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Understanding Healthcare-Seeking Patterns of People Experiencing Homelessness: A Quantitative Multi-Centre Analysis of Emergency Department Utilisation

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Abstract

People experiencing homelessness (PEH) face significant barriers to healthcare access. This study explores the socio-demographic and clinical characteristics, as well as health-seeking behaviour, of PEH presenting to two major Australian metropolitan Emergency Departments (EDs). A quantitative observational study was conducted using administrative and clinical data from ED records for all PEH presentations during 2023. Data were analysed using SPSS (v30) and R (4.5.1). Of the 541 cases initially screened, 310 met inclusion criteria, with mean age of 42.4 years (SD=14.0), and mean ED length of stay (LOS) of 8.48 h (SD=8.34 h). Disposition status was significantly associated with triage acuity, self-harm history, substance use, chronic disease, suicidal intent, and emergency psychiatry review. Patients with self-harm or substance use histories were more likely to have follow-up arranged ($p<0.001$ and $p=0.006$ respectively). Younger patients were more often referred to mental health facilities ($p=0.002$). This cohort demonstrated a wide range of psychosocial and clinical needs, including documented self-harm, mental health conditions, substance use, and chronic disease, with suicidal intent recorded in one in five presentations. Disposition outcomes varied substantially, and patients triaged as ‘not urgent’ showed the highest rate of leaving against medical advice (45.2%), suggesting perceived acuity may influence care engagement. Differences across age, sex, and ED length of stay further highlight the diversity of presentations. Collectively, these findings reinforce the need for flexible and responsive care pathways that account for the heterogeneity and complexity of this population.

Key messages

What is known about the topic?

- People Experiencing Homelessness (PEH) are disadvantaged in accessing quality healthcare when compared with the general population.

What did this study ask?

- The study assessed the gaps in providing quality care to this cohort both in Emergency Departments (ED) and beyond.

Extended author information available on the last page of the article

What did this study find?

- Difficulty in using coded data to identify PEH.
- Wide range of psychosocial and clinical needs, including documented self-harm, mental health conditions, substance use, and chronic disease, with suicidal intent.
- Lack of continuity of care after ED visit.

Why does this study matter to clinicians?

- PEH present with intersecting medical, mental health, and social needs, making timely care and effective aftercare particularly challenging to deliver.

Keywords People experiencing homelessness · Emergency department · Health-seeking behaviour · Disposition · Australia

Background

There is no universally accepted definition of People Experiencing Homelessness (PEH). The United Nations defines PEH as individuals who do not have “stable, safe and adequate housing, nor the means and ability of obtaining it” [1]. In Australia, the Australian Bureau of Statistics defines PEH as individuals whose current living arrangement is a “dwelling that is inadequate, has no tenure, or if the initial tenure is short and not extendable; or does not allow them to have control of, and access to, space for social relations” [2]. This definition extends the conceptualisation of PEH beyond the narrow societal perception of ‘rough sleepers,’ as outlined in the Australian Homelessness Monitor [3].

In Australia, 48 people per 10,000 experience homelessness [4], with 27% of this group ($n=30,660$) residing in the State of Victoria, predominantly in the metropolitan area [5]. In Australia, since 2019/20 homelessness has significantly increased as suitable housing became much harder to find [3]. PEH have a complex socio-demographic status and a high burden of chronic diseases, which is further complicated by barriers to healthcare access [6]. Of the 122,494 individuals reported to have been experiencing homelessness in Australia during 2021, “56% were male, 21% were aged 25–34 and 20% were Aboriginal and Torres Strait Islander (First Nations) People” [4].

The rising cost of living has led to a demographic shift in PEH, with increasing numbers of older persons, employed individuals, and entire families being affected. Over the past three years, there has been a 22% increase in people sleeping rough [3]. Limited access to affordable housing and financial insecurity contribute to stress and material hardship, which in turn are associated with negative health outcomes [7].

PEH have higher incidences of suicide and self-harm rates (two to six times higher than the general population) and over 90% of PEH have experienced at least one major trauma [8]. Compared to the general population, in PEH, mortality rates are three to four times higher [9, 10], unintentional injuries are more frequent [11] and there is a higher likelihood of dying from natural causes [12]. In Australia, Aboriginal and Torres Strait Islanders People who experience homelessness have even poorer outcomes than the general population of PEH [13].

PEH are at a significant disadvantage when accessing essential healthcare services compared to the general population [14]. Despite being high users of healthcare, PEH are

often described as disconnected from health care services [5, 15]. Clinical presentation of advanced or untreated disease is a common occurrence, precipitating Emergency Departments (ED) presentation when they have become quite unwell [16, 17] and this presents a significant clinical dilemma. While EDs strive to provide optimal care for PEH, they operate within substantial system constraints [18], and are primarily designed to deliver rapid, episodic care and facilitate efficient transition to the next stage of treatment. However, for many PEH, this continuity of care is difficult to achieve due to limited capacity for outpatient follow-up or eligibility for community-based programs such as hospital-in-the-home or community care packages, which often require a stable domicile for service delivery. Consequently, discharging a patient to an unsafe or insecure environment poses a considerable challenge for emergency clinicians [19, 20].

The aim of this study was to describe the sociodemographic characteristics, clinical presentations, and health-seeking behaviours of people experiencing homelessness (PEH) presenting to two metropolitan tertiary hospital EDs in Melbourne. The findings are intended to inform tailored approaches to improve ED care for PEH and support safer, more effective transitions from hospital to community.

Method

Design and Setting

This was a quantitative observational study that extracted administrative and clinical data from hospital ED records of all PEH who presented to one of two tier-1 hospital EDs located in metropolitan Melbourne, over the 2023 calendar year. Both hospitals are major referral hospitals managing together a total of 160,000 patients with one also incorporating adult level 1 trauma centre.

Inclusion Criteria and Data Collection

Data were extracted from all medical records of adult patients (aged ≥ 18 years) whose address was listed as “homeless,” or “no fixed abode,” as defined in the Victorian Emergency Minimum Dataset (VEMD) manual [21]. In addition, records were included when the listed address matched a recognised temporary shelter (e.g., boarding, or rooming house, homeless person’s shelter or refuge) provided by organisations offering short term accommodation. Registration data were used because the VEMD does not contain a disposition category for homelessness. Patients who were neither admitted nor transferred from the ED were coded as “returning to usual residence,” a category that includes home, mental health residential facilities, residential care facilities, and correctional or custodial facilities. As a result, PEH were routinely classified as being discharged “home,” despite this being inaccurate for this population. To improve conceptual clarity, this study therefore uses the term “discharge to usual situation”.

Data for 541 participant presentations (Fig. 1) across the two hospital sites were extracted from electronic medical records and hospital administrative databases using a standardised template during the 2023 calendar year. This included demographic and clinical characteristics of individuals who attended the target sites.

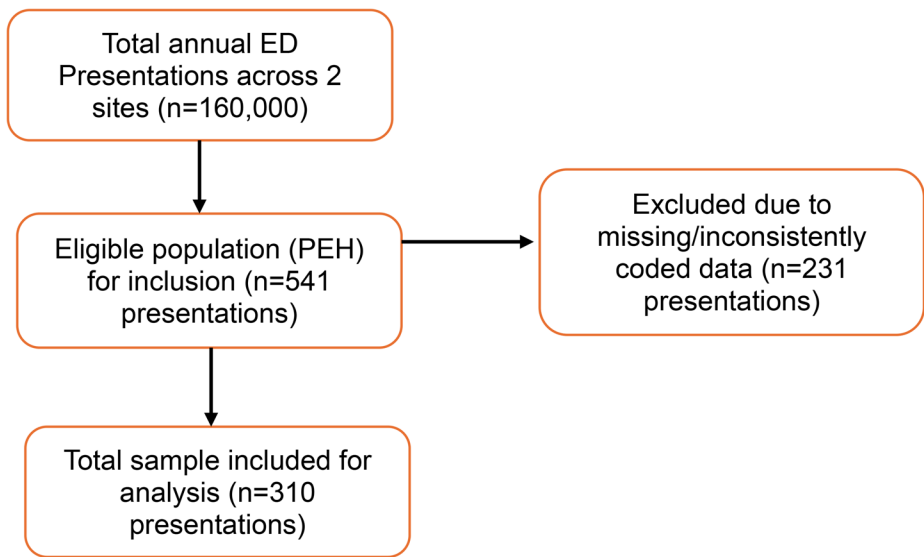


Fig. 1 Study population

Of 541 initial records extracted, 231 episodes were excluded because key variables required for analysis were missing or inconsistently coded. The final analytic sample comprised 310 participant presentations (site 1: $n=253$; site 2: $n=57$). Exclusions were based on pre-specified criteria, not patient characteristics, to ensure validity of the analysis, (Fig. 1).

Sample Size Calculation

A power analysis using the *pwr* package in R software was conducted to assess sample adequacy [22, 23]. For Chi-square tests of association between ED disposition as outcome variable and other categorical variables as independent variables (one at a time), assuming 80% power, a medium effect size defined as Cohen's $w=0.30$ (representing a moderate strength of association between the variables), and a significance level of 0.05, the required sample size was 133 participants. For one-way ANOVA under the same assumptions, a medium effect size defined as Cohen's $f=0.25$ required approximately 196 participants. Thus, the available sample size was sufficient to ensure adequate statistical power [24].

Ethics

In accordance with the Declaration of Helsinki, primary ethics approval was obtained from the Human Research Ethics Committee (HREC) of the first site (Reference: HREC/105430/Austin-2024) and site-specific approvals were received from both sites' HRECs. Consent from participants was waived given the data were anonymous and the study was observational in nature.

Statistical Modelling and Analysis

Data were screened and cleaned prior to analysis. System-missing values defined as blank or unrecorded entries in the original administrative dataset, representing < 1% of the dataset, were excluded under the assumption that data were missing at random [25, 26]. Outlier detection, range checks, and consistency checks were performed to ensure data integrity. Descriptive statistics were used to summarise socio-demographic and clinical characteristics of PEH. Unweighted bivariate analyses were conducted to examine associations between the outcome variable and explanatory variables, using Chi-square tests for categorical variables and one-way analysis of variance (ANOVA) for metric variables. With respect to Chi-square tests, where expected cell counts fell below 5 and/or more than 20% of the cells had an expected frequency of less than 5, Fisher's exact test was applied as a correction [27]. For Chi-square tests, Cramer's V was used to quantify the strength of association between categorical variables. For one-way ANOVA, eta squared (η^2) was used to quantify the proportion of variance in continuous outcomes explained by ED disposition groups. Power and sample size calculations were performed in R (4.5.1) using the *pwr* package, while all descriptive and inferential statistical analyses were conducted in SPSS (v30). A two-sided significance level of $p < 0.05$ was considered statistically significant for all analyses.

Results

Of the 310 participant presentations/episodes across the two sites (site 1, $n=253$ and site 2, $n=57$), the mean age was 42.42 years ($SD=13.97$; range: 19–113 years), and the mean length of stay (LOS) in the ED was 8.48 h ($SD=8.34$ h; range: 0.01–71.24 h). Most participants were male (70.0%). Based on triage categories, 24.5% of patients were classified as life-threatening or threatened, 39.7% as semi-urgent, and 35.8% as not urgent. Tuesday accounted for the day with the highest proportion of presentations (18.4%), followed by Thursday (15.8%), Friday (14.5%), and Sunday and Monday (both 11.9% each).

A history of self-harm was documented in 26.5% of cases, while 60.6% reported alcohol or other drug use. History of chronic disease/condition was obtained from existing health records and coded as a binary 'yes' for presence and 'no' for absence based on ICD diagnosis codes and was present in 36.1%, and 49.4% had a history of mental health conditions. Suicidal intent or attempt was noted in 21.9% of patients, and 24.2% received emergency psychiatric review. Aggressive behaviour was infrequent (3.2%).

Most participants arrived via non-ambulance transport (58.0%), with 42.0% arriving by ambulance. The most common ED diagnoses were behavioural/intoxication (25.8%), mental health (10.6%), limb injury/fracture (8.7%), and soft tissue injury/infection (8.7%). Documented triage presenting complaint mirrored these, with mental health (20.6%) and behavioural/intoxication (15.2%) being most frequently listed presentations, followed by soft tissue injury/infection (10.6%) and abdominal complaints (8.7%).

Disposition outcomes included discharge to usual situation (32.3%), leaving against medical advice (24.2%), ward admission (20.0%), follow-up/other (15.5%), and mental health facility admission (8.1%). Post-treatment follow-up showed no referral or not applicable in 37.1%, with referrals to local medical officers (13.5%), specialist (clinic) services

(2.3%), mental health services (1.9%), and other services (1.9%). A detailed breakdown is provided in Table 1.

Table 2 presents the unweighted bivariate associations between socio-demographic and clinical variables and disposition status in the ED. Triage category was significantly associated with disposition status ($\chi^2 (12)=34.25$, $p < 0.001$). Among patients triaged as life-threatening or threatened, 30.3% were admitted to a ward and a further 30.3% were discharged to usual living conditions. In comparison, among those triaged as semi-urgent, 24.4% were admitted to a ward and 26.8% were discharged to usual living conditions. When these outcomes were combined, the proportion was higher in the life-threatening group (60.6%) than in the semi-urgent group (51.2%). By contrast, patients triaged as ‘not urgent (seen in 120 minutes)’ had the highest proportion of leaving against medical advice (45.2%). A documented history of self-harm was strongly associated with ED disposition ($\chi^2 (4)=96.05$, $p < 0.001$), with 42.7% of these participants discharged to follow-up or other services compared with only 5.7% of those without such history.

Patients with a history of alcohol and other drug use were significantly more likely to receive follow-up care or other service dispositions (20.2%) compared with those without such a history (8.2) ($\chi^2 (4)=14.48$, $p=0.006$). Chronic disease history was significantly associated with disposition outcomes ($\chi^2 (4)=20.18$, $p < 0.001$), with patients who had chronic disease more frequently admitted to mental health services (14.3%) than those without chronic disease (4.5%). A documented history of suicidal intent was strongly associated with admission to mental health facilities, with 25.0% of these patients admitted compared to just 3.3% of those without such a history ($\chi^2 (4)=45.17$, $p < 0.001$). Similarly, patients who received an emergency psychiatry review were significantly more likely to be admitted (22.4%) than those who did not receive such a review (6.1%) ($\chi^2 (4)=32.89$, $p < 0.001$).

Age was significantly associated with disposition categories ($F (4, 305)=4.23$, $p=0.002$), indicating that older patients were more likely to receive follow-up or other services, while younger patients were more frequently admitted to mental health facilities. Post hoc comparisons using Bonferroni correction indicated that participants with follow-up/other dispositions were significantly older than those discharged to usual situation (mean difference=9.11, $p=0.002$) and those admitted to a mental health facility (mean difference=9.82, $p=0.039$). Mean LOS also varied significantly across disposition categories ($F (4, 305)=25.32$, $p < 0.001$), with the mean LOS highest among those admitted to the ward (16.46 h) versus those discharged against medical advice (4.53 h). Post hoc analyses using Games-Howell (due to unequal variances) confirmed that patients admitted to the ward had significantly longer LOS than all other categories (all $p < 0.001$), while those who left against medical advice had significantly shorter LOS compared with all other groups (all $p < 0.05$).

Discussion

This study provides a comprehensive analysis of factors associated with ED disposition outcomes in a cohort with diverse clinical and psychosocial presentations. The findings reveal that both mental health and non-mental health variables are significantly associated with patient trajectories within the ED, underscoring the need for integrated and responsive care

Table 1 Sociodemographic and clinical characteristics of the participants ($N=310$)

Variable	<i>N</i> (%) or Mean (SD)
Age (in years) *	42.42 (13.97)
LOS (in hours) *	8.48(8.34)
Sex	
Male	217 (70.0)
Female	93 (30.0)
Facility	
Austin	253 (81.6)
Alfred	57 (18.4)
Triage Category	
Life Threatening or Threatened	76 (24.5)
Semi-Urgent	123 (39.7)
Not Urgent (Seen in 30 min)	80 (25.8)
Not Urgent (Seen in 120 min)	31 (10.0)
Day Presented	
Sunday	37 (11.9)
Monday	37 (11.9)
Tuesday	57 (18.4)
Wednesday	44 (14.2)
Thursday	49 (15.8)
Friday	45 (14.5)
Saturday	41 (13.2)
Documented History of Self-harm	
No	228 (73.5)
Yes	82 (26.5)
Alcohol and Other Drugs History	
No	122 (39.4)
Yes	188 (60.6)
Chronic Disease History	
No	198 (63.9)
Yes	112 (36.1)
Mental Health History	
No	157 (50.6)
Yes	153 (49.4)
Suicidal Intent or Attempt	
No	242 (78.1)
Yes	68 (21.9)
Emergency Psychiatry Service Review	
No	235 (75.8)
Yes	75 (24.2)
Aggressive behaviour reports	
No	300 (96.8)
Yes	10 (3.2)
Mode of Arrival	
Ambulance	227 (42.0)
Other	314 (58.0)
Diagnosis Category	
Behavioural/Intoxication	80 (25.8)
Soft tissue injury/Infection	27 (8.7)

Table 1 (continued)

Variable	<i>N</i> (%) or Mean (SD)
Limb Injury or Fracture	27 (8.7)
Neuro	20 (6.5)
Abdominal	17 (5.5)
Social problem	17 (5.5)
Cardiac	16 (5.2)
Other	14 (4.5)
Respiratory	12 (3.9)
Infection	10 (3.2)
Assault (including Sexual Assault)	10 (3.2)
Back pain	9 (2.9)
Renal	8 (2.6)
Null	10 (3.2)
Triage Reason	
Abdominal	27 (8.7)
Mental Health	64 (20.6)
Behavioural/Intoxication	47 (15.2)
Respiratory	8 (2.6)
Cardiac	16 (5.2)
Back Pain	7 (2.3)
Infection	9 (2.9)
Neurological	22 (7.1)
Social	25 (8.1)
Soft Tissue Injury/Infection	33 (10.6)
Assault (Including Sexual Assault)	12 (3.9)
Limb Injury or Fracture	16 (5.2)
Other	7 (2.3)
Null	17 (5.5)
Disposition Status in the ED (Departure_Group)	
Discharged to usual living conditions	100 (32.3)
Admission to Ward	62 (20.0)
Left Against Medical Advice	75 (24.2)
Mental Health Facility	25 (8.1)
Follow-up/Other	48 (15.5)
Post-treatment follow-up Categories (Referredto_Group)	
Local Medical Officer	42 (13.5)
Mental Health Service	6 (1.9)
Specialist Services	7 (2.3)
No Referral or Not Applicable	115 (37.1)
Other Servicers	6 (1.9)
Undefined	74 (23.9)
System Missing**	60 (19.4)

*Metric variable presented as mean (SD)

**For the post-treatment follow-up categories, 'Undefined/Missing' refers to records where a referral category was present but coded as unknown or non-specific, whereas 'System missing' refers to records in which no value was recorded for the referral variable (i.e., blank entries in the administrative dataset)

Table 2 Bi-variate (unweighted) associations of disposition status in the ED (Departure_Group) with the selected socio-demographic and clinical variables ($N=310$)

Variable	Disposition Status in the ED (Departure_Group)					<i>p</i> -value (Cramer's V/η^2)
	Discharged to usual living conditions <i>N</i> (%)	Admission to Ward <i>N</i> (%)	Left Against Medical Advice <i>N</i> (%)	Mental Health Facility <i>N</i> (%)	Follow-up/ Other <i>N</i> (%)	
Sex						
Male	76 (35.0)	38 (17.5)	51 (23.5)	16 (7.4)	36 (16.6)	0.278 (0.128)
Female	24 (25.8)	24 (25.8)	24 (25.8)	9 (9.7)	12 (12.9)	
Triage Category						
Life Threatening or Threatened	23 (30.3)	23 (30.3)	14 (18.4)	7 (9.2)	9 (11.8)	<0.001** (0.193)
Semi-Urgent	33 (26.8)	30 (24.4)	25 (20.3)	13 (10.6)	22 (17.9)	
Not Urgent (Seen in 30 min)	32 (40.0)	6 (7.5)	22 (27.5)	3 (3.8)	17 (21.3)	
Not Urgent (Seen in 120 min)	12 (38.7)	3 (9.7)	14 (45.2)	2 (6.5)	0 (0.0)	
Day Presented						
Sunday	11 (29.7)	10 (27.0)	8 (21.6)	2 (5.4)	6 (16.2)	0.179** (0.154)
Monday	12 (32.4)	4 (10.8)	11 (29.7)	3 (8.1)	7 (18.9)	
Tuesday	19 (33.3)	11 (19.3)	11 (19.3)	4 (7.0)	12 (21.1)	
Wednesday	11 (25.0)	10 (22.7)	15 (34.1)	3 (6.8)	5 (11.4)	
Thursday	14 (28.6)	7 (14.3)	13 (26.5)	4 (8.2)	11 (22.4)	
Friday	18 (40.0)	8 (17.8)	5 (11.1)	8 (17.8)	6 (13.3)	
Saturday	15 (36.6)	12 (29.3)	12 (29.3)	1 (2.4)	1 (2.4)	
Documented History of Self-harm						
No	86 (37.7)	50 (21.9)	70 (30.7)	9 (3.9)	13 (5.7)	<0.001 (0.557)
Yes	14 (17.1)	12 (14.6)	5 (6.1)	16 (19.5)	35 (42.7)	
Alcohol and Other Drugs History						
No	38 (31.1)	23 (18.9)	41 (33.6)	10 (8.2)	10 (8.2)	0.006 (0.216)
Yes	62 (33.0)	39 (20.7)	34 (18.1)	15 (8.0)	38 (20.2)	
Chronic Disease History						
No	73 (36.9)	35 (17.7)	56 (28.3)	9 (4.5)	25 (12.6)	<0.001 (0.255)
Yes	27 (24.1)	27 (24.1)	19 (17.0)	16 (14.3)	23 (20.5)	
Mental Health History						
No	36 (22.9)	25 (15.9)	37 (23.6)	11 (7.0)	48 (30.6)	<0.001** (0.434)
Yes	64 (41.8)	37 (24.2)	38 (24.8)	14 (9.2)	0 (0.0)	
Suicidal Intent or Attempt						
No	80 (33.1)	43 (17.8)	66 (27.3)	8 (3.3)	45 (18.6)	<0.001** (0.382)
Yes	20 (29.4)	19 (27.9)	9 (13.2)	17 (25.0)	3 (4.4)	
Emergency Psychiatry Service Review						
No	71 (30.2)	39 (16.6)	67 (28.5)	10 (4.3)	48 (20.4)	<0.001** (0.390)
Yes	29 (38.7)	23 (30.7)	8 (10.7)	15 (20.0)	0 (0.0)	
Aggressive behaviour reports						

Table 2 (continued)

Variable	Disposition Status in the ED (Departure Group)					<i>p</i> -value (Cramer's V/η^2)
	Discharged to usual living conditions <i>N</i> (%)	Admission to Ward <i>N</i> (%)	Left Against Medical Advice <i>N</i> (%)	Mental Health Facility <i>N</i> (%)	Follow-up/ Other <i>N</i> (%)	
No	98 (32.7)	59 (19.7)	73 (24.3)	22 (7.3)	48 (16.0)	0.047**
Yes	2 (20.0)	3 (30.0)	2 (20.0)	3 (30.0)	0 (0.0)	(0.169)
Mode of Arrival						
Ambulance	37 (27.6)	35 (26.1)	30 (22.4)	10 (7.5)	22 (16.4)	0.160
Other	63 (35.8)	27 (15.3)	45 (25.6)	15 (8.5)	26 (14.8)	(0.161)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Age (in years) *	39.47 (12.28)	43.94 (15.63)	42.36 (15.27)	38.76 (9.13)	48.58 (13.12)	0.002 (0.053)
LOS (hours) *	7.31 (4.72)	16.45 (13.31)	4.53 (3.85)	8.20 (5.80)	6.97 (5.13)	<0.001 (0.249)

*Metric variables analysed using one-way ANOVA

***p*-values derived from Fisher's exact test when Chi-square assumptions were violated

Cramer's V is reported as the effect size for chi-square tests and indicates the strength of association between categorical variables. Eta squared (η^2) is reported as the effect size for ANOVA and represents the proportion of variance in the continuous outcome explained by ED disposition groups

models. These findings highlight the multifactorial nature of ED disposition decisions and the interplay between psychiatric, medical, behavioural, and logistical factors.

Mental health-related factors including documented self-harm, psychiatric review, suicidal intent, and a history of mental illness were strongly associated with admission to mental health facilities and structured follow-up [28–31]. These associations reflect the acute nature of psychiatric presentations and the prioritisation of safety and continuity of care. Notably, patients with a history of self-harm were less likely to be discharged to usual situation and more likely to receive follow-up or mental health admission, suggesting appropriate triage and risk recognition. However, the absence of follow-up referrals in some high-risk groups (e.g., those with mental health history) may indicate gaps in discharge planning or service availability compounding further the fundamental challenges with being homeless [32].

Importantly, several non-mental health factors have also demonstrated significant associations with disposition. Patients with chronic disease were more likely to be admitted or referred, highlighting the complexity and resource demands of managing comorbid conditions in the ED. Substance use history was associated with increased likelihood of follow-up or ward admission, suggesting that intoxication and behavioural disturbances may trigger more intensive interventions. Triage acuity was found to be strongly associated with disposition, with lower-acuity presentations more frequently resulting in discharge or leaving against medical advice. This finding raises concerns about patient engagement and the adequacy of care pathways for those triaged as non-urgent [33].

Age and LOS were also significantly associated with disposition. Older patients were more likely to be admitted or referred, consistent with higher medical and geriatric complexity [34]. Longer LOS was observed among those admitted to wards, reflecting the time required for diagnostic workup, stabilisation, and bed allocation. Conversely, patients who

left against medical advice (who also had the shortest LOS), may reflect dissatisfaction, unmet needs, or barriers to care which could be explored in future research.

The relatively low incidence of aggressive behaviour and its modest association with disposition suggests that while behavioural risk is present, it may not be a dominant driver of ED outcomes. No significant association was observed between mode of arrival (ambulance vs. other) and disposition, indicating that transport method may not correspond to clinical urgency or complexity.

Our findings reinforce the importance of comprehensive assessment and multidisciplinary collaboration in managing complex presentations. Future research should explore longitudinal outcomes and evaluate the effectiveness of targeted interventions, particularly for patients with dual diagnoses or those at risk of disengagement.

Limitations

The observational design of this study limits the ability to draw causal inferences, allowing only associations to be described. Data completeness was another important limitation, reflecting the challenges of extracting information for PEH within existing template-based coding systems. These exclusions were not random and may have introduced bias, thereby limiting the generalisability of the findings.

In addition, identification of temporary housing relied on address lists supplied by community organisations, raising the possibility that some locations were not captured. Recording chronic disease history as a yes/no variable did not allow differentiation by type, number, or severity of conditions, which may have introduced residual confounding thereby, limiting the interpretability of the findings.

Conclusion

We describe the clinical characteristics and ED disposition of PEH presenting to two tertiary EDs. These patients had a wide range of psychosocial and clinical needs, including documented self-harm, mental health conditions, substance use, and chronic disease, with suicidal intent recorded in one in five presentations.

This study highlights the diverse clinical and psychosocial factors associated with ED presentation and disposition. Mental health related variables such as a history of self-harm, psychiatric review, and suicidal intent were strongly associated with admission to mental health facilities and follow up referrals. Several non-mental health factors also had important effects, including injuries/trauma and other system specific ailments. Patients triaged as not urgent had the highest rate of leaving against medical advice (45.2%), suggesting that perceived acuity may influence engagement with care.

These findings underline the need for a holistic approach to ED care for PEH that recognises both mental health needs and the significant burden of chronic disease. Tailored interventions and better coordination between emergency, medical, and community services may improve outcomes for this complex patient group. Improving data collection processes is also essential to ensure accurate and reliable information to support future research and service development.

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Author Contributions Conceptualization – GB and AO Methodology – all authors Validation – all authors Formal analysis – JB Investigation – AO Writing - Original Draft – AO, JB and GB Writing - Review & Editing – all authors Visualization – all authors Supervision – GB Project administration - AO.

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Data Availability Data will be available where a reasonable request is submitted.

Declarations

Ethical approval This study obtained ethics approval from all participating sites as referenced in the methods section.

Competing interests The authors declare no competing interests.

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References

1. United Nations Human Rights. Homelessness and human rights: Special Rapporteur on the right to adequate housing. 2025. Contract No.: (A/HRC/43/43, para.30).
2. Australian Bureau of Statistics. Homelessness operational groups (OPGP): Census of Population and Housing: Census dictionary. 2021.
3. Pawson H, Parsell C, Clarke A, Moore J, Hartley C, Aminpour F et al. Australian homelessness monitor 2024.
4. Australian Institute of Health and Welfare. Homelessness and homelessness services. Australian Institute of Health and Welfare.; 2023.
5. Council to Homeless Persons. Data and demographics: Homelessness facts, stats, and insights.
6. Lutchmun W, Gach J, Borup C, Froeschl G. Chronic diseases and multi-morbidity in persons experiencing homelessness: results from a cross-sectional study conducted at three humanitarian clinics in Germany in 2020. *BMC Public Health*. 2022;22(1):1597.
7. Leifheit KM, Schwartz GL, Pollack CE, Linton SL. Building health equity through housing policies: critical reflections and future directions for research. *J Epidemiol Community Health*. 2022;76(8):759–63.
8. O'donnell M, Varker T, Cash R, Armstrong R, Di Censo I, Zanatta P et al. The trauma and homelessness initiative. Australian centre for posttraumatic mental health in collaboration with sacred heart mission, mind Australia, inner south community health and vincentcare victoria. 2014.
9. Australian Human Rights Commission. Homelessness is a Human Rights Issue. 2008. Available from: <https://humanrights.gov.au/our-work/rights-and-freedoms/publications/homelessness-human-rights-issue>
10. Australian Institute of Health. and Welfare. Health of people experiencing homelessness. 2021.
11. Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet*. 2014;384(9953):1529–40.

12. Council to Homeless Persons. The Last Mile of the Way – The Homelessness, Death and Dying Project. (2019). 2024.
13. Pearson D, Vallesi S, Wood L. Dying homeless in Australia: we must measure it better. *Parity*. 2021;34(7):13–5.
14. Moore G, Gerditz M, Manias E, Hepworth G, Dent A. Socio-demographic and clinical characteristics of re-presentation to an Australian inner-city emergency department: implications for service delivery. *BMC Public Health*. 2007;7(1):320.
15. Miller J-P, Hutton J, Doherty C, Vallesi S, Currie J, Rushworth K, et al. A scoping review examining patient experience and what matters to people experiencing homelessness when seeking healthcare. *BMC Health Serv Res*. 2024;24(1):492.
16. Coyle N, Ferrell BR. Legal and ethical aspects of care. First ed. USA: Oxford University Press; 2016.
17. Currie J, Stafford A, Hutton J, Wood L. Optimising access to healthcare for patients experiencing homelessness in hospital emergency departments. *MDPI*; 2023. p. 2424.
18. Sullivan C, Staib A, Khanna S, Good NM, Boyle J, Cattell R, et al. The National Emergency Access Target (NEAT) and the 4-hour rule: time to review the target. *Med J Aust*. 2016;204(9):354.
19. Morris D, Thompson C, Hernandez AV, Larkin M, McWilliams L, Currie J. Staff perceptions of the potential for nurses to address service gaps within a homeless health service in Sydney, Australia: results of a cross-sectional survey. *Collegian*. 2024;31(5):356–63.
20. Marcus ER, Carreras Tartak JA, Halasz H, Chen D, Lee J, He S. Discharge process for patients experiencing homelessness in the emergency department: a thematic qualitative study. *PLoS One*. 2024;19(6):e0304865.
21. Department of Health. Victorian Emergency Minimum Dataset (VEMD) manual 2025-26. Victorian Government: State of Victoria, Australia, Department of Health; 2025.
22. The RCore Team. R: A Language and Environment for Statistical Computing. 2025.
23. Champely S, Ekstrom C, Dalgaard P, Gill J, Weibelzahl S, Anandkumar A et al. pwr: Basic functions for power analysis. 2017.
24. Cohen J. Statistical power analysis for the behavioral sciences. routledge; 2013.
25. Sainani KL. Dealing with missing data. *PM R*. 2015;7(9):990–4.
26. Bhowmik J, Biswas RK, Ananna N. Women's education and coverage of skilled birth attendance: an assessment of sustainable development goal 3.1 in the South and Southeast Asian region. *PLoS One*. 2020;15(4):e0231489.
27. Kim H-Y. Statistical notes for clinical researchers: chi-squared test and fisher's exact test. *Restor Dent Endod*. 2017;42(2):152.
28. Hossain MM, Sultana A, Tasnim S, Fan Q, Ma P, McKyer ELJ, et al. Prevalence of mental disorders among people who are homeless: an umbrella review. *Int J Soc Psychiatry*. 2020;66(6):528–41.
29. Gutwinski S, Schreiter S, Deutscher K, Fazel S. The prevalence of mental disorders among homeless people in high-income countries: an updated systematic review and meta-regression analysis. *PLoS Med*. 2021;18(8):e1003750.
30. Nilsson SF, Laursen TM, Erlangsen A, Hawton K, Nordentoft M, Fazel S. Homelessness, psychiatric disorders, and risks of suicide and self-harm: a population-based cohort study. *Lancet Public Health*. 2025;10(7):e559–67.
31. Clements C, Farooq B, Hawton K, Geulayov G, Casey D, Waters K, et al. Self-harm in people experiencing homelessness: investigation of incidence, characteristics and outcomes using data from the multicentre study of self-harm in England. *BJPsych Open*. 2022;8(2):e74.
32. Currie LB, Patterson ML, Moniruzzaman A, McCandless LC, Somers JM. Continuity of care among people experiencing homelessness and mental illness: does community follow-up reduce rehospitalization? *Health Serv Res*. 2018;53(5):3400–15.
33. McCallum RW. Urban homelessness and emergency department usage: Predictors and user narratives of emergency care 2019.
34. Brown RT, Hemati K, Riley ED, Lee CT, Ponath C, Tieu L, et al. Geriatric conditions in a population-based sample of older homeless adults. *Gerontologist*. 2017;57(4):757–66.

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