Original Article

Prevalence of psychiatric co-morbidity among patients attending dental OPD and the role of consultation-liaison psychiatry in dental practice in a tertiary care general hospital

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INTRODUCTION

Many a times, dental patients suffer from both physical diseases and mental disorders. Psychiatric co-morbidity has been reported to be very high (8–53%) in primary health care units in developing countries including India.[1,2] The rate of psychiatric co-morbidity in hospitalized physically ill patients at a tertiary care unit is also very high, i.e. 5.0–50.0% and 52.5%.[3] Recognizable psychopathologies are frequent in patients presenting to dental OPD, at least some of which go unrecognized and hence untreated.[4] Dental surgeons spend a considerable amount of time treating patients who present with either psychiatric disorders like depression and anxiety or with physical manifestations of underlying emotional disturbances. Common manifestations of covert emotional disturbance in patients encountered in dental practice include oral dysesthesia, atypical facial pain, and other atypical syndromes.[5] Somatoform disorders, apart from posing management problems, also cause significant functional impairment and overall disability for the patient.[6] Early and appropriate recognition of such

Abstract

Background: Psychiatric co-morbidities are frequent among patients attending dental OPD, some of which go unrecognized and hence untreated. Aims: The present study has been carried out to detect the psychiatric co-morbidities among dental patients and determine the scope of consultation-liaison (C-L) psychiatry in a rural teaching hospital regarding comprehensive management of the patients. Settings and Design: This cross-sectional, descriptive type study was conducted in a multi-speciality tertiary care teaching hospital in the northern part of West Bengal, India. Materials and Methods: One hundred patients attending the dental OPD were randomly included in the study and every patient was consecutively referred to psychiatry department for assessment, during the period from 1st November 2013 to 30th April 2014. All referred patients were clinically examined and psychiatric co-morbidity was assessed by the help of General Health Questionnaire (GHQ)-28 and Mental Status Examination. Statistical analysis used: The data were subjected to statistical package for social sciences (SPSS), version 16, and statistically analyzed using Cross tab and Chi test. P < 0.05 was considered to be statistically significant. Results: The commonest dental illness was dental caries (22%). More than two-third of the patients had psychiatric co-morbidity according to GHQ-28 total score. Sixty-eight patients were diagnosed to have mental disorder on mental status examination. Somatoform disorder (25%) was the commonest type of mental disorder, followed by mixed anxiety and depression (14%). Conclusions: This study has pointed the need for psychological examination of patients visiting dental specialty with unexplained physical symptoms. Such patients can be identified and treated, provided a psychiatric consultation service exists.

Key words: C-L psychiatry, co-morbidity, dental practice

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emotional distress would benefit both the individual and the health care service.\[7\]

There is convincing evidence that psychosocial factors have a major impact on both patient outcome and costs of the medical–surgical services of general hospitals.\[8\] These psychosocial factors are either not detected by the dental surgeon or are identified and addressed late, which could have been otherwise avoided.\[8\] The coexistence of psychiatric and medical problems in a patient usually leads to more complex diagnostic assessments, increased health care costs, and less satisfactory outcome than in those without co-morbidity.

The above said realization has created vigorous interest in consultation-liaison (C-L) psychiatry.\[10\] C-L psychiatry has been defined as an area of clinical psychiatry that encompasses clinical, teaching, and research activities of psychiatrists and allied mental health professionals in the non-psychiatric divisions of a general hospital.\[11\] Liaison interaction, whereby the psychiatrist being an integral part of a medical–surgical team, helps in the recognition of psychological co-morbidity at an early stage and in the comprehensive management of the patients on the site.\[12\]

C-L psychiatry is a subspecialty in the USA. This has led to higher rate of referral (2.2–12%) in the US\[13,14\] than in the centers of Britain and Hong Kong.\[15\] Referral rate reported from British samples have varied from 0.5 to 2.8% even after C-L psychiatry has become a speciality in these centers.\[16,17\] The rates reported from India are still lower (0.15–1.54%).\[18,19\]

Given the prevalence and impact of unrecognized and untreated psychiatric disorders in patients presenting in dental OPD, there lies the necessity for C-L psychiatry to address this unmet need. This would directly provide a framework for psychiatric–dental liaison and indirectly lead to better understanding of psychiatric disorders by dental specialists as well. It will lead to early diagnosis and management of these patients which has been shown elsewhere to produce better outcome.\[20\]

As far as our knowledge goes, no such study has been conducted in the northeastern part of India, especially from rural medical colleges. The present work has been carried out to study the socio-demographic characteristics as well as to detect the psychiatric co-morbidities at an early stage. We aimed to determine the scope of C-L psychiatry in a rural teaching hospital, regarding comprehensive management of the patients.

\section*{MATERIALS AND METHODS}

The cross-sectional study was conducted in a multi-speciality tertiary care teaching hospital situated in a rural area of West Bengal in India. This medical college has Medical Council of India (MCI) recognized MBBS course and postgraduate courses in psychiatry, general medicine, general surgery, GandO, pediatrics, ENT, ophthalmology, anesthesiology, orthopedics, and dermatology. This institution also has super-specialty clinics in neuro-medicine, neuro-surgery, cardiology, nephrology, respiratory medicine, burns unit, and urology. The hospital has 589 inpatient beds; its bed turnover and occupancy rate are 77.0% and 116.9%, respectively.

This is a cross-sectional, descriptive study. One hundred patients aged 18–60 years, attending the dental OPD were selected randomly and every consecutive patient was referred to psychiatry department for assessment, during the period from 1 November 2013 to 30 April 2014. Informed consent was taken from all the patients or their relatives, and ethical clearance was obtained from the institutional ethical committee. Every enrolled case was clinically examined and on the basis of clinical examination, dental diagnosis was made by the dental surgeon. Psychiatric co-morbidity was assessed with the help of General Health Questionnaire (GHQ)-28 and Mental Status Examination (MSE) by a psychiatrist.

\section*{Research instruments}

\textbf{GHQ-28}\[21,22]\ The GHQ-28 is a self-report screening instrument designed for detection and assessment of individuals with an increased likelihood of current psychiatric disorder. The questionnaire incorporates four subscales including somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. The existence of four subscales permits analyses within itself. In the GHQ-28, the respondent is asked to compare his recent psychological state with his usual state. Binary scoring method (with the two least symptomatic answers scoring 0 and the two most symptomatic answers scoring 1) was applied. The higher score indicates poorer psychological well-being of the patient. Any score exceeding the threshold value of 4 is classed as achieving “psychiatric caseness.”

\textbf{The international classification of diseases-10}\[23\] The International Classification of Diseases (ICD), 10\textsuperscript{th} version, Classification of Mental and Behavioural Disorders, was used to diagnose the referred cases.

\section*{Statistical analysis}

The data were subjected to statistical package for social sciences (SPSS), version 16.0 and statistically
analyzed using Cross tab and Chi test. $P < 0.05$ were considered to be statistically significant.

**RESULTS**

Socio-demographic characteristics of the patients, dental illnesses, GHQ-28 scores in different domains, co-morbid mental disorders according to ICD-10, as well as association among the types of dental diagnoses and types of mental disorders are tabulated in Tables 1–4. Majority of the subjects were female ($n = 56, 56\%$) and the mean age of the sample was 37 years. Most of the patients were married (77\%), unemployed (45\%), and had secondary level of school education (47\%). The commonest dental illness was dental caries (22\%). Mean GHQ-28 total score was $9.43$ (SD $6.273$), which was above the threshold value of $4$. More than two-third (73\%) of the patients had psychiatric co-morbidity according to GHQ-28 total score. Sixty-eight patients were diagnosed to have mental disorder on MSE. Somatoform disorder ($n = 25, 25\%$) was the commonest type of mental disorder, followed by mixed anxiety and depression ($n = 14, 14\%$). Very strong associations were found among the types of dental illnesses and the types of mental disorders (Chi-square $= 45.860$ and $117.280$, respectively; $P = 0.001$).

**DISCUSSION**

There is scarcity of psychiatric–liaison service in India for patients with psychiatric co-morbidity referring dental specialists. This study is unique in that the selected patients are from dental clinics which are referred for psychiatric assessment and management, irrespective of whether they had psychiatric co-morbidity or not. No similar study has been conducted in the rural eastern part of India, and hence, direct comparison of findings is difficult. Majority of the patients belonged to middle-age group (mean 37 years), were female and unemployed, which is consistent with the findings of many other studies.[24] The catchment area of our institution is a rural one with poor socioeconomic condition. So, majority of the referred patients were from rural

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**Table 1: Socio-demographic characteristics**

| Socio-demographic characteristics | Sub-category       | Frequency ($n$) | Percent (%) |
|-----------------------------------|--------------------|----------------|-------------|
| Gender                            | Male               | 44             | 44          |
|                                   | Female             | 56             | 56          |
| Religion                          | Hindu              | 68             | 68          |
|                                   | Muslim             | 27             | 27          |
|                                   | Christian          | 3              | 3           |
|                                   | Buddhist           | 2              | 2           |
| Habitat                           | Rural              | 95             | 95          |
|                                   | Urban              | 5              | 5           |
| Education                         | Illiterate         | 27             | 27          |
|                                   | Primary level      | 17             | 17          |
|                                   | Secondary level    | 47             | 47          |
|                                   | Higher secondary   | 6              | 6           |
|                                   | Graduate and above | 3              | 3           |
| Marital status                    | Never married      | 15             | 15          |
|                                   | Married            | 77             | 77          |
|                                   | Widow/separated    | 8              | 8           |
| Occupation                        | Unemployed         | 45             | 45          |
|                                   | Student            | 4              | 4           |
|                                   | Unskilled worker   | 17             | 17          |
|                                   | Semi-skilled       | 12             | 12          |
|                                   | Skilled worker     | 13             | 13          |
|                                   | Semi-professional  | 1              | 1           |
|                                   | Professional       | 2              | 2           |
|                                   | Business           | 6              | 6           |

**Table 2: Mean of socio-demographic profile and clinical profile (GHQ-28 score)**

| Socio-demographic profile         | Mean | Std. Deviation |
|-----------------------------------|------|---------------|
| Age (in years)                    | 36.83| 12.276        |
| Family income per month (Rs.)     | 13,164.00 | 12,196.889 |
| Clinical profile: GHQ-28 score    |      |               |
| GHQ-28: Somatic symptoms          | 2.77 | 2.361         |
| GHQ-28: Anxiety and insomnia      | 3.26 | 1.968         |
| GHQ-28: Social dysfunction         | 2.13 | 2.154         |
| GHQ-28: Severe depression          | 1.29 | 1.754         |
| GHQ-28: Total score               | 9.43 | 6.272         |

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**Table 3: Mean of socio-demographic profile**

| Sub-category | Frequency | Percent |
|--------------|-----------|---------|
| Dental illness|           |         |
| Periodontitis | 7         | 7       |
| Gingivitis   | 6         | 6       |
| Dental caries| 22        | 22      |
| Edentulous/partially edentulous A | 4 | 4 |
| Abscess/oss/cyst/space infection A | 3 | 3 |
| Impacted teeth/pericoronitis       | 11        | 11      |
| Fracture                              | 3         | 3       |
| Attrition/abrasion/recession         | 7         | 7       |
| Oral ulcer/lump/cellulitis           | 8         | 8       |
| Retained root                        | 11        | 11      |
| Pulpitis/pulp polyp                  | 12        | 12      |
| Mobile teeth/non-vital               | 2         | 2       |
| Other                                  | 4         | 4       |
| Co-morbid mental disorders on MSE according to ICD-10 | | |
| Mixed anxiety and depression          | 14        | 14      |
| Depressive disorder                  | 2         | 2       |
| OCD                                   | 1         | 1       |
| Generalized anxiety disorders         | 10        | 10      |
| Somatoform disorders                  | 25        | 25      |
| Substance abuse/dependence            | 1         | 1       |
| Others                                 | 5         | 5       |
| No mental illness detected           | 42        | 42      |
| Morbidity according to GHQ-28 total scores |         |         |
| no co-morbidity (non-cases)           | 27        | 27      |

GHQ: General Health Questionnaire

OCD: Obsessive Compulsive Disorder
area (95%). Their average family income was Rs. 13,164.00 (SD 12196.889), and 27% were illiterate and 47% are educated up to secondary standard.

Earlier studies that have been tried to identify the factors leading to psychiatric referral among patients attending dental OPD have pointed out non-compliance and disturbed behavior as an important finding.[26] In our study, we found that more than two-third (73%) of the patients had psychiatric co-morbidity according to GHQ-28 total score, of which the most common psychiatric manifestation was found to be somatoform disorders (n = 25, 25%), followed by mixed anxiety and depressive disorders (n = 14, 14%). These findings are broadly in keeping with those of previous studies which evaluated the reason for non-compliance and functional somatic symptoms among dental patients, both of which found somatoform disorders as well as mixed anxiety and depression to be the major diagnostic categories.[26]

Psychological factors such as stressful life events, anxiety, and depression might have led to compromised functioning of the immune system in these individuals, which leads to non-compliance and somatic complaints, as suggested by the results of previous psychoneuro-immunological studies.[27,28] Moreover, these patients are more prone to indulge in substance abuse.[27]

Our study shows that a high percentage of dental patients also suffer from psychopathologies, especially anxiety and depression. This study is consistent with another previous study which has pointed the need to elicit the underlying cause of co-morbid somatic manifestations due to emotional distress among patients visiting dental specialists. We have been able to show that such patients can be identified and engaged in treatment, provided there exists a psychiatry consultation service. This should provide a useful C-L psychiatry model for further innovations and service developments in dental practice and also in other branches of medicine. From psychiatric perspective, the experience gained by working in such a service is valuable and a key component of the desired overall training objectives.

**Limitations**

The present study is not without limitations and the same should be considered while interpreting the results. Short duration, absence of control group, cross-sectional assessment, and small, purposive sampling could yield type II errors. The results of this clinic-based study could not be generalized to community settings. Further longitudinal and analytical studies with larger sample size and control group having others variables are to be conducted.

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**REFERENCES**

1. Chowdhury AK, Salim M, Sakeb N. Some aspects of psychiatric morbidity in the out-patient population of a general hospital. Bangladesh Med Res Counc Bull 1975;1:51-9.
2. Sen B, Williams P. The extent and nature of depressive phenomenon in primary health care. A study in Calcutta, India. Br J Psychiatry 1987;151:486-93.
3. De AK, Kar P. Psychiatric disorders in medical in-patients- a study in a teaching hospital. Indian J Psychiatry 1998;40:73-8.
4. Miyachi H, Wake H, Tamaki K, Mitsuhashi A, Ikeda T, Inoue K, Tanaka S, et al. Detecting mental disorders in dental patients with occlusion-related problems. Psychiatry Clin Neurosci 2007;61:313-9.
5. Feinmann C, Harris M. Psychogenic facial pain management and prognosis. Part 1. The Clinical Presentation. Br Dent J 1984;156:205-8.
6. Hiller W, Rief W, Fichter M. How disabled are patients with Somatoform disorders? General Hospital Psychiatry 1997;19:432-8.
7. Bridges K, Goldberg DP. Somatic presentations of psychiatric illness in primary care settings. J Psychosom Res 1988;32:137-44.
8. Boone CR, Coulton CJ, Keller SM. The impact of early and comprehensive social work services on length of stay. Soc Work Health Care 1981;7:1-9.
9. Saltz CC, Magruder-Habib K. Recognizing depression in patients receiving medical care. Health Soc Work 1985;10:15-22.
10. Steiner H, Fritz GK, Mrazek D, Gonzales J, Jensen P. Paediatric and psychiatric comorbidity. Part I: The future of consultation-liaison psychiatry. Psychosomatics 1993;34:107-11.
11. Lipowski ZJ. Current trends in consultation-liaison psychiatry. Can J Psychiatry 1983;28:329-38.
12. Avasthi A, Sharan P, Kulhara P, Malhotra S, Varma VK. Psychiatric profiles in medical-surgical populations: Need for a focused approach to consultation-liaison psychiatry in developing countries. Indian J Psychiatry 1998;40:224-30.
13. Eilenberg MD. Survey of inpatients referrals to an American Psychiatric Department. Br J Psychiatry 1965;111:1211-4.
14. Popkin MK, Mackenzie TB, Callies AL. Psychiatric consultations to geriatric medically ill inpatients in a university hospital. Arch Gen Psychiatry 1984;41:703-7.
15. Leung CM, Lee S. Consultation-Liaison psychiatry at the prince of wales hospital- A New Look. East Asian Arch Psychiatry 1991;1:57-60.
16. Bridges PK, Koller KM, Wheeler TK. Psychiatric referrals in a general hospital. Acta Psychiatr Scand 1966;42:171-82.
17. Anstee BH. The pattern of psychiatric referrals in a general hospital. Br J Psychiatry 1972;120:631-4.
18. Malhotra S, Malhotra A. Liaison Psychiatry in an Indian general hospital. Gen Hosp Psychiatry 1984;6:266-70.
19. Parekh HC, Deshmukh DK, Bagadia VN, Vahia NS. Analysis of indoor psychiatric referrals in a general hospital. Indian J Psychiatry 1988;10:81-3.
20. Sensky T, Cundy T, Greer S, Pettingale K. Referrals to Psychiatrists in a general hospital- comparison of two methods of liaison Psychiatry: Preliminary Communication. J R Soc Med 1985;78:463-8.
21. Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. Psychol Med 1979;9:139-45.
22. Goldberg D, Williams P. A user’s guide to the General Health Questionnaire. Windsor: NFER NELSON Publishing company Ltd; 1988.
23. International classification of impairment, disability and handicap (ICIDH). Geneva: World Health Organization; 1980.
24. George AC, Hoshing A, Joshi NV. A study of the reasons for irregular dental attendance in a private dental college in a rural setup. Indian J Dent Res 2007;18:78-81.
25. Friedson E, Feldman JJ. The public looks at dental care. J Am Dent Assoc 1958;57:325-35.
26. Slavney PR, Teitelbaum ML. Patients with medically unexplained symptoms. General Hospital Psychiatry 1985;7:21-5.
27. Andersen BL. Biobehavioral outcomes following psychological interventions for cancer patients. J Consult Clin Psychol 2002;70:590-610.
28. Segerstrom SC, Miller GE. Psychological stress and the human immune system: A meta-analytic study of 30 years of inquiry. Psychol Bull 2004;130:601-30.

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