Research Article

Predictors of mental health illness in Rohilkhand Medical College and Hospital, Bareilly: A case–control study

Medhavi Agarwal, Akanksha Sinha, Rashmi Katyal, Arun Singh, Deepak Upadhyay

Department of Community Medicine, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India

Correspondence to: Akanksha Sinha, E-mail: akanksha.sinha2007@gmail.com

Received: April 20, 2021; **Accepted:** July 17, 2021

ABSTRACT

Background: The psychiatric epidemiology is a part of psychiatry and public health which investigates about the distribution of mental disorders in the population and it is extended up to the identification of the possible causes and measurement of the impact of interventions. The causes of mental illness are multiplex. Identification of risk factors will aid in the formulation of policies for prevention and control of mental illness. **Objectives:** The objectives of the study were to assess the predictors, distribution of mental health illnesses in Rohilkhand Medical College and Hospital, Bareilly, and to study associated sociodemographic factors, psychological factors, and occurrence of systemic illness in cases and controls. **Materials and Methods:** The study was conducted among adults aged 18–65 years coming to the psychiatric outpatient department of Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, from March 2021 to April 2021. **Results:** Mental illness is multifactorial in origin and focusing on one cause will not be sufficient for the prevention or cure of the mental disorder. **Conclusions:** Counseling, determination of risk factors, and early diagnosis and treatment for any medical ailment are recommended.

KEY WORDS: Psychiatric Epidemiology; Risk Factors; At-Risk Groups; Mental Illness

INTRODUCTION

The psychiatric epidemiology is a part of psychiatry and public health which investigates about the distribution of mental disorders in the population and it is extended up to the identification of the possible causes and measurement of the impact of interventions.

Psychiatric disorders have emerged in our community and found very commonly now. Epidemiological studies have reported the prevalence rates for psychiatric disorders varying from 9.5 to 370/1000 population in India.[1,2]

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2021.04035202117072021	

The causes of mental illness are multiplex, diverse, varying according to circumstances of individuals and remarked by many sociodemographic and biological factors. Analyzing the current advances, Kessler (2000) found that the challenges occurring in psychiatric epidemiology were in "conceptualizing and measuring mental disorders" and desired the need to focus on risk factors which are modifiable rather than the broad and non-specific risk markers.

Development of epidemiological databases (entries) of appropriate sample sizes with improved funding and coordination, use of culture-specific study tools, which will help in describing the etiology and management of mental disorders are the need of the hour.

Well-designed, population-based analytical studies on the antecedent of mental disorders are lacking in India. Complex methodological affairs have further increased the problems in doing the research. A review analysis of the available research efforts in the country depicts the gradual shift and

progresses in finding the social, demographic, and cultural associates of disorders.

The epidemiological studies conducted in India have mainly aimed on the association of morbidity; contemporary studies have explained more methodological diligence (finding the sociodemographic correlates) allowing the recognition of "at-risk" groups or subpopulations. Furthermore, the different variables studied include age, gender, sex, place of dwelling, education, occupation, income, religion, migration, marital status, caste, and type of family (nuclear and non-nuclear). Although no clear interpretation can be made from these data, few indicators of "at-risk" groups have been discovered and have been helpful in formulation of some hypothesis.

Comorbid medical illnesses are often associated with increased levels of psychological discomfort. Awareness and usage of support services and resources for mental health are directly associated with lesser psychological discomfort. There is evidence of the connection between chronic illness, especially occupational type, as well as awareness and use of mental health resources by psychological discomfort status.[3]

Certain personality traits are related to an increased risk of developing a severe mental illness. Studies have observed that the personality profiles of the symptomatic stages of mentally ill patients were similar to reported profiles for discrete disorders. Early identification of this profile could aid in identification of those at risk of severe mental illness.[4]

Mental health describes a level of psychological well-being or an absence of a mental disorder.[1,2] With the idea of "positive psychology" or "holism," mental health could include a person's way to enjoy life and balancing between daily lifestyle and potential to gain psychological resilience.[1] Mental health can also be defined as an expression of emotions and as achieving a control to various needs.

The World Health Organization defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".[5]

Earlier, it was said that there was non-"official" definition of mental health. "Mental health" is defined on the basis of difference in cultures, individual analysis, and competing professional theories.[6]

Mental health problems are of several types, out of which some are common, for example – depression and anxiety disorders, and some are uncommon, for example – schizophrenia and bipolar disorder.[7] Global mental health has emerged recently, it is defined as "the area of study, research, and practice that prioritize on improvement of mental health and achievement of equity in mental health for everyone across the globe."[8]

Very few case–control studies have been conducted to assure the several hypothesis related to risk factors. It is important to identify the risk factors. It will aid in the formulation of policies for prevention and control of mental illness. Implementation of specific measures toward the individuals who are at risk can decrease the mental health disease burden in our society. With this vision and to bridge the gap, a case–control study has been done to find out various epidemiological variants of mental illness among the people attending outpatient department (OPD) of Rohilkhand Medical College and Hospital, Bareilly.

Aims and Objectives

Aims

The aim of the present study was to assess various predictors of mental health illness in cases (mentally ill) and controls (not mentally ill) in Rohilkhand Medical College and Hospital, Bareilly.

Objectives

The objectives of the study were as follows:

- To know the distribution of mental health illnesses in Rohilkhand Medical College and Hospital, Bareilly
- To study associated sociodemographic factors in mentally ill patient and normal people, that is, controls
- To identify the effect of psychological factors on the mental illness and normal health
- To study the occurrence of systemic illness in cases and controls.

MATERIALS AND METHODS

Study Design

A case–control study was carried out in Rohilkhand Medical College and Hospital, Bareilly.

Study Group

Adults aged 18–65 years having mental illness were considered as cases and those who were not having the mental illness were considered as controls.

Study Area

Study was conducted in Rohilkhand Medical College and Hospital, Bareilly.

Study Duration

Study was conducted from March 2021 to April 2021.

Diagnostic Criteria

Case definition

Any case, between the age group of 18 and 65 years, coming to the psychiatric OPD of Rohilkhand Medical College and Hospital, Bareilly, for the 1st time during March 2021 to April 2021 and diagnosed by the consulting psychiatrist for mental illness constituted the part of our study.

Control definition

Any person not suffering from the mental illness between the age group of 18 and 65 years, residing in neighborhood community of Rohilkhand Medical College and Hospital, Bareilly, constitutes the control of our study.

Inclusion Criteria for Case

1. Age between 18 and 65 years
2. Diagnosed to have mental illness by psychiatrist for the 1st time.

Inclusion Criteria for Control

1. Age between 18 and 65 years
2. Does not have mental illness.

Source of Cases

The source of the cases was Rohilkhand Medical College and Hospital, Bareilly.

Ethical Clearance

Approval was taken from the Institutional Ethics Committee, Rohilkhand Medical College and Hospital, Bareilly, for conduction the study. Written consent was taken from the cases as well as controls.

Sample Size

Matched case–control study was conducted in 330 adults (165 cases and 165 controls) aged 18–65 years and residing in neighborhood community of Bareilly city or came to attend the OPD of Rohilkhand Medical College and Hospital, Bareilly.

The sample size was calculated using open Epi info and GraphPad statistical tool. According to National, all-India prevalence rates for all mental disorders' and five specific disorders have been worked out the national prevalence rates for "all mental disorders" arrived at were 70.5 (rural), 73 (urban), and 73 (rural + urban) per 1000 population.

Number of Controls per Case

One control per case was studied.

Method of Sampling

By simple random sampling using random number table method, all the cases and controls who meet the inclusion criteria were selected and surveyed. The study was conducted till the completion of sample size.

Data Collection

A pre-designed and pre-tested pro forma was used to collect baseline data by house-to-house visits in case of control and hospital visits were made for cases. Cases were collected from psychiatric OPD Rohilkhand Medical College and Hospital, Bareilly. Controls were collected from the neighborhood community of Bareilly city. Informed consent was taken before the initiation of survey and information was collected.

Statistical Analysis

Analysis was done in Epi Info version 3.4., GraphPad, and SPSS. Odds ratio, adjusted odds ratio by logistic regression method, Z test, and Chi-square test were used to test statistical significance and causal relationship. Exposure rate was also calculated.

Various graphs such as table and bubble diagram were used to represent the data.

RESULTS

Table 1 depicts descending order of adjusted odds ratio of various risk factors for mental illness. It was observed that maximum adjusted odds ratio was 18.98 for family history positive for mental illness followed by death of near one or any stress (adjusted odds ratio 18.30). Least adjusted odds ratio was found to be 0.67 for religion. The mean adjusted odds ratio was 5.33. On analysis for risk of mental illness, it was found unemployment, illiteracy, marital status, positive family history for addiction and mental illness, personal history positive for addiction, and type of diet consumed posed to be significantly associated with risk of developing mental illness.

Figure 1 depicts odds ratio of various general etiological risk factors for mental illness. Largest bubble depicts death in family member or stress. Odds ratio for it was 21.23 followed by odds ratio of family history positive for mental illness. Least odds ratio was observed for appetite abnormality, supplementation taken, sleep abnormality, and vegetarian diet.

Figure 2 depicts odds ratio of various accompanying systemic illness and psychological risk factors for mental illness. Largest bubble depicts mood abnormality presence with odds ratio of 33.36 followed by odds ratio of behavioral abnormality presence with odds ratio of 10.28. Least odds ratio was observed for diabetes mellitus 0.63.

Table 1: Adjusted odds ratio of factors associated with mental illness

Characteristics	Category	Number	Odds ratio (OR)	Adjusted OR
Family history of mental illness	Positive	43	19.0328*	18.98
	Negative	122	(5.76–62.79)	(4.76–65.84)*
Precipitating events	Yes	123	21.2321*	18.30
	No	42	(11.83–38.08)	(9.83–39.93)*
Sleep	Abnormal	78	10.4828*	16.54
	Normal	87	(5.50–19.95)	(4.33–24.95)*
Employment	Unemployed	121	16.1563*	14.3421
	Employed	44	(9.28–28.10)	(8.87–29.13)*
Personal history of addiction	Positive	74	2.8132*	4.84
	Negative	91	(1.74–4.53)	(1.51–15.46)*
Mental stress	Yes	68	3.4300*	4.52
	No	97	(2.05–5.71)	(1.76–6.22)*
Bowel/bladder	Abnormal	22	3.0192*	3.44
	Normal	143	(1.30–6.99)	(0.62–19.15)*
Diet	Veg	105	1.5313*	2.80
	Mixed	60	(0.98–2.37)	(1.15–6.59)*
Family history of addiction	Positive	74	1.8703*	2.80
	Negative	91	(1.19–2.93)	(1.15–6.81)*
Marital status	Married	52	1.3477	2.80
	Single	113	(0.83–2.17)	(0.78–6.81)*
Education	Illiterate	28	1.4818*	2.4326
	Literate	137	(0.79–2.75)	(0.62–2.5)*
Appetite	Abnormal	12	4.2353*	1.76
	Normal	153	(1.17–15.29)	(0.36–8.55)*
Birth history	Problem	12	4.2353*	1.76
	No problem	153	(1.17–15.29)	(0.36–8.55)
Past history of infection, etc.	Positive	62	1.8205*	1.53
	Negative	103	(1.13–2.92)	(0.64–3.65)
Supplement	Taken	35	2.5072*	1.42
	Not taken	130	(1.32–4.73)	(0.64–3.65)
Socioeconomic status (calorie)	BPL	61	0.3485*	0.87
	APL	104	(0.20–0.58)	(0.20–0.79)
Family history other disease	Positive	12	0.4009*	0.73
	Negative	153	(0.19–0.82)	(0.21–0.54)
Socioeconomic status (Kuppuswamy)	1–3	53	0.5964*	0.73
	4–5	112	(0.38–0.93)	(0.21–2.54)
Religion	Hindu	125	0.5580*	0.6754
	Non-Hindu	40	(0.32–0.97)	(0.31–0.84)

*Statistically significant (P<0.05)

DISCUSSION

A case–control study was conducted in Rohilkhand Medical College and Hospital, Bareilly, from March 2021 to April 2021 with the aim of the assessment of various predictors of mental health illness in cases (mentally ill) and controls (not mentally ill). Hence, policies and programs for prevention and control of mental illness can be recommended.

The common risk factors occurring frequently [Table 1] according to the odds ratio were found for the positive family history of mental illness, followed by precipitating factors, lack of proper sleep, and unemployment.[9-11] Moderate odds ratio was found for the personal history positive for addiction, mental stress, bowel/bladder abnormality, vegetarian diet, family history positive for addiction, being single, and illiteracy.[12-18] Mild odds ratio was found for abnormal appetite, birth history positive for some development abnormality, history positive

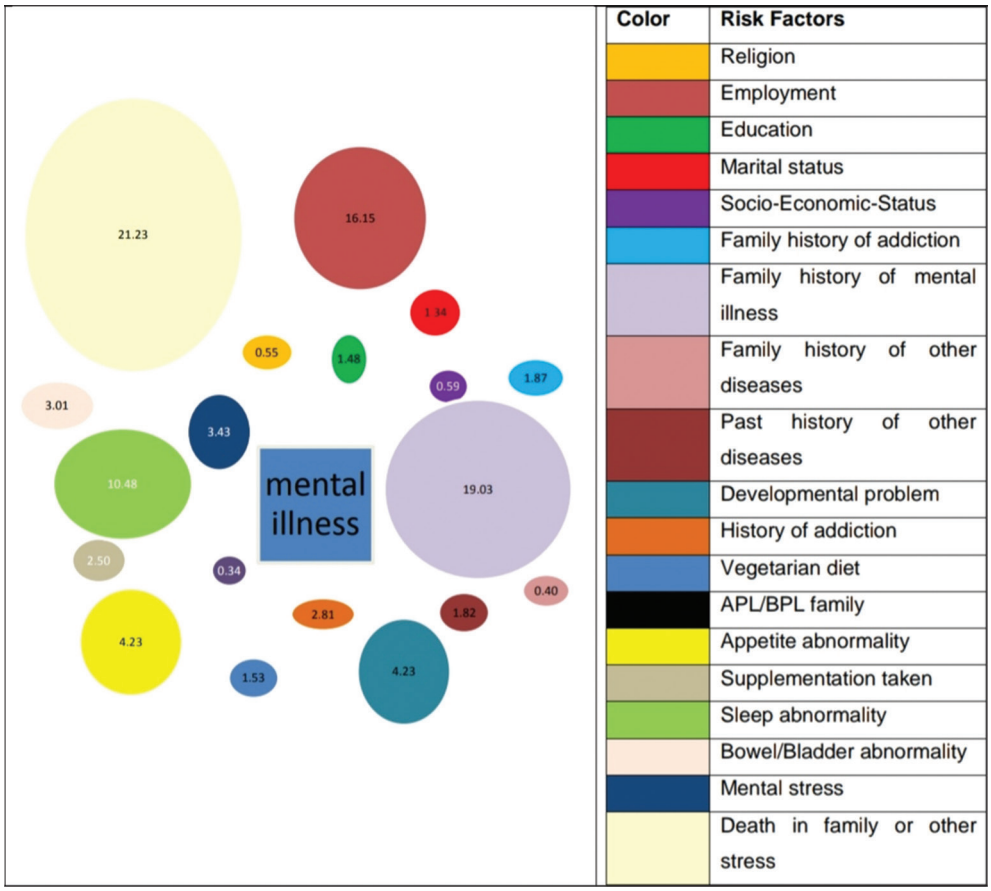

Figure 1: Bubble diagram to represent odds ratio of various general etiological risk factors for mental illness

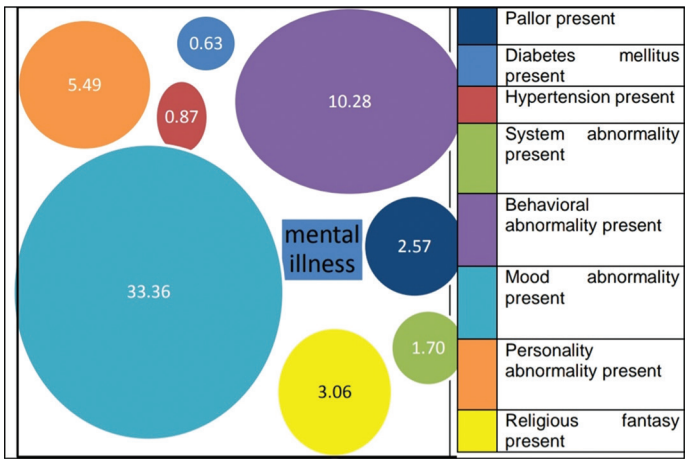

Figure 2: Bubble diagram to represent odds ratio of accompanying systemic illness and psychological factors for mental illness

for some infection, supplementation taken, belonging to BPL, positive family history for other diseases, and socioeconomic classification between Class I-III and being Hindu by religion.[19-24] Various studies have shown similar results.

CONCLUSIONS

According to the results, it was found that mental illness is multifactorial in origin and focusing on one cause will not be sufficient for the prevention or cure of the mental disorder.[25] Hence, the epidemiological triad of agent, host, and environment is not useful for mental disorders. The need of an hour is to study the whole web of causation of it so that better cure and prevention could be planned. The reason behind this is multifactorial interactions of a person being vulnerable to wide range of environmental factors which may be or may not be identified or modified.

Results of our study stressed on the following recommendations:

- Counseling
- Nutritional supplementation in case of any nutritional deficiency
- Proper management for insomnia, bowel/bladder abnormalities, loss of appetite, etc.
- Early diagnosis and treatment of non-psychological systemic illnesses
- Training of health care workers to diagnose any behavioral abnormality, mood abnormality, and personality abnormality in an individual
- To look for any precipitating events
- Cultural and social factors should also be taken care of
- Promotion of mental health camps, school mental health activities, and interaction with NGOs
- Systematic, regular, time-bound evaluation of activities related to mental health at the district level should be

done at periodic intervals
- Requirement of changes in mental health policies and programs and systemic reforms
- Integration of mental health with education, child health, women's health, empowerment, legal systems, etc.
- Determination of the risk factors.

REFERENCES

1. What is Mental Health? 2006. Available from: http://www.About.com. [Last accessed on 2007 Jun 01].
2. Princeton University. (Unknown last update). Available from: http://www.Princeton.edu. [Last accessed on 2007 Jun 01].
3. Chan CM, Ng SL, In S, Wee LH, Siau CS. Predictors of psychological distress and mental health resource utilization among employees in Malaysia. Int J Environ Res Public Health 2021;18:314.
4. Santesteban-Echarri O, MacQueen G, Goldstein BI, Wang J, Kennedy SH, Bray S, *et al*. Personality and risk for serious mental illness. Early Interv Psychiatry 2021;15:133-9.
5. Mental Health: Strengthening Our Response (Fact sheet N 220) (in English). World Health Organisation. Available from:https: //www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response. [Last accessed on 2013 Feb 03].
6. World Health Organization. World Health Report 2001-mental Health: New Understanding, New Hope. Geneva: World Health Organization; 2001.
7. Kitchener BA, Jorm AF. Mental Health First Aid Manual. Canberra: Centre for Mental Health Research; 2002. p. 5.
8. Patel V, Prince M. Global mental health-a new global health field comes of age. JAMA 2020;303:1976-77.
9. Funkhouser CJ, Kaiser AJ, Alqueza KL, Carrillo VL, Hoffman LM, Nabb CB, *et al*. Depression risk factors and affect dynamics: An experience sampling study. J Psychiatric Res 2021;135:68-75.
10. Delic V, Ratliff WA, Citron BA. Sleep deprivation, a link between post-traumatic stress disorder and Alzheimer's disease. J Alzheimers Dis 2021;79:1443-9.
11. Dooley D. Unemployment, underemployment, and mental health: Conceptualizing employment status as a continuum. Am J Commun Psychol 2003;32:9-20.
12. Barry CL, Huskamp HA. Moving beyond parity-mental health and addiction care under the ACA. N Engl J Med 2011;365:973.
13. Thoits PA. Self, identity, stress, and mental health. In: Handbook of the Sociology of Mental Health. Dordrecht: Springer; 2013. p. 357-377.
14. Barrett JA. Bladder and bowel problems after stroke. Rev Clin Gerontol 2002;12:253.
15. Rosenfeld DL. The psychology of vegetarianism: Recent advances and future directions. Appetite 2018;131:125-38.
16. Sullivan EV, Brumback T, Tapert SF, Fama R, Prouty D, Brown SA, *et al*. Cognitive, emotion control, and motor performance of adolescents in the NCANDA study: Contributions from alcohol consumption, age, sex, ethnicity, and family history of addiction. Neuropsychology 2016;30:449.
17. Okkels N, Kristiansen CB, Munk-Jørgensen P, Sartorius N. Urban mental health: Challenges and perspectives. Curr Opin Psychiatry 2018;31:258-64.
18. Mubbashar MH, Saeed K. WHO can help to combat mental health illiteracy. Bull World Health Organ 2000;78:507.
19. Corfe BM, Harden CJ, Bull M, Garaiova I. The multifactorial interplay of diet, the microbiome and appetite control: Current knowledge and future challenges. Proc Nutr Soc 2015;74:235-44.
20. Sameroff AJ. Developmental systems and psychopathology. Dev Psychopathol 2000;12:297-312.
21. Mellins CA, Malee KM. Understanding the mental health of youth living with perinatal HIV infection: Lessons learned and current challenges. J Int AIDS Soc 2013;16:18593.
22. Jamilian H, Amirani E, Milajerdi A, Kolahdooz F, Mirzaei H, Zaroudi M, *et al*. The effects of Vitamin D supplementation on mental health, and biomarkers of inflammation and oxidative stress in patients with psychiatric disorders: A systematic review and meta-analysis of randomized controlled trials. Prog Neuropsychopharmacol Biol Psychiatry 2019;94:109651.
23. Anakwenze U, Zuberi D. Mental health and poverty in the inner city. Health Soc Work 2013;38:147-57.
24. Jenkins R, Baingana F, Ahmad R, McDaid D, Atun R. Social, economic, human rights and political challenges to global mental health. Mental Health Family Med 2011;8:87.
25. O'Connor C, Vaughan S. Does selectively endorsing different approaches to treating mental illness affect lay beliefs about the cause and course of mental illness? Psychiatry Res 2021;297:113726.

How to cite this article: Agarwal M, Sinha A, Katyal R, Singh A, Upadhyay D. Predictors of mental health illness in Rohilkhand Medical College and Hospital, Bareilly: A case–control study. Int J Med Sci Public Health 2021;10(2):162-167.

Source of Support: Nil, **Conflicts of Interest:** None declared