MAPPING MENTAL HEALTH STATUS O

WOMEN IN INDIA

M.Sc. PROJECT

Submitted in partial fulfilment of the
requirements for the award of the degree

Of
Master of Science
In

ECONOMICS

By
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CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in the project entitled "MAPPING MENTAL HEALTH OF WOMEN IN INDIA" in partial fulfilment of the requirements for the award of the Degree of Master of Science in Economics and submitted in the Department of Humanities and Social Sciences of the Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried out during a period from July, 2016 to May, 2017 under the supervision of Dr. Pratap Chakra Mohanty, Professor, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee, Roorkee.

The matter presented in this project has not been submitted by me for the award of any other degree of this or any other Institution."

(RENUKA JANGID)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge

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Date: May 5,2022

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1. ABSTRACT

Along with general health, depression is employed as a measure of mental well-being. Women consistently report lower levels of mental well-being, as assessed by depression, across countries. This study tries to find out the most important determinants of women's mental health and then applies a Blinder-Oaxaca decomposition technique using longitudinal Aging survey of India (LASI, 2017-18) to examine the relative contribution of these factors in mental health gap by gender. This has found out that 80 percent of the raw difference between mean of their (males and females) health is accounted for by differences in characteristics like education, working, caste etc. and with education the single most important factor while 20 percent difference is due to discrimination. Also, the factors which affect the most part of mental health of women are marital status, working status, education and psychiatric problems, etc.

Keywords: Mental Health, Depression, LASI, India, Mental health gap by gender

2. INTRODUCTION

The fight against mental disease has become one of the most pressing issues confronting the healthcare industry in recent years. Mental health is a term that can refer to an individual's ability to enjoy life and strike the balance between life activities and efforts to achieve psychological reliance, as well as a level of cognitive or emotional well-being or the absence of a mental disorder. It can also refer to an individual's ability to enjoy life and strike a balance between life activities and efforts to achieve psychological reliance. Where mental disorder or mental illness is an involuntary psychological or behavioural pattern that occurs in an individual and is brought to cause distress or disability that is not expected as part of normal development or culture. Nowadays each country is facing mental health related problems. Like other countries India is also facing lots of challenges against mental health care. Some discoveries about Mental Health of India which shows the country has a very long way ahead:

- The World Health Organisation says that in the mental work force of India there is a huge shortage of psychologists, psychiatrists as compared to people who are suffering from mental health problems. There are only 0.3 psychiatrists, 0.07 psychologists, 0.07 social workers and 0.12 nurses per 100,000 people.
- World Health Organisation also states that now 7.5 % Indians suffer from mental disorders till end of this year 20% of Indian's will suffer from mental illness. If we calculate this than 56 million people suffer from depression and other than this 38 million suffers from anxiety disorder.
- As per the NMHS 2015-16 which was conducted by "National Institute of Mental Health and Neurosciences, Bangalore" states that the 9.8 million children in the age 13 to 17 suffers depression mental health and the depression. According to the Lancet study which shows that suicide ranks one among all deaths in women age group 15-29 in 26 of the 31 states of India.

- According to the “Global Burden of Disease Study 1990-2017”, one in every seven Indians was affected by mental disorders of varied severity in 2017, and mental disorders' proportional contribution to India's total disease burden has doubled since 1990
- WHO also states that in India the economic loss due to the mental health conditions between 2012-2030 is 1.03 trillion of 2010 dollars

3. WOMEN - A Life Cycle of Vulnerabilities

Since women and men are different not only in physical attributes but in psychological makeup. There is a difference between men's brain and woman's brain in processing information and reacting to events and stimuli. Women and men are different in how they communicate, deal in relationships, express their feelings and react to stress. Thus, the gender differences are based in physical, physiological and psychological attributes. Depression, psychological distress, sexual violence, domestic violence, anxiety and the escalating rates of substance use affect women more than men across different countries. Also, in women's life pressure created by multiple roles, gender discrimination, hunger, malnutrition, overwork, domestic violence and sexual abuse results the women's poor mental health. These severe life events cause a sense of loss, inferiority, humiliation which is the cause of depression in women. World Health Organisation Report 2001 on women says that

●If we count Depressive disorder then over 41.9 % of neuropsychiatric disorder impairment in females, compared to 29.3 % in males. ● If we talk about mental health problems of the elderly are depression, organic brain syndromes, and dementias. Most of them are women.

- Females and children make up an estimated 80 %of the 50 million people affected by violent conflicts, civil wars, displacement and disasters.
- The prevalence of violence against women varies from 16 percent to 50 percent during a lifetime.
- At least one in 5 women suffers rape or attempted rape in their lifetime.

4. LITERATURE REVIEW

To see the factors which affect “women's mental health” and to what extent they affect the mental health some literature review is needed. Also, literature review to see how decomposition of mental health by gender is done. In a ‘Welch et al. (2001)’ studied whether “differences in the number of social roles (e.g., paid worker, caregiver, living with dependent children, etc.) played by men and women” could account for the higher prevalence of CMD (as measured by the GHQ-12) among women compared to men. They discovered no statistically significant effect, a finding that is reflected in” Emslie et al. (1999, 2002)” publications, which also look into the influence of social role and find no effect. “Kuehner (2003)” examines the research on gender differences in unipolar "depression and concludes that the gender gap has not shrunk over time. More integrated models are needed, she writes, that take into psychosocial, consideration psychological and macrosocial elements, as well as physiological and endocrine responses.

David Madden (2010) in his paper “Gender Differences in Mental WellBeing” used Blinder-Oaxaca decomposition approach and said that the interaction term of age-sex is positive and significant. The variable with the greatest impact upon GHQ is marital status, health and principal economic status. The gap in average GHQ by gender was approximately 0.85. The explained gap is about 66% of the actual gap. Andrea CabezasRodríguez and Amaia Baicalein(2021) did a scoping review of the scientific literature and proved that the Employment status affects more on men’s mental health while women’s mental health is more influenced by certain working conditions like domestic work and caregiving. Social class does have an effect on gender inequalities in mental health.

Blinder–Oaxaca Decomposition approach was used by “Sefa Awaworyi Churchill a, Ephraim Munyanyi, Kushneel Prakash, (2020)” to see the gender gap and locus of control in mental health and he showed that a unit increase internal LoC for females would narrow the mental health gender

gap by 2.2%. On average, males (5.45) have a higher LOC than females (5.41), If there is the same LOC then the gender gap in mental health is 18.8%.LOC(male)>LOC (female). A unit increase in internal LOC implies 8.3 unit increase in mental health.

"Ansuman Panigrahi, Aditya Prasad Padhy, and Madhulita Panigrahi", In his psychological survey on 240 married woman's of the Bhubaneswar City of India states that one out of every of married women had poor mental health outcome and only about (9.8%) of them sought mental health services in public/private health care and the mean age of the study population was found to be 34.02 ±7.23 years and in that more than half of the women's belongs to general category also majority (84.2%) of study population had attained graduation and/or post-graduation. Almost half of the respondents were doing jobs in private organizations. This paper also tells that favourable attitude of colleagues, sharing their own problems with their husbands, and spending time for yoga/meditation/exercise had a significant positive impact on the mental health status of married working women .

One paper of "India Journal Psychiatry" states that Women's who abuse drugs, alcohol are more likely to attribute their drinking to a traumatic event or stressor, girls from nuclear families and married women at very young age are higher risk to do self-harm and suicide. One literature review by "Robin Richardson, Arijit Nandi Surinder Jaiswal 4 ,Sam Harper (2020)" states that Women reported an average of 2.1 distress symptoms during baseline interviews . In this paper women experiencing psychological abuse were associated with an increase of 0.65 distress symptoms and experiencing controlling behaviour was associated with an increase of distress symptoms Physical abuse, on the other hand, did not appear to raise the severity of distress symptoms. According to some extant studies, the incidence of violence against women is usually in the 30–40% range, with Bosnia and Herzegovina reporting the highest rate of physical abuse at 78.9%. A number of mental health issues, including post-traumatic stress disorder, were discovered to have associations with this also in India 70

percent of Indian married women between the ages of 15 and 49 years are victims of beating, rape or coerced Sexual coercion.

5. DATA

For this study data of the longitudinal Aging Survey in India (LASI 2017-18) cross sectional population based Regional Geriatric Centres (RGC, MoHFW) and National AIDS Research Institute (NARI) is used and the key variables are chosen during the questionnaire assessment and the key determinants are identified after the review of literature. This survey includes all the elderly and pre-elderly people.

6. VARIABLE DESCRIPTION

Variable	Measurement	Mean	Std. Dev.	Min.	Max.
Dependent Var.					
Mental Health	0=depressed 1=not depressed	0.157 0.843	0.363 0.363	0 0	1 1
Independent Var.					
Age	square of age at last birthday)	3488.371	1416.416	400	12100
Caste	1 SC	0.1751364	.3800974	0	1
	2 ST	0.1751364	.3811369	0	1
	3 OBC	0.3937697	.4886024	0	1
	4 None	0.2547373	0.4357291	0	1
Education	1 Primary (1-7)	0.4433962	0.4968178	0	1
	3 Middle (8-9)	0.1937193	.395237	0	1
	4 Sec (10)	0.1725252	0.3778607	0	1
	5 high sec (11-)	.1903593	.3926099	0	1
Marital Status	0=unmarried	0.7543345	.4304958	0	1
	1=married				
Psychiatric Problem	1=have psychiatric problem	0.0227841	0.1492198	0	1
	2=don't have	.9772159	0.1492198	0	1
	1 every day,	.1036219	0.30478	0	1

Meditation and Exercise	2 more than once a week	0.0179695	0.1328452	0	1
	3 once a week,	0.0151028	0.1219661	0	1
	4 1-3 times a month,	.0141938	.1182934	0	1
	5 hardly ever or never	.849112	0.3579522	0	1
Income	Numerical	0.3579522	50786.27	0	600000
Working	1 yes,	.6461417	0.4781895	0	1
	2 no	0.3538583	.4781895	0	1
Retired	1 yes,	0.062747	0.2425194	0	1
	2 no	.937253	.2425194	0	1
Member of a Club or Society	1 yes,	.090583	0.2870253	0	1
	2 no	.909417	0.2870253	0	1
Frequency of involving Religious Gathering	1 Everyday	.0131113	0.1137556	0	1
	2 More than once week	.0265002	0.1606229	0	1
	3 once a week	.0565383	.2309663	0	1
	4 1 to 3 times a month	.1276448	.3337055	0	1
	5 1 or more times a year	.3635796	0.4810463	0	1
	6 Not at all	0.4126257	0.4923236	0	1

All variables are categorical variables except age and income which are ordinal variables.

7. CHAPTER 1

7.1 Status of women's mental health in India

We have calculated the number of women and men experiencing mental depression in Urban and Rural areas based on LASI data for the year 2017-18 to better understand the state of women and men's mental health during that year in India. Here we have calculated the number of people who are mentally disturbed in rural and urban areas separately. First table is for people who are mentally disturbed, and the second table is for people who are not mentally disturbed.

MHP=0 (When a person is mentally disturbed)

Place of Residence	Sex of Respondent		Total
	Male(%)	2Female	Total
1 Rural	603 (38.1)	977 (61.8)	1,580 (100)
2 Urban	248 (38.8)	391 (61.1)	639 (100)
Total	851 (38.3)	1,368 (61.6)	2,219 (100)

MHP=1 (when a person is not mentally disturbed)

Place of Residence	Sex of Respondent	Total

	1 Male	2Female	Total
1 Rural	3,332 (43.8)	4,264 (56.1)	7,596 (100)
2 Urban	1,751 (40.25)	2,599 (59.7)	4,350 (100)
Total	5,083 (42.5)	6,863 (57.4)	11,946 (100)

We can see from the table above that 2219 people are mentally disturbed out of 14,165 people, with 38.3 percent of males and 61.6 percent of females being mentally disturbed, indicating that there is a significant mental health gap between them. When it comes to mental depression by region, 61 percent of rural females are mentally depressed, whereas 61.6 percent of urban females are mentally depressed. We can conclude that females are double as depressed as men in both circumstances, and that urban females are more mentally ill than rural females.

7.2 Factors affecting women's mental health

7.2.1 Methodology

For exploring the factors affecting the mean and women's mental health in India logit regression model is used. variable. So, to capture the impact of these variables on dependent variables, the Regression Model with conditional reference category is used.

Mathematically, the logit transformation has been derived as follows:

$$P=1/(1+e^{-z})$$

where P is the prob. of women when she is mentally depressed for 2 or more than 2 weeks and 1-P when she is not depressed and P/(1-P) is called odds ratio

$$Z = \alpha+\beta X(1/P) = 1+e^{(-z)}$$

$$P/(1-P) = e^{z}$$

Model: The Logit Regression Model in equation form is as follows

Mental Health = α + β1age + β2caste + β3educational status + β4marital status + β5occupational status + β6pychiatricproblem + β7meditation and exercise + β7occupational status + β8Income + β9working + β10retired + β 11club membership + β12frequency of involving in religious gathering +εi

Where α is constant, β's are coefficients of the explanatory variable and εi is the error term.

This model is used in STATA 16 statistical package and logit regression estimates of women's mental health are as follows

Variable	Pooled	Female

Age	0.000(.001)	.000(.000)
Caste **SC** **OBC** **NONE**	 .675(.189)*** .094(.143) .153(.156)	 1.185(.366)*** .904(.268) .669(.299)
Education **Middle Sec.** **H. Sec.**	 .050(.131) .327(.149)* .403(.145)**	 .373(.281) .924(.312) .806(.325)*
Occupational Status	-.002(.021)	.025(.043)
Marital status 1	.403(.145)**	.109(.232)*
Psychiatric Problem 2	1.071(.259) ***	1.593(.507)**
Frequency of doing exercise **1. More than once week** **2. once a week** **3. 1 to 3 times month** **4. 1 or more times a year** **Not at all**	 .483(.382) .245(.336) .085(.348) .509(.140)***	 1.155(.798) 2.720(1.146) 4.078(.750) 1.391(.274)***
Income	0.000	0.000(0.000)
Working 2	.523(.189)**	-.776(.354)*
Retired 2 **Member of a club or society 2**	.316(.283)	Empty(omitted)

Frequency of involving religious gathering 1. More than once week **2. once a week** **3. 1 to 3 times a month** **4. 1 or more times year** **5. Not at all**	-.288(.469) .236(.441) -.263(.403) .035(.394) .296(.398)	.608(1.028) 2.623(.932) 2.806(.889) 2.538(.984) 2.687(.874)

7.2.2 Empirical Result

To find out the factors which affect more women as compared to men we have used logistic regression for a pool which includes both men and women and one for women separately. After observing the above Stata result of logit regression model, we have found that age doesn't play a significant role in determining women's mental health where caste plays significant role and in caste ST plays significant role at .1 percent significance level which means in determining mental health of a person. As we know that at a young age people are depressed due to their physical appearance or due to workload or they have a tension for their future while at the old age people thinks about their family and their health so age is not related to the depression as we can't say weather aged people are more or less depressed than young people.

We have seen that education plays a significant role in determining mental health and it is positively related to mental health as its coefficient is 0.327 for secondary and .403 for higher secondary which shows that a person is getting more and more degrees than this mental health will be better according to our study. Also, we have seen and observed that weather a

person is working or not both makes a significant effect in determining mental health of a person as if a person shifts from not working to nonworking then its mental health is decreased by 50%, our results showed that working people have better mental health condition as compared to the not working. People who have never been diagnosed with neurological or psychiatric problems in his/her life are more mentally happy and have better mental health than others.

Also doing exercise regularly plays a significant role in mental health as its coefficient is 0.509 which says that increasing frequency of doing exercise in a week improves mental health in the favour of good by 50%. Also being retired or a member of a club or society doesn't impact on mental health whether it will be good by it or not. By our result we have seen income doesn't play a significant role in determining mental health as it is true in some way because mental health is not related to income, whether a person earning 20,000 or 2cr he/she will be equally tensed for their life, life or health. All people do not have the same kind of problem in their life but different people have different problems in their life and due to that they all are mentally disturbed in some or other way.

If we talk about women, we have seen by our result that marital status of women significantly determines the mental health of women, and it is negatively related to the mental health of women which shows that when a woman is married it is more likely that she has the mental distress for more than 2 weeks. And coefficient 0.58 is the probability coefficient of married women with respect to not married women. Caste doesn't play a significant role in determining mental health of a woman, but Schedule tribes play a significant role in determining the mental health of women in India as women from schedule tribes have less mental distress than other castes. While change in different professions does not play a significant role in determining the mental health of women which is the same as men as change in professional work does not increase or decrease their mental health as in all professions every person has similar kind of mental health. Also, women who have psychiatric problems play a significant role in determining their mental health as we have seen in our logit regression model that the women

with no psychiatric problem have less chances to develop mental disorders also women who do not exercise/meditation or hardly do are negatively related to their mental health and since this is not a Panel Data so there is non reliability in causal Inferences. Also due to non-availability of data at LASI and time we couldn't include some variables like domestic violence, IVP (intimate partner violence), overwork and socioeconomic status social psychology. In future research we will try to include all these variables to see the impact of these on women's mental health.

8. CHAPTER 2

8.1 To decompose mental health by gender

8.1.1 Methodology

"*The Blinder-Oaxaca Decomposition"*

The approach that we will take here is a well-known one from "labour economics associated with Blinder and Oaxaca." This is a standard technique for decomposition of "gaps" in outcomes such as wages between two groups, mental health between two groups which is partitioned on the basis of race, religion, education, income, working conditions etc and it decomposed into a part accounted for by difference in the characteristics and a part which is accounted by the differences in the "returns" to that characteristics . The approach has also been used for binary, orders, and count models. "Blinder-Oaxaca" type decompositions are typically carried out using linear regression models due to the attractive property of such models that fit exactly at the mean of the sample, but it has also been used for binary, orders, and count models.

The B–O is a standard decomposition which follows from an equation of the following type:

$$Yi = Xi'\beta + ei$$

where Yi is the the outcome (in this case it is mental health) for individual i (that can be male or a female) , Xi is a vector of determinants of mental health(e.g., age, education, working, marital status etc.), βi is the related parameter vector and ei is an error term following a normal distribution (0, sigma). The standard B–O decomposition then breaks down the difference between male and female mental in the following way:

Year	Male	Female	Difference	% Percent
2017-19	1.8565589	1.833799	**0.0227**	**1.24**

$$Y_m\,(bar) - Y_f(bar) = (Y_m\,(bar) - Y_f(bar))'\ \beta\,(cap)_m' + X_f'(\beta_f - \beta_m)$$

where Y_m (bar) the predicted mean of mental health for males, X_m' the mean vector of variables for males. which determine mental health and m is the vector of estimated returns to the mental health determinants for males. The first term on the right-hand side is the portion of the gap that can be allocated to differences in characteristics (examined at the mean), while the second term is the portion of the gap that can be assigned to differences in returns to characteristics (evaluated at the mean). In turn, each of the variables in the X vector can be calculated for their contribution to the total difference in characteristics. The difference in mental health arising from the difference in characteristics is sometimes known as the ‘‘explained’’ part while the difference arising from differences in the returns to characteristics may be labelled the ‘‘unexplained’’ part.

Table: Mental Health by Gender (2017-19)

Here we have calculated the mental health by gender. If a person is mentally disturbed than its value is 1 and if he/she is not disturbed, then its value is 2. The average mental health of a woman is 1.83 while average

mental health of men is 1.85. The difference in their mental health is 0.02279, and when expressed as a percentage, women's mental health is 1.24 percent lower than men's.

Table: Proportional Contribution of Explained and Unexplained to Gap by Gender

Mental Health of a person	Coefficient
Overall	
Group 1	1.870291
Group 2	1.846154
Difference	.0241376
Endowments	.0191693
Coefficients	.0177976
Interaction	-.0128294

Table: Proportional Contribution of Variables to Gap by Gender

Variables	Explained	Unexplained	
	Endowments	Coefficients	Interaction
Age	0.0041	-0.0140	-0.0037
Education	0.0112	-0.0162	-0.0020

Marital Status	0.0045	-0.0349	-0.0077
Psychiatric Problem	-0.0004	-0.3207	0.0002
Meditation and Exercise	-0.0038	-0.0871	0.0025
Income	0.0000	0.0022	0.0019
Working	0.0006	0.0781	0.0003
Retired	0.0050	0.4651	-0.0061
Club Membership	0.0001	0.0458	0.0013
Frequency of involving religious gathering	-0.0009	-0.0456	0.0004

Method	**Explained Difference**	**Unexplained Difference**
Oaxaca-Blinder Decompositin	.0191693(79.4%)	**0.0241(20.6%)**

8.2 Empirical result

From this decomposition method we have seen that the case of poor mental health of women by males is in the order of 1.24% according to a survey of 2017-19 Here the first (Endowments) part reflects the mean increase in women's mental health if they had the same characteristics as men It is in our case (79.4%) which means if females and males have the same characteristics and same qualifications like education and working then the mental health gap between them can be decreased by 80 percent. The second (Coefficients) part quantifies the change in women's mental health when applying the men's coefficients to the women's characteristics; here it is around 1.8 units out of 1.24 units difference between them. And the third part is the interaction term that measures the simultaneous effect of differences in endowments and coefficient which is negative of 1.28 which is in the favour of women. If we talk about the relative contribution of these factors in mental health, then we can say that the biggest single contribution to the explained gap comes from Education. It is also true for retirement category and marital status. From this method we have found that education, marital status and working plays a significant part of the explained part also. We have also seen that the coefficient of Club membership is positive for males which means being part of any club is good for their mental health or improves their mental health and works in the favour of males and coefficient of involvement in religious activities is negative which means it favour's more for the women means while involving in religious activities helps women in improving their mental health. Since the unexplained difference are more difficult to interpret and more volatile, we cannot make any from this

9. DISCUSSION AND CONCLUSIONS

Some social policies should be made to reduce the gender gaps in all fields of social existence and to enhance the women's status in society by giving them their dues or at least empower or educate them enough so that they are able to voice out their demands and grasp their rights also gender discrimination, gender-based violence and gender-role stereotyping need to be addressed through legislation policies and programmes in India. Any policy which concerns women's health should involve her emotional and mental wellbeing along with her physical health at all stages of life. Education, training and interventions targeting the social and physical environment are crucial for measuring women's mental health. The fundamental need for improving women's mental health is girls/women's education. Being educated provides awareness of rights and resources and the capability to fight exploitation and injustice. Also, education will lead to better chances of economic independence which is so crucial in determining

women's health. In the survey we can say that concerted efforts at school, economic, political and at the legal levels can bring change in the lives of women of India which can contribute to the improvement of the mental health of the women.

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