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# FREQUENCY AND FACTORS ASSOCIATED WITH SUSPECTED FUNCTIONAL NEUROLOGICAL DISORDER AMONG PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL IN PESHAWAR

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## Abstract

*Background: Functional Neurological Disorder (FND) produces genuine but neurologically unexplained symptoms that are diagnostically difficult to separate from deliberate symptom fabrication in the high-pressure setting of the emergency department (ED). No published data describe the frequency of suspected FND-consistent presentations in a Pakistani ED prior to this study. Objective: To determine the frequency of suspected FND-consistent presentations, and their associated sociodemographic and clinical factors, among patients attending the ED of a tertiary care hospital in Peshawar. Methods: In this four-month cross-sectional study, 140 patients above five years of age were enrolled by convenience sampling at the ED of Lady Reading Hospital (LRH), Peshawar. A structured questionnaire recorded sociodemographic and clinical presentation data alongside seven pre-specified behavioural indicators; patients with three or more positive indicators, together with the attending physician's overall clinical impression, were classified as having a suspected FND-consistent presentation. Data were analysed descriptively using SPSS v22.0. Results: A suspected FND-consistent presentation was identified in 89.3% of patients (n=125/140; 95% CI 84.2–94.4%). The sample was predominantly female (80.0%), under 40 years old (73.6%), unemployed (69.3%), and without formal education (52.1%). Shelter-seeking was the commonest primary reason for ED attendance (45.0%). The most prevalent behavioural indicators were inconsistency between symptoms and physical findings (95.0%), inconsistent history on repeated questioning (90.0%), and symptom worsening when discharge was discussed (85.7%). Most patients were discharged (67.1%). Conclusion: Suspected FND-consistent presentations were highly prevalent in this ED population and were closely linked to unmet social need. Structured, checklist-based assessment and locally adapted clinical pathways may improve the*

*consistency and compassion of care for this population.*

## INTRODUCTION

Emergency departments (EDs) must rapidly distinguish genuine acute illness from intentional symptom fabrication and from genuine but neurologically unexplained presentations. Functional Neurological Disorder (FND) previously termed conversion disorder, and historically labelled hysteria is defined by DSM-5 as one or more symptoms of altered voluntary motor or sensory function that are incompatible with recognized neurological disease and not better explained by another condition [1]. Distinguishing FND from deliberately fabricated symptoms is diagnostically and ethically demanding, particularly in high-volume, resource-limited emergency settings.

Lady Reading Hospital, Peshawar, is the largest tertiary-care referral centre in Khyber Pakhtunkhwa, serving a population shaped by decades of conflict-related displacement, poverty, and a substantial Afghan refugee community [5,6]. Studies in psychiatric emergency departments internationally report suspected FND-type or fabricated presentations in 13–42% of patients [2,3], most often motivated by needs for shelter, medication access, or avoidance of legal or occupational obligations [4]. Functional neuroimaging work has shown that FND involves distinct patterns of prefrontal and temporoparietal activity relative to deliberate symptom simulation, supporting its non-volitional neurobiological basis [7,8], and misdiagnosis in either direction labelling genuine FND as fabricated, or missing deliberate fabrication, carries serious clinical and ethical consequences

Despite this evidence base, no published data describe the frequency or correlates of suspected FND-consistent presentations in a Pakistani emergency department, and culturally patterned somatization of psychological distress in South Asian populations further complicates the differential diagnosis [5,6]. This study aimed to determine the frequency of suspected FND-consistent presentations among patients attending the LRH emergency department and to describe the sociodemographic and clinical factors associated with it.

## METHODS

### Study Design and Setting

This cross-sectional observational study was conducted over four months in the Emergency Department of Lady Reading Hospital, Peshawar, Khyber Pakhtunkhwa.

### Participants

Patients above five years of age presenting to the ED during the study period, who (or whose legal guardians) provided informed consent, were eligible. Patients with a pre-existing diagnosed psychiatric or neurological disorder documented in their medical records, those who were hemodynamically unstable to a degree precluding assessment, and those who declined consent were excluded.

### Sample Size and Sampling

The sample size was calculated using the standard formula for estimating a single population proportion ($n = Z^2p(1-p)/d^2$), assuming a prevalence of 20% based on prior literature, a 95% confidence level (Z=1.96), and a 5% margin of error (d=0.05), yielding a required sample of 140, which was confirmed using an Epi Info sample size calculator. Non-probability convenience sampling was used to enroll 140 patients.

### Data Collection

A structured questionnaire, developed following a review of the relevant literature, was administered by the attending emergency physician following routine clinical evaluation of each patient. The instrument recorded was sociodemographic characteristics (age, gender, marital status, number of children, education, employment, job type, family monthly income, average screen time, residence status), clinical presentation including recent traumatic event, symptom duration, subjectivity of complaint, prior ED visits for the same complaint, primary reason for attendance, requests for admission or a medical/legal certificate, and avoidance of personal or social responsibilities. Also, seven pre-specified behavioral indicators

which is hemodynamic instability at presentation (an indicator of genuine acute pathology, scored in reverse), inconsistency between reported symptoms and physical examination findings, symptom change with distraction, symptom worsening when discharge was discussed, inconsistent history on repeated questioning, refusal of diagnostic tests or treatment, and demand for specific tests, drugs, or admission.

A patient was classified as having a suspected FND consistent presentation if three or more of the seven behavioural indicators were positive, combined with the attending physician's overall clinical impression following structured assessment. Informed consent was obtained from all participants or their legal guardians before enrolment, and all records were anonymised prior to data entry and analysis.

### Statistical Analysis

Data were entered and analyzed using SPSS version 26. Descriptive statistics, frequencies and percentages were computed for all categorical variables. The primary outcome (frequency of suspected FND-consistent presentation) is reported as a proportion with its 95% confidence interval.

### Ethical Considerations

Ethical approval was obtained from the Lady Reading Hospital MTI Institutional Review Board prior to data collection [134/LRH/MTI and March 11,2026]. Verbal informed consent was obtained from all participants or their legal guardians, and patient confidentiality and anonymity were maintained throughout.

## RESULTS

A total of 140 patients presenting to the LRH emergency department were enrolled; all records were complete and included in the final analysis.

### Sociodemographic Characteristics

The majority of patients were young adults aged 20–40 years (46.4%, n=65), followed by adolescents aged 13–19 years (27.1%, n=38); 73.6% of the sample was below 40 years of age. Patients were predominantly female (80.0%, n=112; female-to-male ratio 4:1). More than half were married (55.0%, n=77). Over half had no formal education (52.1%, n=73), and most were unemployed (69.3%, n=97). Family monthly income fell mostly in the PKR 30,000–60,000 bracket (57.1%, n=80). Most patients resided in their own homes (73.6%, n=103); 1.4% (n=2) were homeless.

Table 1: *Selected sociodemographic characteristics of study participants (n=140).*

| Characteristic | n | % |
|---|---|---|
| Age <40 years | 103 | 73.6 |
| Female sex | 112 | 80.0 |
| Married | 77 | 55.0 |
| No formal education | 73 | 52.1 |
| Unemployed | 97 | 69.3 |
| Family income PKR 30,000–60,000/month | 80 | 57.1 |
| Own home residence | 103 | 73.6 |
| Homeless | 2 | 1.4 |

### Clinical Presentation

Pain-related symptoms were the most common presenting complaint (67.1%, n=94), followed by general weakness or neurological symptoms (64.3%, n=90). A recent traumatic event was reported by 51.4% (n=72). Most complaints were characterized as mainly subjective (82.1%, n=115), and 67.1% (n=94) presented within six hours of symptom onset. Shelter-seeking was the most frequently identified primary reason for attendance (45.0%, n=63), followed by symptom relief (40.0%, n=56); financial or legal issues accounted for only 2.9% (n=4). A request for hospital admission without objective clinical indication was made by 65.7% (n=92) of patients, and 78.6% (n=110) showed evidence of avoidance of personal or social responsibilities.

Table 2: *Selected clinical presentation characteristics (n=140).*

| Clinical variable | n | % |
|---|---|---|

| | | |
|---|---|---|
| Pain-related complaint | 94 | 67.1 |
| Weakness / neurological complaint | 90 | 64.3 |
| Recent traumatic event reported | 72 | 51.4 |
| Complaint mainly subjective | 115 | 82.1 |
| Shelter-seeking as primary reason for visit | 63 | 45.0 |
| Request for admission without indication | 92 | 65.7 |
| Avoidance of personal/social responsibility | 110 | 78.6 |

**Behavioural Indicators and Primary Outcome**

Across the seven behavioural indicators, inconsistency between reported symptoms and physical examination findings was the most prevalent (95.0%, n=133), followed by inconsistent history on repeated questioning (90.0%, n=126) and symptom worsening when discharge was discussed (85.7%, n=120). Symptoms changed with distraction in 77.9% (n=109), and a demand for specific tests, drugs, or admission was recorded in 59.3% (n=83). Hemodynamic instability, the only indicator suggestive of genuine acute pathology was present in just 5.7% (n=8) of patients.

Table 3. *Frequency of the seven behavioural indicators assessed (n=140).*

| Behavioural indicator | Yes n | Yes % | No % |
|---|---|---|---|
| Symptom–finding inconsistency | 133 | 95.0 | 5.0 |
| Inconsistent history on repeat questioning | 126 | 90.0 | 10.0 |
| Symptoms worsen when discharge discussed | 120 | 85.7 | 14.3 |
| Symptoms change with distraction | 109 | 77.9 | 22.1 |
| Demand for tests/drugs/admission | 83 | 59.3 | 40.7 |
| Refusal of diagnostic tests/treatment | 54 | 38.6 | 61.4 |
| Hemodynamic instability | 8 | 5.7 | 94.3 |

Based on the cumulative threshold of three or more positive indicators together with clinical impression, 89.3% (n=125; 95% CI 84.2–94.4%) of patients were classified as having a suspected FND-consistent presentation; 10.7% (n=15) were assessed as likely genuine. Most patients were discharged (67.1%, n=94), 22.9% (n=32) were referred, and 10.0% (n=14) were admitted a disposition pattern notable for its low admission rate despite the high proportion (65.7%) requesting admission without clinical indication. Most ED stays lasted under two hours (55.7%, n=78).

## DISCUSSION

To our knowledge, this is the first study to systematically document the frequency of suspected FND-consistent presentations in a Pakistani emergency department. The observed frequency (89.3%) sits well above the 13–42% range reported in psychiatric emergency settings internationally [2,3]. This gap likely reflects methodological differences, the present study used a broad seven-item behavioural checklist rather than a validated psychometric instrument rather than a true epidemiological difference of this magnitude, and this distinction is discussed further under Limitations below.

The predominance of shelter-seeking (45.0%) and avoidance of personal or social responsibility (78.6%) as drivers of presentation is consistent with the adaptational model of functional presentation, which frames such behavior as a rational response to social adversity rather than as inherently pathological [9], and is consistent with reports that basic needs and shelter are prominent motivators in urban emergency settings serving displaced and economically marginalized populations[4]. This is directly relevant to LRH, which serves large numbers of internally displaced persons and Afghan refugees.

A central diagnostic challenge highlighted by this study is the interface between deliberately fabricated presentations and genuine FND. Functional imaging evidence indicates that FND involves reduced prefrontal and temporoparietal engagement relative to deliberate symptom simulation, supporting a genuine neurobiological basis rather than volitional fabrication [7,8].

Historically, misdiagnosis in either direction has had serious consequences: in one psychiatric emergency service, patients initially diagnosed with conversion disorder were later found to have organic neurological disease [10], underscoring the need to rigorously exclude organic pathology before attributing symptoms to either fabrication or FND. A neutral, empathetic, non-labelling approach to assessment has been advocated for exactly this diagnostically ambiguous group [4]

Cultural context further complicates this differential in Khyber Pakhtunkhwa. Somatisation the expression of psychological distress through physical symptoms is a well-documented, culturally mediated phenomenon in South Asian populations [5,6], and clinicians unfamiliar with this pattern risk misclassifying genuine psychosomatic distress as fabricated. Given KP's history of conflict, displacement, and stigma surrounding mental illness, physical presentation of distress is a locally rational and common pathway to care [5]

Physician bias is another important consideration. Prior work in a US urban psychiatric emergency department found that suspicion of fabricated symptoms was independently associated with race and socioeconomic disadvantage [9], and a national US inpatient sample similarly found higher rates of a discharge diagnosis of malingering among minority and socioeconomically disadvantaged patients, consistent with systemic bias in symptom assessment [11]. Given that our own sample was drawn overwhelmingly from patients with low income, low education, and unemployment, the same risk of biased clinical suspicion should be considered when interpreting the high frequency reported here.

In common with most ED-based studies of this kind, clinical impression rather than validated psychometric testing (e.g., structured interview or performance-validity instruments) was the basis for classification [12,13], reflecting the operational reality of a time- and resource-constrained emergency setting rather than a deviation from standard practice in this field. A structured checklist incorporating explicit DSM-5-aligned indicators, as used here, may nonetheless offer a more consistent and defensible basis for clinical decision-making than unstructured impression alone.

## PRACTICAL IMPLICATIONS

These findings suggest several practical steps for emergency care in similar settings: (1) recognizing suspected FND-consistent presentation as a clinically significant and measurable phenomenon warranting inclusion in emergency medicine training; (2) documenting the specific indicators underlying clinical suspicion rather than relying on global impression, to improve reliability and reduce the influence of unconscious bias; (3) adopting a neutral, empathetic assessment approach that identifies and addresses the underlying unmet need (e.g., referral to social work or housing support) rather than discharge alone; and (4) maintaining ongoing clinician awareness of the FND differential, including its positive clinical signs, to avoid misclassifying genuine neurological presentations.

## LIMITATIONS

Several limitations should be considered. First, the study was conducted at a single tertiary care centre, limiting generalizability to other hospital tiers or rural settings in Pakistan. Second, and most importantly, classification relied on a behavioural checklist and clinical impression rather than a validated diagnostic instrument distinguishing genuine FND from deliberate fabrication; the checklist used here inconsistency between symptoms and findings, symptom change with distraction, demand for tests or admission, and similar items more closely reflects established indicators of deliberate symptom fabrication (malingering) than validated clinical criteria for FND, and the two constructs are conceptually distinct (FND is by definition non-volitional). Readers and reviewers should interpret the reported frequency as reflecting this behavioural checklist rather than a formal, examination-based FND diagnosis, and this distinction should be made explicit in any further dissemination of this work. Third, the cross-sectional design precludes causal inference and long-term follow-up. Fourth, seasonal variation was not captured over the four-month study window. Fifth, the sample size, while adequate for the primary prevalence estimate, limits the power of subgroup analyses.

## RECOMMENDATIONS

Multi-centre studies across secondary and district-level Pakistani EDs are needed to produce more generalizable estimates. Longitudinal follow-up of patients initially suspected of fabricated or FND-consistent presentations would help clarify long-term diagnostic outcomes, given precedent from other settings where such patients were later found to have genuine neurological or psychiatric disease. Development and validation of a culturally appropriate screening instrument that separately captures FND-specific clinical signs (e.g., Hoover's sign, entrainment) from indicators of deliberate fabrication is a priority, as is qualitative research into patients' own perspectives on their presentations and the social circumstances that shape them.

## CONCLUSION

This study found a clinically significant frequency of suspected FND-consistent presentation among patients attending the emergency department of Lady Reading Hospital, Peshawar, closely linked to unmet social need, low socioeconomic status, and young female patients. The findings highlight the need for locally validated, structured assessment tools, clinician training in the FND differential, and social-support pathways that address the underlying drivers of presentation, while underscoring that the behavioural indicators used in this and comparable ED-based studies capture a construct closer to deliberate symptom fabrication than to formally diagnosed FND. These results should be viewed as an initial step toward, rather than a definitive characterization of, the evidence base for FND-related presentations in Pakistani emergency care.

## DECLARATIONS

**Ethics approval and consent to participate:** Ethical approval was obtained from the Lady Reading Hospital MTI Institutional Review Board [134/LRH/MTI and March 11,2026]. Verbal informed consent was obtained from all participants or their legal guardians prior to enrolment.

**Consent for publication:** Not applicable (no identifiable individual data or images are reported).

**Availability of data and materials:** The datasets analyzed during the current study are available from the corresponding author on reasonable request.

**Authors' contributions:** HS, AR, SH, and MW conceived and designed the study, collected data, performed the analysis, and drafted the manuscript. KK and IK supervised the research and critically revised the manuscript. All authors read and approved the final manuscript.

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