

Mental health in mass gatherings

ABSTRACT

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Background: Hajj pilgrimage, in Saudi Arabia, is one of the world's largest religious mass gatherings. We have similar mass gathering scenarios in India such as the Amarnath Yatra and Kumbh. A unique combination of physical, physiological, and psychological factors makes this pilgrimage a very stressful milieu. We studied the emergence of psychopathology and its determinants, in this adverse environment in mass gathering situation, in Indian pilgrims on Hajj 2016. **Materials and Methods:** This is a descriptive study analyzing the mental morbidity in 1.36 lakh Indian pilgrims during Hajj 2016, using SPSS software version 19. **Results:** Totally 182 patients reported psychological problems. Twenty-two patients (12%) required admission. Twelve (6.8%) pilgrims reported a past history of a mental illness. One hundred and sixty-five (93.2%) patients never had any mental symptoms earlier in life. The most common illnesses seen were stress related (45.7%) followed by psychosis (9.8%), insomnia (7.3%), and mood disorders (5.6%). The most common symptoms recorded were apprehension (45%), sleep (55%), anxiety (41%), and fear of being lost (27%). Psychotropics were prescribed for 46% of pilgrims. All patients completed their Hajj successfully and returned to India. **Conclusions:** Cumulative stress causes full spectrum of mental decompensation, and prompt healing is aided by simple nonpharmacological measures including social support and counseling in compatible sociolinguistic milieu.

Keywords: Hajj 2016, mass gathering, mental morbidity, stress

Hajj pilgrimage, in Saudi Arabia, is one of the world's largest religious mass gatherings.^[1] Hajj is an annual pilgrimage to the city of Mecca in Saudi Arabia involving about 3 million pilgrims for over 30 days including a core 5-day period which is an even more intensive and fixed ritualistic religious activity involving simultaneous mass movement of this sea of humanity in fixed geographical circuits and time-bound schedule, mostly on foot.^[2] This is unique and unparalleled.^[2] The pilgrims are clad only in two pieces unstitched white clothes, stay either unsheltered or in tent accommodation, often with minimal support services in an otherwise alien sociolinguistic milieu. Apart from being physically/physiologically exhausting due to huge physical activity involved, intense heat, dry desert weather, mountainous terrain, sleep deprivation, overcrowding, and elderly pilgrims with chronic medical illnesses, Hajj pilgrimage is also psychologically a stressful milieu owing to uncertainty arising out of fear of getting lost, foreign land, language issues, alien culture, understimulation, and an

emotionally surcharged spiritually demanding environment. All throughout, the pilgrims are in a state of "Ihram" which means a spiritual state of abstinence devoid of any "worldly" talks/activities, minimal interaction with people back home in India, avoidance of all kinds of violence including toward animals, abstinence from sexual activity, and other distractions such as music, and adopt a spiritual stance connecting with their creator. This combination of physical, physiological, and psychological factors is very unique and makes it a very stressful milieu.^[3,4] We studied the emergence of psychopathology in this bed of adverse environment in mass gathering situation as well as its determinants, in Indian pilgrims on Hajj pilgrimage 2016.

MATERIALS AND METHODS

For the 1.36 Indian pilgrims in Hajj 2016, the Government of India planned health care through Indian medical mission

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for Hajj 2016 under the aegis of the Consulate General of India, Jeddah, Saudi Arabia. The Indian medical mission was structured into 13 static peripheral clinics and two referral hospitals of 40 beds each at Makkah, where specialists were available. Apart from these, 35 temporary clinics were established in tents for health care to mobile population. This study was conducted at the two 40-bedded referral Indian hospitals at Makkah. Psychiatrists were available at referral hospitals and tent clinic. All pilgrims reporting of any psychological symptoms were reported to the respective psychiatrist telephonically and then referred. Referral to the psychiatrist was voluntary. As per the directions of the Ministry of Health, Government of KSA, psychiatrists were permitted to prescribe only a few standard psychotropics and sedatives in very limited quantity which were strictly controlled and accounted. These drugs were tablet olanzapine 5 mg, tablet sertraline 50 mg, clonazepam 2 mg, tablet alprazolam 0.25 mg, tablet sodium valproate 200 mg, haloperidol 5 mg, trihexiphenidyl 2 mg, and injection 5 mg haloperidol i/m and injection Phenergan 25 mg. The study covered all the Indian pilgrims (among the 136,000 Indian pilgrims who undertook Hajj pilgrimage in 2016) who reported sick anytime to any of the clinics of Indian Hajj Mission from August 11, 2016 to October 11, 2016 and who complained of any psychological symptoms to their doctors. All these patients were referred to psychiatrist at either of the two hospitals at Makkah for assessment. On special pro forma, we recorded demographic and clinical characteristics of all these referred patients. Detailed clinical interviews were conducted by a qualified psychiatrist and the findings were recorded in a semi-structured form. Diagnoses were made following the guidelines in clinical version of chapter V (mental and behavioral disorders) of International Classification of Diseases (ICD-10). In difficult cases, diagnosis was assigned by consensus between two psychiatrists. For statistical computation, we used SPSS Inc. Statistical Package for Social Sciences. Version 19.0. Chicago, USA: SPSS Inc.

RESULTS

Totally 182 patients reported psychological symptoms and were advised referral to the psychiatrist as per the study protocol. Out of these, 5 pilgrims refused referral and were lost to further follow-up. One hundred and seventy-seven patients actually reported to psychiatrists, and data from this sample were included in the study. Twenty-two patients (12%) required admission to the Indian hospitals and 9 (4.9%) referred to the tertiary care Saudi hospitals. Twelve (6.8%) pilgrims reported a past history of a mental illness. One hundred and sixty-five (93.2%) patients never had any mental symptoms earlier in life. These had decompensated during Hajj 2016 for the first time. None

of them had been on Hajj before. The diagnosis-wise distribution of cases is shown in Table 1. The most common illnesses seen were stress related (45.7%) followed by psychosis (9.8%), insomnia (7.3%), and mood disorders (5.6%). Males were dominant (59.7%). Mean age was 46.45 years. Totally 148 (83%) pilgrims reported not being told about the “actual” difficulties involved or the details of rituals during Hajj. This figure was higher (90%) among the females. Among the psychotics and acute stress reaction, all were first timers and majority of the pilgrim patients belonged to rural background and had low exposure to urban life. Most common symptoms recorded were apprehension (45%), sleep (55%), anxiety (41%), and fear of being lost (27%). Psychotropics were prescribed for 46% of patients. The most common drugs to be used were propranolol, promethazine, and clonazepam. Comorbid medical disorder (hypertension, diabetes mellitus, chronic obstructive pulmonary disease, ischemic heart disease, and chronic respiratory failure) was reported by 23% of the admitted patients and 9% of outpatient department (OPD) patients. All patients completed their Hajj successfully and returned to India [Tables 2 and 3].

DISCUSSION

Overall, the percentage of pilgrims reporting psychological symptoms was 0.001% which, even after adjusting for a few missed cases, is an extremely low incidence of mental morbidity in a mass gathering situation of such magnitude and stress.^[5] A previous research on the pattern of mental morbidity during Hajj at a referral hospital had found a total of 92 patients of mental health over the first 2 weeks of Hajj,^[6] which compares well with our study results. Research on mental morbidity data in Hajj pilgrims supports the low percentage found in our study^[7] and is much less than the prevalence of mental illness in Indian population as reported in a national mental health survey, recently carried out by National Institute of Mental Health and Neurosciences as 7.5%^[8] and 8.8% as predicted by the National Commission on Macroeconomics and Health.^[9] The distribution of mental illness (the most common being neurotic and stress related) and the gender distribution in

Table 1: Pattern of overall disposal

Type	Number of patients (%)
Total number of patients reported	177
Admitted	22 (12.42)
Treated and discharged	21
Performed Hajj	177 (100)
Evacuated to India due to illness	0
Death	0
LAMA	1 (cancer case)

LAMA – Leave against medical advice

Table 2: Diagnosis-wise outpatient department cases

Diagnosis	n
Acute psychosis	18
Depression	9
OCD	1
Adjustment disorder	47
Acute stress reaction	19
PTSD	1
Panic disorder	9
Agoraphobia	2
GAD	1
Insomnia	17
Others	13
Headache	2
Substance related	1
Dementia including MCI	8
Organic psychiatric disorder	5
Delirium	11
BPAD	11
Mania/hypomania	2
Others	2
Total	177

OCD – Obsessive-compulsive disorder; PTSD – Posttraumatic stress disorder; GAD – Generalized anxiety disorder; MCI – Mild cognitive impairment; BPAD – Bipolar affective disorder

Table 3: Diagnosis-wise distribution of admitted cases

Diagnosis	Number of patients
Depression	0
Mania/hypomania	2
Psychosis	7
Delirium	4
Dementia	1
Organic psychiatric disorder	3
Sleep	0
Panic with agoraphobia	0
Acute stress reaction	5
Total	22

our study results compares with a previous hospital-based study in mass gathering situation.^[6] Eighteen pilgrims had a psychotic breakdown which is miniscule (0.0001%). This is also much less than the expected psychotic disorder prevalence in Indian population which is 1%.^[10] After accounting for the possible factors which may reduce the reporting of mental illness during Hajj (busy ritualistic schedule, minor symptoms being ignored/tolerated due to high motivation for meditation, and lack of awareness), and given the fact that the health care was almost embedded with the pilgrimage making it almost like a community study, we infer that the incidence of mental morbidity was much below the expected levels and we are inclined to attribute this to the resilience provided by a highly positive mental state provided by a spiritual experience in Indian

pilgrims because spirituality/religiosity is known to be protective of mental illness.^[11]

Majority of the cases of acute confusional state and acute stress reaction were reported around the time of the core Hajj period. We infer that acute hardships and extreme heat during the core Hajj period and the anticipation of some mishap like stampede were responsible for this. Eighty-three percent of patients were not aware of the “actual” difficulties involved during Hajj, it acted as a perceived stressor for which they were not prepared for the pilgrimage. This indicates a need for better focus on mental health awareness in health-care planning for any mass pilgrimage in India such as Amarnath and Kumbh.

Among the delirium cases, six were heat related, one was hypoglycemia, one was hyponatremia, and three causes were unknown. Six pilgrims were seen during the core Hajj period. We infer that dehydration and exposed heat was a major contributory factor in all cases and is preventable. This has implications for such mass gathering in India such as Amarnath Yatra and Kumbh where preventable causes of morbidity such as heat, cold, and rain apart from dehydration and hypoglycemia need focus.

The most striking outcome of this study was the emergence of psychosis in premorbidly stable people in the face of stress (10%). We did a detailed analysis of the cases which to our knowledge has not been attempted anytime before in such mass gathering scenario anywhere in the world. Eighteen cases of psychotic breakdown were seen. Owing to the physical, physiological, and psychological stress to which the Hajj pilgrims are exposed, psychological compromise and decompensation was expected.^[12] Out of a total of 18 cases of acute psychosis, 4 had a past history of psychotic breakdown earlier and treated. All these four cases had at least 2 years of stable illness and were on medicine. Three patients had discontinued drugs and had a relapse of psychosis due to stopping medicines. Rest of the 14 patients were fresh cases. Among these, 11 recovered completely within 2 weeks' time with 5–10 mg olanzapine and short course of clonazepam. The remaining seven cases continued to have some residual symptoms but were manageable and completed Hajj rituals with their attendants. The clinical syndrome seen in our study was abrupt in onset, manifested as paranoia (delusions of reference and persecution), irrelevant speech, behavioral abnormality (agitation), emotional turmoil, perplexity, and sleep deprivation. No hallucination was seen. They were diagnosed as having acute and transient psychotic disorder as per the ICD-10 criteria. Only short-term, low-dose psychotropics/sedatives were used and there was no role of long-term drugs (all of them were asymptomatic, had resumed their meditations/rituals, and had stopped drugs).

They were followed up weekly and reported no symptoms thereafter for 1–2 months till their departure to India. All patients were advised follow-up with a psychiatrist back in India after Hajj.

Another group of 29 patients were those who presented with acute-onset disorientation, irrelevant speech, anxiety, fearfulness, sleep disturbances, and agitation. Majority of these had presented in the first few weeks of arrival and during the core Hajj period. The average age of this group was 59.66 years. The management protocol used for this group of patients included safe confinement, physical comforting, proximity to family members, psychological support and repeated reassurance, reorienting and counseling, soft handling, nutrition, intravenous fluids (0.9% normal saline (NS) and dextrose NS), and repeated verbalization of sequence of events as well as reorientation. All these responded favorably and became asymptomatic over 24–48 h. Diagnostic label given to this group was acute stress reaction. It should be understood that the conditions during Hajj are unusually and extremely stressful and decompensation takes place in the elderly with comorbid physical illnesses and old age.^[13] This population perhaps has limited cognitive and physiological reserve and under trying conditions decompensates leading to acute psychotic presentation. However, the complete recovery with conservative supportive management is evidence of their resilience and the ability to bounce back. Even though the presentation overtly is with psychotic symptoms, antipsychotics are not the mainstay of treatment in such cases, least of all, long-term antipsychotics.

There was a clear surge in anxiety symptoms before the actual Hajj period, i.e., 1st week of September 2016. Many who were otherwise stable till then (with stable prescription monitoring program with no history of mental disorders or treatment in the past) developed anxiety, panic-like episodes, crying, sleep disturbance, palpitations, expressed an inability to complete Hajj, distress about their long cherished dream and huge investment failing, wanted to give up, and some even requested to be sent home without performing Hajj. They were found to be easily managed with counseling, deep breathing, relaxation training, cognitive therapy, paternalistic counseling (“do not worry, we will ensure that you get relief, recover, and perform your dream of Hajj”), supportive therapy, psychoeducation about the anxiety process, education about the actual process of Hajj, giving information about the preparations, making a permanent buddy by name from among the group, group activity scheduling for rituals, and tablet propranolol and rarely 0.25 clonazepam SOS. All of them responded and completed Hajj successfully. Post-Hajj, all of them were asymptomatic and without drugs within 1 week of Hajj completion. All were diagnosed as adjustment disorder.

Of the 12 cases with a past history of being treated for a mental illness (1 obsessive-compulsive disorder, 2 depression, 3 anxiety, 4 psychosis, 2 bipolar affective disorder, and 1 dementia), 7 relapsed. All had stopped treatment. All of them responded well to treatment and completed the Hajj rituals. Importance of drug compliance should be emphasized during the pretravel training to reduce this burden.

In our study, all the patients were treated in OPD and only 22 required admission (12.4%). Most of the patients responded favorably, majority recovered, 100% completed their Hajj rituals, and none had to be sent back to India. This when compared to a recent study from Iran^[14] is a very desirable result and outcome of management. In the Iranian study, of the 106 pilgrims sent back for illness, 28 (26.6%) were for psychiatric illness and 50% of these pilgrims returned without performing Hajj. Perhaps, with the presence of a psychiatrist on the mission, results were much better with the Indian experience. There are important implications for policymakers for mass gathering scenarios in India.

One of the observations we make from our study is that we saw a complete spectrum of mental morbidity, from stress-induced nonsyndromal mental symptoms of anxiety and sleep disturbances to acute syndromal anxiety, dissociation, mood disorders, and acute psychosis, all triggered by severe stress in differently predisposed individuals, majority without any past history of relevance and good premorbid functioning. This underlines the importance of stress in the etiology of mental illness. We believe that the “at-home” social milieu provided by Indian Hajj mission’s psychiatric services with same familiar sociocultural background including language compatibility is in part responsible for such good outcomes as seen in our study. The interface of social milieu and psychiatric illness has been underlined in earlier research.^[15] Remarkable finding of this study was that a protective, supportive, and comforting environment in compatible sociolinguistic milieu, availability of mental health specialist, and minimal use of short-term psychotropic drugs relieved almost all of them completely. The importance of management of these psychiatric illnesses in a compatible sociolinguistic milieu is emphasized here. It also underlines human resilience^[16] in the face of extreme multipronged stress and the ability to bounce back completely from acute psychotic breakdown. It can be argued that some of this resilience can be attributed to the intensely religious and spiritual state of mind of the pilgrims during Hajj as has been advocated in literature including by the WHO.^[17,18]

In our study, psychotropic drugs (olanzapine, sertraline, haloperidol, and clonazepam) were used in 46% of

cases. Major drugs to be utilized were propranolol and clonazepam. All drugs were used in low doses (propranolol 40 mg/day, clonazepam 0.25 mg – 0.5 mg/day, olanzapine 5–10 mg/day, haloperidol 5 mg/day, and sertraline 25–50 mg/day) and for short duration. This when compared with a similar study from Makkah hospital during Hajj where 69% of patients were prescribed psychotropic drugs fares better. Among psychological measures for anxiety and stress-related disorders, we used general measures such as relaxation exercises, deep breathing, and psychoeducation. We also used a model of religiously oriented cognitive psychotherapy devised by the author specifically for Hajj pilgrims based on the faith of the pilgrims (Islamic faith) as discussed in earlier studies^[18] and under publication elsewhere (details available on E-mail request at shahbaaz323@yahoo.com). This religiously oriented psychotherapy model has been seen to be helpful in anxiety disorders among others.^[19,20]

To conclude, when we are working under the constraint of nonavailability or limited permission to use psychotropics, and forced to count on nonpharmacological measures, we came to realize the importance of nonpharmacological measures such as supportive reassurance, empathetic nursing, fluid/diet replenishment, reorientation, soft handling, repeated talking, counseling and reorientations, cognitive corrections, importance of proximity of relatives, sense of “holy service to patients as guests of God,” deep breathing, and muscle and religiously/spiritually oriented psychotherapy (last method used specifically in anxiety and stress-related disorders). Based on our findings, we emphasize that the present-day overreliance on psychotropics needs to be reconsidered and the importance of nonpharmacological measures and sociolinguistic milieu for healing in mental decompensation must be reemphasized, even if in augmentation to drugs.^[15] This has relevance in Indian scenario for our general practitioners and Primary Health Centres in the nonurban areas where psychiatrists are not available and psychotropic drugs are rare. This was a peculiar situation where we worked with severely constrained usage of psychotropics ordained by Saudi Government regulations, a spiritual atmosphere with a sense of duty to serve (patients are God’s guests), a perfect nursing setting, relatively adequate time to listen to the patients (catharsis) and their relatives empathetically, and psychiatrist–patient ratio which was relatively reasonable—this situation is hardly replicable in the real-world scenario in general anywhere in the world and particularly in India. However, this is a good template to aim for, and if these factors can be replicated in the real world, the results in the management of mental health problems can also be replicated as is seen in this study. Suffice to say that the Indian culture already has an embedded value for guests. If we prime our medical system as “mareez hamare mehman”

and a sense of service to our “guests” concept, healing is likely to be better as seen in our study.

CONCLUSIONS

In our study, important findings are outlined and discussed. We emphasize the importance of stress in *de novo* mental decompensation and excellent outcome measures. We attribute a part of the favorable outcomes to mental healing in compatible sociolinguistic milieu and the importance of nonpharmacological measures including social support and counseling. It will be interesting to do a comparative study with other country’s medical missions and similar mass gathering scenarios in India such as the Kumbh. Planning of psychiatric services according to the established need of population served, particularly during such mass gathering scenarios, is needed. We also believe that, from our findings, there are important lessons for mental health care, especially in nonurban settings in India.

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Conflicts of interest

There are no conflicts of interest.

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