

Somatic Illness and Hospitalization as Triggers for Psychiatric Disorders of the Affective Spectrum: Results of a Large Study on Consultation-Liaison Psychiatry

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Abstract

Objective: The hospitalization of patients for medical reasons potentially generates enormous psychological stress and may evoke psychiatric pathology of the affective/anxiety-spectrum. It is well known that affective disorders are very common diagnoses among somatically ill patients. Here, we further investigated the characteristics of depression and anxiety in hospital patients by studying data from a large sample of psychiatric consultations of medical inpatients.

Methods: In a prospective, observational design we collected and analyzed data from 890 psychiatric consultations of somatically ill hospital patients, who required psychiatric assessment by consultation-liaison services due to acute psychopathology. Only data that were collected as part of the routine psychiatric care were processed for this study. Patients were seen in two German hospitals, Klinikum Forchheim and University Clinic Erlangen. More than 90% of consultations were carried out by the same three psychiatrists.

Results: Affective disorders were the most common diagnoses given to patients as a result of the consultation (39.2%). A further 10.4% of patients suffered from reaction to severe stress and adjustment disorders and 7.7% suffered from anxiety disorders. More than 80% of patients with disorders of the affective/anxiety spectrum required further treatment following the consultation, and 36.1% of patients with affective disorders required inpatient psychiatric treatment. Relatively few patients had received regular psychiatric treatment or psychotherapy prior to the hospital stay (24.8% for affective disorders, 19.1% for anxiety disorders and 9.2% for reaction to severe stress and adjustment disorders), yet 82.5% of patients had a pre-existing psychiatric diagnosis.

Conclusion: Our findings underline the potential of a medical hospital stay to trigger substantial psychiatric symptoms in patients with and without a pre-known psychiatric diagnosis. Patients with a pre-existing diagnosis of affective or anxiety disorders seem to be at particular risk of developing psychopathology in the course of a somatic hospital stay. Better routine psychiatric care is needed to prevent the development or exacerbation of psychopathology in hospital patients.

Keywords: Consultation-liaison psychiatry; Depression, Anxiety; Reaction to severe stress; Adjustment disorders; Hospitalization; Psychiatric comorbidity

Abbreviations: CNS: Central Nervous System; PTSD: Post-Traumatic Stress Disorder; SSRI: Selective Serotonin Reuptake Inhibitors; DSQ: Four-Dimensional Symptom Questionnaire

Background

Psychiatric disorders are common comorbidities in patients who are hospitalized for somatic reasons, and these patients frequently require an external expert evaluation by a psychiatrist who provides a consultation-liaison service [1-3]. The distribution of psychiatric diagnoses among patients of a general medical hospital differs from that of the general population or of a psychiatric hospital [4]. While severe acute psychiatric disorders that require inpatient psychiatric treatment, such as schizophrenia, are likely to be underrepresented in a general hospital setting, the significant psychological and physical stress of hospitalization and somatic illness may facilitate the development of internalizing disorders, such as depression and anxiety.

The amount of negative impact depends on individual circumstances, but for many patients, hospitalization will mean a significant, stressful life event [5,6] that involves not only an interruption of daily social and professional life, but in many cases also anxiety due to a diagnostic or treatment outcome as well as debilitating medical procedures such as surgery or chemotherapy. Furthermore, there may be direct effects

of severe illness such as pain and exhaustion. In this context, it is not surprising that affective disorders are especially common in somatically ill patients [7,8]. While a depressive disorder may pre-exist due to an unrelated hospital stay or medical condition, it can be assumed that a considerable proportion of these cases may be reactive due to the current circumstances or may constitute a combination of a reactive exacerbation with a pre-existing mild affective disorder.

Independent of the disease-related psychological burden, somatic illness may further contribute to psychiatric symptoms via direct central nervous system (CNS) effects, i.e., in acute delirium or chronic neurological disease as well as in cases of alcohol abuse. People who

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Received March 09, 2017; Accepted May 22, 2017; Published May 26, 2017

Citation: Caroline Lücke, Jürgen M. Gschossmann, Katharina Bachmann, Peter Sörös, Stephanie Klügel, et al. (2017) Somatic Illness and Hospitalization as Triggers for Psychiatric Disorders of the Affective Spectrum: Results of a Large Study on Consultation-Liaison Psychiatry. J Depress Anxiety 6: 276. doi:10.4172/2167-1044.1000276

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Diagnosis	Total	Male	Female	Exact Sig.*
Organic mental disorder	161 (18.9%)	80 (23.7%)	81 (15.8%)	p=0.006
Organic mental disorder excluding dementia	97 (11.4%)	52 (15.4%)	45 (8.8%)	p=0.004
Mental disorder related to alcohol	95 (11.2%)	63 (18.6%)	32 (6.2%)	p=0.000
Mental disorder related to drugs other than alcohol	21 (2.5%)	10 (3.0%)	11 (2.1%)	p=0.502
Psychotic disorder	41 (4.8%)	19 (5.6%)	22 (4.3%)	p=0.415
Affective disorder	335 (39.3%)	112 (33.1%)	223 (43.4%)	p=0.003
Phobic/other anxiety disorder	66 (7.7%)	25 (7.4%)	41 (8.0%)	p=0.794
reaction to severe stress/adjustment disorder	89 (10.4%)	29 (8.6%)	60 (11.7%)	p=0.170
Dissociative/conversion disorder	8 (0.9%)	1 (0.3%)	7 (1.4%)	p=0.155
Somatoform disorder	44 (5.2%)	8 (2.4%)	36 (7.0%)	p=0.002
Eating disorder	6 (0.7%)	1 (0.3%)	5 (1.0%)	p=0.411
Sleep disorder	3 (0.4%)	1 (0.3%)	2 (0.4%)	p=1.000
Other psychiatric diagnosis	21 (2.5%)	6 (1.8%)	15 (2.9%)	p=0.369
No psychiatric disorder	46 (5.4%)	18 (5.3%)	28 (5.4%)	p=1.000

Chi-Square Statistic: Fisher's Exact Test (2-sided)
Multiple diagnoses were possible. Percentages and totals are based on respondents (n= 852).

Table 1: Psychiatric diagnoses that resulted from psychiatric consultations in medical inpatients.

suffer from such conditions will naturally be over represented in a general hospital population that requires medical treatment.

Recent research on consultation-liaison psychiatry in hospital patients has often focused on socioeconomic questions, such as the length of hospital stay, which may be increased by psychiatric comorbidities [9-11]. Here, we were primarily interested in a current state view on the nature and management of psychiatric illness in general hospital patients. We analyzed data from a large population of patients who required psychiatric consultation due to the presence of comorbid psychiatric symptoms. Our special focus was on the spectrum of internalizing disorders, as affective and anxiety disorders are known to play a major role in medically ill patients [12] and are likely to be directly or indirectly related to the hospital stay. A better understanding of the prevalence, characteristics and therapeutic needs of these disorders in the group of patients who required medical hospitalization may lead to better strategies of earlier recognition and optimized treatment as well as the prevention of psychiatric exacerbation in the first place.

Methods

Data from 890 patients who were hospitalized for somatic reasons and required a psychiatric consultation were collected and evaluated. of these, 545 individuals were patients of Klinikum Forchheim, a medium-sized general hospital, and 345 individuals were patients of University Clinic Erlangen, a large university hospital. The majority of the patients (90.9%) came from the department of internal medicine. Psychiatric consultations were usually requested by the somatically treating physician. Patients were psychiatrically examined by experienced psychiatrists, and over 90% of consultations were conducted by the same three psychiatrists. At the University Clinic Erlangen, consultations were conducted on-demand for individual patients and were conducted in a timely manner by a psychiatrist of the University Clinic's psychiatric department. In Klinikum Forchheim, consultations were performed in a "quasi-liaison-model", meaning that the consultant psychiatrist came into the clinic for two fixed consultation hours per week to see several patients who required a psychiatric consultation. The time-span of data collection was September 2011-April 2012 at University Clinic Erlangen and March 2014 - September 2015 at Klinikum Forchheim.

The following criteria for inclusion/exclusion of study participants applied:

Inclusion criteria

Inpatients of the participating clinics, who received a psychiatric consultation during the time-spans of study conduct.

Exclusion criteria

Patients, who did not give consent to participate after explanation of the study design by the liaison psychiatrist.

The conduct of psychiatric consultations was the same in both clinics, following the standard routine of psychiatric practice, and included a detailed psychiatric and medical history, a third-party history by the somatically treating staff, observation of the current psychopathology and, if applicable, a neurological examination. Only information that was gained as part of the standard psychiatric consultation was collected and evaluated for this study. This included demographical data, current psychopathology, psychiatric diagnoses given, recommended treatment and previously received treatment. All patients gave informed consent to participate after an explanation of the study design by the liaison psychiatrist.

Data processing and analysis were performed using SPSS Statistics 23 (IBM, Armonk, NY, USA). Data were analyzed descriptively or via the appropriate statistical method to test for significant differences between groups (chi-square test for dichotomous data, t-test for continuous data).

The study was reviewed and approved by the ethics committee of the Friedrich-Alexander-University of Erlangen-Nuremberg.

Results

A total of 890 psychiatric consultations were evaluated, the mean patient age was 64.66 years (range: 15-99 years). 75% of patients were older than 50 years and 25% of patients were older than 80 years. 59.9% of patients were female. The distribution of psychiatric diagnoses in the total population of hospital patients is shown in (Table 1)

Affective disorders were the most common diagnoses and were found in 39.2% of the total population. Furthermore, the diagnoses that were summarized in ICD 10 as reaction to severe stress, and adjustment disorders (F43), including acute stress reactions post-traumatic stress disorder (PTSD) and adjustment disorders were present in 10.4% of patients. An additional 7.7% of patients suffered from anxiety disorders

Recommended further psychiatric treatment	Affective disorder	Phobic/other anxiety disorder	Reaction to severe stress/adjustment disorder	Total
no further treatment	40 (14.3%)	9 (16.4%)	14 (18.9%)	61 (15.3%)
outpatient psychotherapy	11 (3.9%)	5 (9.1%)	7 (9.5%)	21 (5.3%)
outpatient psychiatric treatment	113 (40.4%)	25 (45.5%)	39 (52.7%)	173 (43.4%)
outpatient psychiatric treatment and psychotherapy	13 (4.6%)	8 (14.5%)	5 (6.8%)	26 (6.5%)
Inpatient treatment, open ward	75 (26.8%)	8 (14.5%)	8 (10.8%)	89 (22.3%)
Inpatient treatment, crisis unit	28 (10.0%)	0 (0.0%)	1 (1.4%)	29 (7.3%)
N Total	280	55	74	399

Multiple diagnoses were possible. Percentages and totals are based on respondents.

Table 2: Recommended psychiatric treatment in patients with internalizing disorders.

(including phobic disorders). Thus, diagnoses from the affective/anxiety spectrum played a major role and accounted for more than half of all psychiatric consultations (57.3%).

A total of 18.9% of patients suffered from organic mental disorders, including delirium, which was the second most common diagnosis overall. To better evaluate whether this diagnosis potentially stood in direct relation to the hospital admission, we did a further analysis of these cases, excluding patients with Alzheimer's disease or vascular or unclassified dementia, which likely would not be related to hospital admission for medical reasons. After these cases were excluded, 11.3% of patients remained who suffered from psychiatric symptoms that were caused by an organic illness. Among these were patients who suffered from acute psychopathology, such as delirium after surgery or a confused state after traumatic brain injury, while in others, the psychiatric symptoms could be attributed to the presence of a chronic CNS-affecting illness, such as Parkinson's disease.

In the majority of patients, a psychiatric disorder had already been known prior to the current consultation: only 17.5% of patients did not have a pre-known psychiatric diagnosis. The distribution of pre-known diagnoses largely matched the most common diagnoses that were given after the consultation. A total of 30.3% of patients suffered from a pre-known affective disorder.

Evaluation of the psychopathological symptoms that were evident in patients at the time of the psychiatric consultation revealed that, independent of conclusive diagnoses, "depressed mood" was the most common symptom (51.6%), followed by "reduction of drive" (38.5%), "anxiety" (21.5%) and "reduced interest" (20.5%). Within the group of patients who suffered from anxiety, "situation-bound anxiety" was most frequent and was found in 14.8% of patients.

Diagnoses from the affective/anxiety spectrum were significantly more common in women compared to men; approximately twice as many women suffered from affective disorders (66.6 vs. 33.4%), reactions to severe stress and adjustment disorders (67.4% vs. 32.6%) and anxiety disorders (62.1% vs. 37.9%; $p < 0.001$). For diagnoses from the dissociative/somatoform spectrum, the contrast was even greater. Women comprised 87.5% of patients who suffered from dissociative and conversion disorders and 83.3% of patients with somatoform disorders. In contrast, among patients who were being diagnosed with an alcohol-related disorder, two-thirds were men (66.3%). However, in relation to these findings, it has to be kept in mind that affective disorders were still the most frequent diagnoses in the group of male patients (33.1%).

Further treatment was regularly recommended for patients who suffered from diagnoses of the affective/anxiety spectrum. An overview of the rates and forms of further treatment in the subgroups of patients with internalizing disorders is given in (Table 2).

A total of 85.7% of patients with affective disorders, 83.6% of patients with anxiety disorders and 81.2% of patients with adjustment disorders required further treatment. In contrast, the numbers of patients who had received regular psychiatric or psychological care prior to their hospital admission were relatively low, including 24.8% of patients with affective disorders, 19.1% of patients with anxiety disorders and 9.2% of patients with a reaction to severe stress/adjustment disorders. Some patients had received treatment from their general practitioner but not by a specialist.

Psychotherapy is generally recognized to be an effective treatment, especially in patients with internalizing disorders, and is recommended as first-line treatment for affective and anxiety disorders by major psychiatric societies, such as the American Psychiatric Association [13] and the German Society of Psychiatry and Psychotherapy [13,14]. Rates of psychotherapy recommendation in this patient population were 42.2% for patients with affective disorders, 53.7% for patients with anxiety disorders and 33.3% for patients with a reaction to severe stress/adjustment disorders. As described above, most of these patients had not received psychotherapy prior to their hospital admission.

Antidepressant medication was frequently prescribed to patients who had internalizing disorders. Of the patients with affective disorders 24.5% were treated with selective serotonin reuptake inhibitors (SSRI), 23% were treated with mirtazapine, 8.1% were treated with tricyclic antidepressants, and 7.2% were treated with other antidepressants. Prescription rates of SSRI and mirtazapine were similar in patients with anxiety disorders and a reaction to severe stress/adjustment disorders, with the exception of the latter being more commonly treated with mirtazapine (33.7%).

Regarding the setting for further treatment, outpatient psychiatric treatment was recommended most often (in 40.4% of patients with affective disorders, 45.5% of patients with anxiety disorders and 52.7% of patients with a reaction to severe stress/adjustment disorders). Exclusive psychotherapeutic treatment was not commonly recommended (3.9% of patients with affective disorders, 9.1% of patients with anxiety disorders and 9.5% of patients with reaction to severe stress/adjustment disorders), which indicated a high need of concomitant pharmacological treatment in these patients.

Within the patient group that suffered from affective disorders, admission to a psychiatric clinic was also frequently recommended. In 26.8% of patients, inpatient treatment in an open ward was regarded as feasible, and 9.3% of patients even required admission to an inpatient crisis unit, usually due to acute suicidality. In patients who suffered from anxiety and a reaction to severe stress/adjustment disorders, the rates of psychiatric hospitalization were lower (14.5% and 12.2% of patients, respectively).

Discussion

The most common psychiatric disorders in the population of somatically ill hospital patients were affective/anxiety disorders, followed by organic mental disorders and alcoholism. This finding is in line with previous research [3,4,7], and the distribution of disorders does not appear to have undergone significant changes over time. In some instances, such as in patients with alcoholism or chronic CNS disease, this knowledge may be of mainly diagnostic value for consultation-liaison psychiatrists, showing that these conditions continue to play a major role in the differential diagnosis of psychiatric symptoms in this population. However, our data indicate that in other conditions, especially those of the affective/anxiety spectrum, the hospital stay itself may play an important pathogenetic role that influences the patients' somatic and psychiatric outcome. As described above, the event of hospitalization may affect a person in multiple ways, including separation from family and friends, experiences of helplessness and deficiency, loss of professional identity, acute or chronic pain and exhaustion, as well as worries about diagnostic or therapeutic outcomes. Needless to say, patients who receive a fatal diagnosis and have to deal with the knowledge of imminent death are especially likely to suffer from severe desperation and anxiety. Our data showed that psychopathology of the affective/anxiety spectrum was very common in hospital patients, independent of the final psychiatric diagnosis.

More than half of the patients who were diagnosed with affective or anxiety disorders required treatment with antidepressant medication as prescribed by the consultation-liaison psychiatrist, which indicates that patients were already significantly affected at the time of diagnosis. The recommendation of psychotherapy alone was very rare. This may also be due to the fact that outpatient psychotherapy usually can't be offered on short notice and further hints at an acute need for treatment in patients. More than one-third of patients with affective disorders even required psychiatric inpatient admission following the somatic treatment. A combination of psychiatric and psychotherapeutic treatment was frequently recommended in patients with internalizing disorders, which shows a high need for individualized counseling.

One of the prime finding of this study is the large contrast between psychiatric/psychological treatment needs at the time of consultation and the low rates of actual treatment prior to the hospital admission.

In some cases, this gap might be explained by the absence of significant pathology before the hospital stay, which would further strengthen the argument that acute somatic disease and hospital admission have a strong negative impact on psychological well-being. In patients with reaction to severe stress/adjustment disorders as well as situation-bound anxiety, the psychiatric psychopathology may even be explained in full by the hospital stay and the acute somatic illness.

However, it must be kept in mind that in the majority of patients a pre-existing psychiatric disorder had already been identified. Still, because treatment rates before hospitalization were low, many of these patients were apparently not severely affected before the hospital stay. Thus, the high percentage of pre-known psychiatric disorders in our patient population, especially of affective disorders, indicates that these patients are at particularly high risk for an exacerbation or the development of new psychopathology that is triggered by the impact of the hospital stay.

In a further subgroup of patients without a pre-known psychiatric diagnosis, a disorder might have actually been present before hospital

admission but not been diagnosed accordingly. This may especially apply to patients with significant depressive episodes which usually do not develop within a few days. In some of these cases, the somatic illness, finally leading to the present hospital stay, may have played a role in the development of psychiatric illness since somatic disease in general is a well-known risk factor for the development of psychiatric illness [15]. Still, the same applies to these patients with regards to a possible exacerbation of pre-existing pathology by the event of hospitalization.

In conclusion, independently of a pre-existent psychiatric illness, the large treatment gap found in our study underlines the role of a hospital stay as a possible trigger of psychiatric pathology and supports the need for readily available psychiatric care in hospitals as well as for more tailored routine counseling offers to help patients cope with their situations. Such programs are already commonly offered in the field of psycho-oncology and could be extended and modified for implementation in other medical areas as well. For many patients, psychotherapy could be conducted in an economical way in a group setting. In addition, medical doctors and nurses on medical and surgical units need to be trained in basic psychiatry with a focus on affective and anxiety disorders. Validated screening questionnaires, such as the Hospital Anxiety and Depression Scale [16,17] and the Four-Dimensional Symptom Questionnaire (4DSQ) [18], can be used to detect the development of depression and anxiety. Ideally, the early detection of symptoms as well as prophylactic counselling could help to prevent the development of a more significant psychiatric disorder that requires more extensive treatment.

In patients with a pre-existing psychiatric diagnosis routine psychological care including individual or group counseling to prevent the initiation of psychopathology as described above is of particular importance and should be actively suggested. In addition, medical doctors as well as nurses need to be aware of individual pre-known psychiatric problems, adapt their social interactions with patients accordingly and regularly observe patients for signs of acute psychiatric pathology. Of course, such measures of prevention are facilitated by a good information flow from the treating outpatient physician to the hospital medical staff, under the condition of the patient's consent.

Our study provides up-to-date data for a large patient population in Western hospitals. A methodological strength of this study is the low inter-rater-bias, as nearly all patients were seen by the same three psychiatrists who conducted consultations in a standardized scheme. Still, the sample population was not entirely homogenous, as patients were seen in two different clinics that also operated according to two different systems of consultation-liaison psychiatry (on-demand consultations versus regular consultation hours). While the distributions of psychiatric diagnoses were similar in both clinics, organic disorders were more common in patients seen in Klinikum Forchheim, while affective disorders were more frequently diagnosed in patients who were seen at University Hospital Erlangen. Patients at University Hospital Erlangen were also shown to be, on average, more severely affected [19]. However, differences between groups were not large. Thus, the analysis of both groups as a single population appears to be feasible to provide more generalizable results.

In the interpretation of our data it is important to acknowledge, that only those patients were psychiatrically assessed who had been judged to show psychiatric pathology by a non-psychiatric physician. Therefore, our data cannot give information about the exact prevalence of psychiatric symptoms and diagnoses in a medical hospital. Patients with less prominent symptoms may have simply been overlooked by the somatically treating physicians, particularly patients with

depression or anxiety disorders who usually don't display disruptive or noncompliant behavior and may not readily inform medical staff about their state of mind. Thus, the real importance of internalizing disorders in a consultation-liaison context may be even greater than implied by our data.

Conclusion

In summary, this study highlights the importance of the recognition of a hospital stay for medical reasons as an important risk factor for the development or exacerbation of psychiatric pathology, especially pathology of the affective/anxiety spectrum. Patients with a pre-known psychiatric disorder appear to be at particular risk for acute symptoms that are triggered by the hospital stay and related circumstances. The improvement of routine psychiatric care, including psychological counseling for such patients, could help prevent more extensive treatment needs and improve overall outcome in many cases.

Ethics and consent to participate

Ethics and consent to participate was overseen and approved by the Ethics committee of the Friedrich-Alexander University of Erlangen-Nuremberg. All patients gave informed consent to participate after receiving an explanation of the study design and procedures by the psychiatrist performing the psychiatric consultation.

Consent for Publication

Not applicable.

Availability of Data and Materials

All data are accessible upon request by contacting the corresponding author.

Competing Interests

All authors declare that they have no competing interests.

Funding

The study was internally funded by the Department of Psychiatry of the Friedrich-Alexander University Erlangen-Nuremberg (Head of Department: Professor Johannes Kornhuber).

Acknowledgement

Not applicable.

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