

Retrospective Analysis of Patients Who Visited a Rural Tertiary Care Hospital for a Pre-Anaesthesia Examination

Dr. Gunjan Prajapati,¹ Dr. Akshaya N. Shetti,^{2*}  Dr. Haripriya U S¹ 

1. Resident, Department of Anaesthesiology and Critical Care, DBVPRMC, PIMS (DU), Loni, Maharashtra, India.
2. Professor and Head, Department of Anaesthesiology and Critical Care, DBVPRMC, PIMS (DU), Loni, Maharashtra, India.

*Corresponding Address:

Dr. Akshaya N Shetti, Professor and HOD, Department of Anaesthesiology and Critical Care, DBVPRMC, PIMS (DU), Loni, Maharashtra, India. Email id: aksnsdr@gmail.com

Abstract:

Pre-anaesthesia evaluation (PAE) is an essential process in ensuring patient safety during surgical procedures. It involves assessing the patient's medical history, physical condition, and potential anaesthetic risks. However, there is limited data on the characteristics of patients undergoing Pre-anaesthesia evaluation at rural tertiary care hospitals. **Aim:** This was a retrospective study conducted to evaluate the distribution of patients who visited Pre Anaesthesia Clinic (PAC OPD) of DBVPRMC, PIMS, Loni, Maharashtra. We were primarily interested to see referral pattern regarding to the age and gender of the patients, weight and the referring hospital department. **Methodology:** Retrospective analysis of hospital records of patients who visited the pac opd for pre-anaesthesia evaluation between January 2024 to December 2024 collected data on patient age, gender, weight and the referral sources were classified and the total referred from each department were obtained. Department and the number of referrals per department was then recorded. **Results:** Overall, 2080 patients were included in the study with referrals received from 6 distinct departments. Of the total referrals, 1456(70.4%) were female patients while 612(29.6%) were male. Underweight patients accounted for 487(23.38%) of the total referrals, whereas average weight patients represented 1418(68.22%) and overweight patients represented 175(8.40%). The most referrals were made by obstetrics and gynecology 918(45.5%), followed by orthopedics 399(19.7%), ophthalmology 297 (14.7%), Ent 191(9.5%) and oncology 113(5.6%), surgery 101(5%). The highest number of patients referred for pre-anaesthesia evaluation was in 25-44 years age group 616(29.8%), 12-25 years 607(29.3%), 44-60 years 408(19.7%), 60-75 years 390(18.9%), 5-12 years 25(1.2%), 1-5 years 23(1.1%). The increased referrals from obstetrics and gynecology department were seen in the elective surgical seasons. **Conclusion:** Our study shows sociodemographic determinants as well as the referring department are associated with referral patterns of the pac opd in a rural academic hospital. Middle-aged patients derive a majority of the referrals from the obstetrics and gynecology and orthopedic wards. Insights into these referral patterns are vital to improve the pre-anaesthesia evaluation process, optimize healthcare resources and contribute to interdepartmental interaction.

Keywords- Elective, Number of patients for surgery, Pre-anaesthesia assessment, Surgery

Introduction:

Before any surgical procedure, a key phase of patient care is the pre-anaesthesia examination, commonly referred to as pre-anaesthetic evaluation.^[1,2] Its objectives were to assess whether a patient is eligible for anaesthesia, recognize any prior co morbid health conditions, and confirm that the anaesthetic approach is appropriate. This evaluation plays an essential role in improving overall patient results, reducing anaesthetic hazards, and enhancing the patient's

physical readiness for surgery.^[3,4] In rural tertiary healthcare facilities, where a varied patient demographic with diverse medical backgrounds and restricted resources from different referral departments stemming for pre-anaesthesia evaluations becomes essential.

Patients in rural locations frequently deal with complicated health problems brought on by socioeconomic obstacles, limited access to medical services, or delays in receiving care. By examining the age, gender, and weight distribution of these patients, it is possible to improve pre-operative, intra operative and post operative anaesthesia care. Additionally, pre-anaesthesia clearance is often requested for patients from departments such as general medicine, orthopaedics, obstetrics, and surgery, each of which has unique clinical needs and patient demographics.^[5]

This study aims at determining how the number of referrals to the pre-anaesthesia clinic (PAC) outpatient department of a tertiary care hospital located in a rural area is influenced by a number of parameters, which include patient age, gender, weight, and the sending department. We shall identify patterns and trends that may improve health planning, resource allocation, and methods of patient care in the rural setup by examining the characteristics of these patients. This is necessary to understand these referral trends to make inputs toward safe patient care and maximizing surgical and anaesthetic outcomes in this given healthcare system.

This research is especially important in rural areas, where healthcare services can be more disjointed. A better understanding of local healthcare trends could greatly enhance the effectiveness of pre-anaesthesia assessments.

Materials and methodology:

Study design: This retrospective observational study was conducted to evaluate patients who had visited a rural tertiary care hospital for a pre-anaesthesia examination. The focus of the study was to examine the number of patients referred from different departments, along with demographic data such as age, gender, and weight. Study population: All patients who visited the pre-anaesthesia clinic of the hospital over a period of one year from January 2024 to December 2024. **Inclusion criteria:** Patients who visited the PAC opd for pre-anaesthesia evaluation was included in the **Exclusion criteria;** Patients who did not undergo pre-anaesthesia screening and emergency cases or pati/ents required immediate surgery. The data collected includes Department that referred the patient for pre-anaesthesia examination included departments such as: Surgery, orthopaedics, obstetrics and gynaecology, ent, ophthalmology, oncology. Demographic data including, Age: Categorized into age groups: 1-5 years, 5-12 years, and 12-25 years, 25-44 years, 44-60years, 60-75 years ,Gender: Male , female others (if applicable)Weight: Patients' weight as recorded as Actual weight (in kilograms). From the collected data weight was categorized into three groups: Underweight (<50kg), normal weight (50-70), overweight (70-90). **Methodology:** The hospital's medical data record of both outpatient and in-patient was accessed in order to get access to information on the various patients. Concerned with the patient's demography, including age, gender, and weight, besides referral sources from other medical departments, were retrieved from the patients' medical histories and pre-anaesthesia evaluation forms. **Descriptive Statistics:** The frequencies of patients were obtained from different departments. Frequency distribution was used in describing the patient's number regarding age, gender, and weight. Percentages were used for categorical variables for example, Gender, and source department. Then means (with \pm standard deviations) were computed for continuous data such as; age, weight. **Comparative analysis:** Distribution of referrals between departments and the demographic characteristics were compared. Confidentiality: The patients' data was anonymized along with all the personal details to maintain confidentiality of the patient. This study intends to understand the pattern

of referrals through different departments and demographic patterns of age, gender, and weight of patients being referred to a pre-anaesthetic assessment in a rural tertiary care hospital.

Results: In our retrospective study a total of 2080 patients record were examined and data was compiled. (Fig 1-4) Age distribution of the patients visiting pre anaesthesia check-up clinic found to have largest patients from 25 - 45 years age group with 616 (29.8%) patients, 1-5 years have 23 (1.1%), 5-12 years have 25(1.2%), 12- 25years have 607(29.3%), 44-60 years 408(19.7%) and 60-75 years 390(18.8%).

In Gender distribution we found that female patients comprised 1456(70.4%) and male patients were 612(29.6%), who visited PAC from different departments.

The visited patients weights were noted and found that 487(23.38%) of the patients visited were underweight (less than 50kg), 1418(68.22%) were in normal weight range (50 to 70kg) and 175(8.40%) of the patients were overweight (70 to 90kg) which shows that majority of the visited patients were from normal range weight category.

The referral departments were also noted and found that majority of the patient's visited PAC was from Gynaecology and Obstetrics department with 918 patients (45.5 %) which comprises nearly half of the total patients visited and this can be positively correlated with the female patients being visited the OPD mostly than males and majority from the reproductive age group of 25 to 45 years of age. 399 patients (19.7%) were from Orthopaedics, 297 (14.7%) patients were from Ophthalmology, 191 (9.5%) patients from ENT,113 (5.6%) patients from Oncology and 101(5%) from surgery department.

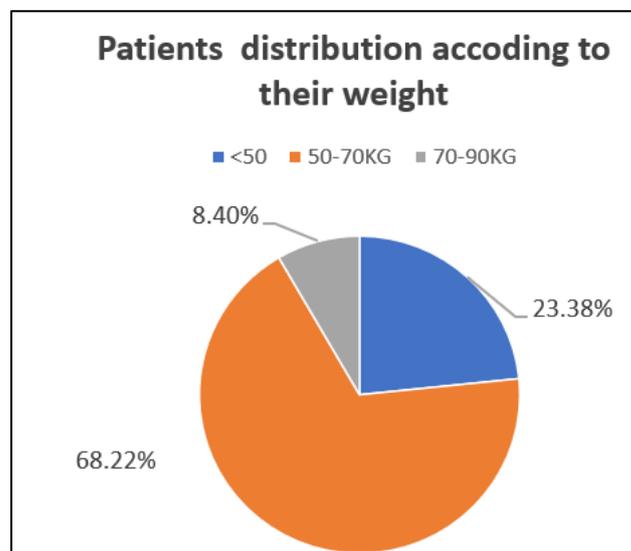


Fig 1: The pie diagram shows the distribution of the patients based on their weight

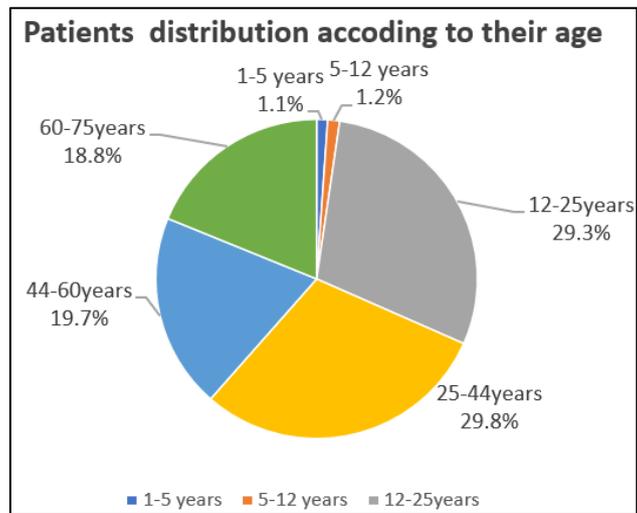


Fig 2: The pie diagram shows the distribution of the patients based on their age

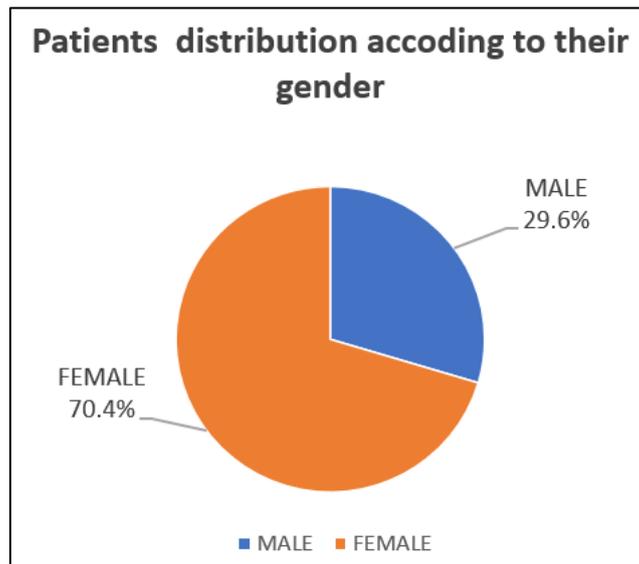


Fig 3: The pie diagram shows the distribution of the patients based on their gender

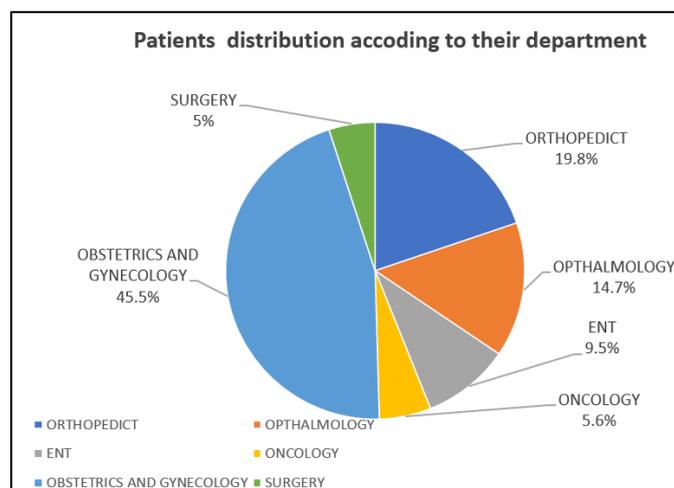


Fig 4: The pie diagram shows the distribution of the patients based on the department referred to the PAC room

Discussion: The primary goals of preoperative medical evaluations are to expedite postoperative recovery and lower the risk of anaesthetic and surgical problems or deaths. Anesthesiologists are crucial in evaluating the patient's general health, spotting possible hazards, and enhancing their preparedness for the operation, while surgeons focus on the particulars of the surgery. This is typically carried out at the pre-anaesthesia clinic and is important to identify any untreated medical issues that could cause issues during or after the procedure.

In our retrospective study of patients attending for pre-anaesthesia evaluations across various medical specialities such as gynecology, orthopedics, ophthalmology ENT oncology and surgery were included and data was analysed to find the significant number of referrals came from which department and the possible factors responsible for the same.^[4] One potential explanation for the varying referral patterns among departments was the complexity and risk involved with the procedures carried out by each department.

With the progression of age various physiological changes, which makes age an important element in pre-anaesthesia evaluations. Our study revealed that 18.8% of the patients seen were from the age group over 65 years and above. The highest percentage of patients fell into the middle age range, with 29.8% in the 25 to 45-year category. An examination of referral patterns by gender indicated that women sought pre-anaesthesia evaluations more often than men.^[7] This trend suggests that women are more inclined to pursue healthcare services, emphasizing their dedication to health maintenance and wellness. This is further illustrated by the fact that the highest number of patients attending the pre-anaesthesia checkup clinic came from the Gynecology and Obstetrics department. Our research also highlighted that overweight and obese individuals are more commonly referred for pre-anaesthesia assessments, as obesity is acknowledged as a contributing factor to anaesthesia-related complications. Our findings indicated that 8.4% of patients were classified as overweight. This aspect allows us to proactively address the complexities associated with anaesthesia management related to weight, including medication dosages, airway management, and recovery processes.^{[5][9]}

Given that this study was carried out in a rural setting, it enables us to examine how geographic isolation, resource availability, and access to specialized care impact the volume and nature of referrals, while also providing insights into the awareness and necessity of pre-anaesthesia evaluations across different departments.

The referral distribution by department age and gender in the study indicates that, the most referral is from of gynecology department with age group between 25 to 45 years old females. Younger individuals frequently require assessments for laparoscopic or minimally invasive surgery, whereas older women are typically referred for more intricate procedures such as hysterectomy or cancer-related surgeries. Younger women (aged 25–44) are usually suggested for minor gynaecological operations, laparoscopic, or ovarian cystectomies. Although this demographic is generally healthy, pre-anaesthesia assessments were necessary due to factors like weight, tobacco mishri addiction habits. Women aged 44 to 60 tend to be referred for hysterectomies or surgeries related to gynaecological cancer. Existing health conditions such as diabetes, hypertension, or cardiovascular problems can complicate anaesthesia management in this group.^[8] A significant number of patients sent for pre-anaesthesia evaluations from the gynecology department are overweight or obese, highlighting the role of need for lifestyle modification among women in rural community.^[6] These population has to be educated the need for physical activity, they should be made aware that doing household work can't be considered as physical activity and proper exercise routines should be incooperated in daily life. Obesity is an acknowledged risk factor for complications related to anaesthesia, including cardiorespiratory challenges and difficulties with airway management.^[9]

Anxiety before surgery can significantly impact patients, which is more observed among female population especially those facing major surgeries like hysterectomies or surgeries for gynecological cancer.^[11] Since most of the patients were female we also observed that most of these patients are frequently using hormonal treatments (such as oral contraceptives and hormone replacement therapy) thus to lower their risk of thromboembolism during the perioperative period with adequate pre anaesthesia check-up and planning.^[10] Psychological support and proper prenatal counseling are often part of the pac evaluation. It is essential to evaluate the pregnancy status of women of reproductive age prior to any surgical procedure, particularly those that require anaesthesia. If the patient is determined to be pregnant, further evaluation of anaesthetic techniques and medications is required. The purpose of the pre-anaesthetic assessment (PAC) is to gather details about the patient and create an anaesthetic plan that guarantees a safe anaesthetic experience with the least possible perioperative issues or risks of death. Identifying any unrecognized conditions needing treatment prior to surgery or modifying the anaesthetic approach can be a potential advantage of standard pre-operative screenings; however, a false positive result may result in unnecessary, expensive, and potentially harmful treatments or additional investigations, which could delay the surgery.

Conclusion:

A pre-anaesthesia assessment helps identify and control risks before a surgical procedure, enhancing patient safety in every surgical specialty. While each department has unique factors to consider, the fundamental goal is consistent: making sure the patient is in the ideal state to undergo anaesthesia and surgery. In summary, the research offers valuable insights into the clinical and demographic characteristics influencing trends in pre-anaesthesia examination referrals, potentially leading to better patient care strategies in rural hospitals.

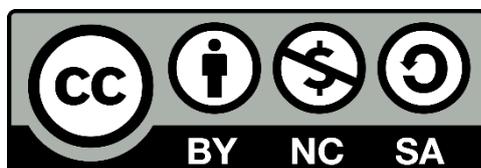
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