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Predictors of inpatient psychiatric admission in patients presenting to the emergency department: the role of dimensional assessment☆

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ABSTRACT

Objective: To identify which patient factors predict psychiatric hospitalization in patients presenting to the emergency department and to examine the role of the dimensional approach to psychopathology in predicting hospitalization.
Methods: We consecutively recruited 312 patients undergoing psychiatric evaluation in the emergency room of a hospital in Rome over a 6-month period. Patients were rated on the SVARAD (Scala per la Valutazione Rapida Dimensionale), a scale designed for the rapid assessment of the main psychopathological dimensions. Information about patient history, as well as sociodemographic and clinical variables, was also collected. Univariate analysis was performed to detect the variables associated with recommendation of psychiatric hospitalization. Multiple logistic regression analysis was used to identify independent predictors of hospitalization and compare their strength. A replication study was performed in another hospital on a random sample of 118 patients.
Results: In both studies, patients who were recommended for psychiatric hospitalization showed significantly higher levels of anger/aggressiveness, apathy, impulsivity, reality distortion, thought disorganization and activation. Multivariate analysis identified psychopathological dimensions (reality distortion, impulsivity, apathy), diagnosis of psychotic or mood disorders and proposal for compulsory admission as independent predictors of psychiatric hospitalization. Hierarchical regression analysis revealed that the dimensional evaluation was the strongest predictor.
Conclusions: Our findings suggest that, in emergency setting, a systematic dimensional assessment may usefully complement the categorical assessment. Future research should aim at developing an operational assessment model, including both categorical and dimensional approaches to psychopathology.

1. Introduction

Emergency departments (EDs) represent a critical setting with limited time, information and resources, where psychiatrists are required to consider a variety of factors to determine whether patient admission is warranted.

The literature describes many predictors of hospitalization for acute psychiatric patients. Some clinical factors, such as severity of illness and a diagnosis of psychotic or bipolar disorder, were consistently found to predict hospitalization [1–8]. A study performed in Italian EDs [4] found that the highest rate of hospitalization was observed in individuals diagnosed with acute psychotic conditions, followed by those diagnosed with affective psychoses, paranoid states and schizophrenic psychoses. Many specific symptoms were also described as important predictors of hospitalization: agitation, suicidality, danger to self or others, hallucination, delusion, lack of insight, psychomotor inhibition, confusion, destructive behavior, odd behavior and abnormal consciousness. On the other hand, anxiety seems to be negatively associated with hospitalization [3,8–14]. Other clinical factors play a more controversial role. A history of previous hospitalizations was found to be a predictor by many [3,4,8,10,15,16], but not all [17,18], studies. The use of restraint in the ED was reported as an important predictor of admission by Ziegenbein et al. [11]. However, this finding was not replicated by Unick et al. [8], who reported an association with a lower probability of admission in some specific ethnic groups.

Along with clinical factors, sociodemographic and logistic factors were also found to be associated with hospitalization. With regard to sociodemographic factors, many authors observed a relationship between admission and gender, age, marital status, employment status, homelessness, family and social support and ethnicity [3,4,6,8,10,11,19]. Nevertheless, the role of these factors is controversial. Some authors identified male gender, unmarried status, unemployment, status, homelessness and low social support [3,4,6,7,10] as predictors of hospitalization, while other studies did not corroborate these findings [20,21], and some studies even reported opposite results [8,11]. Particularly unclear is the role played by age: Mattioni et al. [4] found a higher rate of admission in young patients (<30 years), and Giampieri et al. [10] found a higher rate in adults aged 39–48 years, while other authors

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identified older age as a predictor of admission [8,21,22]. It should be recognized that these factors might be strongly affected by differences in clinical setting and facility type [23]. Also, even logistic and contextual factors, such as bed availability, day of the week and admission mode, may affect a psychiatrist's decision to hospitalize or not [4,10].

Of note, despite the substantial amount of research in this field, very few studies looked at the issue from a dimensional psychopathology perspective.

In the last two decades, the dimensional approach to psychopathology has gained ground, as many authors have raised concerns about the limitations of the current categorical diagnostic systems [24]. Among these are the lack of zones of rarity between diagnoses, the high rate of comorbidity, "not otherwise specified" diagnoses, the clinical heterogeneity and the lack of biomarkers and specific treatments of mental disorders. Indeed, many authors have called for a more feasible diagnostic system where categorical and dimensional approaches can be integrated [25–28]. A dimensional approach to acute psychopathology is particularly suitable to emergency settings, where clinicians are required to quickly identify the psychopathological domains to be treated, independent of categorical diagnosis. Nevertheless, the literature suggests that interrater agreement among psychiatrists in the ED, even if adequate for some categorical diagnoses, is low for psychopathology, impulse control problems and danger to self. Thus, a standardized instrument would greatly increase the reliability of psychiatric evaluation in the ED [29–31]. Many of the commonly used multidimensional instruments might not be suitable to the emergency setting for various reasons. Most of the instruments evaluating general psychopathology require too much time to be routinely used in emergency settings. On the other hand, many rapid multidimensional scales are self-completed and thus can be difficult to use in the ED. For instance, a study [32] found that, of 457 psychiatric patients seen in the ED, only 248 completed the SCL-90-R (Symptom Checklist-90-Revised). Finally, other rating scales are too narrowly focused, as they are specific for a given psychopathological dimension (e.g., depression, anxiety, mania, positive or negative psychotic symptoms) and do not cover the other dimensions.

Only a few scales are suitable for a dimensional assessment of general psychopathology in EDs. The Brief Psychiatric Rating Scale (BPRS) and the Health of Nation Outcome Scales have been used in previous studies [21,32,33] to evaluate general psychopathology in emergency settings. In this study, we used the SVARAD (Scala per la Valutazione Rapida Dimensionale), an observer-rated scale specifically aimed at the rapid assessment of the main psychological dimensions that was developed and validated in our department [34,35] and was utilized in several previous studies [36–40]. This instrument was designed to allow for a rapid psychopathological evaluation in routine clinical practice, as it is short and easy to complete and covers the psychopathological dimensions that are routinely evaluated during the mental state examination and that have commonly been detected in factor analytic studies of symptom structure in mental disorders. Being short and easy to use, with no distress for the patient, this instrument is particularly suitable to settings such as EDs where there is only a very limited time for patient assessment. While more sophisticated rating scales, such as the BPRS, are of great value in other clinical settings and for other purposes (e.g., detailed evaluation of psychotic symptoms, clinical trials, etc.), the SVARAD might be preferable in this specific setting as it can be completed rapidly and covers more dimensions.

This study aimed, first, at identifying which patient factors independently predict psychiatric hospitalization and, secondly, at examining the role of the dimensional approach to psychopathology, in comparison to the categorical diagnosis, in predicting hospitalization.

2. Methods

2.1. Subjects and settings

This study was performed at the ED of the Policlinico Umberto I, which is the biggest university hospital in Italy. Located in downtown Rome, it serves a large population and admits about 134,000 patients each year; of these, about 1% require psychiatric evaluation (data refer to 2012).

We included in the study 312 consecutive patients who were admitted to the ED and underwent psychiatric assessment between January and July 2008. The sample accounts for 74.5% of all the patients (N=419) for whom psychiatric evaluation was required during the enrolment period: 16 subjects were not evaluable due to issues such as negativism, uncooperativeness, confusion and excessive sedation, while 91 of them had missing SVARAD data. However, selection bias is unlikely to have occurred because no differences in sociodemographic (age, sex, marital status, ethnicity, nationality) or clinical (psychiatric diagnosis, proposal of compulsory admission, previous psychiatric admissions) characteristics were found between the patients who were included in the study and those who did not.

2.2. Procedure

The psychiatric evaluation was required by an ED physician after blood and instrumental examinations were completed in order to exclude organic disease. Each assessment was performed within 15 min by one of eight senior psychiatrists from the acute psychiatric ward with an average experience in emergency consultation of 16.5 years (S.D.=5.7) and was reviewed by one of two senior supervisors.

The recommendation of psychiatric admission was chosen as the main outcome of interest. We selected this variable rather than the actual admission because the latter may be affected by a variety of clinical and nonclinical factors, such as logistic factors, patient's refusal or presence of other priorities.

For each patient, we collected the following sociodemographic, clinical and psychopathological variables, to test them as potential predictors of recommendation of hospitalization: age, gender, nationality, ethnicity and marital status; proposal for compulsory admission[1], previous psychiatric hospitalization, categorical diagnosis made in the ED according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria and recommendation of hospitalization; and SVARAD scores.

Data were collected through a standardized form that was completed by the psychiatrist who made the first assessment in the ED within 12 h.

To test our findings in a different setting, we performed a replication study including 118 patients randomly sampled from all patients (N=313) requiring psychiatric evaluation in the San Filippo Neri hospital ED, which is located in the northern area of Rome. This replication study was performed between July and October 2014 and it involved 10 senior psychiatrists with an average experience in emergency consultation of 9.1 years (S.D.=9.0). The replication sample did not significantly differ from the main sample in any of the sociodemographic and clinical variables examined.

We also performed a survey on both samples of clinicians in order to investigate the extent to which they based their decision to recommend psychiatric hospitalization for a patient seen in the ED on each of the following factors: sociodemographic features, psychiatric history and clinical characteristics, a categorical approach (diagnosis) or a dimensional approach (symptom profile).

2.3. Instruments

The SVARAD consists of 10 items, each scored on a 5-point scale, ranging from 0 ("not present") to 4 ("extremely severe"). For each item, it includes a detailed description of the dimension being rated and defined anchor points for severity. The validation study provided evidence of interrater reliability (Cohen's kappa 0.48–0.68), content

[1] The Italian law stipulates that compulsory admission should be signed by two physicians, at least one of whom should work for the National Health Service. In EDs, candidates for compulsory admission arrive with a signed proposal, and the psychiatrist should decide whether to confirm it or not.