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• For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other

relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.

• Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data.

• Link the conclusions with the goals of the study but avoid unqualified statements and conclu sions not adequately supported by the data.

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Socio-demographic characteristics of the caregivers of schizophrenia patients – a study in a tertiary care psychiatric hospital in Dhaka

M M Jalal Uddin[1], Mohammad Tariqul Alam[2], Helal Uddin Ahmed[3], Niaz Mohammad Khan[4], Mahmudur Rahman[5], M A Hamid[6], Md Golam Rabbani[7], Zinat de Laila[8]

Summary

Care giving and care receiving can occur at any point in the life course and is typically associated with chronic illness or disabilities which result in losses of independence and functioning. Families are an integral part of the care system for persons with a chronic mental illness such as schizophrenia. The aim of this study was to assess the characteristics of the caregivers of schizophrenia patients. This descriptive cross sectional study was done among the caregivers of all consecutive schizophrenia patients in outpatient and inpatient department of National Institute of Mental Health (NIMH), Dhaka, Bangladesh from September 2010 to February 2011. Diagnosis of schizophrenia was done by consultant psychiatrist following DSM-IV criteria. A semi-structured questionnaire was applied to the caregivers of schizophrenia patients who fulfilled the inclusion criteria. Ethical issues were maintained accordingly. Out of 272 caregivers of schizophrenia patients most were female (86.03%), housewife (72.43%), of rural area (56.25%). Most of the respondents (80.52%) belonged to the age range of 21 to 50 years. Regarding educational status more than 43% completed secondary level. Among the caregivers 81.25% lived with non-nuclear family. Female members of the family specially mothers (45.22%) and wives 33.09%) were the highest group among the caregivers of schizophrenia patients. Significant proportions of the caregiver of schizophrenic patients were the female members of the family. Information about other characteristics of the caregivers will help further broad based study regarding this issue and burden of the caregivers of schizophrenia patients.

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Introduction

Care giving and care receiving can occur at any point in the life course and is typically associated with chronic illness or disabilities which result in losses of independence and functioning. Severe mental illness like schizophrenia has far-reaching consequence for both patients and their relatives.[1] Families are an integral part of the care system for persons with a chronic mental illness such as schizophrenia.[2] In Bangladesh 16.05 % mentally ill patients mostly live with the family due to the societal norm as they are member of extended family and their families have a critical role in taking care of the patients.[3] In most of the country the male members who may be the husband, father, son, brother provide the financial support, women members who may be mother, wife, daughter, sister of the family provide affection, time, physical labor. It is the female members who spend most of the time with the ill person. But it does not mean that the male members only provide financial support and do not spend time with the ill person. For schizophrenia successful family intervention decreases mean cost of patient care by 27% and reduces relapse rate and improves quality of life.[4] In a survey conducted in Mausdley Hospital , London, 40 % of men and 46 % of women with long standing mental illness lived with their families who provided a major supporting role.[5] The World Health Organization has estimated that about 40-90% of patients with schizophrenia live with their families.[6] Other researches revealed that approximately 50% of the patients with serious mental illness live with the family especially parents and partner.[7] Study conducted by Rabbani MG demonstrate that the caregivers of person with chronic mental illness suffer from a number of stresses and high level of burden and found more than half of those who provided major care for their patients experiences stresses and burden.[8] There were not sufficient reports about the characteristics of caregivers of schizophrenia patients. With regard to the importance of the caregiver's characteristics and limitation of study on this subject in our country, the aim of the study was to evaluate the socio-demographic characteristics of the caregivers of schizophrenic patients and associated variables.

Materials and methods

This descriptive cross sectional study was done in inpatient and outpatient department of National Institute of Mental Health (NIMH), Dhaka from September 2010 to February 2011 among the caregivers of schizophrenia patients. Caregivers are key relatives of the patients, parents, spouse, sibling, offspring between 18 years to 55 years of age, staying for last six months with the schizophrenia patients and who were the main care takers of the patients were included in the study. Caregivers of the schizophrenic patients who were in acute phase of illness, already diagnosed with any psychiatric illness and unwilling to participate in the study were excluded. Sample size was determined by using the appropriate formula and convenient sampling technique were followed for the study. Caregivers of the schizophrenia patients were explained about the purpose of the study and informed written consent were taken from them and then they were interviewed face to face by using semi-structured questionnaire to collect the socio-demographic and other relevant variables. All collected data were checked and verified thoroughly to reduce inconsistency. The data were analyzed with SPSS version 16 (sixteen) for windows. Clearance was taken from Institute and Review Board (IRB) of National Institute of Mental Health (NIMH), Dhaka.

Results

Two hundred seventy two caregivers of schizophrenia patients filled out the semi-structured questionnaire. Among them the following findings were observed.

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Table 1: Age distribution of the study population (Caregiver)   (n=272)

Age (in years)	Frequency	Percentage (%)
Below 20	20	7.35
21-30	76	27.94
31-40	75	27.58
41-50	68	25.00
Above 50	33	12.13
Total	272	100.00

Table 2: Sex distribution of the study population (Caregiver) (n=272)

Sex	Frequency	Percentage (%)
Male	38	13.97
Female	234	86.03
Total	272	100.00

Table 3: Distribution of the study population (caregiver) according to residence (n=272)

Residence	Frequency	Percentage (%)
Urban	117	43.01
Semiurban/slum	2	0.74
Rural	153	56.257
Total	272	100.00

Table 4: Distribution of the study population (Caregiver) according to marital status (n=272)

Marital status	Frequency	Percentage (%)
Married	240	88.24
Unmarried	28	10.29
Divorced	4	2.47
Total	272	100.00

Table 5: Distribution of the study population (Caregiver) according to educational status (n=272)

Educational status	Frequency	Percentage (%)
No education	46	16.91
Primary	55	20.22
Secondary	119	43.75
Higher secondary	38	13.97
Graduate and above	14	5.15
Total	272	100.00

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Table 6: Distribution of the study population (caregiver) according to occupational status (n=272)

Occupation	Frequency	Percentage (%)
Unemployed	15	5.51
Service holder	23	8.46
Agriculture	15	5.51
Business	8	2.94
Housewife	197	72.43
Retired	4	1.47
Students	8	2.94
Others	2	0.74
Total	272	100.00

Table 7: Distribution of the study population (caregiver) according to type of family (n=272)

Family type	Frequency	Percentage (%)
Nuclear	51	18.75
Non-nuclear	221	81.25
Total	272	100.00

Table 8: Distribution of the study population (Caregiver) according to monthly family income (n=272)

Monthly income	Frequency	Percentage (%)
Below 5000	22	8.09
5000-10000	129	47.43
10001-20000	117	43.01
More than 20000	4	1.47
Total	272	100.00

Table 9: Distribution of the study population according to relationship with the patients (n=272)

Relationship	Frequency	Percentage (%)
Father	19	6.99
Mother	123	45.22
Brother	6	2.21
Sister	10	3.68
Son	2	0.73
Daughter	11	4.04
Husband	11	4.04
Wife	90	33.09
Total	272	100.00

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Discussion

This descriptive cross sectional study was carried out with an aim to assess characteristics of caregivers of schizophrenic patients and to determine the relationship of the caregivers with the patients. A total of 272 caregivers of schizophrenic patients were included in the study.

In this study it was observed that more than 80% respondents were in 20 to 50 years age group. Rammohan et al found higher mean age of the caregiver, which was 54.4±7.96 years and spouses was 47.29±8.07 years.[9] Similarly, Heru & Ryan found mean age of caregiver was 54.8±13.2 years.[10] Furhtemore, Jenkins & Schumacher found mean age of latino was 50.6±18.4 years and euro-american was 49.7±14.2 years.[11] Perlick et al. observed a mean±SD of 49.99±14.61 years with a age ranging from 16 to 82 years of caregiver.[12] Hosseini et al however, found that more that almost a half (45.0%) of the caregivers was in more than 50 years age group, which are comparable with the current study.[13] Martyns-Yellowe observed that most (68.2%) of the caregivers age was in between 21-40 years old which are a little lesser with the current study.[14]

In this present study it was observed that 86.03% caregivers were female and rest were male and male female ratio was almost 1: 6. Study conducted by Jenkins & Schumacher observed female caregivers among Latino were 85% and Euro-American 90% which is consistent with the present study. Same findings were observed by Perlick et al., Heru & Ryan, Rammohan et al and Middelboe.[11,12,10,9,15] Another study found 62.96% male and 37.04% female caregiver of schizophrenia patients.[16] These variation may be due to different study places and different techniques used. It was observed that most of the patients came from rural area which was 56.25% and from urban area it was 43%. This result is consistent with our geographical distribution that most of the families live in rural area. In this research it was observed that about 88% respondents were married. Roychaudhuri et al observed that most (66.67%) of the caregivers were married.[16] Similarly, Perlick et al found 61.8% care-giver married, 25.1% divorced/widowed and 13.1% never married.[12] Similar findings were observed by Gautam & Nijhawan, Jenkins & Schumacher and Rammohan et al.[17,11,9] In this current study it was observed that illiterate (no education) caregivers were about 16%, caregivers with primary education 20%, secondary education more than 43%, about 14% completed higher secondary and only 5% were graduate or above. Study conducted by Gautam & Nijhawan found illiterate 60.0%, primary 16.0% and secondary 16.0%, which support the results of the present study.[17] Similar result obtained by Hosseini and Jenkins & Schumacher (1999).[13,11] Martyns-Yellowe found that majority (68.2%) of the caregivers had post-primary and over education.[14] Jenkins & Schumacher found mean education years 8.4 in latino and 11.4 years in Euro-American.[11]

In this present study it was observed that most of the caregivers were female and most of them were housewife, which were 72.43%. Hosseini observed that 44.0% caregivers were housewife and 24.0% worker or farmer which is consistent with the present result.[13] However, Roychaudhuri et al found that majority (59.26%) of the caregivers were involved with a job.[16] In this present series it was observed that non-nuclear family was more than nuclear family which was 81.25% and 18.75% respectively. Gautam & Nijhawan observed that, majority caregivers came from nuclear family (nuclear schizophrenia 56.0% and chronic lung disease 52.0% Joint 44.0% and chronic 48.0%), which differ with the current study, which may due to the cultural practice of our country.[17] In this study it was observed that most of the family came from lower or lower middle class. Roychaudhuri et al found that more than half (55.56%) of the caregivers had low income.[16] Similarly, Martyns-Yellowe found almost the same findings where half of the caregivers were below average income and half were average and above income.[14]

Regarding the relationship of the caregiver with the patient mother was more common and was higher among the caregivers and it was 45.22%, next was wife which was 33.04%. So it was observed that most of the caregivers were female member of the family who take care the schizophrenia patients. Perlick et al observed that, 44.3% caregiver was living with their parents; 23.5% with spouse, 7.8% with child; 11.5% with

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sibling and 12.9% with other.12 Scazufca & Kuipers have shown that 80% were parents, which support the current study findings.[18]

A couple of limitations are thought to be inherent in the study. Due to small sample size, the results may not have generalized acceptability. The study place was National Institute of Mental Health (NIMH), Dhaka; the observation of this study may not be representative of the schizophrenic patients who are devoid of modern treatment facilities.

Conclusion

Significant proportion of the caregivers of schizophrenic patients were female members of the family who were the mother or wife of the patients and most of them came from lower or lower middle class family. For proper management of the schizophrenia patients within the family, attention should be given to the caregivers. So the service providers, policy makers and planers can address the issue carefully. Further in depth study is recommended in this regard.

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Psychiatric morbidity among burn patients in a tertiary care hospital

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Summary

A burn injury is a traumatic experience, with tremendous social, physical, and psychological consequences. But care and research in burn patients has focused on medical issues rather than on psychological predictors. So this study was done to know the psychiatric consequences of burn patients. The general objective of this study was to find out the prevalence and pattern of psychiatric morbidity in burn patients in Shaheed Suhrawardy Medical College Hospital, Dhaka. It was a descriptive cross sectional study done among thirty two patients admitted in the burn unit of Shaheed Suhrawardy Medical College Hospital. After taking the written informed consent a semi structured questionnaire was applied to the respondents to know the socio-demographic characteristics. Screening for psychiatric illness was done by applying Bangla version of self-reporting questionnaire (SRQ-20), which has been developed by World Health Organization (WHO) to screen for psychiatric illness. Diagnosis of psychiatric illness was confirmed by applying the Clinician Version of the Structured Clinical Interview for DSM-IV for Axis I mental disorders (SCID-CV). Data were analyzed using Statistical Packages of Social Sciences (SPSS) version 17 for windows. Most of the respondents had a diagnosis of psychiatric illness (56.3%). Among the nine positive cases four had a diagnosis of post traumatic stress disorder; two were suffering from major depressive disorder, one from schizophrenia, one from somatoform disorder and one from adjustment disorder. Psychiatric illness is common among the burn patients. So, psychiatric aspect should be given more priority in the management of burn patients.

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Introduction

Burn can be defined as the partial or complete destruction of the skin by thermal energy from flames, steam and hot liquids, contact with hot objects, explosion, or electrical current. Injuries to airways or other organs caused by the same mechanisms, and destruction of skin by chemicals or radiation are also included in burns.[1] Burns are among the leading causes of death and disability in most countries. About 265,000 fire-related deaths are reported each year, based on an earlier study report of global disease burden. According to the World Health Organization, 238,000 individuals died of fire-related burns in 2000, and 95% of these deaths occurred in low- and middle-income countries.[2,3] The human and economic cost of burn injury is enormous. Burn size and age are cardinal determinants of survival. Mortality is highest in the very young and elderly.[4] Mortality is greater in female than male with comparable injury.[5]

A burn can be a devastating event in many respects, with long-term physical and psychosocial effects.[6,7] Major burns are often described as the greatest trauma an individual can sustain. In addition, social consequences such as the loss of family members or friends as well as property and housing can follow. The long, stressful hospitalization required for treatment can lead to social isolation, financial problems and the loss of employment. Even with optimal treatment, scarring is inevitable with deep burn[8], and the appearance and physical function of burn patients will be affected. Furthermore, to enable the burn survivor to attain an acceptable level of functioning, treatment and rehabilitation often continue for many years after injury.[9] A burn injury is a traumatic experience, with tremendous social, physical, and psychological consequences.[10] Burn care and research has focused on medical issues rather than on psychological predictors, the psychological aftermath, and quality of life in burn patients. Moreover, the physical isolation needed during treatment for burns and the psychological burden of bodily disfigurement are other areas of importance in burn psychology that may not have attracted enough attention, especially in low- and middle-income countries.[11-13] Patients suffering from burn injury may also lose their main job and need to pay for medical surgical, psychological, and rehabilitation care. Many may also suffer from delirium, depression, anxiety, post-traumatic stress disorder (PTSD), and suffer from the loss of their normal appearance.[14]

Primary hospitalization of burn victims may be for a very short period of their long-term treatment, and most patients need several restorative surgeries and several years of medical referrals, as well as ongoing financial and psychological support. Any ignorance can lead to their incomplete recovery and can produce permanent disability or even death. Researchers have realized that the pain suffered by a burn victim not only originates from his/her joints and tissues, but may also have a psychological basis, and needs to be addressed to gain the patient's cooperation in treatment. Stress disorders are reported to occur after burn injuries in 18%–33% of cases, with PTSD being more common. PTSD usually occurs 3-6 months after the burn injury or even a year or more later.[15-17]

Psychological problems in burn victims affect quality of life and also cooperation in rehabilitation activities. It is reported that anxiety is the common aftermath of physical and emotional trauma. Apart from anxiety and depression, PTSD is another important issue that some burn victims will encounter.[18]

Materials and methods

The general objective of this study was to find out the prevalence and pattern of psychiatric morbidity in burn patients in Shaheed Suhrawardy Medical College Hospital (ShSMC), Dhaka. The specific objectives of this study were to find out the prevalence of psychiatric morbidity in burn patients, to determine which type of psychiatric morbidity is more common in burn patients, to find out the gender differences in prevalence and type of psychiatric morbidity in burn patients and to find out the relationship of psychiatric morbidity and percentages of burn. Dependent variables were psychiatric morbidity among the burn patients and types of psychiatric morbidity in burn patients. Independent variables were gender of the burn patient, percentage of burn/ degree of burn and the inciting cause of burn whether suicidal (self inflicted), accidental or homicidal (attacking).

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Thirty two burn injury patients aged between 18 to 55 years admitted in the burn unit of ShSMCH who gave informed consent for the research were selected purposively for the study. Patients in critical condition, involvement of respiratory tract burn and communication problem of the respondent were excluded from the study. The duration of the study was 7 weeks. Data were collected through face-to-face interview using the data collection instruments in burn unit of Shaheed Suhrawardy Medical College Hospital. At first socio-demographic questionnaire was administered and then screening was done with self-reported questionnaire (SRQ-20). Then diagnosis of the patient was done with the Clinician Version of the Structured Clinical Inter-view for DSM-IV for Axis I mental disorders (SCID-CV). Data were analyzed using SPSS version 17 for windows.

Results

Among the total 32 respondents, 14 (43.8%) were male and 18 (56.3%) were female. Mean (±SD) age of the respondent was 30.38 (±10.52) years. Regarding residence about 50% of the respondents resided in urban area. Twenty four respondents did not have past history of psychiatric illness and only 4 had family history of psychiatric illness. The mean (±SD) of burnt area was 22.88(±10.24)% of total body surface. Almost all the respondent had accidental burn (93.8%). (Table 1)

Table 1: Sociodemographic and clinical characteristics of the respondents (n=32)

Characteristics	Male	Female	Total
Number	14 (43.8%)	18 (56.3%)	32 (100%)
Mean age (in years)	26.86 (±9.6)	33.11 (±10.92)	30.38 (±10.52)
Area of residence - Rural - Urban - Semi-Urban	2 (6.3%) 10 (31.3%) 2 (6.3%)	6 (18.8%) 6 (18.8%) 6 (18.8%)	8 (25%) 16 (50%) 8 (25%)
Past history of psychiatric illness - present - absent	4 (50%) 10 (41.7%)	4 (50%) 14 (58.3%)	8 (25%) 24 (75%)
Family history of psychiatric illness - present - absent	0 (0%) 14 (43.75%)	4 (12.5%) 14 (43.75%)	4 (12.5%) 28 (87.5%)
Percentage of total body surface area burnt	20 ± 10.4%	25.11 ± 10.14%	22.88 ± 10.24%
How long ago burn occurred (in months)	2.21 ± 1.86	8.78 ± 8.25	5.91 ± 7.00
Inciting cause of burn - Accidental - Suicidal (self inflicted) - Homicidal	7 (43.8%) 0 (0%) 0 (0%)	8 (50%) 0 (0%) 1 (6.3%)	15 (93.8%) 0 (0%) 1 (6.3%)

Among the 18 patients diagnosed as a case of psychiatric illness, 8 had a previous history of psychiatric illness. The chi square test showed the difference is not statistically significant. (Table 2)

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Table 2: Distribution of the respondents according to past history of psychiatric illness and presence of current psychiatric illness (n=32)

Past history of psychiatric illness	Current psychiatric illness			p value
	Present	**Absent**	**Total**	
Present	8 (25%)	0 (0%)	8 (25%)	> 0.05 ns
Absent	10 (31.25%)	14 (43.75%)	24 ((75%)	
Total	18 (56.25%)	14 (43.75%)	32 (100%)	

Among the total 32 participants, 4 (12.5%) had a positive family history of psychiatric illness. Among these 4, 2 respondents had a diagnosis of psychiatric illness. Sixteen respondents were diagnosed as psychiatrically ill having no family history of psychiatric illness. The chi square test was applied and the difference was found statistically non significant. (Table 3)

Table 3: Distribution of respondents according to family history of psychiatric illness and presence of current psychiatric illness

Past history of psychiatric illness	Current psychiatric illness			p value
	Present	**Absent**	**Total**	
Present	8 (25%)	0 (0%)	8 (25%)	> 0.05 ns
Absent	10 (31.25%)	14 (43.75%)	24 ((75%)	
Total	18 (56.25%)	14 (43.75%)	32 (100%)	

Among the male respondents 6 were diagnosed as psychiatric patient and among female the positive cases were 12. Chi square test was done. The difference was statistically insignificant. (Table 4)

Table 4: Distribution of the respondents according to sex of the respondents and presence of psychiatric illness (n=32)

Sex of the respondents	Current psychiatric illness			p value
	Present	**Absent**	**Total**	
Male	6 (18.8%)	8 (25.0%)	14 (43.8%)	p > 0.05 ns
Female	12 (37.5%)	6 (18.8%)	18 (56.3%)	
Total	18 (56.3%)	14 (43.8%)	32 (100%)	

Among the respondents with 11-20% burn of total body surface area (TBSA), there was 5 with psychiatric illness. Chi Square test shows that the difference is significant at 95% confidence interval. (Table 5)

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Table 5: Distribution of the respondents according to percentage of total body surface area burnt and presence of psychiatric illness (n=32)

Percentage of total body surface area burnt	Current psychiatric illness			p value
	Present	**Absent**	**Total**	
0-10%	0 (0%)	3 (18.8%)	3 (18.8%)	p < 0.05
11-20%	5 (31.3%)	1 (6.3%)	6 (37.5%)	
21-30%	1 (6.3%)	3 (18.8%)	4 (25%)	
31-40%	3 (18.8%)	0 (0%)	3 (18.8%)	

Most of the respondents had a diagnosis of post traumatic stress disorder (25%). Major depressive disorder was found in 4 patients, schizophrenia was found in 2 patients. (Table 6)

Table 6: Diagnosis of psychiatric illness among the respondents (n=32)

Diagnosis	Male	Female	Total	Percentage
Major depressive disorder	2	2	4	12.5%
Schizophrenia/ psychosis	2	0	2	6.25%
Post Traumatic Stress Disorder	2	6	8	25%
Somatoform disorder	0	2	2	6.25%
Adjustment disorder	0	2	2	6.25%
Total	6	12	18	56.3%

Discussion

This was a cross sectional descriptive study done among 32 patients admitted in the burn unit of Shaheed Suhrawardy Medical College Hospital. The sociodemographic and clinical data show that among 32 respondents male and female were almost equal in number. Mean age (±SD) of the respondents was 30.38 (±10.52). Regarding residence, about 50% of the respondents resided in urban area. 24 respondents did not have past history of psychiatric illness and only 4 had family history of psychiatric illness. The mean of burnt area was 22.88 ± 10.24% of total body surface. Almost all the respondents had accidental burn (93.8%). In a national cohort of 107 adult burn patients in Finland, the majority were middle-aged men with low level of education and poorly employed. Psychiatric treatment history was common. The burn injury happened mostly at home, but every fifth injury happened at work. The mean TBSA burnt was 9%. Over half of the respondents (58.6%) stayed in hospital more than one week.[20] Regarding the past history of psychiatric illness only 8 (25%) respondents had a psychiatric illness. This was recall based information so it may not reflect the exact scenario.

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Stress disorders, including post-traumatic stress disorder (PTSD), are reported to occur after burn injuries in 18%–33% of cases.[17] About 25% of the burn patients were diagnosed as PTSD in the present study which is quite similar to the previous findings. Increased severity of burn injuries was more likely to trigger PTSD and other mental disorders.[7] Prevalence rates of depression vary between 2% and 53% in the first month after the burn, and between 13% and 34% at 12 months post-burn.[23]

Conclusion

By finding out the prevalence and type of psychiatric morbidities in burn patients we can improve the care and outcome in management of burn patients psychologically. The psychiatric morbidity can be identified earlier and addressed properly by psychiatrist by increasing awareness among the physicians working with the burn patients.

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Psychiatric morbidities among post-stroke patients: a cross sectional observation in Bangladesh

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Summary

Stroke is a common neurological disorder with high mortality and disability rates worldwide. The burden of psychiatric co-morbidity is not well documented in developing countries like Bangladesh. The objective of the study was to examine the frequency and pattern of common psychiatric disorders present in stroke survivors in a medical college hospital of Dhaka, Bangladesh. A cross-sectional study was conducted from October 2017 to April 2018 in the Neuro-science Department in Z H Sikder Women's Medical College Hospital, Dhaka. A total of 50 patients with stroke were evaluated to study the frequency and characteristics of psychiatric morbidities. The participants were interviewed by experienced neurologists and psychiatrists. Informed consent as well as socio-demographic data was obtained and each patient was evaluated for psychiatric morbidity using the Mini International Neuropsychiatric Interview (MINI). Mean age of the respondents was 58.28 (±12.61) years, age ranging from 41 to 82 years. Out of 50 respondents, 80% were male, 44% had educational qualification below SSC, 54% had multiple risk factors of stroke. The results further showed that 20% respondents developed anxiety disorders, 70% developed major depressive disorder and 10% developed stress disorder. There is a significant burden of psychiatric co-morbidity found in stroke survivors in Bangladesh. This may go unnoticed, if not actively screened for by clinicians and could impact negatively on management outcomes if not attended appropriately.

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Introduction

Stroke is the most common cause of mortality worldwide and the third most common cause in developed countries.[1,2] It is defined by the World Health Organization (WHO) as 'rapidly developing clinical signs of disturbance in focal or global cerebral function, with symptoms lasting for up to 24 hours or longer or leading to death with no other apparent cause than of vascular origin'.[2-4] Almost 85% of strokes are ischemic, while 12% are hemorrhagic. There are 700,000 strokes annually in the United States and 163,000 stroke related deaths according to the latest statistics of the American Heart Association.[3] Individuals who survive this potentially deadly event are often left with significant physiologic and psychiatric complications.[5] We mostly focus on physical and cognitive problems occurring as a consequence of stroke and do not show enough concern to emotional problems.[6] Meta-analyses of point-prevalence rates suggest that one third of stroke-survivors develop post-stroke depression and one quarter develop post-stroke anxiety while more than half of stroke survivors will be affected by depression at some point.[2,7] Emotional changes related to cerebrovascular disease may be caused by patient's brain damage per se or by psychological reactions.[6] Emotional problems may lead to a complicated clinical presentation, poor response to treatment, and sometimes unnecessary investigations. From previous studies we know that co morbid depressive disorders significantly increase medical costs, but it is not related to psychiatric consultation.[6-8] Emotional problems influence stroke patient recovery of motor and cognitive deficits as well as the mortality risk associated with stroke.[6] Neuropsychiatric disorders are often associated with stroke and, among them, depression is the most prevalent. It is frequently associated with psychiatric symptoms such as depressed mood, anxiety, apathy, cognitive disorder, mania, psychosis, pathological affective display, posttraumatic stress disorder (PTSD), catastrophic reactions, fatigue, and anosognosia.[1,3-5,9] Patients who develop depression after stroke have been associated with increased disability, cognitive impairment, risk of falls, have a stronger correlation with significant impairment, poor rehabilitation outcome, poor quality of life, and higher mortality than those without significant depressive symptoms.[7] The objective of the study was to examine the frequency and pattern of common psychiatric disorders present in stroke survivors in a medical college hospital of Dhaka, Bangladesh.

Materials and methods

This was a cross sectional study, conducted from October 2017 to April 2018 in the Neuro-Science Department in Z H Sikder Women's Medical College Hospital, Dhaka, Bangladesh. A total of 50 patients with stroke were evaluated purposively to study the frequency and characteristics of psychiatric morbidities. The participants were interviewed by experienced neurologists and psychiatrists. Informed consent as well as socio-demographic data was obtained and each patient was evaluated for psychiatric morbidity using the Mini International Neuropsychiatric Interview (MINI). Patients with transient ischemic attack, previous emotional problems, severe aphasia, or clouding of consciousness were excluded from the study. Stroke was diagnosed according to history, general and neurological examinations and computed tomography scan. All assessments were made by neurologists and psychiatrists. Descriptive statistics was used for demographic data.

Results

Out of 50 respondents, 40 (80%) were male and 10 (20%) female, mean age was 58.28 (±12.61) years, age ranging from 41 to 82 years. The characteristics of stroke patient are shown in Table 1. Most of the respondents were Muslim (92%). 44% had educational qualification of below SSC, and 16% had education up to masters level. (Table 1)

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Table 1: Distribution of demographic variables of the respondents (n=50)

Variables	Frequency	Percent
Sex		
Male	40	80
Female	10	20
Religion		
Muslim	46	92
Hindu	4	8
Education		
Bellow SSC	24	44
SSC	10	20
HSC	4	8
Graduate	4	8
Postgraduate	8	16

Among the respondents 54% had multiple risk factors of stroke, 20 % had dyslipidemia, 16% had smoking, and 10% had hypertension. Ten patients (20%) developed destructive behavior to the surrounding environment and 90% had strokes on left cerebral hemisphere (Table 2).

Table 2: Factors related to stroke (n=50)

Factors	Frequency	Percent
Risk factors of stroke		
Dyslipidemia	10	20
Smoking	8	16
Hypertension	5	10
Multiple	27	54
Behavior to others		
Constructive	40	80
Destructive	10	20
Domain of brain		
Left hemisphere	45	90
Right hemisphere	5	10

The results further showed that 20% respondents developed anxiety disorders, 70% developed major depressive disorder and 10% developed stress disorder (Figure 1).

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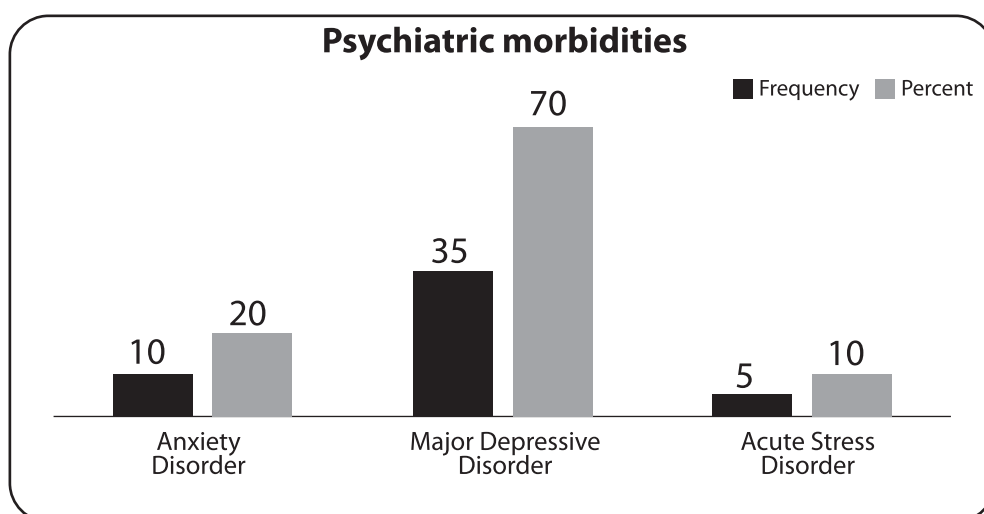
Figure 1: Psychiatric morbidities among the post stroke patients

Discussion

Demography of the respondents revealed, out of 50 patients, 80% were male and 20% were female. Mean age of the respondents was 58.28±12.61, age ranging from 41 to 82 years. Previous studies revealed similar age distributions. Glamcevski et al. (2012) found the average age was 58.6 years (± 12.5), ranging from 22 to 81 years among 80 patients in Malaysia.[10] Ibeneme et al. found that age range and mean age were 26-66 years and 54.76 ± 8.79 years, respectively.[8] Similar gender distribution was also noticed in previous study conducted by Singh et al. in India where out of 50 patients, 24% were female and 76% were male.[4]

The results further showed that 20% respondents developed anxiety disorders, 70% developed major depressive disorder and 10% developed stress disorder. Different studies revealed different psychiatric morbidity pattern but majority of the studies found depression as the most common psychiatric morbidity.[1,10,11] Vuletić et al. found that 55% patients had depressive symptoms, 40% patients had anxiety symptoms and all patients with anxiety symptoms also had depressive symptoms.[6] Glamcevski et al. (2012) in Malaysia found that 66% of the patients were depressed, 51% were mildly depressed and 14% were moderate to severely depressed.[10] Nigerian studies of psychiatric morbidity among stroke patients reported an overall psychiatric morbidity of 36.0% with depression representing 19.0% and generalized anxiety disorder 9.6% while phobia was 1.2%.[2] Study by Singh et al. in India revealed depression in 24%, anxiety disorders in 26%, adjustment disorders in 12% and sexual dysfunction in 50% of the cases.[4] According to the study by Wang et al., the prevalence rates for post-stroke PTSD have been estimated between 6% and 31%.[12] In Nigeria, Ajiboye et al. found depression in 19.2%, generalised anxiety disorder in 9.6%, harmful alcohol use in 2.4% of the respondents; each of dementia, somatoform disorder, phobia and delusional disorder had a prevalence of 1.2%.[13] Glozier et al. (2017) found that the point prevalence of insomnia at each time point in the year after stroke was 30–37% and more common in females.[14] Depression is still under-recognized and undertreated, especially in stroke patients.[1,6] It is known that co-morbid depressive disorders increase the social and economic burdens to the individual and the society as a whole, and that effective treatment reduces disability and costs.[6] The psychological burden of the post-stroke depressed patients' family members is also a big problem. A multidimensional approach taking into account biological, psychological and social perspectives is currently the most reasonable to the understanding of depressive symptoms following stroke, and to foster the development of evidence-based therapeutic strategies.[1]

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Conclusion

Though with this single centered study generalization is difficult, but the results indicate that patients with stroke have high levels of psychiatric morbidity. Screening patients with neurological disorders for psychiatric problems and timely psychiatric intervention can go a long way in improving the quality of life of these patients.

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Risk factor-based suicide prevention: does Bangladesh need emotion focused strategies?

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Summary

Suicide is a preventable public health problem which is under researched in Bangladesh. This review aimed to discuss the risk factors of suicide in Bangladesh based on readily available literatures. Current study was conducted with available literatures after adequate search in PubMed, PubMed Central, Google, Google Scholar, BanglaJOL with the searching keywords. Different studies revealed somewhat similar risk factors in Bangladesh. Majority of suicides were found to be linked with emotional events such as marital discord and family quarrel. Other reported risk factors were also related with strong emotions such as sexual harassment, failed in exam, not fulfilling immediate demand such as motor bike, bicycle, special dress in ceremonial occasions, special television channel watching etc., extra-marital relationship issue, early marriage, death of partner, death of children, and verbal abuse by teacher, love affair related complicacy, domestic violence, and divorce. Psychiatric illness as a risk factor of suicide is under focused and has not been considering as important risk factor in the country. Risk factors of suicide in Bangladesh have been found different in regards to the other parts of the world and mostly related with emotionally charged events. Culturally appropriate prevention strategies should be considered to address the issue.

Materials and methods

This narrative review was conducted with available literatures after adequate search in PubMed, PubMed Central, Google, Google Scholar, BanglaJOL with the searching keywords namely suicide in Bangladesh, risk factors of suicide in Bangladesh, suicide prevention in Bangladesh without any time limit. Special attention was considered to the risk factors of suicide in Bangladesh context with a focus on prevention activities of suicide in the country.

Results and discussion
Risk factors of suicide in Bangladesh

Different studies revealed somewhat similar risk factors in Bangladesh. In 2012, a community-based study conducted by Feroz et al., found about 63% of suicides were proximally related with emotional events those were noticed within the family.[10,11] Another study conducted in rural area revealed about 65.5% suicides were related with emotional factors and again the factors were found within the family.[12] A recent review mentioned other risk factors obtained from studies where more than half of the suicides (51% and 57%) were related to emotional factors those were prevailed within the family.[11] Another review unveiled that the most common risk factor of suicide was marital discord followed by quarrel among the family members.[7] A study analyzing the newspaper contents found about two-third of the risk factors within the family, mostly as

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marital discord followed by discord with family members.[3] Another study which assessed the online media portals found the emotional risk factors as major issues i.e. affair related issues were mentioned in about 14%, marital and familial discord in about 22% of suicides.[1] A study assessing the decisive moment revealed about 81% of the attempts were happened impulsively.[2]

Besides the marital and family quarrel issue, few noticeable risk factors were reported those were also driven by emotionally charged events. Suicide among supporters of favorite sports teams is also not so uncommon in the country.[13] Other reported risk factors were also related with strong emotions such as sexual harassment, failed in exam, not fulfilling immediate demand such as motor bike, bicycle, special dress in ceremonial occasions, special television channel watching etc., extra-marital relationship issue, early marriage, death of partner, death of children, and verbal abuse by teacher, love affair related complicacy, domestic violence, and divorce.[1,3,10,13]

Psychiatric illness as a risk factor of suicide is under focused and has not been considering as important risk factor in the country.[7,10,14] Very few researches studied mental illness as a risk factor and very few proportions of the risk factors were found in that domain.[1-3,7,10,12,14] Among intensive care unit admitted patients after suicidal attempt, mental illness was reported in about 59% of the respondents;[14] another study found it as about 6%.[1] However, depression was found in about 26% of the respondents that was reported by another study.[2]

Extrapolation of risk factors from available sources revealed majority proportion of risk factors derived from emotionally charge driven events in Bangladesh. However, previous reviews revealed psychiatric morbidities are the vital issues in suicide as a risk factor. Repeated evidences stated that, approximately 90% of persons who died by suicide had been suffering from no less than one mental illness and depression has been considered as the main culprit disorder accounting about 60% of the deaths.[7,15,16] These variations can be accounted by considering multiple factors such as lack of adequate researches exploring the relationship with mental disorder and suicide, cultural and geographical variation of risk factors, religious beliefs, strong social closeness, overall educational status and might be new other issues those demand further research.

Available suicide prevention initiatives in Bangladesh

In spite of huge necessity, very few activities have been started in the country to prevent suicides. Among them, suicide prevention clinic has been dealing with the clinical populations whereas the crisis releasing hotline (Kan Pete Roi) has been listening the distressed people though those are inadequate.[4] The newly formulated society is yet to start any preventive activities. Available global evidences revealed numerous prevention strategies, which have tested and trusted as effective in preventing suicide.[8,16] However, no single strategy has been found as universally effective and superior than others.[5] As a significant portion of risk factors are related with immediate emotionally charged events, Bangladesh should really look for strategies which can support the distressed person immediately. The available hotline can be an effective option to ventilate the emergencies though it is yet to be popularized in the country.[5] Health promotional activities focusing to make people conscious regarding moments of life can be fruitful. Further multilateral research is necessary to identify the risk factors, relationship of risk factors with existing biopsychosocial aspect of health and to sort the perfect culturally customized prevention strategy ensuring the maximum utilization of available resources.

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Conclusion

Risk factors of suicide in Bangladesh have been found different in regards to the other parts of the world and mostly related with emotionally charged events. Culturally appropriate prevention strategies should be considered to address the issue. Further researches are warranted to excavate the risk factors appropriately, reason for the difference in risk factors and choose most suitable prevention strategy.

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Obsessive-compulsive disorder among children and adolescents in Bangladesh

S.M. Yasir Arafat[1]

Summary

Obsessive-compulsive disorder (OCD) is a chronic and debilitating neurotic illness; however, phenomenological aspects of childhood OCD are not extensively studied in Bangladesh. The article aimed to review symptom pattern of OCD among the children and adolescents of Bangladesh. This narrative review was conducted with available literature after meticulous search in PubMed, PubMed Central, Google, Google Scholar, BanglaJOL with the searching keywords. Prevalence of OCD among children and adolescents was found from 1.3%-2.5% with male predominance. Dirt and contamination was found as the commonest obsessions and cleaning/washing was found as the commonest compulsion among the child and adolescents of Bangladesh.

Introduction

Obsessive-compulsive disorder (OCD) is a chronic and debilitating neurotic illness which affects about 1–3% of the population globally. However, the phenomenological aspects of childhood OCD are not well studied in Bangladesh.[1] It was aimed to review the symptom pattern and severity of OCD among the children and adolescent population of Bangladesh.

Materials and methods

This narrative review was conducted with available literature after meticulous search in PubMed, PubMed Central, Google, Google Scholar, BanglaJOL with the searching keywords viz OCD in children and adolescents of Bangladesh, OCD in Bangladesh, phenomenology of OCD in Bangladesh, childhood mental disorders. A total of 6 articles were finally taken for review which studied OCD among children and adolescents.

Results and discussion

Prevalence of OCD:

Among the child and adolescents, OCD was found to be poorly studied. Prevalence of OCD among children and adolescents was found from 1.3%-2.5%. Rabbani et al. found the rate as 1.3% among the community sample with up to 17 years in 2009.[2] Whereas Mullick and Goodman found the rate as 2% in 2005 among 5-10 years old children from three different straiata such as rural, unban and slum.[3] Furthermore, Akter et al. in 2016 found the rate as 2.5% among the clinical samples of a tertiary care hospital.[4] Though different studies revealed different prevalence rate, the range is supported by global prevalence rate.

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Gender of the patients

Gender distribution among pediatric OCD in Bangladesh revealed male predominance. Among the 60 (72%) children of Chowdhury et al. study 43 were boys and among the 106 children of Mullick et al. study 69 (65%) were male. Mullick et al. study revealed, about forty-one percent of cases had a family history of psychiatric disorder among the 1st degree relatives. Among that, highest proportion had anxiety disorders (about 63%), followed by psychotic illness (about 21%) and mood disorder (about 12%).[5] Chowdhury et al. study revealed, 45% of children had family history of psychiatric disorder among 1st degree relatives. Among that OCD was found as highest (63%) followed by mood disorder (15%) and anxiety disorders (15%).[6]

Table 1: Distribution of OCD symptoms among child and adolescents in Bangladesh (%)

	Chowdhury et al., n=60	Mullick et al., n=106	Algin et al., n=166 (total 400, 41.5% were children)
Obsessions			
Dirt and contamination	66.7	69.8	68.3
Miscellaneous	56.7	70.8	18.9
Religious	30	69.8	33.5
Aggressive	25	51.9	16.5
Somatic	15	43.4	0.6
Sexual	13.3	23.6	22
Hoarding	6.7	18.9	0.6
Superstitious	3.3	36.8	
Symmetry			15.2
Compulsions			
Cleaning/Washing	65	70.8	65.8
Checking	50	57.5	44.7
Miscellaneous	40	57.7	3.9
Orderliness	38.3	35.8	29.6
Repeating rituals	38.3	46.2	26.3
Rituals involving other persons	33.3	39.6	
Superstitious behaviour	21.7	26.4	
Hoarding	8.3	17.1	5.3
Counting	6.7	15.1	9.9

Research Instruments

The phenomenological studies of childhood OCD mostly used Development and Well-Being Assessment (DAWBA)3 for initial screening and followed by the use of Children's Yale Brown Yale-Brown Obsessive-Compulsive Scale (CY-BOCS).[7] These instruments have been used in multiple studies. Moreover, CY-BOCS Bangla has been validated recently in Bangladesh.[8]

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Phenomenology

Dirt and contamination was found as the commonest obsessions and cleaning/washing was found as the commonest compulsion (Table 1). Chowdhury et al. studied 60 children with OCD and found dirt and contamination highest (67%) as obsession followed by the miscellaneous (57%), religious (30%), aggression (25%) and few others.[6] However, another study of 106 children revealed the highest percentage of patients had miscellaneous obsessions (71%), followed by dirt and contamination obsession (70%), religious obsession (70%), aggressive obsession (52%), somatic obsessions (43%), and superstitious obsessions (37%).[5] Another study revealed dirt and contamination obsession (68%), religious obsession (34%), aggressive obsession (17%), sexual obsessions (22%), and symmetry (15%) among 166 children.[9] Among the compulsions, cleaning was found persistently as the highest compulsive acts among the pediatric population Bangladesh. A study of 60 children with OCD conducted by Chowdhury et al. found that the highest percentage of patients (65%) had washing/cleaning compulsion followed by checking compulsion (50%), miscellaneous (40%), orderliness (38%).[6] Another study of child OCD among 106 revealed the highest percentage of patients had cleaning compulsion (70%), followed by checking compulsion and miscellaneous (58%).[5] A study of 166 child OCD patient revealed the washing/ cleaning (66%), checking (45%) and orderliness (30%).[9]

Severity of symptoms

A study among 106 children revealed the severity as severe in 49%, extreme in 28%, moderate in 10%, mild in 9%, subclinical in 4% respondents.[5] Another study found that about 53% of the patients had severe OCD, followed by about 37% extreme OCD, about 7% moderate OCD, and only 3% had mild OCD. The proportion of extreme OCD was found to be high among the adolescents (49%) whereas severe OCD was higher among the children (71%).[6]

Comorbidity

Mullick et al found, Axis I co-morbidity among about 45% of children with OCD. The highest percentage was found as hyperkinetic disorder (17%) followed by oppositional defiant disorder (14%).[5] Chowdhury et al. found, Axis I co-morbidity among about 52% of children with OCD where the highest comorbidity was major depressive disorder and specific phobia (10%). Other comorbidity pattern revealed the following disorders, generalized anxiety disorder, tic disorder, conduct disorder, autism spectrum disorder, separation anxiety disorder, social phobia, panic disorder and trichotillomania.[6]

Conclusion

Current review revealed dirt and contamination as the commonest obsession and cleaning as the commonest compulsion in Bangladesh among children and adolescents.

Conflict of interest: None.

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Tuberous sclerosis : a rare cause of intellectual disability present with significant behavioral impairment

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Summary

Tuberous sclerosis or Bourneville's disease is a rare multi-system genetic disease, which is clinically characterized by classical Voget's clinical triad such as adenoma sebaceum, low intelligence and epilepsy. It is a Mandelian monogenic disorder which is inherited as autosomal dominant fashion with prevalence rate is approximately I in 6000 live births. In this disease specific genetic abnormality causes benign tumor to grow in brain, kidneys, heart, liver, eye, lungs and skin, which gradually cause significant functional impairment of those organs either in isolation or in combination. This is a case report of 22 years old young man present with aggression with significant behavioral impairment for last 3 years who has history of epilepsy as well as multiple cutaneous manifestations such as adenoma sebaceum, Shagreen patch, peri and subungual fibroma. His IQ was extremely low measured by Wechsler Abbreviated Scale of Intelligence. According to that scale his total IQ score was 53. On systemic enquiry by both clinical and laboratory means we found that he had multiple renal cyst with chronic kidney disease. According to that finding we advised antipsychotics and referred him to National Institute of Kidney Diseases and Urology (NIKDU) for better nephrological evaluation and treatment. Two weeks later on a follow up session we found that he was quiet and calm. His aggression and violence was subsided.

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Introduction

Tuberous sclerosis (TSC) is a rare multi-systemic genetic disease that causes tumors to grow in brain and on other vital organs such as kidney, heart, liver, eye, lung and skin. A combination of symptoms includes seizures, intellectual disability, developmental delay, behavioral problem, skin abnormalities, lung and kidney diseases. TSC is caused by a mutation of either of two genes, TSC 1 and TSC 2, which code for the proteins hamartin and tuberin, respectively. These proteins act as tumor growth suppressors, agents that regulate cell proliferation and differentiation.[1] Now the full name of "tuberous sclerosis" complex is preferred because the disease has manifestations outside the brain. Previously it was mistakenly suspected that this disease is only manifested by involvement of brain.[2] The physical manifestation due to formation of hamartia, hamartomas and very rarely cancerous hamartoblastomas. The effect of these brain leads to neurological symptoms such as seizures, intellectual disability, developmental delay and behavioral problems. Symptoms also include trouble in school and concentration problem. About 50% of people with TSC have learning difficulties ranging from mild to significant.[3]

Case study

A 22-year-old illiterate unmarried muslim young man from lower socioeconomic background was brought to National Institute of Mental Health and Hospital (NIMH), Dhaka on 7th April 2018 by his mother with the complaints of social isolation for 2 years, outgoing tendency for 6 months, violence and aggression to others for 3 months, self injurious behavior for 1 month.

He had history of epilepsy since his 1 year of age, which was manifested by recurrent episodes of seizures. Each episode persisted for 30 to 60 seconds associated with tongue biting and urinary incontinence followed by unconsciousness for 1 to 2 hours. His guardian also reported that episodes of seizure occasionally occurred during sleeping and he couldn't remember the episodes following regaining of consciousness. Sometimes episodes of seizures persisted for 30 to 60 minutes for which he required hospitalization for 3 times previously. But for the last 14 years his epilepsy was controlled with medication (tablet Carbamazepine 400 mg in two divided dose daily).

Since his age of 3 and half years he developed multiple dark brown to blackish spot involving both his malar area which gradually became popular, not associated with any pain, itching or bleedings. Later on the papular lesion became generalized to neck, front of chest and back.

He had no academic involvement since his early life. His intellectual and adaptive functioning was too low to take self care such as bathing, brushing, and toileting. His guardian also reported that he had poor social communication. He was always bullied by his neighbors and some of his close relatives. There was no history of consanguinity of marriage. There was no significant family history of any physical or mental illness in his family. He lost his father when he was 6 years old. His prenatal, natal and post natal history was uneventful. Though his milestones of development were normal, he couldn't carry on his study in early life due to poor intelligence.

He was introverted and shy. But for the last 6 months he developed outgoing tendency without any significant purpose. For the last 3 months he became violent and aggressive toward others without any provocation. For the last one month he developed self injurious behavior without any obvious reason.

On physical examination, he was anaemic. His blood pressure was 140/90 mm of Hg. His height was 5'6" and weight 80 kg. He was obese with dull-looking appearance. There were multiple dark brown sessile papular lesions (adenoma sebaceum) – (Figure- 1), involving both his malar area and nasal bridge, more like butterfly distribution, as well as skin of neck and back. There was a fibrotic nodule in his frontal area of scalp.

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There was multiple firm, variable sized nodular growth involving his fingers of both upper limbs as well as toes of both lower limbs suggestive of subungual and periungual fibroma or KÖenen tumors (Figure- 2). Multiple well defined roughened hypermelanotic patches were noted on his back of chest, torso and buttock showing an orange peel appearance suggestive of Shagreen patch (Figure- 3). His oral evaluation revealed there was nodular fibroma at dorsum of tongue, enamel hypoplasia with multiple pit at both sided 2nd premolar, 1st and 2nd molar teeth of upper jaw with gingival hypertrophy. On physical examination of abdomen, respiratory, cardiovascular as well as nervous system revealed no abnormality.

Mental state examination revealed he was cooperative but shouting during examination. His speech and mannerism were age inappropriate. There were no evident hallucinations or delusions. He had poor attention. His memory, ability to do simple calculations, comprehension, judgment and overall intelligence were all impaired. He had immobile facial features. He was self-centered and stubborn. Occasionally he was impulsive, destructive and aggressive. He had no insight about his problem and its possible solution.

His important laboratory investigation revealed Hb%: 10 gm/dl, Serum creatinine: 2.1 mg/dl. CT Scan of head revealed several nodular calcifications of different sizes bilaterally distributed under the ependyma of the lateral ventricles (Figure- 4). USG of whole abdomen showed multiple cyst of variable size involving both kidneys. There was poor corticomedullary differentiation in both kidneys suggestive of evidence of chronic kidney diseases (Figure- 5). His cardiovascular, respiratory, opthalmological, odontological as well as orthopaedic laboratory as well as radiological evaluation revealed no abnormality. Then he was treated with tablet Haloperidol 15 mg in three divided doses daily, tablet Procyclidine 15 mg in three divided doses daily and referred to National Institute of Kidney Disease and Urology for nephrological evaluation as well as better management and advised for follow up after 2 weeks.

Figure- 1: Adenoma sebaceum over the both malar and nasal area (indicated by white arrow).

Figure- 2: Periungual fibroma at right middle finger (indicated by white arrow).

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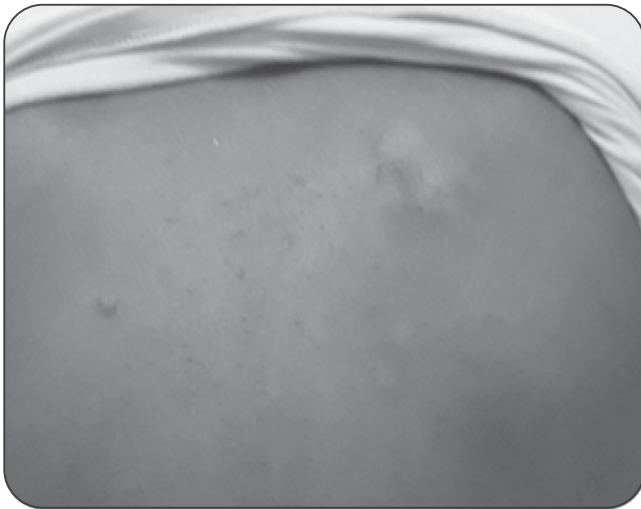Arch. NIMH 2018; Vol-01 (2): 57-62

Figure- 3: Shagreen patch at skin over the right shoulder (indicated by white arrow).
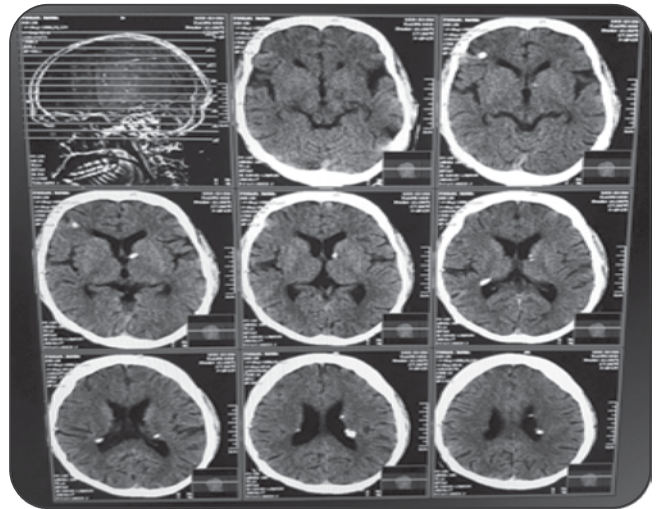

Figure- 4: Multiple subependymal nodule at both lateral ventricles (indicated by white arrow).
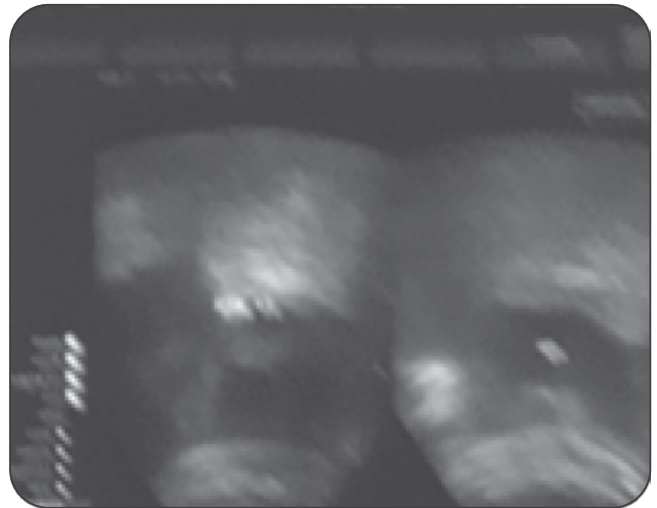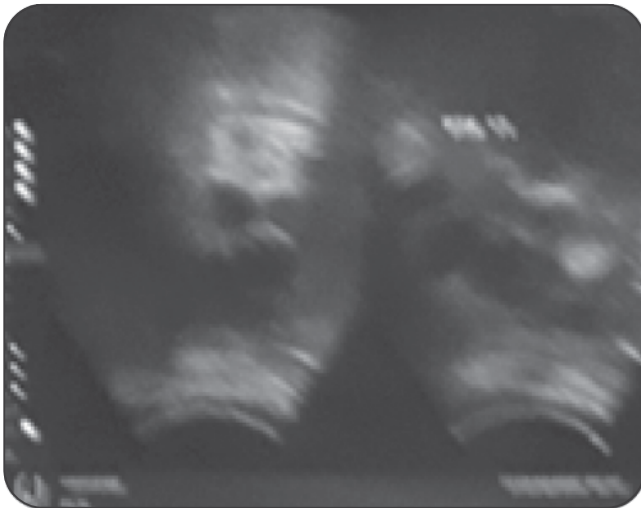

Figure- 5: Multiple renal cyst in both kidneys (indicated by white arrow).

Two weeks later on follow up session he was quiet and calm and cooperative with examiner. His violence and aggression was subsided. His sleep and appetite were improved. An IQ test was done by Weschsler Abbreviated Scale of Intelligence and it revealed his total IQ score was 53 which suggested that his IQ was extremely low. He was referred to Social Welfare and Occupational Therapy Department of NIMH for his better integrated medical and psychological management including social rehabilitation.

Discussion

TSC is a rare genetic disorder with an autosomal dominant pattern of inheritance, variable expressibility and incomplete penetrance.[4,5] Classical intracranial manifestation of TSC include subependymal nodules and cortical or sub-cortical tubers.[6] There is no pathognomic clinical signs for TSC complex. Many signs are present in individuals who are healthy or who have another disease. In order to meet diagnostic criteria for TSC complex, an individual must either have:

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1. Two or more major criteria; or
2. One major criteria alone with two or more minor criteria (according to major and minor criteria adopted by International Tuberous Sclerosis Association, April 2002)

	Major criteria		Minor criteria
1	Facial angiofibroma (adenoma sebaceum)- at least 3 in number.	1	At least 3 randomly distributed pits in dental enamel.
2	Non traumatic subungual and periungual fibroma- at least 2 in number.	2	"Confetti" skin lesions, 1 to 2 mm hypomelanotic papules.
3	Hypomelanotic macules (Ash leaf macule)- at least 3 in number not less than 5 mm in diameter.	3	Intra oral fibromas.
4	Shagreen patch.	4	Non renal hamartoma.
5	Brain cortical dysplasia.	5	Retinal achromic patch.
6	Subependymal nodules.	6	Multiple renal cyst.
7	Subemendymal giant cell astrocytoma.		
8	Multiple retinal nodular hamartomas.		
9	Cardiac rhabdomyoma.		
10	Pulmonary lymphangioleiomyomatosis.		
11	Renal angiomyolipoma.		

In infants, the first clue is often the presence of seizure, delayed development or white patches on the skin.[7,8] About 50% of people with TSC have learning difficulties ranging from mild to significant,[3] and studies have reported that between 25% and 61% of affected individuals meet the diagnostic criteria for autism, with an even higher proportion showing features of a broader pervasive developmental disorder.[9] Other behaviors and disabilities such as ADHD, aggression, behavioral outbursts and OCD can also occur. Lower IQ is associated with more brain involvement on MRI.[6]

A 2008 study reported self-injurious behavior in 10% people with TSC.[10] Between 60 and 80% of TSC patients have benign tumors of the kidney called angiomyolipomas frequently causing haematuria. About 20 to 30% of people with TSC have renal cysts. However 2% may also have autosomal dominant polycystic kidney disease.[11] Some form of dermatological manifestation is present in 96% of individuals with TSC. Most causes no problem, but are helpful in diagnosis. The most common skin abnormalities include angiofibroma (adenoma sebaceum) that appear on nose and cheeks in a butterfly distribution consisting of blood vessels and fibrous tissue, potentially socially embarrassing rash start to appear during childhood, peri and subungual fibromas in hand and feet. Hypomelanotic macules may appear anywhere in the body, forehead plaque, Shagreen patch (one type of connective tissue nevus) appears as thick leathery skin that dimpled like an orange peel. Usually found on lower back, nape of neck or scattered across the trunk or thigh. Seizure is present in about 80 to 90% of patient which begins during the first year of life; varies from subtle focal seizure, infantile spasm to generalized seizures.[12,13]

According to diagnostic criteria adopted by the International Tuberous Sclerosis Association our patient has 4 major criteria such as
1. Adenoma seabaceum > 3 in number

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2. > 2 sub and periungual fibroma in both upper and lower limb
3. > 3 Shagreen patch at torso and buttock whose diameter > 5 mm
4. On CT Scan of head shows multiple subependymal nodules

and 3 minor criteria such as

1. > 3 randomly distributed pits in dental enamel
2. Intraoral fibroma
3. Multiple renal cyst (as a consequence he developed chronic kidney disease with hypertension)

Conclusion

Tuberous sclerosis is a multi-systemic genetic disease which manifest with multiple physical and mental signs, symptoms and complications. This syndromes as well as complications are an important cause of significant morbidity as well as mortality for the affected person. They are also a significant source of stress for both caregivers as well as patient. In this case our patient was suffering from intellectual disability with significant behavioral impairment and multiple renal cysts in both kidneys with chronic kidney disease with hypertension. For that reason we prescribed antipsychotic for his psychiatric problem and referred to him NIKDU for better management of his physical complications where the patient was prescribed antihypertensive, iron, calcium and vitamin D supplementation. After 2 weeks on a follow up session his both mental and physical problems were well controlled. Later on he was included in Social Welfare Service for rehabilitation. Integrated holistic approach such as combined physical and mental treatment as well as rehabilitation services is the best option for such type of patient.

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