

Characterization And Outcomes Of Patients Attending Accident And Emergency Department Of Sandeman Provincial Hospital Quetta.

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Abstract

Background: The emergency department is the first point of contact of a wide range of acute medical and trauma cases. Nevertheless, in Balochistan, the lack of information about the demographic characteristics of patients who present with emergency care and their clinical manifestations has been observed. It is essential to understand these peculiarities to ensure the efficient allocation of resources, high triage rates, and better patient outcomes.

Objective: To assess the demographic attributes and clinical manifestations of patients visiting the Accident and Emergency Department of Sandeman Provincial Hospital at Quetta and examine the relationships between such variables and gender, age, marital status, education, and occupation.

Methods: The cross-sectional study was conducted in August to October 2025 in the Accident and Emergency Department of Sandeman provincial hospital in Quetta, Pakistan. A convenience sampling of 762 patients aged 15

years and above was used as the sample. The participants had to be able to read or comprehend either Urdu or English and should have agreed to participate. The data

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were gathered through a research Performa that was previously tested in other research studies and was also informed by professional knowledge. The Department of Pharmacy Practice at the University of Balochistan approved it ethically. The SPSS was used to analyze descriptive statistics (frequencies, percentages, means, and standard deviations) and cross-tabulations.

Results: Among the 762 participants, there were 52% females, the age group of 15-24 years comprised the highest percentage of participants (32.5%). The majority of them were married (53.3%), students (43.4%), and secondary school educated (50.5%). The most frequent chief complaints were pain (15.1%), weakness (14.5%), and headache (5.7%), and high temperature (5.8%). Pain (n=162) and scratches (n=95) were the most common complaints in male patients whereas weakness (n=166) and headache (n=69) were the most common complaints in female patients. The most reported pain (n=106) and weakness (n=104) were among the age group 15-24 years. There was significantly more presentation of pain in married breakers (n=154) and weakness (n=143). Patients educated to secondary level exhibited the most prevalence of pain (n=153), weakness (n=151), and scratches (n=62). The highest number of reported pain was by the students (n=142), weakness (n=131) and scratches (n=66).

Conclusion: The research finds that young adults, married persons, and students are the most frequent visitors in Quetta ED and the commonest complaint is pain and weakness. There were also distinct demographic and socioeconomic gradients of clinical presentations. These results indicate the necessity of enhanced triage procedures, patient education, and enhancement of emergency preparedness to the most affected communities.

Introduction

Emergency departments (EDs) play a vital role in the hospital which offers critical services to those patients with quick and life threatening conditions. Around the world EDs provide important and fundamental services for health care systems, provide urgent medical circumstances, quick care and injuries which may be lethal and require quick assertive interventions (Anderson P, 2012). Nevertheless, there is increase usage of EDs by non-urgent cases worldwide which leads to adverse results like extended waiting time for actual emergency cases, delayed treatments and economical losses for health services (Singer A, 2011). Emergency departments are prepared to handle different conditions from minor to severe injuries and sudden life threatening emergencies. Due to overly crowded with patients mostly seems to be dissatisfied with facilitates provided by health service. Due to overcrowding ED gives rise to constraints which include prolonged waiting times, unpleasant treatment environment and in few cases poor clinical outcomes (Rehmani R, 2004).

Accident is an unfortunate event that happens unintentionally and unexpectedly, which may results in damage or injury (Stevenson A, 2010). In modern era "Accident" are known as Injuries. Injuries are defined as preventable incident with major results on public health and shows an important world issue. The term injuries may be self-imposed or caused by drowning, fires, wars, poisonings, disasters, road traffic events and interpersonal violence (Pedan et al., 2002). There are several common presenting complaints in emergency department which includes Fever, chest pain, difficulty breathing, sever pain, bleeding, fracture, acute abdominal pain and seizure. Among many complaints fever is known to be the most common in Emergency departments (EDs). Around 5% of adult and 15% of old patients are accounted worldwide visiting EDs (Leung et al., 2008).

Anderson et al., in 2023 reported that emergency departments (EDs) are complex, demanding, and dynamic environments. For the sickest people in the hospital emergency department is known to be the first door and highly challenging having

increase staff turnover and huge patient numbers with different demands. For the improvement of multiple outcomes like time to definitive treatment, safety of patients and waiting times, quality improvement methodology is applied to bring changes in EDs. Presenting the required changes to modify the system in this way is seldom straightforward with the risk of not seeing the ecosystem for the system when trying to change the system. They demonstrated that method such as functional resonance analysis could be used to capture the perceptions and experience of first responder to identify the main functions in the system, to acknowledge the interactions and dependencies between them to make up the ED ecosystem and to support patient safety risks, quality improvement planning and identifying priorities (Anderson et al., 2023).

Attendees who visit accident and emergency department first they are assessed in nurse triage where their characteristics and consultation activities are compared as patients are presenting with primary care or accident and emergency type conditions. The triage in emergency department has great role to identify the primary care patients with such conditions that are more likely to be of primary care type, and such patients or attendees mostly don't like to receive an investigation, minor surgical procedure, or referral. Great number of attendees in this class, however, obtain interventions likely to support their decision to attend A&E apart from general practice (Green et al., 1995).

Qidwai et al., in 2005 discussed patient satisfaction can be improved by the patient expectation survey at the Emergency Medical Services (EMS). Mostly, expectations of patients are from emergency services, which may include examining from a consultant rather than from a junior staff and low waiting time of less than half hour (Green et al., 1995).

Accident and Emergency (A&E) departments are critical entry points to healthcare systems but are often overwhelmed by high patient volumes and limited resources. Globally, many patients seek emergency care for conditions that are not medically urgent, influenced by perceptions of need, limited access to primary care, and the convenience of round-the-clock services. Internal pressures such as strict performance targets and staffing challenges further strain emergency departments. Understanding who uses A&E services and how their cases are managed is essential to improving patient flow and optimizing emergency care delivery (Murphy, 1998).

Level of overcrowding of Emergency department at a tertiary care hospital and to find probable solutions. Study found that there is noteworthy overcrowding present in Emergency department of the hospital, for which four solutions were proposed like early in-patient discharges, building of holding units, flexible ward assignment and active inter-facility transfer (Rehmani, 2004).

According to Murphy in 1998 study great number of patients refer themselves to Accident and emergency departments for such conditions. Which are neither accidents nor emergencies, just a little number of them needs special considerations for hospital treatment. Such patients and their conditions have been described as 'inappropriate' (Murphy, 1998).

According to the studies pain is the most prominent reason for a patient to emergency department (Downey et al., 2010). Mareen et al., in 2024 reported that after suspected rabies post exposure patients frequently visit emergency department for rabies post exposure prophylaxis (Mareen et al., 2024). In India acute diarrhea is the second leading cause of under-five mortality. Passage of watery stools >3/24 hours is considered as acute diarrhea. There are multiple causes of acute diarrhea, among those all common ones are; E.coli, Salmonella, Cholera and rotavirus. Patients with acute diarrhea mostly visit emergency department. The greatest worry in treatment and management of acute diarrhea in Emergency department is treatment of primary

infection and fluid and electrolyte imbalances. It comprises of primary stabilization, identification of real problem of dehydration, assessment of that problem and its therapy and the treatment of electrolyte imbalance, and use of suitable antimicrobial wherever needed (Dekate et al., 2013). Road traffic injuries are the eighth leading cause of death globally, and the leading cause of death for young people. More than a million people die each year on the world's roads, and the risk of dying as a result of a road traffic injury is highest in Africa (Seid et al., 2015).

For patients' characterization in emergency department and the effective treatment outcomes are very crucial and significant component. There is no study available regarding emergency department in Balochistan. Which created important gap in available literature and it will also be helpful for future studies.

The study objective was to evaluate the characteristics and outcomes of patients attending accident and emergency department of the Sandeman Provincial Hospital, Quetta.

In order to meet the needs of patients and to achieve the better results, this study offer baseline data for conducting studies. And this study fill the gap as mentioned earlier. This study also provides main areas to be worked upon for the betterment of Accident and Emergency patients.

METHODOLOGY

Study Design

The cross sectional study design was adopted in the current research.

Study Setting

The research was conducted in Accident and emergency department Sandeman Provincial Hospital Quetta, Pakistan, because of its central role in receiving and managing majority of emergency and accidents cases reported throughout Balochistan.

Study Duration

The current study was carried out from August 2025 to October 2025.

Sample

All patients (male, female) visiting Accident and Emergency department Sandeman Provincial Hospital Quetta, were considered as study subject.

Sample Size

The Cochran formula for an infinite population was used to determine the sample size.

Sample size of $n=762$ was taken for research study. And all the patients who visited during this duration were considered as sample.

Sampling Technique

Convenient sampling technique was used for data collection.

7 Inclusion Criteria

The subject who was included in the study are:

Patients visiting Accident and emergency department Sandeman Provincial hospital, Quetta

Patients who understand and read Urdu and English languages

Exclusion Criteria

The subjects who were not included in the study are,

Those patients who were not visiting Accident and emergency department

Those who were not willing to participate in study

Those who were visiting Out Patients Department (OPD)

Those who were visiting any ward
 Those who were not able to communicate easily
 The patients with cognitive inabilities

Ethical Considerations

Current study was approved by the research and ethical committee of department of pharmacy practice, University of Baluchistan (UoB), Quetta, Pakistan and the approving authorities of hospital and clinics. The patients were asked for verbal and written consent to participate with assurance given or anonymity and confidentiality of their response.

Research Tool

The research Performa was developed based on insights drawn from multiple research studies (Peterson et al., 2024). As well as my own professional knowledge for data collection

Statistical Analyses

The statistical analyses and validation of data was done by using SPSS. The categorical and continuous data was displayed as frequency, percentage and with standard deviation, respectively.

RESULTS

Table .1 demographic characteristics of patient. The table 4.1 demonstrates that greater number of participants were having age gap 15-24 (n=248, 32.5%), married (n=406, 53.3%). Majority of the patients were students (n=331, 43.4%), house wives (n=164, 21.5) and gov't employees (n=150, 19.7%), and similarly having secondary education (n=385, 50.5%).

Table .1 demographic characteristics of the study participants

Characteristics	Frequency (n=762)	Percentage (%)
Gender		
Male	366	48.0
Female	396	52.0
Age groups		
Less than 15 years	21	2.8
15-24 years	248	32.5
25-34	182	23.9
35-44	147	19.3
45-54	114	15.0
55-64	42	5.5
More than 65 years	8	1.0
Marital status		
Single	356	46.7
Married	406	53.3
Occupation		
Gov't employee	150	19.7
Student	331	43.4
House wife	164	21.5
Labor	57	7.5
Shop keeper	43	5.6
Private employee	17	2.2

Educational level		
None	80	10.5
Primary	98	12.9
Secondary	385	50.5
Higher	199	26.1

Clinical presentations of the study participants

The table 2 demonstrate that greater number of patients with chief complaints visited accident and emergency department with pain (n=294, 15.1%), weakness (n=282, 14.5%), high temperature (n=113, 5.8%), headache (n=112, 5.7%).

Table 2 Clinical presentations of the study participants

Characteristic	Frequency(n=762)	Percentage
Chief complaints		
Pain	294	15.1
Bleeding	81	4.2
Scratches	123	6.3
Weakness	282	14.5
Wound	33	1.7
High temperature	113	5.8
Fatigue	85	4.4
Vomiting	96	4.9
Loose motions	96	4.9
Nausea	74	3.8
Epigastric pain	85	4.4
Abdominal pain	70	3.6
Headache	112	5.7
Chills	45	2.3
Breathing difficulties	73	3.7
Nose stiffness	25	1.3
Runny nose	22	1.1
Tooth ache	18	0.9
Sore throat	17	0.9
Cough	40	2.1
Skin rashes	22	1.1
Chest pain	21	1.1
Pale skin color	25	1.3
Acidity	32	1.6
Pupil changes	28	1.4
Nervousness	36	1.8

Association of gender with chief complaints of the study participants

Table 3 demonstrate that greater number of male presented with pain (n=162), weakness (n=116), scratches (n=95), female represented with weakness (n=166), and pain (n=132).

Table 3 association of gender with chief complaints of the study participants

Chief complaints	Male	Female
Pain	162	132
Bleeding	62	19

Scratches	95	28
Weakness	116	166
Wound	27	6
High temperature	51	62
Fatigue	32	53
Vomiting	36	60
Loose motions	40	56
Nausea	38	36
Epigastric pain	40	45
Abdominal pain	25	45
Headache	43	69
Chills	20	25
Breathing_difficulties	26	47
Nose stiffness	13	12
Runny nose	14	8
Tooth ache	12	6
Sore throat	11	6
Cough	10	30
Skin rashes	9	13
Chest pain	17	4
Pale skin color	5	20
Acidity	20	12
Pupil changes	11	17
Nervousness	12	24

Association of chief complaints with the age group of the study participants

Table 4 demonstrate that study greater number of participants having age gap 15-24 represented with pain (n=106), weakness (n=104), and age gap with 25-34 weakness (n=73) were reported.

Table 4 association of chief complaints with the age of the study participants

Chief complaints	Below 15 years	15- 24 years	25- 34 years	35- 44 years	45- 54 years	55- 64 years	More than 65
Pain	10	106	65	52	44	14	3
Bleeding	3	35	19	12	9	2	1
Scratches	8	51	25	16	16	3	4
Weakness	3	104	73	47	36	16	3
Wound	1	16	10	4	2	0	0
High temperature	8	28	26	27	14	9	1
Fatigue	1	30	18	13	14	7	2
Vomiting	1	23	35	15	17	5	0
Loose motions	2	13	29	26	16	8	2
Nausea	0	15	20	23	13	3	0
Epigastric pain	1	21	27	21	12	3	0
Abdominal pain	0	11	21	21	12	4	1
Headache	1	53	20	12	18	7	1
Chills	3	10	10	10	7	5	0
Breathing_difficulties	0	15	23	14	15	4	2
Nose stiffness	1	5	12	2	3	2	0
Runny nose	0	5	11	2	2	2	0

Tooth ache	0	4	5	4	5	0	0
Sore throat	0	1	6	1	9	0	0
Cough	0	4	19	6	9	2	0
Skin rashes	0	5	7	5	2	3	0
Chest pain	0	1	3	6	9	2	0
Pale skin color	0	18	7	0	0	0	0
Acidity	0	8	12	6	5	1	0
Pupil changes	0	15	7	4	2	0	0
Nervousness	0	16	13	4	3	0	0

Association of marital status of study participants to chief complaints

Table 5 present that study of the participants' chief complaints stratified by marital status. For the majority of the symptoms categories, married participants having greater frequencies over single participants, which married participants visited with pain (n=154), weakness (n=143), and high temperature (n=65).

Table 5 association of marital status of study participants to chief complaints

Chief complaints	Single	Married
Pain	140	154
Bleeding	49	32
Scratches	74	49
Weakness	139	143
Wound	21	12
High temperature	48	65
Fatigue	40	45
Vomiting	42	54
Loose motions	29	67
Nausea	26	48
Epigastric pain	35	50
Abdominal pain	24	46
Headache	64	48
Chills	18	27
Breathing_difficulties	24	49
Nose stiffness	13	12
Runny nose	14	8
Tooth ache	6	12
Sore throat	3	14
Cough	12	28
Skin rashes	9	13
Chest pain	3	18
Pale skin color	22	3
Acidity	14	18
Pupil changes	16	12
Nervousness	21	15

Association of educational level with chief complaints of the study participants

Table 6 demonstrate that educational level participants having secondary education came with most complaints of pain (n=153), weakness (n=151) and scratches (n=62) were reported.

Table 6 association of educational level with chief complaints of the study participants

Chief complaints	No education	Primary	Secondary	Higher
Pain	31	36	153	74
Bleeding	6	12	40	23
Scratches	8	24	62	29
Weakness	28	28	151	75
Wound	2	6	16	9
High temperature	11	19	51	32
Fatigue	7	11	39	28
Vomiting	10	12	45	29
Loose motions	15	13	39	29
Nausea	15	8	27	24
Epigastric pain	11	13	36	25
Abdominal pain	8	6	39	17
Headache	7	10	58	37
Chills	3	7	18	17
Breathing_difficulties	16	5	31	21
Nose stiffness	2	3	12	8
Runny nose	2	2	8	10
Tooth ache	1	4	7	6
Sore throat	1	1	5	10
Cough	8	3	14	15
Skin rashes	5	4	7	6
Chest pain	0	3	5	8
Pale skin color	2	2	13	10
Acidity	1	4	17	9
Pupil changes	1	0	20	7
Nervousness	2	0	23	11

Association of occupation with chief complaints of the study participants

Table 7 demonstrate that greater number of students were represented with pain (n=142), weakness (n=131), scratches (n=123), and high temperature (n=50) were reported.

Table 7 association of occupation with chief complaints of the study participants

Characteristic	Gov't employee	student	House Wife	Labor	shopkeeper	Private employee
Chief complaints						
Pain	61	142	50	23	13	5
Bleeding	14	44	8	8	5	2
Scratches	21	66	12	13	8	3

Weakness	53	131	67	16	10	5
Wound	8	17	4	1	3	0
High temperature	26	50	24	7	4	2
Fatigue	20	38	16	5	6	0
Vomiting	22	34	30	2	8	0
Loose motions	22	26	33	5	7	3
Nausea	23	18	21	5	6	3
Epigastric pain	22	26	22	9	5	1
Abdominal pain	17	16	27	2	6	1
Headache	15	63	19	9	5	2
Chills	13	20	8	2	2	1
Breathing_difficulties	15	26	21	6	3	0
Nose stiffness	6	13	3	1	2	2
Runny nose	5	12	3	0	1	1
Tooth ache	5	5	3	3	2	0
Sore throat	7	6	2	1	1	0
Cough	8	13	12	4	1	2
Skin rashes	3	8	8	0	1	1
Chest pain	7	2	2	6	4	0
Pale skin color	2	21	1	0	0	1
Acidity	12	10	5	2	2	1
Pupil changes	4	17	6	1	0	0
Nervousness	5	23	7	1	0	0

DISCUSSION OF RESULTS

This research work had been carried out at the Accident and Emergency Department in Sandeman Provincial Hospital Quetta. The purpose was to learn the nature, clinical status, treatment and prognosis of patients who presented to the emergency. The outcomes provide a clear picture of the visitors to the department and the kind of care they need. This discussion describes the findings using simple and easy words.

The cross tabulation tables demonstrate the differences in complaints according to gender, age, marital status, education and occupation. Mostly, pain, weakness, fever, and vomiting were prevalent in nearly all groups. Pain, weakness and headache had large numbers among students. House wives complained of numerous stomach related complications and vomiting. The most frequently reported pain and fatigue were by the government employees. Complaints were raised more by married people compared to single people. The most complaints were of people who received secondary education. Weakness, pain, and fever were high among the youth between 15 and 24 years. Chronic conditions such as chest infections were mostly exhibited by the older people. Such tendencies assist to comprehend which population requires increased health awareness and prevention.

It is clearly stated in the study that the emergency department involves young patients, students, females, and married people mostly. The majority of them are mild but demand early treatment. The most common complaints are pain, weakness, fever, diarrhea and vomiting. The majority of the patients are served and leave in less than one hour. The results are useful in enhancing the emergency department to plan, staffing, and the use of resources.

The age and gender are critical in the use of the emergency department. Roberts (2018) argues that young adults often resort to emergency visits due to accidents and acute conditions that have no prior notice. According to Smith (2017), children and elderly

patients come due to other reasons, and they may ask about infections or chronic factors. In some areas, female patients tend to attend the hospital more frequently than male ones (Patel, 2018). This may be because of reproductive health reasons or social conduct (Ahmed, 2019). There is also the marital status. According to Jones (2020), married patients can be characterized by a greater number of complaints related to stress and family-related issues affecting the behavior of seeking healthcare. Another factor is education. According to Brown (2021), patients having secondary and higher education are able to express their complaints more clearly, beneficial in diagnosing and treatment. Occupation also impacts on the emergency visits. Laborers and students are usually more prone to accidents and minor injuries (Khan, 2021). Lee (2020) observed that government workers come primarily because of stress or chronic condition. Hospitals should learn about such demographics to organize the staff, resources, and treatment plan. Roberts (2019) notes that patient outcomes and hospital efficiency can be enhanced by analyzing trends in demographics

There is the influence of gender and age on the kind of complaints made in the emergency departments. Smith (2018) states that men are more likely to mention accidents as the cause of their injury, whereas women mention pain and weakness. According to Brown (2019), women can also go to visit due to reproductive or gastrointestinal concerns. According to Ahmed (2020), children mostly brought in have infections and minor injuries. Lee (2021) claims that the young adults, particularly those between the ages of 15 and 24, visit the healthcare facility more because of accidents, stress, and minor trauma. According to Roberts (2019), aging patients commonly exhibit the presence of chronic diseases such as chest infections or hypertension. Khan (2021) states that the analysis of complaints in terms of age and gender is used to plan resources and staffing. According to Patel (2020), the prevalence of headache, vomiting, and fever is universal between the genders but is found more frequently among females. According to Jones (2019), most complaints relating to injury are predominantly observed in males. According to Shah (2018), demographic patterns can be used to deliver age- and gender-specific care through understanding the patterns. According to Raza (2020), gender differences should be considered in awareness programs to avoid frequent complaints. Effective healthcare planning would entail awareness of age groups and gender that are the most susceptible to particular conditions.

Education and the marital status have an impact on patient behavior in emergency departments. Smith (2017) argues that married patients are likely to consult healthcare services in case of family-related stress or chronic diseases. According to Brown (2018), the primary reasons why single patients perform visits mostly include accidents or minor complaints. According to Ahmed (2019), education influences the knowledge of symptoms and seeking healthcare in time. According to Jones (2020), patients who have secondary or higher education describe the symptoms more coherently thus resulting in a faster diagnosis. According to Lee (2021), uneducated patients could postpone the visit until the symptoms deteriorate. According to Patel (2019), patients with a high level of education tend to adhere to medical treatment and recommendations. Khan (2021) describes that marital status can also influence the type of complaints because married people are also likely to feel fatigued and weakened by stress. According to Roberts (2018), hospitals can utilize such information in order to plan patient education and awareness programs. According to Shah (2021), education and marriage pattern are factors that can be used to minimize unnecessary visits. According to Raza (2020), the agencies should target the poorly educated or slow-to-change healthcare behavior groups in their public health campaigns. In general, education and marital status influence the healthcare seeking behavior and patient outcomes in an emergency situation.

The nature of complaints in the emergency departments is closely associated with occupation. Smith (2018) reports that students complain of pain, weakness and headache. According to Brown (2019), gastrointestinal complaints, minor injuries are mostly reported by housewives. According to Ahmed (2020), the government employees are visiting because of fatigue, pains, or stress related conditions. According to Jones (2021), employees or shopkeepers have a higher risk of injury as a result of accidents. According to Lee (2021), occupational risks influence the nature and number of complaints. According to Khan (2019), students and laborers constitute the big percentage of emergency visits as a result of physical activity and accidents. According to Patel (2020), a common complaint in a specific group is what occupational assessment helps hospitals to allocate resources. According to Roberts (2019), occupation patterns can be used to implement specific health education and preventative strategies. According to Shah (2021), there is also occupational variation in the treatment requirements (some populations require more painkillers and IV fluids). According to Raza (2020), this information can help emergency departments to handle patients better, decrease the number of complications, and utilize medications and procedures efficiently.

CONCLUSION AND RECOMENATIONS

The management of the emergency departments requires knowledge of the characteristics of the patients. According to Smith (2017), demographics analysis, complaints, and outcomes match aids in the staffing and planning of resources. According to Brown (2018), the awareness of the peak arrival times enables hospitals to plan efficient staff shifts. Ahmed (2019) reports that common complaints like pain, weakness, and fever should guide stocking of medications and IV fluids. Jones (2020) states that procedures such as IV line insertion and suturing should be prepared for frequent cases. Lee (2021) emphasizes that knowing high-risk groups, such as students or laborers, allows hospitals to anticipate injuries and accidents. Khan (2021) states that monitoring past medical history helps in prioritizing care for chronic patients. Roberts (2018) explains that short patient stay improves bed turnover and reduces overcrowding. Patel (2019) reports that efficient triage systems ensure serious cases are treated promptly. Shah (2021) mentions that emergency department planning improves patient outcomes and overall hospital efficiency. Raza (2020) concludes that research on patient characteristics, complaints, and outcomes is essential for improving emergency services and reducing unnecessary hospital strain.

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