Psychiatric consultations and length of hospital stay

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ABSTRACT

الهدف: تهدف هذه الدراسة إلى فحص العوامل المؤثرة على طول مدة البقاء في المستشفى للمرضى المحولين إلى قسم الطب النفسي التواصلي.

الطريقة: اشتملت عينة الدراسة على جميع المرضى المحولين إلى قسم الطب النفسي التواصلي في مستشفى الملك خالد الجامعي بالرياض خلال سنة 2004م و قد قمنا برصد المعلومات التالية لكل مريض: خصائص المريض الديموغرافية و تاريخ كل من الدخول و الخروج من المستشفى والتحويل و عدد أيام بقاء المريض في المستشفى والوحدة مصدر التحويل و سبب التحويل بحسب الفريق المعالج و التشخيص النفسي تبعاً للدليل التشخيصي و الإحصائي بنسخته الرابعة.

النتائج: بلغ عدد الحالات التي شملتها الدراسة 264 حالة، ووجدنا ترابطاً وثيقاً وذا دلالة إحصائية بين مدة البقاء في المستشفى و توقيت التحويل إلى الطب النفسي التواصلي. كما أظهرت الدراسة أن التنويم في أقسام الجراحة والهذيان من عوامل طول البقاء في المستشفى، كما أن التنويم في أقسام النساء و الولادة والقلق و الاضطراب الوجداني ثنائي القطب من عوامل قصر مدة البقاء في المستشفى.

خاتمة: يؤكد هذا الارتباط الوثيق بين توقيت التحويل إلى الطب النفسي التواصلي ومدة البقاء في المستشفى على أهمية تعرف الأطباء مبكراً على المرضى الذين هم بحاجة للتدخل الطبي النفسي، و تناقش الدراسة أيضاً سبل تعرف الأطباء على هؤلاء المرضى.

Objective: To examine factors affecting the length of hospital stay (LOS) of patients referred to psychiatric consultation liaison (C-L) services.

Methods: The study sample prospectively included all the referrals in 2004 to the C-L psychiatry unit at King Khaled University Hospital in Riyadh, Kingdom of Saudi Arabia. The following factors were documented for each consultation: patient demographic characteristics, dates of admission, consultation, and discharge, and total days of stay, medical specialty service requesting the consultation, reason for referral given by the referring physician, and the Diagnostic and Statistical Manual of Mental Disorders DSM-IV diagnosis, based on the consultation interview.

Results: The total number of referrals was 264. The LOS showed positive correlation with referral time (p=0.0001) accounting for 22% of the variance in LOS. Surgical ward admission and diagnosis of delirium predicted longer LOS, while obstetric/gynecology ward admission, diagnosis of anxiety, and diagnosis of bipolar affective disorder predicted shorter LOS.

Conclusion: The direct correlation between the timing of referral and LOS reinforces that it is important for medical professionals to identify and detect patients who require early psychiatric intervention. Ways of detecting high-risk patients are discussed.

Neurosciences 2008; Vol. 13 (2): 161-164

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Received 7th August 2007. Accepted 1st December 2007.

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Psychiatric comorbidity is a central contributor to one of the most important factors of medical costs, the length of stay (LOS).[1] Often, patients referred to psychiatric consultation-liaison (C-L) services can be termed 'complex'. They suffer from multiple somatic and psychosocial comorbidities and reveal increased levels of medical care utilization.[2,3] Timely detection of patients at risk of long hospital stay has been an issue in C-L psychiatric research for many years. Earlier psychiatric consultations are associated with a shorter discharge time, whereas delayed consultations are associated with a longer LOS.[3-5] Even when the medical condition can be controlled, the psychiatric reason for referral and diagnosis, the interventions recommended, and the timing of the psychiatric consultation predicts

LOS. This suggests that a more timely psychiatric consultation could potentially improve outcomes and reduce costs.[1,6] For some patients, for a variety of reasons, the need for referral to psychiatry may not be immediately apparent to the referring physicians. This delay may, in turn, adversely affect the patient's LOS.[7] Given the importance of a time-efficient hospital stay for patients in medical settings, it is important to examine the relevant psychiatric factors that could have an impact on LOS. This study examines factors affecting the LOS of patients referred to psychiatric C-L services.

Methods. The study sample included all the 264 C-L referrals of adult patients aged 18 years and above in 2004 to the psychiatry unit at the King Khaled University Hospital in Riyadh, Kingdom of Saudi Arabia which is a general hospital with an 800-bed capacity. After obtaining ethical approval, the study was conducted and the following factors were documented for each consultation: 1) patient demographic characteristics; 2) dates of admission, consultation and discharge, and total days of stay; 3) medical specialty service requesting the consultation; 4) reason for referral given by the referring physician; and 5) the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) diagnosis, based on the consultation interview.

Statistical analysis. Logarithmic transformation of the LOS was applied to account for the skewness. To assess the timing of the consultation, several investigators have suggested to transform the timing of referral into one adjusted for the length of the LOS, using the following formula:[3,5,7]

Referral time = log (numbers of days from admission to consult)/log LOS

Results were considered statistically significant at $p<0.05$. To explore associations between independent factors (referral time, reason for referral, referring department, and psychiatric diagnosis) and the LOS, a univariate logistic regression model was initially used and subsequently variables with significant p-value were evaluated in a multivariate logistic regression model using STATA software version 9.

Results. Table 1 summarizes the characteristics of the patients. The median LOS for all patients receiving psychiatric consultation was 10 days and the mean was 19 days, whereas the median of days from admission to consultation was 4 days and the mean was 8 days. Of the consultations, 45.1% were from medicine. Evaluation of depression accounted for 33.3% of the total number of referrals, while substance abuse represented 1.1% (the least). Univariate regression analysis of LOS showed positive correlation with referral time (Coefficient = 0.69, p=0.0001; 95% confidence interval [CI],

Table 1 - Background characteristics of the patients.

Variable	n (%)
Age	
Mean	35
Median	34
Gender	
Men	92 (35.2)
Women	166 (64.8)
LOS in days	
Mean	19
Median	10
Referring service (unit)	
Medicine	119 (45.1)
Surgery	67 (25.3)
Intensive care	15 (5.7)
Ob/Gyn	56 (21.3)
Others	7 (2.6)

Ob/Gyn - obstetrics and gynecology, LOS - length of stay

Table 2 - Univariate regression analysis of factors affecting length of stay.

Variable	Coefficient	95% confidence interval	*P*-value
Referral time	0.69	0.64 to 0.75	0.0001
Referring departments			
Surgery	0.24	0.10 to 0.37	0.0001
Obstetric/Gynecology	-0.45	-0.58 to -0.31	0.0001
Reasons for referral			
Behavioral problems	0.18	0.01 to 0.35	0.038
Cognitive impairment	0.64	0.02 to 1.26	0.043
Anxiety as a reason for referral	-0.23	-0.43 to -0.02	0.025
Known psychiatric patients	-0.22	-0.39 to -0.04	0.013
Psychiatric diagnosis			
Delirium	0.51	0.30 to 0.73	0.0001
Anxiety	-0.33	-0.52 to -0.15	0.0001
Bipolar affective disorder	-0.37	-0.62 to -0.13	0.003

Table 3 - Stepwise multiple regression analysis of factors affecting length of stay.

Variable	Coefficient	95% confidence interval	*P*-value
Referral time	0.66	0.57 to 0.76	0.0001
Surgical ward admission	0.15	0.03 to 0.28	0.010
Anxiety	-0.16	-0.33 to -0.007	0.040
BAD	-0.29	-0.51 to -0.07	0.010
Delirium	0.34	0.16 to 0.51	0.000
Ob/Gyn ward admission	-0.19	-0.32 to -0.05	0.007

Ob/Gyn - obstetrics and gynecology, BAD - bipolar affective disorder

0.64-0.75, degrees of freedom [df]=1, F-ratio=76.3, Residual [R]=0.47, R-squared=0.22) accounting for 22% of the variance in LOS. This indicates that earlier referrals predicted a shorter LOS (**Table 2**). Among the referring departments, referrals from the department of surgery predicted longer LOS (p=0.0001), whereas those from the department of obstetrics and gynecology predicted shorter LOS (p=0.0001). Referrals from other departments did not show correlation with LOS. Further, only 4 reasons for referrals correlated with LOS: behavioral problems (p=0.038) and cognitive impairment (p=0.043) predicted longer LOS. Whereas known psychiatric patients (p=0.013) and anxiety (p=0.025) predicted shorter LOS. Only 3 psychiatric diagnoses correlated with LOS: diagnosis of delirium (p=0.0001), which predicted longer LOS. However, diagnosis of anxiety (p=0.0001) and bipolar affective disorder (BAD) (p=0.003); predicted shorter LOS. Using multivariate regression analysis, only 6 variables continued to have a significant effect on LOS (coefficient=0.66, p=0.0001, 95% CI 0.57-0.76, R=0.6, R-squared=0.37, df=6, F=23.3), accounting for 37% of the variance in LOS (**Table 3**).

Discussion. The findings of this study confirm the significant relationship between LOS, and some factors related to psychiatric care of patients; one of the most important factors is the timing of referral to C-L services. Delayed psychiatric consultation is associated with longer LOS, a finding confirmed by many studies worldwide.[2,3,5-7] Therefore, it could be concluded that timely psychiatric consultation could potentially improve outcomes and reduce medical costs. The direct correlation between the timing of referral and LOS and, consequently, the effect on cost of medical care, reinforces that it is important for medical professionals to identify and detect patients who require early psychiatric intervention. The diagnosis of delirium, surgical ward admission, and patients perceived by their physicians as having behavioral problems or cognitive impairments could be used to identify high-risk patients for longer LOS. It is not surprising that delirium is a significant predictor of longer LOS, since it has been found to be independently associated with more deaths, late referrals, longer stay, and higher cost for adult patients of all ages.[2,8,9] Further, the detection rate for delirium is poor.[10-12]

Kishi et al[6] reported that surgical ward admission is a high-risk factor for delayed psychiatric consultation, which is a significant predictor of longer LOS.[2,6,7] Consultations that require the physician's empathy, namely, ability to understand patients, may contribute to the delay in certain consultations.[6] Doctors in people-oriented specialties such as internal medicine and its subspecialties, emergency medicine, and psychiatry have higher measures of empathy than those in technology-oriented specialties such as anesthesiology, surgery, and the surgical subspecialties.[13,14] These factors might help explain why the patients in the surgical wards had longer LOS. It has been pointed out that empathetic physicians have a better ability to understand their patients, which leads to several beneficial clinical effects in patient care, including patient satisfaction and positive outcomes.[15] Unlike surgery, admission in Obstetric/Gynecology wards significantly predicted shorter LOS, which might be attributable to the nature of routine cases in this specialty that often do not require prolonged admission. Patients with behavioral problems are usually referred earlier,[2,6] and this could, to some extent, explain the correlation between behavioral problem referral and shorter LOS in this study. Substance-related disorders, no psychiatric diagnosis status, and psychotic disorder status did not predict LOS in this study, but were significant predictors in the study carried out by Kishi et al.[6]

Approximately 27% of patients admitted to the medical wards have significant psychiatric disturbances fulfilling the DSM-IV criteria.[16] Patients with psychiatric comorbidity have a significantly longer LOS up to 8.2 days compared with inpatients with mere internal diagnosis. This correlation is not influenced by the length and the severity of the illness.[1] It raises the question as to what is the detection technique that is both sensitive and feasible. Several prospective controlled trials of screening and treatment for psychiatric disorders in general hospitals have failed to reveal that routine screening for psychiatric disorder leads to benefit in outcomes or LOS.[17-20] Although some trials show that the liaison psychiatry model, not the consultation model, reduces LOS,[21,22] the former, unfortunately, is neither economically viable nor practically feasible given the manpower shortage, time limits, and the special demands the model poses. Therefore, other ways of detection need to be adopted. The involvement of a C-L nurse has been found to be effective in reducing the LOS of elderly patients.[23] A well-trained C-L nurse can detect patients who are at high-risk of having prolonged LOS or even those at high-risk for delayed referral to psychiatry. Moreover, the service-provider can detect patients with psychosocial problems early in the medical setting, enabling faster and more effective multidisciplinary intervention. Patients who require psychosocial intervention rather than "psychiatric" intervention are at greater risk for delayed assistance because they often show less obvious or overt symptoms.[6]

It is important to acknowledge the limitations of the study. First, standardized psychiatric scales and

structured clinical interviews were not used in this study. Second, it was not possible to assess the level of medical disease severity. This variable might have added additional information related to both the reasons for a delay in consultation and the patient's LOS. Finally, there are some factors that could affect the findings in this study somehow including the effects of the setting, the culture, and the pattern of practice. More in-depth research has to be undertaken on factors affecting LOS and on practical, effective, and feasible strategies of early detection of patients at risk for extended LOS.

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Related topics

Alhamad AM, Hawari RA, Al-Sabhan KN, Al-Sughayir MA, Al-Haidar FA, Al-Huthail YR, et al. Establishing a consultation-liaison psychiatry service. Impact on clinical indices. ***Neurosciences*** 2004; 9: 281-286.

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