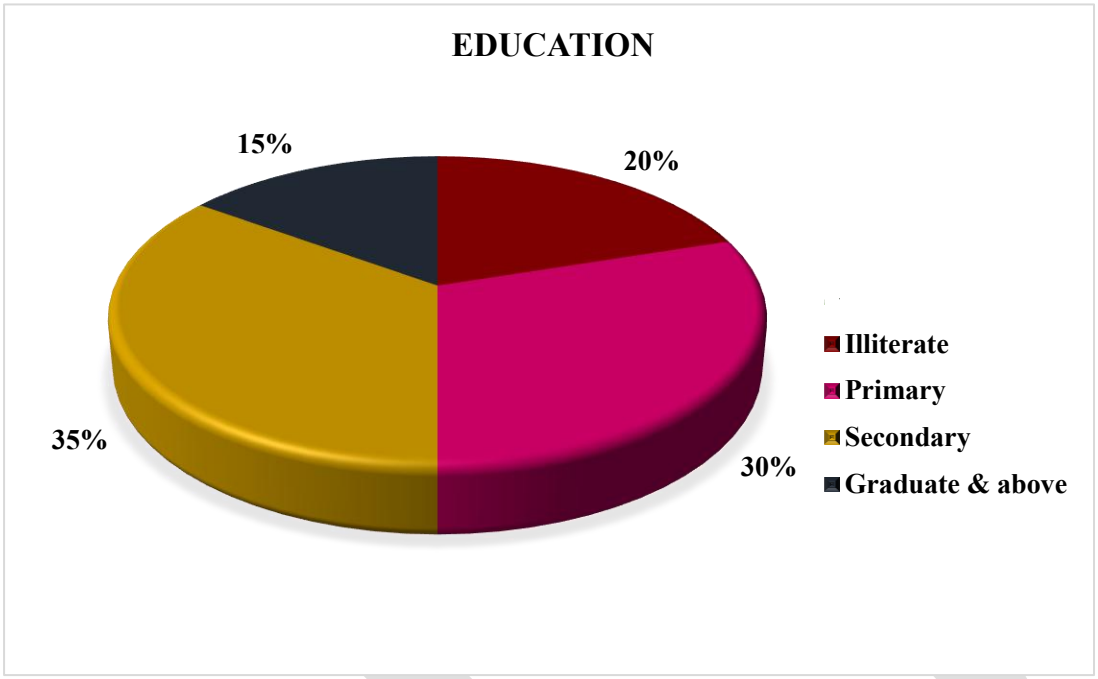


Figure 2: Educational status distribution of women participants

The distribution of women according to educational status reveals that the highest proportion of participants had secondary education (35%). This was followed by women with primary education (30%). One-fifth of the women (20%) were illiterate, while a smaller proportion (15%) had attained graduate-level education or above. The findings indicate that most women had education up to the secondary level, with relatively fewer women having higher education.

Table 3: Occupational distribution of women participants

N = 345

Variable	Category	Frequency (f)	Percentage (%)
Occupation	Housewife	207	60%
	Employed	138	40%

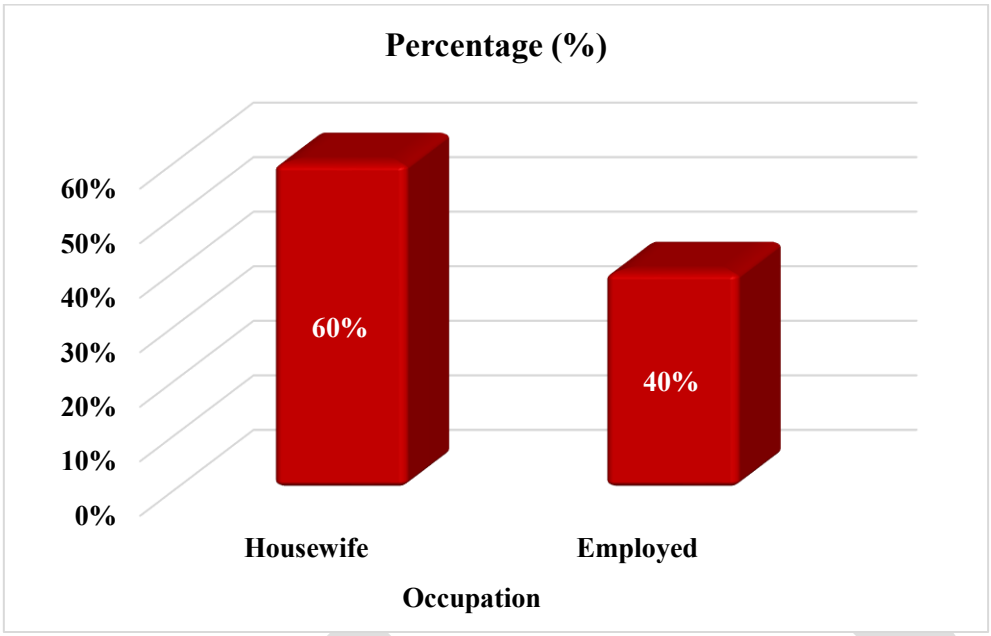


Figure 3: Occupational distribution of women participants

The occupational distribution shows that the majority of the women were housewives (60%), while 40% of the women were employed. This indicates that more than half of the participants were not engaged in formal employment and were primarily involved in household activities.

Table 4: Distribution of women according to marital status

N = 345

Variable	Category	Frequency (f)	Percentage (%)
Marital Status	Married	242	70%
	Unmarried	86	25%
	Widowed	17	5%

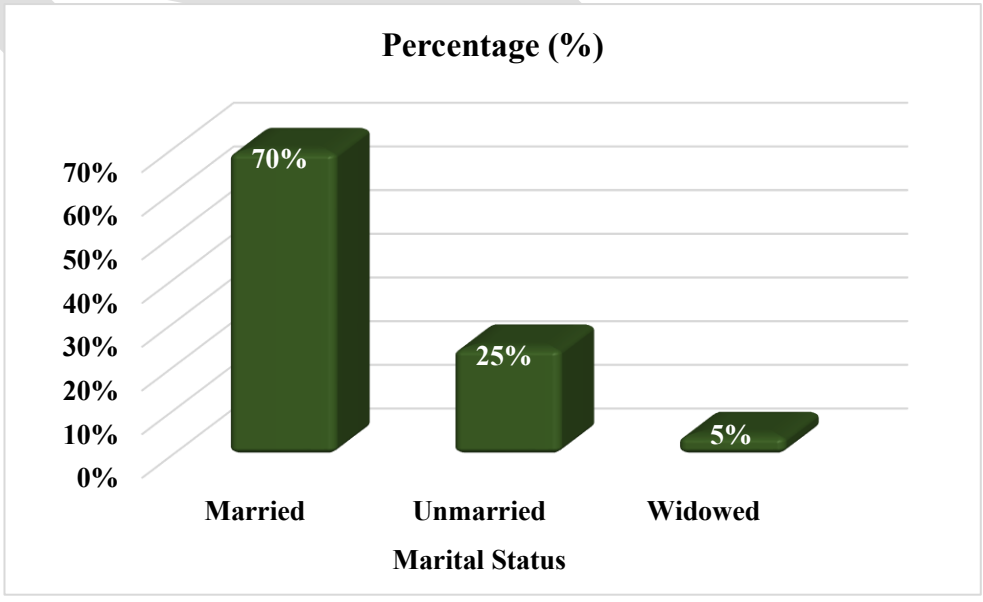


Figure 4: Distribution of women according to marital status

The marital status distribution indicates that most women were married (70%), followed by unmarried women (25%). A small proportion of participants were widowed (5%). This suggests that most of the study population had family responsibilities, which may influence their health and nutritional status.

Table 5: Income distribution of women participants

N = 345

Variable	Category	Frequency (f)	Percentage (%)
Income	<10,000	104	30%
	10,001–20,000	173	50%
	>20,000	68	20%

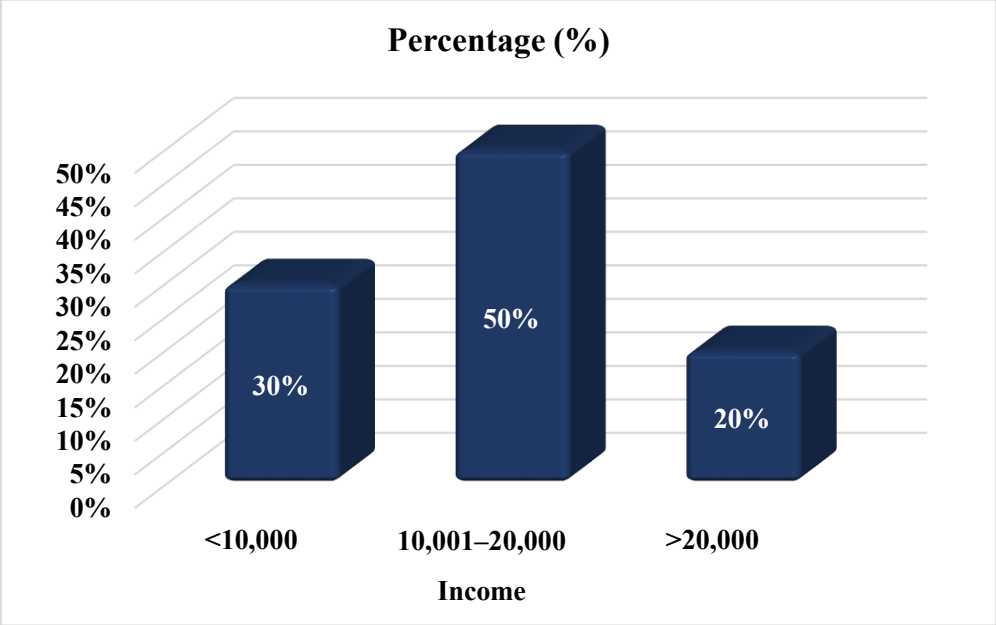


Figure 5: Distribution of women according to income

The income distribution shows that half of the participants (50%) had a monthly income between ₹10,001 and ₹20,000. About 30% of women earned less than ₹10,000, while only 20% earned more than ₹20,000. This indicates that the majority of the women belonged to low- to middle-income groups.

Table 6: Prevalence of anemia among women participants among 345 women, 40% were anemic, indicating a moderate prevalence in the selected urban area.

N = 345

Sr. No	Condition status	Frequency (f)
1	Anaemic	138
2	Non-Anaemic	207
Total		345

Among the 345 women who participated in the study, 138 (40%) were found to be anaemic, while 207 (60%) were non-anaemic. This indicates a moderate prevalence of anaemia among women in the selected urban area, highlighting it as a significant public health concern.

Table 7: Distribution of anemia status according to socio-demographic variables among women participants

N = 345

Variable	Category	Anaemic (f)	Non-Anaemic (f)	Total
Age	18–25	34	52	86
	26–35	51	70	121
	36–45	34	52	86
	46–55	19	33	52
Education	Illiterate	41	28	69
	Primary	35	69	104
	Secondary	52	69	121
	Graduate & above	10	41	51
Occupation	Housewife	86	121	207
	Employed	52	86	138
Marital Status	Married	103	139	242
	Unmarried	28	58	86
	Widowed	7	10	17

Anemia prevalence was highest among illiterate women (59.4%) and married women (42.6%).Age group 26–35 years had the highest prevalence (42.1%).

Housewife women showed slightly higher anemia prevalence (41.5%) compared to employed women (37.7%).

Age: The prevalence of anaemia was highest among women aged 26–35 years (42.1%), followed by the 18–25 and 36–45 years age groups (39.5% each). Women aged 46–55 years had the lowest prevalence (36.5%). This suggests that women in the reproductive age group are slightly more vulnerable to anaemia.

Education: Anaemia was most common among illiterate women (59.4%), followed by women with secondary education (43%) and primary education (33.7%). Women with graduate-level education or above had the lowest prevalence (19.6%), indicating that lower educational status is associated with a higher risk of anaemia.

Occupation: Among the participants, housewives showed a higher prevalence of anaemia (41.5%) compared to employed women (37.7%). This may reflect differences in nutritional knowledge, dietary habits, and lifestyle factors.

Marital Status: Married women had a higher prevalence of anaemia (42.6%) compared to unmarried women (32.5%) and widowed women (41.2%). This may be influenced by reproductive responsibilities, family care, and associated nutritional demands.

No significant association was observed with age, occupation, or marital status.

Table 8: Association between anemia and socio-demographic variables among women participants education showed a marginal association with anemia, indicating women with lower education levels are at higher risk.

Variable	Chi-Square (χ^2)	p-value
Age	0.8	0.84
Education	7.2	0.06
Occupation	0.4	0.53
Marital Status	0.9	0.63

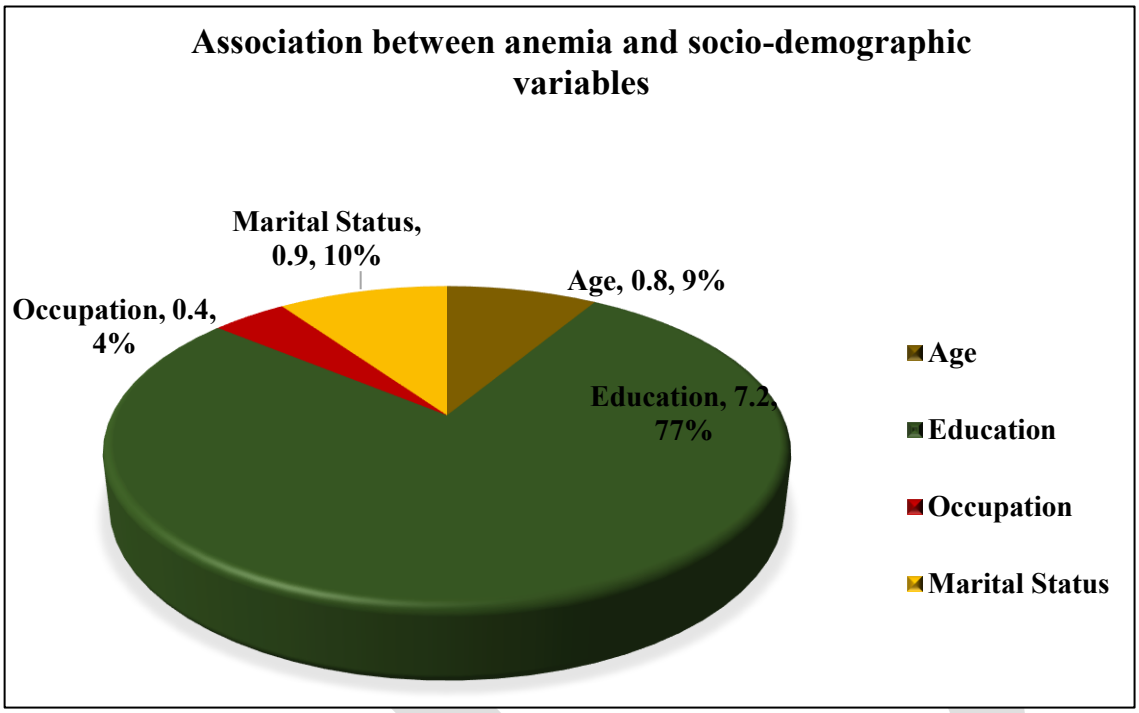


Figure 8: Association between anemia and socio-demographic variables

The Chi-square analysis was performed to determine the association between anaemia and selected socio-demographic variables.

Age: The association between age and anaemia was not statistically significant ($\chi^2 = 0.8$, $p = 0.84$), indicating that anaemia prevalence did not differ significantly across age groups.

Education: Education showed a marginally significant association with anaemia ($\chi^2 = 7.2$, $p = 0.06$), suggesting that women with lower educational levels are at higher risk of anaemia.

Occupation: No significant association was observed between occupation and anaemia ($\chi^2 = 0.4$, $p = 0.53$), indicating similar prevalence among housewives and employed women.

Marital Status: Marital status was not significantly associated with anaemia ($\chi^2 = 0.9$, $p = 0.63$), suggesting that being married, unmarried, or widowed did not significantly influence anaemia prevalence in this study population.

Overall, the findings indicate that education may influence anaemia prevalence, whereas age, occupation, and marital status did not show significant statistical associations in this urban sample.

IV. Discussion:

The present study aimed to assess the prevalence of anemia among women in a selected urban area and examine its association with socio-demographic variables. A total of 345 women participated, and the findings revealed important insights into the burden of anemia in this population.

Prevalence of anemia:

The study found that 40% of women were anemic, indicating a moderate prevalence. This aligns with national statistics, where anemia among women in urban areas ranges from 35% to 45%, reflecting a significant public health concern. The relatively high prevalence highlights the need for awareness, dietary interventions, and routine screening programs in urban communities.

Age and Anemia:

The highest prevalence was observed in the 26–35 years age group (42.1%), followed closely by 18–25 and 36–45 years. This suggests that women in their reproductive and early working years are more susceptible to anemia, possibly due to

nutritional demands, menstrual blood loss, and lifestyle factors. Although the Chi-square test did not show a statistically significant association between age and anemia, the trend emphasizes the importance of targeting women in these age groups for preventive measures.

Education and Anemia:
Education was identified as a key factor influencing anemia prevalence. Women who were illiterate had the highest prevalence (59.4%), while those with graduate-level
education was the lowest (19.6%). This indicates that education likely plays a crucial role in awareness about nutrition, health practices, and the importance of iron-rich diets. The marginally significant association ($p = 0.06$) reinforces the role of educational interventions in reducing anemia prevalence.

Occupation and Anemia:
Housewives showed slightly higher anemia prevalence (41.5%) compared to employed women (37.7%). While the association was not statistically significant, this may be attributed to differences in activity levels, dietary habits, and access to health information. Occupational status alone may not directly influence anemia, but it can interact with other socio-demographic factors.

Marital Status and Anemia:
Married women had a higher prevalence of anemia (42.6%) than unmarried (32.5%) and widowed women (41.2%). This could be linked to the demands of family responsibilities, pregnancies, and nutritional neglect. However, the association was not statistically significant, suggesting that other factors such as diet, education, and income may have a stronger impact.

Comparison with Other Studies:
The findings are consistent with several studies conducted in urban India and other developing countries, which report anemia prevalence among women ranging from 35% to 50%. Similar studies have also highlighted that low education and poor dietary habits are major contributors to anemia. These results emphasize the global relevance of anemia as a public health concern among women, particularly in urban settings where lifestyle and dietary changes influence nutritional status.

V. Implication:

1. Awareness programs on the importance of iron-rich diets and nutritional supplements.
2. Routine screening for anemia in urban women, particularly in reproductive age groups.
3. Educational interventions to empower women with knowledge about health and nutrition.
4. Community health strategies targeting women with low education and socio-economic status to reduce the burden of anemia.

VI. Discussion:

The prevalence of anaemia (40%) observed in the study is consistent with findings reported in national surveys and urban studies in India[5], [6]. Women aged 26–35 years showed higher prevalence, possibly due to reproductive stress and nutritional demands[2]. Education emerged as a key determinant, supporting previous research that links literacy with improved nutritional awareness[8], [13].

VII. Conclusion:

The study found that anaemia remains a significant public health issue among urban women, with a prevalence of 40%, indicating moderate concern per WHO criteria. Higher rates were observed among women with lower education and housewives, highlighting the role of limited nutritional awareness. While no significant associations were found with age, occupation, or marital status, trends were notable among women of reproductive age. The findings underscore the need for nutritional education, healthy dietary promotion, routine screening, and iron supplementation programs to improve women's health, productivity, and quality of life.

Key findings include:
The highest prevalence of anemia was observed among women aged 26–35 years, illiterate women, and housewives.
Education appeared to be a major influencing factor, with lower educational levels associated with higher prevalence.
No significant associations were found between anemia and age, occupation, or marital status, although trends suggested certain age and marital groups may be more vulnerable.
Dietary patterns and awareness about nutrition emerged as important contributors to anemia prevalence.
Overall, the study highlights that anemia continues to affect a substantial proportion of urban women, particularly those with lower education and limited awareness about nutrition.

VIII. Recommendations:

Based on the study findings, the following recommendations are suggested:

- **Nutritional Awareness Programs:**
  Conduct community-based programs to educate women about iron-rich foods, balanced diets, and the importance of regular meals.
- **Routine Screening and Health Check-ups:**
  Implement periodic hemoglobin screening for women in urban areas to identify and manage anemia early.
- **Educational Interventions:**
  Focus on improving literacy and health education among women to empower them with knowledge about nutrition and health practices.
- **Iron Supplementation:**
  Promote iron and folic acid supplementation, particularly among women with high-risk profiles such as illiterate or housewife women.
- **Policy and Community Support:**
  Encourage local health authorities and NGOs to organize anemia prevention campaigns, workshops, and community nutrition programs targeting urban women. [1], [8]
- **Further Research:**
  Conduct longitudinal studies to explore dietary habits, lifestyle factors, and the impact of interventions on anemia prevalence among urban women.

Consent of participant:
Written informed consent was obtained from all participants prior to their inclusion in the study.

Conflict of interest:
The authors declare that there is no conflict of interest related to this study.

Acknowledgment:
The authors express their sincere gratitude to Seva Arogya Foundation for their valuable support and cooperation during the conduct of this study. The authors also thank all the participants for their time and contribution.

Individual author contribution statement:
All authors contributed substantially to the study. The authors were involved in the study conception and design, data collection, data analysis and interpretation, manuscript preparation, review, and final approval of the manuscript.

Declaration of AI:
Artificial Intelligence (AI) tools were used only for language modification and grammatical correction of the manuscript. All study design, data collection, analysis, interpretation, and conclusions were performed and verified by the authors, who take full responsibility for the content of this manuscript.

IX. References:

1. World Health Organization. Worldwide prevalence of anemia 1993–2005. Geneva: WHO; 2008.
2. Kalaivani K. Prevalence & consequences of anemia in pregnancy. *Indian J Med Res*. 2009;130(5):627-33.
3. Bentley ME, Griffiths PL. The burden of anemia among women in India. *Eur J Clin Nutr*. 2003;57(1):52-60.

4. Hoffbrand AV, Moss PAH. Essential Haematology. 7th ed. Oxford: Wiley-Blackwell; 2016.
5. Ministry of Health and Family Welfare. NFHS-5 (2019–21). Mumbai: IIPS; 2021.
6. Toteja GS, Singh P. Micronutrient deficiency disorders in India. *Indian J Med Res*. 2004;120(4):343-58.
7. Beard JL. Iron deficiency alters brain development and functioning. *J Nutr*. 2003;133(5):1468-72.
8. Pasricha SR, Drakesmith H. Iron deficiency anemia. *Lancet*. 2013;381(9869):1253-64.
9. Polit DF, Beck CT. Nursing Research: Generating and Assessing Evidence for Nursing Practice. 10th ed. Philadelphia: Wolters Kluwer; 2017.
10. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Jabalpur: Banarsidas Bhanot; 2021.
11. Dacie JV, Lewis SM. Practical Haematology. 11th ed. London: Churchill Livingstone; 2011.
12. Daniel WW. Biostatistics: A Foundation for Analysis in the Health Sciences. 10th ed. New York: Wiley; 2013.
13. Rakesh PS, George LS. Prevalence of anemia among women. *J Family Med Prim Care*. 2019;8

About MKSSS BTINE:

The Maharshi Karve Stree Shikshan Samstha`s Smt. Bakul Tambat Institute of Nursing Education started on the campus of the Samstha in Pune in August 2000. The institute is Committed to Developing “Conscientious, Confident, and Caring quality professionals of International repute”. The Institute is recognized by the Indian Nursing Council, Delhi, Maharashtra Nursing Council, Mumbai, Maharashtra State Board of Nursing and Paramedical Education (MSBNPE), Mumbai, and affiliated to Maharashtra University of Health Sciences, Nashik. The Institute is accredited with NAAC ‘A’ Grade. The institute has around 600 girl students pursuing various courses i.e. GNM, B.Sc. Nursing, P.B.B.Sc Nursing, M.Sc. Nursing and Ph.D. in Nursing. Clinical learning is conducted in the parent hospitals i.e. Deenanath Mangeshkar Hospital and Mai Mangeshkar Hospital, Pune.
Know More: www.mksssbtine.ac.in

About Nursing Innovators Journal:

Nursing Innovators Journal (NIJ) is an open-access, double-blinded peer-reviewed online international journal (eISSN: 3108-074X) that publishes original research, reviews, and thought-provoking articles. Our NIJ mission is to connect global communities by sharing ground-breaking insights and fostering intellectual growth among nursing professional in all work of life.
Know More: www.nijbtine.org

Our NIJ Aim:

- To publish high-quality original research articles in the field of nursing that are novel and innovative in their findings that make substantial theoretical and practical advances in the nursing profession.

Our NIJ Objective:

- Provide an online platform for publishing original nursing research.
- Encourage innovative articles submissions from nursing academicians, researchers, scholars and practitioners.
- Publish up-to-date research for professionals and the public.
- Serve as a reference for cutting-edge nursing innovations.

Maharshi Karve Stree Shikshan Samstha’s Campus, Karvenagar, Pune – 411 052.
Contact No. 9145788190, 7498738745, 8847788190, 74993320
Email : editor.nij@mksssbtine.in, info.nij@mksssbtine.in