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Measurement of Multidimensional Well-being of Women in India during 2015-16: A Household-Level Study Using National Family Health Survey Data

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Improvement of quality of human life has always been the primary motive of the governments of different countries in the world. Till 1980s, governments concentrated on monetary measurements of economic development using the concepts like GDP, National Income or Per Capita Income for policy purposes. Amartya Sen's Capability Approach shifted our focus from monetary indicators of development to non-monetary wellbeing of human beings. Thereafter, wellbeing of human beings became centre of attraction for the governments throughout the world. However, HDI was criticized for incorporating GDP per capita itself as a component and also for non-inclusion of the dimensions of life other than health and education. National and international comparisons of wellbeing using HDI-based indices, although deviate significantly from GNP-based rankings, are aggregative measures of development which are absolutely necessary for macro-level policy formulations, but they fail to incorporate many other important dimensions of wellbeing of individuals. Hence, it is quintessential to find out a comprehensive measure of wellbeing in order to make national as well as international comparisons of well-being. Well-being can be expressed as the combination of feeling good and functioning well; experiencing positive emotions like happiness and contentment as well as the development of individual potential, having control over own life, having a sense of purpose, and having positive relationships. A comprehensive measure of well-being should incorporate all the major components of wellbeing, both hedonic (pleasure and enjoyment) and eudaimonic (meaning and purpose) aspects. This paper is an attempt to construct a multidimensional index of wellbeing of Indian women. Our study utilises household-level data from the Indian National Family Health Survey (NFHS-4) during 2015-16. We have incorporated six dimensions of good mental health which include both hedonic and eudaimonic aspects of well-being, i.e. competence, optimism, positive relationships, resilience, self-esteem, and vitality. In our analysis, we found significant positive correlation between mean well-being index scores and mean wealth index scores of women across different states of India. Household size and age are found to influence psychological well-being of women positively. Urban women are found to have worse psychological well-being than rural women. Hindu women had significantly better mental health compared to Muslim and Christian women, whereas. Scheduled Caste and Other Backward Caste women had worse mental health compared to Scheduled Tribe women. Daughters, adopted female children and mothers/mothers-in-law of household heads had poor mental health compared to female household heads. We also find that psychological well-being of women increases with the increase in levels of wealth of the households. Finally, we observe that women from Indo-Gangetic Plains and North-Eastern States had lower levels of psychological well-being compared to women from Northern Mountains.

Keywords: Multidimensional Well-being, Mental health, Confirmatory Factor Analysis, National Family Health Survey of India

1. Introduction

Improvement of quality of human life has always been the primary motive of the governments of different countries in the world. Till 1980s, governments concentrated on monetary measurements of economic development using the concepts like GDP, National Income or Per Capita Income for policy purposes. Amartya Sen's Capability Approach shifted our focus from monetary indicators of development to non-monetary wellbeing of human beings (Sen, 1990, p.44). Thereafter, wellbeing of human beings became centre of attraction for the governments throughout the world. Consequently, attempts were made construct socioeconomic indicators like Human Development Index (HDI)[1], Human Poverty Index (HPI)[2]. Standard of Living (SL) and Quality of Life (QL) etc. as an alternative to GDP per capita as a measure of wellbeing. However, national and international comparisons of wellbeing using HDI-based indices, although deviate significantly from GNP-based rankings, are aggregative measures of development which are absolutely necessary for macro-level policy formulations, but they fail to incorporate many other important dimensions of wellbeing of individuals. Hence, it is extremely necessary to construct a comprehensive measure of wellbeing to make national as well as international comparisons of well-being.

Well-being is a multidimensional concept. There are many dimensions of well-being that the economic resources are not able to capture. It is quite evident that the quality of life depends on some factors other than material resources. Health, nutrition, education, social relations, empowerment, etc, constitute the basic elements of well-being . An individual's well-being depends on how perfectly he/she is able to perform activities according to his/her wishes; activities, which, in turn raise his/her standard of living. These activities can be called as functionings. We have previously incorporated six different indicators of functioning while measuring the well-being of women in India[3], namely, being healthy, being educated, being employed, being socially aware, being autonomous, and being safe against domestic violence.

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[1] UNDP, 1990.

[2] HDI was criticized for incorporating GDP per capita itself as a component and also for non-inclusion of the dimensions of life other than health and education (Dasgupta, 1990, 1992; Anand & Ravallion, 1993; Anand and Sen, 2000; Sen,1999). Following these criticisms, UNDP replaced HDI by Human Poverty Index (HPI).

[3] Sengupta, A. (2016). Gender inequality in well-being in India: Estimates from NFHS household-level data. *Economic and Political Weekly*, 51(13), 43–50

However, functionings are outcomes of some psychological states of any human being. If the human being is psychologically in a healthy state, he/she would definitely be able to achieve most of the possible functionings available in his/her capability set. Hence, while measuring multidimensional well-being, we should not only concentrate on the non-income based indicators, we have to incorporate feelings and emotions of human beings which would actually portray the capacity of the individual to achieve different functionings available in his/her capability set. We have to switch over to psychological concept of well-being from functioning-based concept of well-being. From the psychological point of view, well-being can be expressed as a combination of feeling good and functioning well; experiencing positive emotions like happiness and contentment as well as the development of individual potential, having control over own life, having a sense of purpose, and having positive relationships. It is a sustainable condition that allows the individual or people to develop and flourish. Higher level of well-being is linked to several better outcomes regarding physical health and longevity as well as better individual performance at work. A country with citizens having higher mental satisfaction from life can show better economic performance. Therefore, measurement of well-being from psychological point of view incorporating multiple dimensions of mental health is of utmost importance for any country.

Recently, measurements of well-being are becoming more scientific and accurate compared to those conducted a few years back. However, many researchers ended up measuring psychological well-being using either a single item about life satisfaction or happiness, or a limited set of items regarding quality of life. Such measures have failed to capture those aspects of life which are fundamental to critical outcomes. A comprehensive measure of well-being should incorporate all the major components of well-being, both hedonic (pleasure and enjoyment) and eudaimonic (meaning and purpose) aspects. Chiappero Martinetti (2000) used fuzzy set theory to investigate wellbeing in a multidimensional frame in Italy. Balestrino and Sciclone (2001) claimed a substantial difference between income-based and functioning-based measure of well-being using data of Italy. Huppert and So (2013) took a systematic approach to comprehensively measure well-being in a framework based on ten dimensions of good mental health. Diener et al. (2009, 2012, 2017) constructed a new measure of subjective well-being following the concepts of (1) psychological well-being, (2) positive feelings, negative feelings, and a balance between the two and (3) positive thinking. Ruggeri et al. (2020) used a multidimensional measure of well-being to compare well-being of people of 21 European countries. However, most of such advanced measurements of wellbeing were confined within the European countries. There is an overwhelming absence of advanced level

of research on construction of multidimensional wellbeing in Asian countries like India. Majumder (2006, 2009) measured wellbeing of Indian women using the fuzzy sets theory following Martinetti. Sengupta (2014, 2016) measured functioning-based well-being of men and women, as proposed by Amartya Sen and others, for 28 states in India based on National Family Health Survey 3 data. Such Indian studies although incorporated a few psychological dimensions in their measures of well-being, number of such dimensions was quite inadequate. Therefore, it is extremely necessary to construct a comprehensive measure of well-being which would include both hedonic and eudaimonic aspects of human life in India.

Under this backdrop, this paper is an attempt to construct a multidimensional index of well-being of Indian women incorporating different indicators of mental health suggested by Huppert & So (2013). Our study utilises household-level data from the Indian National Family Health Survey (NFHS-4) during 2015-16. We have incorporated six dimensions of good mental health which include both hedonic and eudaimonic aspects of well-being, i.e. competence, optimism, positive relationships, resilience, self-esteem, and vitality. Using information on women in NFHS-4 data, we have constructed categorical variables to represent indicators of six dimensions of well-being. From these indicators, a single factor score is calculated to represent multidimensional well-being. This factor score comprises a summary of psychological well-being of an individual woman across the six dimensions, which is similar to a summary score such as GDP and will be of general value to policymakers. In order to construct the index, we have used the Confirmatory Factor Analysis method in Stata software. We have divided the factor scores in five quantiles, namely, worst, bad, average, good and best. We have further calculated the state level averages of the well-being indices and wealth indices (constructed by NFHS). We have tabulated both the indices for each state of India to find out whether there is any relation between psychological well-being and possession of wealth for women in India. Well-being indices of women constructed by us, has been divided into five quantiles. Therefore, to find out the significant explanatory factors behind variations in well-being indices of women, we have used the multinomial logistic regression method, taking the well-being index of an individual woman as the dependent variable and wealth-index score and several conversion factors[4] like age, relationship with the head of the household, family-size, religion, caste, sector and agro-climatic area as independent variables.

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[4] Conversion factors are those which influence the individual to convert available resources and personal characteristics into actual well-being.

In the rest of the paper, Section 2 describes the data and the samples used in this study and the methodological issues in the construction of psychological well-being indices of women in indifferent states of India. Section 3 analyses mean scores of psychological well-being indices of women across different states of India and the relationship between mean well-being index scores and mean wealth index scores of women for each state of India. Methodological issues in estimating well-being equation are discussed in Section 4. Empirical estimates of multinomial logistic regression of well-being equation are analysed in Section 5. We present our conclusions in Section 6.

2. Data and Methodology

The unit-level data from the NFHS-4 for 2015–16 conducted by the Ministry of Health and Family Welfare, Government of India, have been used in this study. 6,99,686 women within the age group 15-49 years from 601,509 households were interviewed in NFHS-4. NFHS collects a large amount of information on women regarding their background characteristics, reproductive behaviour and intentions, marriage and cohabitation, knowledge and use of contraception, quality of care and contacts with health personnel, antenatal, delivery, and postnatal care, general health, child immunisations, child health, and child feeding practices, women's and children's nutrition, utilisation of Integrated Child Development Services, status of spousal violence, sexual life, and HIV/AIDS and other sexually transmitted diseases. In order to construct indicators of mental health of women, we have analysed particularly those answers given by women on several questions, from which the information about the latent indicator can be collected. On the basis of questions asked and answers given, we could construct maximum six indicators. Ownership of house, land, having bank account, mobile phone, having knowledge about the available government loans for women, being educated, being employed etc. are all indicators of competence. We have constructed dummy variable for each information and added all of them to construct the categorical variable "competence", where higher score indicates higher level of competence. A woman who wants to get married, who would like to get pregnant and give birth to child and who does not have alcohol addiction, can roughly be assumed to have optimism. We have constructed dummy variables for these information and added to construct the categorical variable "optimism", where higher score indicates higher level of optimism. NFHS collects various information about domestic violence asking a number of questions to women. Negative answers to these questions indicate absence of domestic violence. A woman is considered to be free from domestic violence is all such answers are negative. If a woman is absolutely free

from domestic violence, she is supposed to have positive relationships with her family members. During sexual intercourse, if a woman can convince her husband/partner to use contraceptives or if she is free to take the decision to use female contraceptive, it can be concluded that she has a mutual understanding with her husband about the proper time of getting pregnant and also both of them have clear knowledge about safe sex. A woman, who has achieved such mutual understanding in her sex life, can be assumed to have a positive relationship with her husband/partner. We have incorporated these two information to construct two dummy variables on domestic non-violence and practice of safe sex. Adding these two dummy variables, we have constructed the categorical variable "positive relationship", where higher score indicates higher level of positivity in relationship. Resilience is the capacity of a human being to successfully adapt to difficult or challenging life experiences. Women who went to visit hospital or health centre or doctor's clinic for themselves or their children for treatment of diseases, family planning, immunization, antenatal care, postnatal care, disease prevention, growth monitoring of children, routine health check-up can be considered to have systematic knowledge of prevention and cure of diseases and difficult challenges of life. Such women can be considered to have resilience. We, therefore, have included such information to construct dummy variables for each or them and we have added them up to construct the categorical variable "resilience". Higher scores in this variable indicate higher levels of resilience. A woman is considered to have no self-esteem if she herself justifies domestic violence, or wife beating by the husband/partner for being unfaithful, for disrespecting husband, for going out without telling husband, for neglecting children, for arguing with husband, for refusing to have sex with husband or for not cooking food properly. On the other hand, if she does not justify the abovementioned reasons for getting beaten up, she can be considered to have self-esteem. We have constructed all the dummy variables of self-esteem from negative replies of such question about justification of domestic violence and wife-beating. Clubbing all these dummies together, we have constructed the categorial variable "self-esteem", with higher scores implying higher level of self-esteem. Vitality means quality of having energy, being vigorous and active. If a woman is free from diseases like diabetes, asthma, thyroid disorder, heart disease or cancer, and if she consumes milk/curd, pulses/beans, green vegetables, fruits, eggs, fish, chicken/meat and refrains herself from fried food and aerated drinks, can be considered as having vitality. We have constructed dummy variable for each of these items and then clubbed them together to obtain the categorical variable, "vitality", in which higher score indicates higher level of vitality.

After the selection of indicator variables, we merge them into an overall index. To construct the well-being index, we use Confirmatory Factor Analysis (CFA) method. Confirmatory Factor Analysis (CFA) is used to study the relationships between a set of observed variables and a set of continuous latent variables. When the observed variables are categorical, CFA is also referred to as item response theory (IRT) analysis (Fox, 2010; van der Linden, 2016). CFA is a measurement model which can be fit by both Structural Equation Modeling (SEM) and Generalized Structural Equation Modeling (GSEM). SEM includes models in which regressions among the continuous latent variables are estimated (Bollen, 1989; Browne & Arminger, 1995; Joreskog & Sorbom, 1979). On the other hand, GSEM is a combination of the SEM capabilities with the broader Generalized Linear Model (GLM)[5] estimation framework, allowing us to build models that include latent variables as well as response variables that are not continuous measures, i.e. categorical and ordinal variables. In our analysis, we use all the categorical variables, i.e. competence, optimism, positive relationships, resilience, self-esteem, and vitality as indicators of latent variable "well-being index". After the completion of GSEM, we predict the value of the latent variable "well-being index". Since all the indicator variables are categorical, well-being indices have positive, as well as negative values. We classify them in five quantiles, i.e. worst, worse, average, better and best (having codes 1, 2, 3, 4 and 5). With the individual well-being indices, we calculate the state-level mean values of well-being indices and the state-level mean values of wealth indices, already available in the NFHS unit-level data and compare them for each state. Mean values of well-being indices are once again classified into five quantiles, worst, worse, average, better and best. Mean values of wealth indices are also classified into five quantiles, i.e. poorest, poorer, middle, richer and richest (having codes 1, 2, 3, 4 and 5).

3. Comparing Well-being Index Scores and Wealth Index Scores of Indian Women

In this analysis, we have excluded Andaman and Nicobar Islands, Dadra and Nagar Haveli, Daman and Diu, Lakshadweep and included all the other 32 states and union territories. In Table 1, we show the relation between mean values of well-being indices and mean values of wealth indices of women for each state during 2015-16.

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[5] GLM estimators are maximum likelihood estimators that are based on a density in the linear exponential family (LEF). These include the normal (Gaussian) and inverse Gaussian for continuous data, Poisson and negative binomial for count data, Bernoulli for binary data (including logit and probit) and Gamma for duration data.

Table 1: Mean Values of Well-being Index Scores and Wealth Index Scores of Women in Different States and Union Territories of India During 2015-16

State	Mean Well-being Index Score	Mean Wealth Index Score
Andhra Pradesh	best	richer
Arunachal Pradesh	worst	poorer
Assam	worse	poorest
Bihar	worst	poorest
Chandigarh	best	richest
Chhattisgarh	average	poorest
Goa	worst	richest
Gujarat	average	richer
Haryana	best	richest
Himachal Pradesh	best	richest
Jammu and Kashmir	better	richer
Jharkhand	worst	poorest
Karnataka	average	middle
Kerala	best	richest
Madhya Pradesh	worse	poorer
Maharashtra	best	richer
Manipur	worst	middle
Meghalaya	worst	middle
Mizoram	worst	richest
Nagaland	worst	middle
Delhi	average	richest
Odisha	average	poorest
Puducherry	best	richest
Punjab	best	richest
Rajasthan	better	middle
Sikkim	worst	richer
Tamil Nadu	better	richest
Tripura	average	poorer
Uttar Pradesh	worst	poorer
Uttarakhand	better	richer
West Bengal	best	poorer
Telangana	average	richer

Source: Author's Calculation From Unit-Level Data of National Family Health Survey of India of 2015-16

It is clear that women coming from richest households had best psychological well-being index scores in the states like Chandigarh, Haryana, Himachal Pradesh, Kerala, Puducherry and Punjab. On the other hand, women coming from poorest households had worst psychological well-being index scores in the states like Bihar and Jharkhand. However, this does not indicate that there is direct and positive relationship between wealth of households and psychological well-being of women in all the states. In Goa and Mizoram, women from richest households had worst psychological well-being index

scores. In rest of the states also, we do not find any pattern of direct relationship between wealth of the household and psychological well-being of female household members.

In order to find out whether there is any correlation between mean well-being index scores and mean wealth index scores of women across the states in India during 2015-16, we have calculated Pearson Correlation Coefficient between the two scores and found that the value of the correlation coefficient is 0.2306, which is highly significant. This implies that although wealth of the household is an important explanatory factor, there are other explanatory variables which would affect psychological well-being of a woman significantly.

4. Well-being Equation: Methodological Issues

To find out the possible significant explanatory factors causing variation of psychological well-being indices across different women, we have to estimate a well-being equation with wealth index and several conversion factors as explanatory variables. Well-being indices of women constructed by us, has been divided into five quantiles. Therefore, to find out the significant explanatory factors behind variations in well-being indices of women, we have used the multinomial logistic regression method, taking the well-being index of an individual woman as the dependent variable and wealth-index score and several conversion factors like age, relationship with the head of the household, family-size, religion, caste, sector and agro-climatic area as independent variables.

In multinomial logistic regression is assumed that we have a series of N observed data points. Each data point i (ranging from 1 to N) consists of a set of M explanatory variables $X_{1i} \dots \dots X_{Mi}$ (i.e. independent variables), and an associated categorical outcome Y_i(i.e. dependent variable), which can take on one of K possible values. These possible values represent logically separate categories (e.g. different political parties, blood types, etc.), and are often described mathematically by arbitrarily assigning each a number from 1 to K. The explanatory variables and outcome represent observed properties of the data points, and are often thought of as originating in the observations of N "experiments". The goal of multinomial logistic regression is to construct a model that explains the relationship between the explanatory variables and the outcome, so that the outcome of a new "experiment" can be correctly predicted for a new data point for which the explanatory variables, but not the outcome, are available. In the process, the model attempts to explain the relative effect of differing explanatory variables on the outcome. Linear prediction function of multinomial logistic regression of our study is written as follows:

$$f(Wellbeing\_Index\_Score, i)$$

$$= \beta_{0k} + \beta_{1k}Age_i + \sum_{j=1}^{10} \beta_{2jk} \, Relation\_Head_{ij} + \beta_{3k}Family\_Size_i$$

$$+ \sum_{l=1}^{2} \beta_{4lk}Religion_{il} + \sum_{m=1}^{2} \beta_{5mk}Caste_{im} + \beta_{6k}Rural_i$$

$$+ \sum_{n=1}^{4} \beta_{7nk}Wealth\_Index\_Score_{in} + \sum_{o=1}^{4} Agro\_Climatic\_Zone_{io}$$

………………………………………………………..(1)

where β_{Mk} is a regression coefficient associated with the Mth explanatory variable and the kth outcome. To arrive at the multinomial logit model, we imagine, for K possible values of well-being indices, running K-1 independent binary logistic regression models, in which one outcome is chosen as a "pivot" and then the other K-1 outcomes are separately regressed against the pivot outcome. In our model, K=5, since we have taken five quantiles of well-being indices of Indian women. Therefore, we have 4 independent binary logistic models, in which wellbeing index score 1 is taken as pivot outcome. Here "Age" is the age of the female respondent. Variable "Relation_Head" is the dummy variable for relationship of the female respondent with the head of the family. We have 10 relations in our sample, i.e. wife, daughter, daughter-in-law, mother, mother-in-law, sister, adopted child, sister-in-law, domestic servant of the head of the family. Here we have considered. Variable "Family_Size" is denotes the number of family members of the respondent. Dummy variable "Religion" represents the respondents with Muslim and Christian religious background where respondents with "Hindu" religious background are taken as reference. "Caste" variable represents the Scheduled Tribe and General Caste respondents, while Scheduled Caste respondents are assumed to be the reference. Dummy variable "Rural" indicates respondents from rural areas, while respondents from urban areas are considered as reference. "Wealth_Index_Scores" have four values, i.e. poorer, middle, richer and richest, while wealth indices with poorest scores are considered as reference. "Agro_Climatic_Zone" represents four areas, namely, Indo Gangetic Plain, Peninsular Plateau, Western States and North Eastern States, while Northern Mountain is considered as reference.

5. Empirical Results

The well-being equation has been estimated using the Multinomial Logistic Regression Method. We have also calculated the marginal effects at means in order to obtain the exact value of the probabilities of the particular outcomes of the dependent variable. Table 2 shows

Table 2: Marginal Effects of Multinomial Logit Estimation of Well-being Equation

Variable	Mental Wellbeing	dy/dx	P-Value
age	worst	-0.003	0.000
	worse	0.000	0.511
	average	0.003	0.000
	better	0.000	0.369
	best	0.001	0.017
hhd_size	worst	-0.005	0.000
	worse	-0.006	0.000
	average	0.005	0.000
	better	0.006	0.000
	best	0.001	0.319
urban	worst	0.009	0.036
	worse	-0.014	0.001
	average	0.004	0.405
	better	0.007	0.099
	best	-0.005	0.165
muslim	worst	0.067	0.000
	worse	0.034	0.000
	average	-0.022	0.000
	better	-0.029	0.000
	best	-0.050	0.000
christian	worst	0.035	0.000
	worse	0.072	0.000
	average	0.010	0.295
	better	-0.088	0.000
	best	-0.028	0.000
sc	worst	0.038	0.000
	worse	0.008	0.192
	average	-0.016	0.004
	better	-0.027	0.000
	best	-0.002	0.687
obc	worst	-0.044	0.000
	worse	-0.003	0.767
	average	0.002	0.802
	better	0.045	0.000
	best	-0.001	0.856
upper-caste	worst	-0.025	0.303
	worse	-0.034	0.219
	average	0.001	0.973
	better	0.025	0.435
	best	0.032	0.312
wife of head	worst	0.037	0.000
	worse	-0.102	0.000
	average	0.016	0.008
	better	0.097	0.000
	best	-0.049	0.000
daughter of head	worst	0.118	0.000
	worse	-0.007	0.509
	average	-0.010	0.319
	better	-0.019	0.022
	best	-0.082	0.000
daughter-in-law of head	worst	0.076	0.000
	worse	-0.059	0.000
	average	0.001	0.859
	better	0.045	0.000
	best	-0.064	0.000

mother of head	worst	0.168	0.000
	worse	-0.085	0.002
	average	0.010	0.693
	better	0.003	0.889
	best	-0.097	0.000
mother-in-law of head	worst	0.135	0.188
	worse	-0.028	0.746
	average	0.042	0.613
	better	0.049	0.514
	best	-0.198	0.000
adopted child of head	worst	0.444	0.020
	worse	0.016	0.928
	average	-0.201	0.000
	better	-0.150	0.000
	best	-0.109	0.331
domestic servant of head	worst	0.036	0.819
	worse	0.003	0.985
	average	0.061	0.700
	better	0.059	0.664
	best	-0.158	0.018
poorer	worst	-0.118	0.000
	worse	0.027	0.000
	average	-0.022	0.000
	better	0.052	0.000
	best	0.060	0.000
middle	worst	-0.171	0.000
	worse	0.033	0.000
	average	-0.040	0.000
	better	0.067	0.000
	best	0.111	0.000
richer	worst	-0.211	0.000
	worse	0.037	0.000
	average	-0.061	0.000
	better	0.074	0.000
	best	0.161	0.000
richest	worst	-0.244	0.000
	worse	0.027	0.000
	average	-0.083	0.000
	better	0.079	0.000
	best	0.220	0.000
indo_gangetic_plain	worst	0.069	0.000
	worse	0.027	0.000
	average	-0.009	0.149
	better	-0.001	0.832
	best	-0.085	0.000
peninsular_plateau	worst	-0.034	0.000
	worse	0.059	0.000
	average	-0.063	0.000
	better	0.043	0.000
	best	-0.005	0.405
western_states	worst	0.012	0.095
	worse	-0.012	0.077
	average	0.022	0.001
	better	0.034	0.000
	best	-0.055	0.000
north_eastern_states	worst	0.073	0.000
	worse	0.066	0.000
	average	-0.047	0.000
	better	-0.018	0.030
	best	-0.073	0.000

Source: Author's Calculation From Unit-Level Data of National Family Health Survey of India of 2015-16

the marginal effects of multinomial logistic regression of the well-being equation. We have five probabilities of outcomes of well-being index, i.e. worst, worse, average, better and best.

According to the empirical results, with the increase in age, probability of mental well-being being worst decreases and that being average and best increases significantly. As household size increases, probability of mental well-being being worst and worse decreases and that being average and better increases significantly. Probability of mental well-being being worst and better increases significantly and that being worse decreases significantly in urban areas compared to rural areas.

Probability of mental well-being being worst and worse increases significantly and that being average, better and best decreases significantly in case of Muslim women, compared to Hindu women. Probability of mental well-being being worst and worse increases significantly and that being better and best decreases significantly in case of Christian women, compared to Hindu women.

Probability of mental well-being being worst increases significantly and that being average and better decreases significantly in case of Scheduled Caste women compared to Scheduled Tribe women. Probability of mental well-being being worst increases significantly and that being better decreases significantly in case of Other Backward Caste women compared to Scheduled Tribe women. There is no significant difference between mental well-being of Scheduled Tribe women and Upper-Caste Women according to our results.

If the female respondent is the wife of the male head of the household, probability of mental well-being being worst, average and better increases significantly and that being worse decreases significantly compared to that when she herself is the head. If the female respondent is the daughter of the male head of the household, probability of mental well-being being worst increases and that being average, better and best decreases significantly compared to that when she herself is the head. If the female respondent is the daughter-in-law of the male head of the household, probability of mental well-being being worst and better increases and that being worse and best decreases significantly compared to that when she herself is the head. If the female respondent is the mother of the male head of the household, probability of mental well-being being worst and average increases and that being worse decreases significantly compared to that when she herself is the head. If the female respondent is the mother-in-law of the male head of the household, probability of mental well-being being best declines significantly compared to that when she herself is the head. If the female respondent is the adopted child of the male head of the household, probability of mental well-being being worst increases and that being average and better decreases significantly compared to that when she herself is the

head. If the female respondent is the domestic servant of the male head of the household, probability of mental well-being being best declines significantly, compared to that when she herself is the head.

If the female respondent comes from a poorer household, probability of mental well-being being worst and average declines and being worse, better and best increases significantly compared to that if the female respondent comes from a poorest household. If the female respondent comes from a middle-class household, probability of mental well-being being worst and average declines and that being worse, better and best increases significantly compared to that if the female respondent comes from a poorest household. If the female respondent comes from a richer household, probability of mental well-being being worse and average declines and that being worse, better and best increases significantly compared to that if the female respondent comes from a poorest household. If the female respondent comes from a richest household, probability of mental well-being being worst and average decreases and that being worse, better and best increases significantly compared to that if the female respondent comes from a poorest household.

If the female respondent comes from Indo-Gangetic plains of India, probability of mental well-being being worst and worse increases and that being best declines significantly compared to that if she comes from Northern Mountains. If the female respondent comes from Peninsular Plateau of India, probability of mental well-being being worst and average declines and that being worse and better increases significantly compared to that if she comes from Northern Mountains. If the female respondent comes from Western States of India, probability of mental well-being being worst, average and better increases and that being worse and best decreases significantly compared to that if she comes from Northern Mountains. If the female respondent comes from North Eastern States of India, probability of mental well-being being worst and worse increases and that being average, better and best decreases significantly compared to that if she comes from Northern Mountains.

6. Conclusions

This study analyses the to construct a multidimensional index of well-being of Indian women incorporating different indicators of mental health using the household-level data from the Indian National Family Health Survey (NFHS-4) during 2015-16. In order to construct the index, we have used the Confirmatory Factor Analysis method. We have divided the factor scores in five quantiles, namely, worst, bad, average, good and best and tried to find out whether there is any relation between psychological well-being and possession of wealth for

women in India. To find out the significant explanatory factors behind variations in well-being indices of women, we have used the multinomial logistic regression method, taking the well-being index of an individual woman as the dependent variable and wealth-index score and several conversion factors as independent variables.

We have calculated the state level averages of the well-being indices and wealth indices and tabulated both the indices for each state of India to find out whether there is any relation between psychological well-being and possession of wealth for women in India. There were a few states where women coming from richest households had best psychological well-being index scores and vice versa. However, in many other states, we do not find out any significant positive relationship between wealth of households and psychological well-being of women. We have calculated Pearson Correlation Coefficient between the mean well-being index scores and mean wealth index scores of the states and found that the value of the correlation coefficient is positive and highly significant. This implies that although wealth of the household is an important explanatory factor, there are other explanatory variables which would affect psychological well-being of a woman significantly.

Our empirical results from multinomial logistic regression model indicate that as age increases, mental well-being of women increases significantly. With the increase in household size, mental well-being of women is found to increase significantly. Urban women are found to have poorer psychological well-being compared to rural women. Both Muslim and Christian women are found to have poorer psychological well-being compared to Hindu women. Both Scheduled Caste and Other Backward Caste women had worse mental well-being compared to the Scheduled Tribe women. Whereas Upper Caste women had no significant difference in mental health compared to Scheduled Tribe women. Wife of a household head is found to have poorer or better mental health than when she herself is the head of the household, however, value of the coefficient is higher in case of better psychological well-being. Daughter of male heads of the households, is found to have poorer psychological well-being than if she was the head herself. Almost similar result is found in case of daughters-in-law of male household heads. Both mother and mother-in-law of the household head are found to have poorer psychological well-being compared to the female household heads. If the female respondent is an adopted child of the household head, her psychological well-being is significantly worse than that of a female household head. If the woman respondent is a domestic servant of the house, we can conclude that her psychological well-being is not better than that of the household head. From our results, we find that psychological well-being of women increases with the increase in levels of wealth of the households. Our empirical results also indicate that

women from Indo-Gangetic plains and north-eastern states of India have significantly poorer psychological well-being compared to the women from Northern mountains, whereas, there is no definite pattern of relation between psychological well-being of women from Peninsular Plateau and Western States and women from Northern Mountains of India.

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