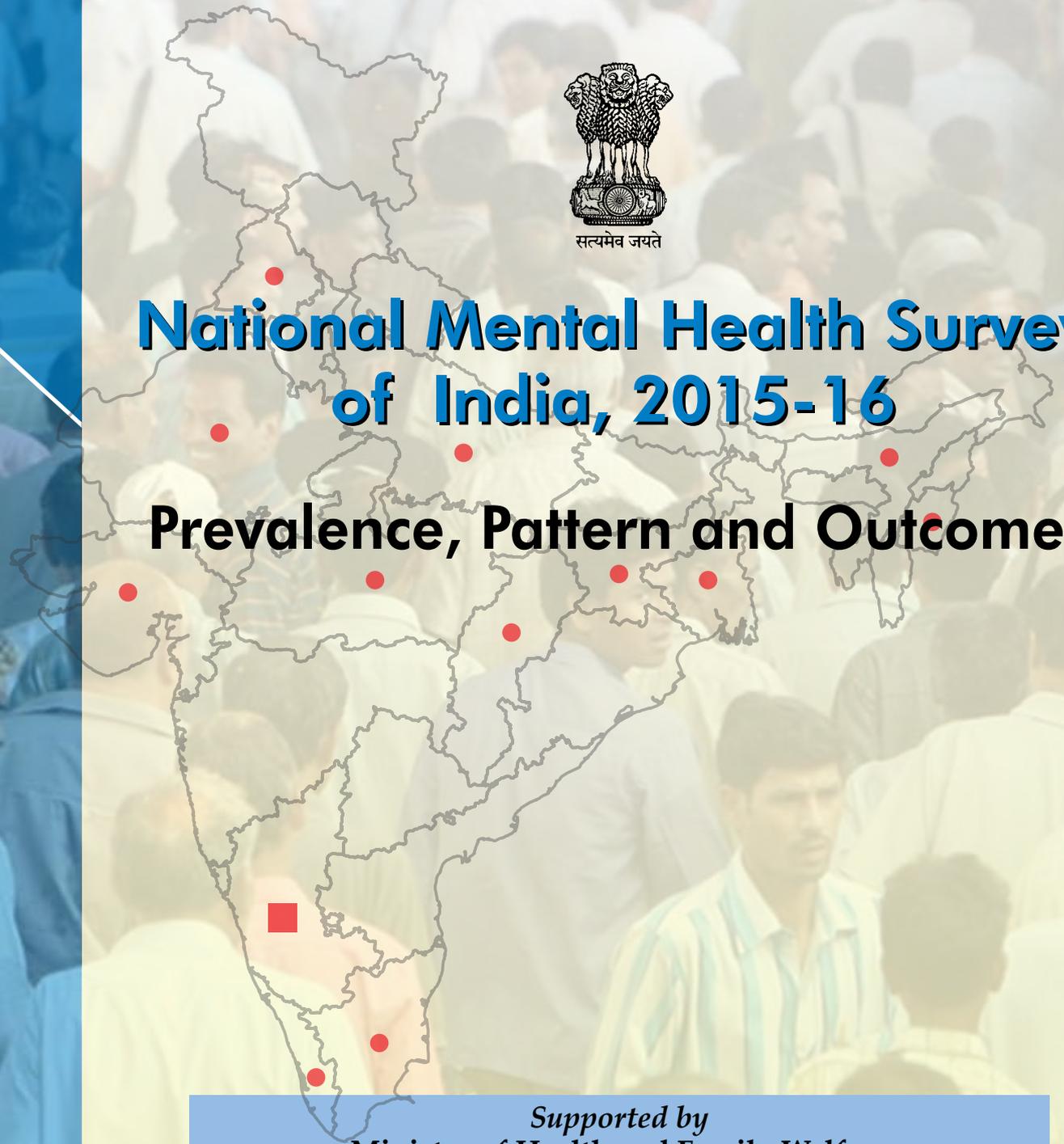




सत्यमेव जयते

# National Mental Health Survey of India, 2015-16

## Prevalence, Pattern and Outcomes



*Supported by*  
Ministry of Health and Family Welfare  
Government of India



*Implemented by*  
National Institute of Mental Health and Neuro Sciences  
Bengaluru

In collaboration with partner institutions





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**Title:** National Mental Health Survey of India, 2015-16: Prevalence, Pattern and Outcomes

**Copyright:** NIMHANS

**ISBN:** ISBN: 81-86478-00-X

**Year of Publication:** 2016

**Key Words:** Mental morbidity, Mental disorders, Epidemiology, Public Health, substance use disorder, Alcohol use disorder, Schizophrenia, Depression, Anxiety disorders, Children, Adults, Elderly

#### **Suggested Citation**

Gururaj G, Varghese M, Benegal V, Rao GN, Pathak K, Singh LK, Mehta RY, Ram D, Shibukumar TM, Kokane A, Lenin Singh RK, Chavan BS, Sharma P, Ramasubramanian C, Dalal PK, Saha PK, Deuri SP, Giri AK, Kavishvar AB, Sinha VK, Thavody J, Chatterji R, Akoijam BS, Das S, Kashyap A, Ragavan VS, Singh SK, Misra R and NMHS collaborators group. National Mental Health Survey of India, 2015-16: Prevalence, patterns and outcomes. Bengaluru, National Institute of Mental Health and Neuro Sciences, NIMHANS Publication No. 129, 2016.

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जगत प्रकाश नड्डा  
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स्वास्थ्य एवं परिवार कल्याण मंत्री  
भारत सरकार  
Minister of Health & Family Welfare  
Government of India



### Message

The Ministry of Health and Family Welfare, Government of India commissioned NIMHANS, Bengaluru to undertake a nationally representative mental health study to understand the burden and patterns of mental health problems, examine treatment gap, health care utilization patterns, disability and impact amongst those affected. It is one of the largest mental health “Research and Action” oriented study undertaken in recent times across 12 states of India.

This study has provided us major insights into the magnitude of problem and state of service and resources to strengthen mental health programmes. The comprehensive Mental Health Systems Assessment has brought out the strengths and weaknesses in the system of mental health care in the states.

I take this opportunity to congratulate the NIMHANS team and all State teams of nearly 400 members for undertaking and completing this task promptly with utmost care and quality.

(Jagat Prakash Nadda)

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## Foreword

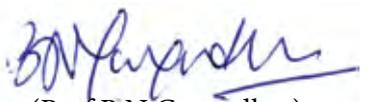
Mental health and well-being, across civilisations, have received attention although variably. The ancient science of Yoga emphasises '*chittavrittinirodha*' i.e., to calm the oscillation of the mind towards stability. Public Health focus was provided by the landmark World Health Report - 2001 titled "Mental health: new hope, new understanding". Beginning with the World Health Day 2001 theme "Stop exclusion – Dare to care", there has been a renewed effort to mainstream mental health along with the growing Non Communicable Disease agenda. There is thus an urgent need to identify the force multiplier for mental health. A dedicated Mental Health Policy, the new mental health care bill are definitely right steps in this direction. The just concluded National Mental Health Survey (NMHS) needs to be considered as another beginning being made for accelerating solutions for mental health care services across the country.

The National Mental Health Survey has quantified the burden of those suffering from mental, select neurological and substance use problems. NMHS has also undertaken the onerous task of identifying the baseline information for subsequent development of mental health systems across the states. The results from the NMHS point to the huge burden of mental health problems: while, nearly 150 million Indians need mental health care services, less than 30 million are seeking care; the mental health systems assessment indicate not just a lack of public health strategy but also several under-performing components. NMHS by providing the much needed scientific rigour to plan, develop and implement better mental health care services in India in the new millennium, has hence termed its report as "Prevalence, Patterns and Outcomes" and "Mental Health Systems".

The NIMHANS team had 125 investigators drawn from nearly 15 premier institutions pan-India. The NMHS has been a unique activity entrusted to NIMHANS. Team NIMHANS has worked tirelessly over the last two years. The 50+ strong team from Epidemiology and Mental health takes credit for this accomplishment. I would like to specially compliment the former Director, Prof Satish Chandra, who took special interest and laid a firm foundation for the NMHS activities and all expert members for their unstinted support and continued guidance. The Ministry of Health and Family Welfare, Government of India as the nodal agency for mental health provided the financial resources for the survey and also facilitated the smooth conduct of the survey related activities in the individual states. The Joint Secretary chaired the NTAG meetings and guided the work.

The recommendations of the present report are structured to make a better beginning as well as to enhance and improve care where it already exists. It provides for a public health framework to monitor and evaluate plans, programs and services. We look forward to the continued dialogue and feedback, whence we take a pledge to improve mental health care systems in our country.

Place: Bengaluru  
Date: 07-10-2016

  
(Prof B N Gangadhar)  
Director – NIMHANS

# Preface

With changing health patterns among Indians, mental, behavioural and substance use disorders are coming to the fore in health care delivery systems. These disorders contribute for significant morbidity, disability and even mortality amongst those affected. Due to the prevailing stigma, these disorders often are hidden by the society and consequently persons with mental disorders lead a poor quality of life.

Even though several studies point to the growing burden, the extent, pattern and outcome of these mental, behavioural and substance use disorders are not clearly known. Though unmeasured, the social and economic impact of these conditions is huge. It is also acknowledged that mental health programmes and services need significant strengthening and / or scaling up to deliver appropriate and comprehensive services for the millions across the country who are in need of care.

India recently announced its mental health policy and an action plan; these along with the proposed mental health bill attempts to address the gaps in mental health care. In addition, recommendations from National Human Rights Commission and directives from the Supreme Court of India have accelerated the pace of implementation of mental health services. Several advocacy groups, including media, have highlighted need for scaling up services and providing comprehensive mental health care.

To further strengthen mental health programmes and develop data driven programmes, the Ministry of Health and Family Welfare, Government of India commissioned NIMHANS to plan and undertake a national survey to develop data on prevalence, pattern and outcomes for mental disorders in the country. Furthermore, a systematic assessment of resources and services that are available to meet the current demands was a felt need.

Thus, the National Mental Health Survey was undertaken by NIMHANS to fulfil these objectives across 12 selected states of India during 2015 – 16. After making adequate preparations for nearly 12 months, the study was implemented on a nationally representative sample adopting a uniform and standard methodology. Data collection was undertaken by well-trained staff using hand held devices from 39,532 individuals across the states. Simultaneously, mental health systems assessment undertaken using secondary data sources and qualitative methods, set down indicators with the active engagement of stake holders.

The findings from NMHS 2015-16 are presented in two parts: the first part provides data on the prevalence, pattern and outcomes, while the second one reports the current status of mental health systems. These reports provide a detailed description of the need, focus, methods,

results, implications along with recommendations. The methods section would empower readers to understand the results and also guide other researchers to plan and implement large scale national surveys.

Robust and quality population data aid policy makers to formulate programmes and policies that meet the needs of citizens in various areas. NMHS 2015-16 reveals that nearly 15% of Indian adults (those above 18 years) are in need of active interventions for one or more mental health issues; Common mental disorders, severe mental disorders and substance use problems coexist and the middle age working populations are affected most; while mental health problems among both adolescents and elderly are of serious concern, urban metros are witnessing a growing burden of mental health problems. The disabilities and economic impact are ominous and affect, work, family and social life. However, to address these problems, the current mental health systems are weak, fragmented and uncoordinated with deficiencies in all components at the state level.

The National Mental Health Survey is a joint collaborative effort of nearly 500 professionals, comprising of researchers, state level administrators, data collection teams and others from the 12 states of India and has been coordinated and implemented by NIMHANS. The results and implications point to a need for a strong public health approach and a well-functioning mental health systems within larger health system. The response needs to be integrated, coordinated and effectively monitored to appropriately address the growing problem.

Our efforts will be amply rewarded, if, the political leadership at all levels - policy makers in health and related sectors - professionals from all disciplines - the print and visual media and importantly the Indian society acknowledge the huge burden of mental disorders in India and make strong attempts to intensify and scale-up mental health care services, integrate mental health promotion into care and management and also strengthen rehabilitation in health, social, economic and welfare policies and programmes. Undoubtedly, all these should be based on equity, promote a rights approach and enhance access. The country should join together towards 'Finding solutions together'

**NMHS team**

*Our sincere gratitude to all the individuals and their family members across surveyed states for all the cooperation in the conduct of National Mental Health Survey.*

# Acknowledgements

The National Mental Health Survey (NMHS) was a unique collaborative endeavour undertaken across 12 states of India with the active engagement of more than 400 persons during 2014-16. The project was funded by the Ministry of Health and Family Welfare, Government of India.

**Team NMHS would like to sincerely acknowledge the support and guidance of all individuals contributing, participating or facilitating activities at different levels.**

Our sincere thanks to

- Mr. Mishra C K, Secretary Health and Family Welfare, MoHFW
- Mr. Lav Agarwal, Jt. Secy, MoHFW
- Mr. Anshu Prakash, former Jt. Secy, MoHFW
- Ms. Sujaya Krishnan, former Jt. Secy, MoHFW
- Mr. Oma Nand Director (H), MoHFW
- Mr. Deepak Malhotra, Section Officer, MoHFW

We are immensely thankful to

- ◆ Dr. Gangadhar BN, Director, and Professor of Psychiatry, NIMHANS
- ◆ Dr. Satish Chandra P, former Director - Vice Chancellor, Sr Professor of NIMHANS,
- ◆ Dr. Sekar Kasi, Registrar and Professor of Psychiatric Social Work, NIMHANS
- ◆ Dr. Ravi V, Former Registrar and Sr Professor of Virology, NIMHANS
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We would like to specifically acknowledge the following for their unstinted support and technical guidance

- ❖ Dr. Mohan K Isaac, member, NTAG
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- ❖ Dr. Arvind Pandey, Member, NTAG
- ❖ Dr. Tarun Kumar Roy, former Director, International Institute of Population Sciences, Mumbai
- ❖ Mr. Christopher Ray, President, Medical Outcomes Systems, Jacksonville, Florida, USA

A special thanks to Mrs. Sujayalakshmi Bhaskaran, Chennai for the timely help in complete editing of the manuscript.

**We are thankful to all the members of the National Technical Advisory Group and National Expert Panel for their invaluable support and guidance**

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The pillars of support include

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# Abbreviations

ADHD	Attention deficit hyperactivity disorder
<b>AS</b>	Assam
ASD	Autism Spectrum Disorders
ASHAs	Accredited Social Health Activist
BPAD	Bipolar Affective Disorder
CAPA	Child Adolescent Psychiatry Assessment
CBCL	Child Behaviour Check List
CBS	Culture Bound Syndromes
CDB	Community Development Blocks
CEB	Census Enumeration Block
<b>CG</b>	Chhattisgarh
CIDI	Composite International Diagnostic Interview
Co-I	Co- Investigator
Co-PI	Co-Principal Investigator
DAWBA	Developmental And Well Being Assessment
DIS	Diagnostic Interview Schedule
DISC	Diagnostic Interview Schedule for Children
DMHP	District Mental Health Programme
DSM IV	Diagnostic and Statistical Manual of Mental Disorders Version IV
DSM-V	Diagnostic and Statistical Manual of Mental Disorders Version V
FDC	Field Data Collectors
FGDs	Focus group discussions
FSU	Final Sampling Unit
GHQ	General Health Questionnaire
<b>GJ</b>	Gujarat
GTCS	Generalized Tonic-Clonic Seizures
HH	Household
HHED	Hand Held Electronic Devices
HMI	Homeless Mentally Ill
ICD 10 DCR	International Classification of Diseases Version 10 Diagnostic Criteria for Research
ICMR	Indian Council for Medical Research
ID	Intellectual Disability
IEC	Information education communication
IEC	Institutional Ethics Committee
IT	Information Technology
<b>JH</b>	Jharkhand
KIIs	Key Informant Interviews
<b>KL</b>	Kerala
LAMIC	Low and Middle Income Countries
M.I.N.I.	Mini International Neuropsychiatric Interview
MDD	Major Depressive Disorders
MHAP	Mental Health Action Plan
MHB	Mental Health Bill

MHSA	Mental Health Systems Assessment
<b>MN</b>	Manipur
MOA	Memorandum of Understanding
MoHFW	Ministry of Health and Family Welfare
MOS	Medical Outcome Systems Inc
<b>MP</b>	Madhya Pradesh
MPW	Multi-purpose workers
NAC	NMHS Advisory Committee
NEP	National Expert Panel
NIMHANS	National Institute of Mental Health and Neuro Sciences
NMHP	National Mental Health Programme
NMHS	National mental Health Survey
NMP	NMHS Master Protocol
NSAB	NMHS State Advisory Board
NSDCT	NMHS State Data Collection Team
NST	NMHS State Team
NTAG	National Technical Advisory Group
OG	Operational Guidelines
PAPI	Paper and Pencil instruments
<b>PB</b>	Punjab
PHCR	Poverty Head Count Ratio
PI	Principal Investigator
PSE	Present State Examination
PSU	Primary Sampling Unit
QSC	Qualitative study Component
<b>RJ</b>	Rajasthan
RPT	Resource Persons for Training
SCL-90-R	Symptom Check List -90 Revised
SDI	Socio - Demographic Information
SDQ	Strengths and Difficulties Questionnaire
SDS	Sheehan Disability Scale
SI	Sampling Interval
SMHSA	State Mental health Systems Assessment
SSDA	Single Stage Diagnostic Assessment
SSU	Secondary Sampling Unit
SUDs	Substance use Disorders
TAPI	Tablet Assisted Personal Interviews
<b>TN</b>	Tamil Nadu
<b>UP</b>	Uttar Pradesh,
<b>WB</b>	West Bengal
WHO mhGAP	WHO Mental Health Gap Action Programme
WHO	World Health Organization
WHODAS 2.0	World Health Organization Disability Assessment Schedule 2.0
WMH	World Mental Health Survey

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# Executive Summary

Mental, Neurological and Substance use disorders (MNSUDs), currently included under the broader rubric of Non Communicable Diseases (NCDs) are increasingly recognised as major public health problems contributing for a greater share of morbidity and disability. During the last five decades, the prevalence, pattern, characteristics and determinants of various mental disorders has been examined by research studies. Furthermore, care related issues, service delivery aspects and system issues have been examined in a limited manner. However, scientific extrapolations and estimates to national and state level have not been possible. Recent studies indicate the emergence of several new problems like alcohol and drug abuse, depression, suicidal behaviours and others; information of these at a national level are limited.

Recognising the need for good quality, scientific and reliable information and to strengthen mental health policies and programmes at national and state levels, the Ministry of Health and Family Welfare (MOHFW) commissioned National Institute of Mental Health and Neuro Sciences (NIMHANS) to undertake a National Mental Health Survey (NMHS) in a nationally representative population and examine priority mental disorders, estimate treatment gap, assess service utilization, disability and socio-economic impact along with assessing resources and systems.

The NMHS was undertaken in 12 states across 6 regions of India [North (Punjab and Uttar Pradesh); South (Tamil Nadu and Kerala); East (Jharkhand and West Bengal); West (Rajasthan and Gujarat); Central (Madhya Pradesh and Chhattisgarh) and North-east (Assam and Manipur)]. In each state, the dedicated team of Investigators included mental health and public health professionals.

## Methods

A uniform and standardised methodology was adopted for the National Mental Health Survey.

- A pilot study was undertaken in the district of Kolar, the Public Health Observatory of NIMHANS
- The **Master Protocol** for the study was drafted based on the results from the pilot study and finalised after deliberations with the National Technical Advisory Group (NTAG) and the National Expert Panel and discussions with the state teams. A detailed **Operational Guidelines document** was developed to conduct the survey.
- NIMHANS Institutional Ethics Committee (IEC) approved the study protocol.
- The methodology adopted was multi-stage, stratified, random cluster sampling technique, with random selection based on Probability Proportionate to Size at each stage; all individuals 18 years and above in the selected households were interviewed. A sub-sample was included in four states to examine feasibility of methodology for understanding mental morbidity amongst adolescents (13 – 17 years).

- Both quantitative and qualitative methods were employed. A set of 10 instruments including Mini International Neuro-psychiatric Interview (M.I.N.I 6.0) were utilised.
- After a rigorous 8 week training and micro-planning effort, field data collectors undertook door to door interviews. The training was participatory and the different methods included class room sessions, training in the hospital (observation and demonstration of interviews), and training in the community (both supervised and independent) and hands-on training in data collection on tablets.
- Information was captured on handheld devices and strict protocols were established for data transfer and management with access controlled mechanisms.
- To ensure quality apart from rigorous training, weekly and fortnightly review and problem solving meeting were held both locally and with NIMHANS team.
- Data received from all states was examined for errors periodically and regularly and feedback provided to the state team during fortnightly e-reviews. More than 200 such e-meetings were held during the survey period.
- The weighted estimates for life time prevalence and current prevalence were derived for conditions included in the International Classification of Disease, 10<sup>th</sup> revision, Diagnostic Criteria for Research (ICD 10 DCR).

## Results

<b>ICD-10 DCR Prevalence (%) of Mental morbidity among adults 18+ years</b>		
<b>(n = 34802)</b>	<b>Lifetime</b>	<b>Current</b>
<b>F10-F19 - Mental and behavioral problems due to psychoactive substance use</b>	<b>22.4</b>	
F10 Alcohol use disorder	4.7	
F11-19, except 17 Other substance use disorder	0.6	
F17 Tobacco use disorders	20.9	
<b>F20 –F29 Schizophrenia, other psychotic disorders</b>	<b>1.4</b>	<b>0.4</b>
<b>F30-F39 Mood (Affective) disorders</b>	<b>5.6</b>	<b>2.8</b>
F30-31 Bipolar Affective Disorders*	0.5	0.3
F32-33 Depressive Disorder	5.3	2.7
<b>F40-F48 Neurotic &amp; stress related disorders</b>	<b>3.7</b>	<b>3.5</b>
F40 Phobic anxiety disorders**	1.9	
F41 Other anxiety disorders***	1.3	1.2
F42 Obsessive Compulsive Disorder	0.8	
F43.1 PTSD	0.2	

\* Includes Single mania and hypomania episodes; \*\* Includes Agoraphobia and Social phobia; \*\*\* Includes Panic disorder and Generalised anxiety Disorder

- ❖ NMHS 2015-16 interviewed 39,532 individuals across 720 clusters from 80 talukas in 43 districts of the 12 selected states.
- ❖ The response rate was 91.9% at households level and 88.0% at individual level.
- ❖ Across the states, the population interviewed were similar to the state population characteristics and also representative of the country as per Census 2011.
- ❖ The overall weighted prevalence for any mental morbidity was 13.7% lifetime and 10.6% current. Table provides the weighted prevalence rates for individual disorders.
- ❖ The age group between 40 to 49 years were predominantly affected (Psychotic disorders, Bipolar Affective Disorders (BPAD), Depressive disorders and Neurotic and stress related disorders. The prevalence of Substance Use Disorders (SUDs) was highest in the 50-59 age group (29.4%)
- ❖ The gender prevalence of psychotic disorders was near similar (life-time: M:1.5%; F: 1.3%; Current M: 0.5%; F: 0.4%). While, there was a male predominance in Alcohol Use Disorders (9.1% v/s 0.5%) and for BPAD (0.6% v/s 0.4%), a female predominance was observed for depressive disorders (both current (F:3.0%; M: 2.4%) and life-time (F: 5.7%; M: 4.8%) for neurotic and stress related disorders.
- ❖ Residents from urban metro had a greater prevalence across the different disorders.
- ❖ Persons from lower income quintiles were observed to have a greater prevalence of one or more mental disorders.
- ❖ An individual's risk of suicide in the past one month was observed to be 0.9% (high risk) and 0.7% (moderate risk); it was highest in the 40-49 year age group, greater amongst females and those from urban metros.
- ❖ Intellectual Disability (ID) screener positivity rates was 0.6% and epilepsy screener positivity rate was 0.3% [Generalised Tonic Clonic Seizures (GTCS only)]; It was greater amongst the younger age group, among males and those from urban metro areas.
- ❖ The prevalence of morbidity amongst adolescents was 7.3% with a similar distribution between males and females (M: 7.5%; F:7.1%), but was higher in urban metro areas. Current prevalence of anxiety disorders was 3.6%, and Depressive disorders was 0.8%.
- ❖ Treatment gap for mental disorders ranged between 70 to 92% for different disorders: common mental disorder - 85.0%; severe mental disorder - 73.6%; psychosis - 75.5%; bipolar affective disorder - 70.4%; alcohol use disorder - 86.3%; tobacco use - 91.8%
- ❖ The median duration for seeking care from the time of the onset of symptoms varied from 2.5 months for depressive disorder to 12 months for epilepsy. In majority of the cases, a government facility was the commonest source of care.
- ❖ At least half of those with a mental disorder reported disability in all three domains of work, social and family life and was relatively less among alcohol use disorder. Greater disability was reported among persons with epilepsy, depression and BPAD.
- ❖ The median amount spent for care and treatment varied between disorders: alcohol use disorder: ₹ 2250; schizophrenia and other psychotic disorders: ₹ 1000; depressive disorder: ₹ 1500; neurosis; ₹ 1500; epilepsy: ₹ 1500.

## Recommendations

The organisation and delivery of comprehensive and integrated mental health services in India that is socio-culturally and politically diverse and economically stratified is indeed a challenging task for policy makers ; but is definitely required. In recent times, the Mental Health Policy, the new Mental Health Bill, judicial directives, National Human Rights Commission initiatives and advocacy actions aim at improving the scenario and undeniably are the right steps in this direction.

It is well acknowledged that there is no single solution that gives complete and / or quick results. Several components and activities need to be integrated into the larger existing systems, new actions need to be promoted and implementation stringently followed. Building strong health systems that integrate mental health with the larger public health system based on evidence backed practices is the need of the hour.

Data driven policies and programmes play a key role in this process. The National Mental Health Survey, 2016, conducted across 12 states with uniform and standardised methodologies and unique strategy of combining prevalence, health seeking and systems analysis attempts to provides the stimulus to develop a roadmap for mental health services.

An estimated 150 million persons are in need of mental health interventions and care (both short term and long term) and considering the far reaching impact of mental health (on all domains of life), in all populations (from children to elderly), in both genders, as well as in urban and rural populations, urgent actions are required. Considering the burden among children and adolescents (not included in this survey), thousands more are in need of care.

This huge burden of mental, behavioural and substance use disorders, in India, calls for immediate attention of political leaders, policy makers, health professionals, opinion-makers and society at large. It is hoped that the data from the NMHS will inform mental health policy and legislation and help shape mental health care delivery systems in the country. Most significantly, mental health should be given higher priority in the developmental agenda of India. All policies and programmes in health and all related sectors of welfare, education, employment and other programmes need to include and integrate mental health in their respective policies, plans and programmes.

Based on the study results of this report and the accompanying report, interactions with stake holders, views of community respondents and a review of past lessons to improve mental health systems in India, the following recommendations are placed herewith.

1. The existing National Mental Health Programme, and its key implementation arm the District Mental Health programme (DMHP), needs significant strengthening. In consultation between central and state stakeholders, there is an urgent need for formulating explicit written action plans, increasing compliance towards implementation by supportive supervision, enhancing mechanisms of integration, developing dedicated - ring fenced

financing, devising mechanisms for accelerating human resources, improving drug delivery and logistics mechanisms and devising effective monitoring frameworks, so as to provide the widest possible coverage to affected citizens.

2. Broad-basing of priorities and planning of services to address the triple burden of common mental disorders, substance use disorders and severe mental disorders is required through focused as well as integrated approaches.
  - Mental health should be integrated with programmes of NCD prevention and control, child health, adolescent health, elderly health and other national disease control programmes. Specific programme implementation strategies and guidelines should be provided to all state governments in relation to activities, programmes, human resources, funding as well as monitoring.
  - In particular, in all these programmes, screening for common mental disorders (depression, suicidal behaviours, substance use problems, etc.), health promotion (through yoga and other methods) and continuity of care / referral services should be an integral component.
  - In addition, existing platforms of educational institutions and work places should be strengthened to include mental health agenda. Such programmes should first be initiated in DMHP sites based on the experiences of pilot studies and expanded in the next phase.
3. All Indian states should be supported to develop and implement a focused “Biennial mental health action plan” (covering severe mental disorders, common mental disorders and substance use problems) that includes specified and defined activity components, financial provisions, strengthening of the required facilities, human resources and drug logistics in a time bound manner. It should include implementing legislations, coordinated Information Education Communication (IEC) activities, health promotion measures, rehabilitation and other activities. These action plans should indicate responsible agencies or units for each defined activity component, their budget requirements and time lines of implementation along with monitoring indicators. Monitoring and evaluation should be an inbuilt component of this action plan and could be revised once in five years to measure progress.
4. Capacity strengthening of all policy makers in health and related sectors (education, welfare, urban and rural development, transport, etc.) at the national and state levels should be given priority. Furthermore, human resource development for mental health in health and all related sectors should be systematically planned and implemented over the next 5 years. Based on their roles and responsibilities, these strategies should focus on (i) sensitisation of policy makers and professionals in health, education, welfare, women and child development, law, police and others, (ii) training all existing and new state mental health programme officers in programme implementation, (iii) training all district mental health programme officers in programme implementation, (iv) building skills and knowledge of doctors (modern and traditional), health workers, ANMs, ASHAs and USHAs, Anganwadi workers and others.

- The DMHP is the key implementation arm of the NMHP, currently led by a psychiatrist or a medical doctor trained in mental health. Strengthening the knowledge and skills of DMHP officers in each state should move beyond diagnosis and drugs towards acquiring skills in programme implementation, monitoring and evaluation. Training in leadership qualities as required at the district level are essential.
5. Human resource development at all levels requires creating mechanisms by identifying training institutions – trainers – resources – schedules– financing at the state level.
    - In all human resource activities, creating virtual internet based learning mechanisms to successfully train and hand-hold all non-specialist health providers' needs expansion; this can achieve the task shifting to non-specialists or other disciplines of medical care.
    - Technology based applications for near-to-home-based care using smart-phone by health workers, evidence-based (electronic) clinical decision support systems for adopting minimum levels of care by doctors, creating systems for longitudinal follow-up of affected persons to ensure continued care through electronic databases and registers can greatly help in this direction. To facilitate this, convergence with other flagship schemes such as Digital India needs to be explored.
    - The existing Centers of Excellence, mental hospitals, NIMHANS, medical college psychiatry units or state training institutes should be given the responsibility of developing the requisite training calendar / programmes.
  6. Minimum package of interventions in the areas of mental health promotion, care and rehabilitation that can be implemented at medical colleges, district and sub-district hospitals, and primary health care settings should be developed in consultation with state governments and concerned departments and an action plan formulated for its implementation in a phased manner.
    - Focused programmes need to be developed and / or the existing programmes strengthened in the areas of child mental health, adolescent mental health, geriatric mental health, de-addiction services, suicide and violence prevention and disaster management. This should start with state level and subsequently extended to the district level.
    - These activities should be developed initially within DMHP programme and expanded to non-DMHP programmes, scaled up as mental health extension-outreach activities within their districts with the involvement of local medical college psychiatry units and district hospitals. Inaccessible areas and underprivileged communities should be given priority.
  7. Upgradation of existing facilities to treat and rehabilitate persons with mental illness will require further strengthening of existing mental hospitals as mandated by the National Human Rights Commission and provided by other previous schemes of the Health ministry. This will require the creation of an accessible stepped care system of mental health care in mental hospitals, district hospitals and medical colleges (in both public and private sector) in addition to existing public systems of care, recognizing that at present more than 85% of medical care occurs in the private non-governmental sphere.

8. Drug logistics system at state level needs strengthening in indenting, procurement at state and local levels, distribution and ensuring availability on a continuous and uninterrupted basis in all public sector health facilities. The important issue of ensuring last-mile availability of the drug logistics system needs greater attention in planning and budgeting, and should be embedded in the state mental health action plans.
9. The funding for mental health programmes needs to be streamlined with good planning, increased allocation, performance based timely disbursement, guaranteed complete utilisation and robust mechanisms for oversight and accountability. There is a need for greater apportioning in the NCD flexi pool budget and the necessary mechanisms for dedicated funding for mental health within both the central and state health budgets should be included in national and state level plans. (Ring-fenced budgeting)

Furthermore, the economic impediments to health seeking by people needs serious attention as treatment for mental health disorders is impoverishing the families and communities. To ameliorate the problems of access among the affected due to economic disparity, mechanisms such as access to transport, direct payments, payment vouchers for economically backward sections, health insurance and other schemes need to be explored. Steps to develop actuarial data on mental disorders will help private insurance companies to provide coverage for mental disorders.

10. A National registry of service providers from different disciplines (psychiatrists, psychologists, social workers, public and private mental health facilities in the area which also includes all other resources), which is periodically updated through systematic geo mapping at the state level will encourage greater participation of public and private health care providers and promote long term mental health care. This will also benefit local communities in healthcare seeking. While, this is incorporated in the new mental health bill, it requires an agency to be designated for the purpose.
11. Rehabilitation, to remedy long-standing disabilities and multiple areas of negative impact suffered by affected individuals and their families requires critical attention.
  - Firstly, this requires establishing mechanisms for creating facilities and services at district and state levels (day care centers/ respite care, half way homes, etc..) through organised approaches.
  - Secondly, it involves economic and social protection for the mentally ill through protected housing and social security / unemployment benefits for persons with SMDs (especially the wandering mentally ill), as well as protection from discrimination and neglect.
  - Thirdly, it requires the provision of facilities for re-skilling, protected employment for persons with mental illness, provision of loans or micro-finance schemes for the affected and their family members. Convergence with other flagship schemes of the government such as Skill India needs to be explored.
  - Legal, social and economic protection for persons with mental illness should be ensured through existing legislative provisions (eg: Mental Health Care Bill) and state specific legislations to guarantee mental health care to citizens should be strictly implemented.

The provisions under these instruments need to be widely disseminated; people should be made aware of their rights and delivery channels strengthened. Side by side, efforts should be made to empower the National Human Rights Commission, Right To Information act, citizen's advocacy groups, self-help groups of mentally ill, civil society organisations to bring in greater accountability in these activities.

12. With a high prevalence of mental disorders in urban areas and with growing urbanisation, the urban health component under the National Health Mission should have a clearly defined and integrated mental health component for implementation of services (defined services in identified institutions).

Similarly, mental health in work places and educational institutions using life skills techniques can aim at health promotion, early detection as well as awareness programmes on mental health (for common mental disorders like depression, anxiety, stress reduction, alcohol and tobacco use, etc.) and should be promoted at all levels; development of programme implementation guidelines, mechanisms and resources are critical requirements.

13. A National Mental Health literacy (including IEC) strategy and plan of implementation should be developed to strengthen and focus on health promotion, early recognition, care-support – rights of the mentally ill and destigmatisation.

- IEC activities should move towards creating opportunities for better care, employment, educational and income generation activities for persons with mental disorders.
- Advocacy for mental health with the active engagement of the media is critical to develop programmes for the advancement of mental health. While negative portrayal needs to be stopped, positive portrayal on creating opportunities, rights and opportunities, recovery aspects need more coverage.
- Integrating mental health and substance use disorder within the ambit of governmental and non-governmental schemes on social and economic development (e.g. woman and child, micro-finance etc) will broad base coverage as well as reduce stigma.
- Civil society organisations, professional bodies and the private sector should take a lead role in these activities.

14. All mental health activities, programmes, plans and strategies should be scientifically and continuously monitored at the national, state and district levels. A mental health monitoring framework with clearly defined processes, indicators and feedback mechanisms should be developed and evaluated at periodical intervals.

- All DMHP activities should be reviewed by the District Collector or equivalent (once a month) and state level activities should be reviewed by the Principal Secretary Health (at 6 monthly intervals).
- A select set of indicators should be finalised and standardised for uniform data collection and monitoring to measure service delivery components through routine systems
- Sample surveys on representative populations at should be undertaken at defined intervals to independently measure status and progress.

- As evaluation is critical in measuring the outcomes and impact, mental health programmes should be evaluated by external agencies every 5 years.
15. The research base in mental health should be strengthened with a focus on the following areas
- Prioritised mental health questions should be included in the regular ongoing national surveys like NCD risk factor survey, National Family and Health Survey, National Sample Survey Organisation (NSSO) and others.
  - Delineating the burden and impact of mental and substance use disorders in primary care settings using uniform and standardised techniques.
  - Operational research focusing on programme pitfalls and achievements, barriers and challenges, integration mechanisms and coordination challenges.
  - Expanding the present survey on adolescents in the 13 – 17 years group (implemented as a pilot study) to larger populations.
  - Understanding the treatment gap to unfurl macro and micro level issues from both demand and supply angles.
  - Identifying risk and protective factors involved in causation, recovery and outcome of different mental disorders.
  - Understanding cultural perceptions and beliefs with regard to mental health for increasing the utilisation of mental health services.
  - Use of m-health and e-health to develop services, databases, registries, distant care and promote convergence with other programmes.
  - Comprehensive understanding of the rehabilitation needs of the mentally ill at the district and state levels along with a longitudinal follow-up of affected individuals.
  - Better understanding of the economic impact of mental health disorders that include both direct and indirect costs.
  - Evaluating the different strategies for mental health promotion
  - National agencies like Indian Council for Medical Research (ICMR), Indian Council of Social Science Research (ICSSR), Department of Biotechnology (DBT), Department Of Science & Technology (DST), private sector and international agencies like World Health Organisation (WHO) and other United Nations (UN) agencies should dedicate and enhance research funds for mental and substance use disorders.

*A National Empowered Commission on Mental Health, comprising of professionals from mental health, public health, social sciences, the judiciary and related backgrounds should be constituted to oversee, support, facilitate, monitor and review mental health policies – plans – programmes in a continuous manner. Such a task force that works closely with the Ministries of Health at the national and state levels can provide strategic directions for mental health care programming to ensure speedy implementation of programmes.*



# 1. Introduction

**... social and economic impact of mental disorders, including mental disabilities, is diverse and far-reaching – World Health Assembly, 2012 [WHA65/2012/REC/1]**

Mental Health is vital for the growth and productivity of every society and for a healthy and happy life. The definition of health includes mental health along with its physical, emotional, social and spiritual components. However, it is common to find people in every society suffering from mental health problems. Such people and their families face enormous challenges in their day to day living due to societal discrimination and deprived opportunities. The silent suffering of these individuals and families, is not only a difficult situation, but is also a neglected one due to several prejudices that exist at different levels in every society. It is time to change this scenario in a world where social, technological and economic advances are happening at a faster pace.

Mental Health disorders include a wide variety of conditions as mentioned in different classificatory systems like International Classification of Diseases (ICD)-10 and Diagnostic and Statistical Manual of Mental Disorders (DSM-V). Even in the ancient Indian scriptures and mythological texts, a number of mental illnesses and disorders were often discussed but only severe forms of illnesses have captured the public attention. However, due to globalisation, urbanisation and migration along with recent advances in the understanding of mental health problems, this scenario has changed. Today, the existence of a wide range of illnesses from minor situational ones to longstanding chronic problems have been well recognised. Taking cognisance of the importance and

impact of these conditions, governments globally are giving priority to implementing national programmes and policies to improve the lives of these individuals and families.

India has a long history of mental health understanding and practices, good, bad and harmless. Ancient Indian texts like the 'Sushruta Samhita', and the 'Ashtangayoga' describe illnesses of the body to be remedied by therapies to the mind or 'Chitta'. In early India, the emphasis on mental health and its promotion was much stronger than disease management and the promotion of recovery. India has also moved forward to addressing the needs of the mentally ill with the development of a National Mental Health Programme (NMHP) in 1982. The development of the NMHP itself was based on a large number of mental health research activities undertaken in the early years which highlighted the need for mental health programmes. The most significant among these was the large number of epidemiological studies that aimed at quantifying the burden and characteristics of mental health problems.

In many mental health epidemiological surveys conducted in the past, researchers have focused on a variety of issues like recognising their prevalence, incidence, mortality, risk factors, association with many socioeconomic factors, course of illness, outcome etc. The conditions they set out to examine have also been classified in a

number of ways based on methods like the ICD and the DSM. In this process, different tools have been used and developed in different Indian languages. Data from these studies has contributed to the growth of the NMHP, helped in contextualising mental health in India and paved the way for the care of the mentally ill.

However, the complexity of mental health problems and their assessment has thrown up several challenges in the past; unlikely to be solved in the near future. Both globally as well as in India, mental illnesses and disorders are known to be caused by a complex interaction of biological, social, cultural and economic reasons and are often examined in the risk assessment and causation of these problems. The debate over nature vs. nurture has been going on and is unlikely to end due to the complexity of the issues. The causes of mental health problems are likely to be due to a set of conditional, operating, precipitating or triggering factors or situations and vary from condition to condition, person to person and from place to place with the recognition of a few common and specific risk factors in recent years.

Adding to the complexity of these issues are the nature and characteristics of individual mental health problems. These disorders of the brain-mind-behaviour axis can be mental, neurological, substance use related, developmental etc., with many disorders included in each group. Furthermore, each of these conditions can be acute or chronic, life time or current, episodic or nonepisodic, morbid or comorbid, subclinical or overtly manifesting and remitting or nonremitting in nature. In addition, each condition can be a disease, disorder, episode, illness, and no consensus exists among professionals about the definition of each one. Further, the interpretation of the symptoms of

many of these disorders is driven by cultural interpretations which vary from place to place and from culture to culture. These community, family and individual perceptions often determine and decide whether the individual suffers from a mental health condition and influences their help seeking behavior. While 21<sup>st</sup> century mental health acknowledges these issues, the tendency for 'medicalisation' of mental health has often been widely debated.

Most significantly, unlike other physical health problems, objective assessments (like measuring blood sugar or hypertension or several others) of mental health problems do not exist, despite progress in research in recent times. Further, the use of such available instruments is limited at the field level in population based assessments due to intense costs, lack of technology and the efficacy and effectiveness of such tests. Consequently, the recognition and quantification of symptoms and the subsequent examination by a trained mental health professional has remained the bedrock of diagnosis. In this scenario, the variations among professionals in examination and interpretation have resulted in the development of multiple questionnaires, data tools, instruments to arrive at a diagnosis. In recent times, structured interviews yielding algorithm linked diagnoses are emerging. Nevertheless, till date, there is no such single standardised – validated- culture sensitive-reliable instrument in India that can be used for nation-wide population based epidemiological studies.

**Despite these challenges, the quest for good quality data continues.** To develop sound policies and programmes both in the health and mental health fields, scientific and reliable data is a *sine qua non*. Several large scale population based multicentric

studies across the world have contributed enormously to improving the mental health of people through organised policies and programmes. In India too, several independent studies undertaken by different agencies and independent researchers have developed local (through focused studies) and national data (through multisite studies) for mental health programmes. The limitations of previous studies have often precluded the use of available data for planning mental health services at the national or state level. With mental health occupying an important place in national developmental issues and with the inclusion of a national programme, there is an urgent need for good quality, nationally representative data and the present study is a step in this direction.

## 1.1 Previous Experience with Mental Health Surveys

Epidemiological surveys to estimate the prevalence of psychiatric conditions in India were conducted as early as 1960 (1). Many more were carried out over the next four decades. During the early part of this era, the studies were population-based, descriptive in nature, carried out in certain small to medium sized geographical areas and by using different sampling designs.

Analytical epidemiological studies were later conducted, but are limited. The earlier descriptive studies reported different levels of prevalence of mental disorders varying from 9.5 to 370/ 1000 population (2,3,4,5). Two studies tried to assess the national prevalence rates of psychiatric disorders. Reddy and Chandrashekhara (1998) (2) in a meta-analysis reported a prevalence of

58/ 1000 population, while Ganguli (2000) (5) in a review came up with an estimate of 73/ 1000 population. Even in these two studies, there were differences in their results regarding the prevalence rates in rural and urban populations too. Reddy and Chandrashekhara (1998)(2) mentioned that the urban rates were twice as much as the rural prevalence rates, whereas quite contrastingly, Ganguli (2000) (5) showed that for every 100 rural persons afflicted with a mental disorder, there existed about 157 urban people with a mental disorder. Three longitudinal follow-up studies were also conducted: Nandi and colleagues conducted a follow-up study from 1972-1982 (6), and again from 1972-1992 (7) and Raghurami Reddy (1994) (8), between 1981- 1991. All the studies showed steady rates and found no significant increase in the prevalence rates over the years.

As a result of this wide variation in the pattern and prevalence rates, for purposes of planning and estimating the number of persons with a mental disorder in India, a median conservative estimate of 65 / 1000 population (3) was considered by computing the median from the two meta-analyses of Reddy and Chandrashekhara (1998) (2) and Ganguli (2000) (5). For a better understanding of the estimates, as also the distribution, burden and unmet mental health needs among the population and to provide this information to policy makers, the World Mental Health Survey was conducted in 2003 with India as one of the participating countries (9). This survey was a large cross-national psychiatric epidemiology survey undertaken in 28 representative countries. Data was collected across 11 Indian cities using the WHO WMH CIDI (Composite International Diagnostic Interview), a structured diagnostic instrument. Data on lifetime prevalence, age of onset, course,

burden, service use and treatment of mental disorders was obtained. A study from the Pune centre of the World Mental Health Survey (10) mentions an overall prevalence rate of mental disorders to be 5%, with rates being higher among men as compared to women. Depression was found to be the most common disorder whether lifetime (3.14%) or during the previous 12-month period (1.7%). The study also mentioned that among those afflicted with one or the other mental disorder, treatment was sought by only about 5%. However, pooled data from 18 countries (n= 89,037) on the prevalence of depression (11), suggested lifetime and 12-month prevalence of depression at 14.6% and 5.5%, respectively, among high income countries, and 11.1% and 5.9% among Low and Middle Income Countries (LAMIC) countries, the latter rates being higher than the Pune study from India. Bruffaerts and colleagues (2012) (12) assessed partial disability (the ability to perform in some areas, but not completely function in daily life) from the pooled data in 26 nationally representative samples of the WMH Survey (n = 61 259). Respondents mentioned 1.6 additional days of disability per month compared to the control group which had no disorders. Nevertheless, the overall conclusion from the survey was that mental disorders are widely prevalent and seriously disable persons across many countries throughout the world (9).

### Limitations of previous surveys

As mentioned above, there are wide variations in the prevalence rates reported among the studies in India. Some of the key reasons are summed up below (2,3,4,5,13):

- ✓ **Methodological issues:** While most studies used house-to-house surveys, some used a two or three stage survey, hospital surveys and some surveyed special populations such as tribal

populations etc., yielding differing rates.

- ✓ **Screening instruments:** Most studies utilised an initial screening instrument followed by later confirmation by a psychiatrist. Screening instruments were checklists, exploratory questions, different standardised survey instruments, various questionnaires and structured/ unstructured interviews.
- ✓ **Case definition:** Definition of a case also varied and sometimes was not clearly specified. Cultural adaptations and validations were not addressed leading to possible non-recognition of some of the common mental disorders and thus, had a lower prevalence.
- ✓ **Case identification:** The expertise of people conducting the interviews varied. Lay counsellors, trained health workers, clinical psychologists and psychiatrists all have differing skills and levels of expertise in conducting interviews.
- ✓ **Informant:** Using only the head of the family or one informant during assessment yielded lesser rates than when one or more informants were interviewed.
- ✓ **Systematic under-reporting:** Identified as a major problem in psychiatric epidemiology in India, one of the reasons for this is the stigma associated with mental illness and the fact that respondents are not comfortable disclosing problems of a sensitive nature in surveys.

The ICMR study (14) was the only other multi-centred cross national study. This study investigated the prevalence and burden of severe mental disorders in the four cities of Bangalore, Baroda, Calcutta and Patiala. The study also assessed the feasibility of employing multi-purpose workers (MPW)

and primary care doctors in the detection and management of psychoses and epilepsy in rural areas and to improve the attitudes of rural folk towards mental health. However, there were no epidemiologic studies that were conducted to overcome limitations and address the methodological issues and concerns of the previous studies. With rapid population growth and urbanisation, there is a need not only to understand these changes but also to gather a reliable estimate of the prevalence of mental disorders in the country-both rural and urban. It is well documented that the treatment gap for

mental disorders among LAMIC countries is about 90%(15,16). As the District Mental Health Programme in India expands to include all the districts of the country, such an estimate may help understand the treatment gap that exists, and thereby, pave the way forward to effectively plan, develop, implement, monitor and evaluate the mental health services of the nation. On several occasions, policy makers, decision makers, and parliamentarians are faced with questions on the state of mental health care, the increasing number of suicides and the national response to these conditions.

## 2. Need for the NMHS

To plan, develop, implement, monitor, evaluate and strengthen mental health services in India, there is a need to understand the clear burden of mental disorders as well as the existing resources and services across the country. Hence, the MoHFW identified National Mental Health Survey (NMHS) as a priority area during the 12<sup>th</sup> plan period. The study was commissioned based on the recommendations of the Joint Parliamentary Committee, parliamentarian's frequent questions, judicial directives, policy maker's concerns, professional's needs, and media questions.

India has formulated a National Mental Health Policy, Mental Health Action Plan and a Mental Health Bill (replacing the earlier one) and it was felt that a nationally representative survey at this juncture would pave the way for future action.

Recognising the need for good quality and reliable data, the survey aimed at understanding the burden of mental health problems in a nationally representative population, identifying the treatment gap and understanding the health care seeking patterns along with assessing the current response of health systems.

### Top 5 Grand Challenges in Mental Health

1. Integrating screening and core packages of services into routine primary health care
2. Reducing the cost and improve the supply of effective medications
3. Providing effective and affordable community-based care and rehabilitation
4. Improving children's access to evidence-based care by trained health providers in low- and middle-income countries
5. Strengthening the mental-health component in the training of all health-care personnel

Source: Collins P Y et al (2011). Grand challenges in global mental health. Nature 475, 27–30 doi:10.1038/475027a

## 3. Scope of the NMHS

The scope of the NMHS was delineated based on the recommendations of the National Technical Advisory Group (NTAG), observations of expert panel, experience of previous multi-centre studies and lessons learnt from the Pilot Study.

Firstly, the survey was aimed at being nationally representative by including both rural and urban (both metro and non-metro areas) areas from 12 states of India (reasons provided later). Tribal populations as and when available were to be included in the study. The large cities of India with populations of more than 10 million (metropolises) were not considered for inclusion in this survey as they require a different methodology and choice of instruments.

Secondly, it was decided that the NMHS should focus on adolescents, adults and the elderly. Children aged less than 13 years, were excluded from the survey due to the lack of a clear understanding of mental disorders from a population perspective, absence of suitable and culture specific instruments, lack of experienced teams to investigate child mental health issues along with the complexity of conducting such studies at the community level. However, based on the recommendations of the NTAG and the NMHS experts' committee, it was decided to undertake a pilot study in select

centres that would pave the way for future studies.

Thirdly, it was decided to examine all mental health problems (including substance use disorders) that are of public health importance. Since, traditionally, epilepsy was included for service delivery in mental health programmes, the survey included epilepsy as well. Epilepsy is also included under the WHO mhGAP programme (17) as priority public mental health problems in terms of burden and impact.

Fourthly, apart from examining the burden of mental health problems and the current treatment gap, the NMHS also focused on delineating service utilization patterns, disability status, the impact of mental disorders on individuals and families and the prevailing stigma in society.

Fifthly, NMHS focused on the assessment of current mental health services and systems across 12 states of India during the survey. The focus was to examine the availability of human, financial, physical and all other resources that are required for the delivery of mental health services as well as the current status of programme implementation from a public health perspective. In addition, the performance of the District Mental Health programme was also examined to assess its strengths and limitations.

## 4. Objectives

- A. Estimate the prevalence and burden of mental health disorders in a representative population of India.
- B. Identify the current treatment gap, health care seeking and service utilisation patterns, disability status and impact of mental disorders.
- C. Assess mental health care facilities, resources and systems in the surveyed states for planning and strengthening of mental health services

## 5. Project management

**The entire methodology of NMHS has been described in detail below. This is to enable readers to clearly understand the methodology for proper interpretation of results. Secondly, it is important to link different activities for obtaining a comprehensive understanding. Thirdly, it is hoped that this will provide a frame work for similar national surveys for mental health and other public health problems for anyone interested or planning similar surveys .**

Implementing a survey at the national level requires a strong coordinated framework and a network of professionals and administrators for implementing several activities in a timely manner. Hence, a robust mechanism was established to develop, guide, supervise and coordinate all activities being implemented by a core team at the national level, and coordinating activities at the centre and state levels. Furthermore, as no single mechanism would suffice, the NMHS formulated different mechanisms to ensure the successful planning, designing, implementation and completion of the national survey as per definitive timelines. Multi-disciplinary teams with the right mix of experience and expertise were identified at different levels and brought together to achieve the stated objectives of the NMHS. Details depicting various timelines of the

study from the beginning are given in Box no 1

### National Technical Advisory Group (N-TAG)

The National Technical Advisory Group (NTAG) was the apex unit supporting the NMHS. It comprised of persons of eminence drawn from the different domains of the Ministry of Health, Epidemiology, Mental Health, Bio-statistics, Survey methodology and Social Sciences. The NTAG was chaired by the Joint Secretary of the Ministry of Health and Family Welfare and the Director of NIMHANS was the Member-Secretary. All members had a long standing experience in public health and mental health and are recognised for their contributions in

<b>Box - 1: NMHS Timelines</b>	
Jun 2013	First National Technical Advisory Group (N-TAG) meeting at NIMHANS, Bengaluru (19 <sup>th</sup> Jun 2013)
July - Dec 2013	Preparatory activities including comprehensive review of study instruments, review of Indian language translations of the survey instruments and validation of the instruments
Jan - Nov 2014	Planning (including NIMHANS IEC clearance) for conduct of Pilot study in Kolar and completion of the pilot study
Oct 2014	Second National Technical Advisory Group (N-TAG) meeting at MoHFW, Nirman Bhavan, New Delhi (17 <sup>th</sup> Oct 2014)
Nov - Dec 2014	Drafting and finalising the Master Protocol for NMHS
Feb 2015	Third National Technical Advisory Group (N-TAG) meeting at NIMHANS, Bengaluru to review and finalise the master protocol (9 <sup>th</sup> Feb 2015)
March 2015	National expert consultation on study methodology (30 <sup>th</sup> March 2015)
April 2015	First National collaborators meeting and Master's training programme (6 <sup>th</sup> to 9 <sup>th</sup> April 2015)
April - May 2015	Preparatory activities within the states (NMHS administrative permissions, signing of the MOA and finalizing the Training plan)
1 <sup>st</sup> June 2015	Formal beginning of the NMHS in the 12 states
June 2015	Final approval of the NMHS master Protocol by NIMHANS IEC
July 2015	Finalizing the Operational Guidelines document Field Data Collectors recruitment initiated in the individual states
August - September 2015	Field Data Collectors training
October 2015	Initiating data collection: Gujarat (2 <sup>nd</sup> Oct)
November 2015	Mid-term review with NMHS individual state collaborators (13 <sup>th</sup> November 2015)
October 2015 - August 2016	A total of 212 video conferences held between individual state Field Data Collections (FDC) teams with NIMHANS Epi team (to discuss and manage problems during data collection, eliminate data errors)
November 2015 - January 2016	NIMHANS Epi team Visits
Mar 2016	3 <sup>rd</sup> National Collaborators meeting at NIMHANS, Bengaluru (29 <sup>th</sup> Feb to 1 <sup>st</sup> Mar 2016)
April - June 2016	State Mental Health Assessment Consensus meetings
August - September 2016	Finalisation of the NMHS results and recommendations
September 2016	Fourth NTAG meeting at MoHFW, Nirman Bhawan, New Delhi to review results and recommendations (15 <sup>th</sup> September 2016)
September 2016	Video conference with all state PIs to review results (23 <sup>rd</sup> September 2016)
October 2016	Release of the Summary report in New Delhi (10 <sup>th</sup> October 2016) and at NIMHANS, Bengaluru (24 <sup>th</sup> October 2016).

Note: 1) The dates of activities vary across the states and only the beginning dates have been indicated

2) Mental Health team visited the individual states during the period of training

the field of mental health and Psychiatric epidemiology. The NTAG provided directions for undertaking the nationwide survey, tracked progress, ensured quality, examined timelines and also supported all administrative and financial support for the project. During the entire survey period, the NTAG met on 4 occasions: June 2013 to review protocols, Oct 2014 to review pilot study results and the draft of the master protocols, Feb 2015 to review the master protocol and in September 2016 to examine results.

## National Expert Panel

Based on the recommendation of the 3<sup>rd</sup> NTAG, an expert committee consisting of a distinguished group of survey methodologists, bio-statisticians, demographers and social scientists, was constituted. The members of the committee met at NIMHANS on 30<sup>th</sup> March 2015, reviewed the master protocol, held detailed discussions on methodology, recommended changes and endorsed the NMHS master protocol. In addition, the committee recommended that the study be undertaken in phases as it gives an opportunity to learn and implement the survey based on the study findings. The committee opined that addressing the methodological issues of mental health surveys, the coverage of the length and breadth of the country, the large populations to be surveyed, sociocultural diversities of communities along with ensuring quality work were critical. Hence, it was decided that a staggered approach of phase-wise implementation be adopted to achieve the desired objectives. The committee recommended the following that were incorporated into the Master Protocol that was approved by the NTAG and the MoHFW.

- Study be implemented in 12 states of India (where preparatory work was already in progress) in the present phase
- Include a sample of adolescents in 13 – 17 year age group on a pilot basis in select states
- Give due representation to urban areas with >1 million population in the sampling frame
- Test all instruments with due coverage of domains and components before data collection
- Adapt appropriate and reliable translation procedures
- Use appropriate technology to reduce manual errors, and
- Ensure quality control by adopting multiple strategies and technology in all data collection activities.

## NIMHANS Advisory Committee

The NMHS Advisory Committee (NAC) at NIMHANS included representatives from the Departments of Epidemiology / Public Health, Psychiatry, Child and Adolescent Psychiatry, Biostatistics, Clinical Psychology and Psychiatric Social Work. This committee enabled conceptualising the NMHS, supporting the design, implementing the pilot study as well as identifying study sites for the main survey. It was felt that a single core team would be ideal for the implementation of all activities to develop – coordinate– implement – monitor – supervise- ensure quality work – and timely completion. The NAC recommended that the Centre for Public Health (CPH) should be the nodal unit for all activities of the survey.

## NIMHANS - NMHS Study Team

The core team comprised of two epidemiologists / Public Health Specialist (GG-PI and GNR – Co-PI) and 2 Psychiatrists (MV-PI and VB-Co-PI). The Epi-team was involved in the day-to-day management of the entire project. With the overall responsibility of project implementation, this team led the project in all aspects of preparation – coordination – management – supervision – monitoring – data management – analysis – report development and all related activities.

The core team was ably supported by a team of Co-investigators from the Departments of Psychiatry, Biostatistics, Clinical Psychology and Psychiatric Social Work.

The faculty from the Department of Biostatistics provided timely and continuous support for sampling procedures, data review, statistical analysis, developing sample weightages and arriving at final estimates.

The NMHS- NIMHANS study team, in full and also in small groups, met on several occasions to finalise the study instruments, develop the training programme and modules and plan all other activities. The roles and responsibilities of different teams were enlisted, discussed and agreed upon during the project review meetings held on 8<sup>th</sup> Oct, 8<sup>th</sup> Nov and 17<sup>th</sup> Dec 2013. Accordingly, the following activities were undertaken by different teams. Epi team: develop – plan – coordinate - implement NMHS in a timely manner - develop sampling framework and methodology - finalise all instruments - ready tablets for use - coordinate with

state teams for implementation - develop micro - plans - finalize and provide required tablets for data collection - facilitate training - ensure timely data collection / transfer / quality control - review progress-trouble shooting field problems - monitoring of all field activities participating in all state meetings-data management-data analysis and development of reports. Mental Health team: Planning and implementation of NMHS - facilitate and supervise translation - support training-participate in monitoring activities and data review.

Team members from the Departments of Clinical Psychology and Social work supported and participated in the NMHS in a timely and continuous manner through review and feedback, translation of instruments, visits to study sites and participation in training and coordination with state teams.

## NIMHANS- NMHS Support Team

A NMHS project team was established to provide technical, operational and administrative day to day support for all activities. This dedicated team comprised of Project coordinators for mental health, survey monitoring, Information Technology (IT) support, data follow-up and other systems. This team maintained the NMHS server and also liaised with the state data collection teams for the upkeep of databases.

## NMHS State Teams (NST)

The NMHS State team (NST) in each of

the 12 states comprised a group of 3 to 4 investigators or more depending on the need. The team was a mix of mental health professionals (psychiatrists, social work professionals or psychologists) and public health or community medicine professionals.

The team was led by a psychiatrist serving as the Principal Investigator along with a public health / community medicine specialist as the Co-Principal Investigator. The two Principal Investigators (PI and Co-PI) took responsibility for all the activities related to the conduct of the NMHS in their respective state.

The two Principal Investigators were supported by their colleagues / fellow professionals as co-investigators for implementing the work regarding one or more technical components of the survey. Additional co-investigators were inducted depending on local circumstances, and were mental health professionals or public health / community medicine professionals. In addition, in 2 of the 4 states, where adolescent surveys were planned, the local child and adolescent psychiatrist was inducted as the Co – Principal Investigator (Adolescent survey).

The NMHS state team worked in close collaboration with the NMHS - NIMHANS team during the entire period of survey and their roles and responsibilities included:

- Obtaining the necessary administrative and ethical approvals and permissions in their respective state.
- Constituting the NMHS State Advisory Board to facilitate the conduct of the NMHS in the state.
- Appointing, training and re-training field data collectors (FDC) to ensure quality in the conduct of interviews.

- Participating in translation and all other preparatory activities.
- Undertaking data collection as specified in the Master Protocol and the Operational Guidelines (OG).
- Supervising data collection activities of field staff as per the OG.
- Maintaining high ethical standards during the conduct of the survey.
- Undertaking re-interviews on a 5% subsample as per the Operational Guidelines.
- Undertaking the study of the Mental Health Systems Assessment (MHSA) as per the Master Protocol and the Operational Guidelines.
- Ensuring quality control in data collection activities.
- Ensuring timely and secured transmission of data.
- Participating in fortnightly and periodical review meetings
- Financial Management
- Planning for local dissemination of results from the NMHS, and
- Developing a plan of action for strengthening mental health care in their respective states.

## NMHS State Advisory Board (NSAB)

Each of the study states set up an NSAB which included representatives from the State Department of Health and Family Welfare, State Directorate of Health Services (or Public Health as in the State of Tamil

Nadu), State Mental Health Programme Officer and State Mental Health Authority. Experienced academicians and researchers of repute were included as part of the State Advisory Board depending on local needs. While the PI of the study was the Convener, the senior most functionary was designated as the Chairperson.

The NSAB primarily facilitated the conduct of the NMHS in their respective states and in times of need, guided and advised the state team regarding the different components of the survey. In several of the states, they evolved as a support system and contributed to the completion of the State Mental Health Systems Assessment and the District Mental Health Systems Assessments.

## NMHS State Data Collection Team (NSDCT)

Each state, appointed a team of 8 – 10 field data collectors (FDC). One amongst them was identified and designated as the FDC supervisor and led the NSDCT as the study coordinator. The details of their qualifications, experience, nature of work, roles and responsibilities are given in later sections of this report. The field supervisor in addition to being involved in data collection coordinated the survey activities in the field and liaised between the NMHS state team, the data collection team and with the NIMHANS project team.

*The field staff opined that the training provided was very good and they learnt many things related to mental health. They felt that the survey was conducted as per the training and the survey was a good real life field experience especially for sociologists and social workers. The FDCs quoted that the use of digital data collection was exciting and smooth. They also mentioned the initial difficulty of following the order of interviews which was soon rectified. In addition, they had to overcome informing people about random selection of households and establishing their identity among households.*



## 6. Instruments for Epidemiological Surveys in Psychiatry

Epidemiological surveys in mental health lag behind other specialities owing to the difficulties encountered in defining, conceptualising and diagnosing cases. Community surveys are also hampered by significant stigma and secretiveness in revealing many aspects which impede the collection of reliable information (18).

The most significant aspect that will ensure comparability in survey findings across the world is the study design and the reliability and validity of the survey instruments used. In psychiatry, there is a significant objectivity and subjectivity involved in defining 'cases'. Historically, the earlier surveys were conducted by experts who defined 'cases' on their own, without clear-cut diagnostic criteria which led to significant variations leading to disparate findings with limited comparability. In response to this major concern, structured clinical interviews have become the norm in psychiatric epidemiological research. These interviews ensure precision and comparability of findings between different centres. In spite of this, inherent limitations in defining cases in epidemiological studies remain which include: (i) the definition of mental disorder which fails to provide a clear boundary between psychopathology and normality; (ii) the concepts 'clinical significance' and 'medical necessity' are difficult to operationalise and to assess reliably; and (iii) lay interviewers may not have the experience necessary to judge clinical significance (19,20).

Kapur & Issac (1980), identified that three major approaches have been employed as

standard practise to collect information in psychiatric epidemiological research (21).

The three major approaches are

- **Single Stage Screening**

Screening instruments are the most commonly used measures in psychiatry. They identify individuals likely to have psychopathology but do not lead to specific diagnostic measures to identify particular Axis I or Axis II disorders. Screening instruments can be self-reported, observer-rated, or informant rated. The selection of the screening instrument is based on multiple factors of which the most important are the underlying purpose and age group to which it is applied. Other factors considered include cultural relevance, validity, the time available and the rater's characteristics. Sensitivity rather than the specificity of the screening instrument is important in prevalence studies to avoid false negatives (22). These instruments are mostly easy to administer and take around 5-10 minutes for completion. They have an inherent advantage of being low cost especially when administered to large populations. But, the findings are often not valid or reliable as they are highly dependent on the co-operation of patients and their ability to understand either written or verbal instructions. The most widely used and validated instruments used in psychiatry for general psychopathology are the General Health Questionnaire (GHQ) (23,24) and the Symptom Check List - 90 Revised (SCL-90-R) (25) version.

- **Two-Stage sampling for assessing prevalence.**

In the two stage sampling technique, subjects are initially screened for a particular disorder using a standardised screening

instrument. All subjects who screen positive and a sub-group of subjects who have screened negative then undergo a detailed diagnostic assessment mostly by specialists. They are often used for small, localised epidemiological surveys to generate valid data. But given the paucity of specialist support in many regions, this technique has limited applicability in large country wide surveys.

- **Single Stage Diagnostic Assessment**

Most large surveys follow the system of single stage assessment by trained lay interviewers with valid structured instruments which help to arrive at a diagnosis. The first structured instrument used was the Present State Examination (PSE). Since then many instruments have been used which include: Diagnostic Interview Schedule (DIS), Composite International Diagnostic Interview (CIDI) and Mini International Neuropsychiatric Interview (MINI).

## Screening Instruments

### General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ) (23,24), was initially designed to assess for the presence of psychiatric distress related to general medical illnesses. The measure has since been widely used as a screening instrument that could lead to a formal assessment leading to a diagnosis. Subjects who score above the diagnostic threshold, according to the authors, have a 95% chance of fulfilling the criteria of a 'psychiatric case'.

The GHQ is a self-administered pen and pencil questionnaire. There are four versions of the GHQ: a 60-item, a 30-item, a 28-item and a 12-item version. Recently a 5 item

brief scale has also been developed. The scoring on the GHQ is on a Likert scale. The threshold scores are 12 for the GHQ-60, 4-5 for the GHQ-30/28 and 2-3 for the GHQ-12. It is easy to administer, has been widely used, is appropriate for all ages, is validated for screening and takes 3-15 minutes for administration (24).

### Symptom Check List -90 Revised (SCL-90-R)

Symptom Check List -90 Revised (SCL-90-R) (25) is intended for use as a quick screening instrument, as a measure of current psychopathology and a measure of outcome along nine common psychiatric symptom constructs. Somatisation, obsessive compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic-anxiety, paranoid ideation and psychoticism are the symptom constructs under SCL-90-R.

The 90 item, double sided, single page, self-administered questionnaire follows a format where respondents report on the amount of discomfort each item caused them during the past week including the current day. The questionnaire takes 12-20 minutes to complete and requires only a minimal amount of instruction to ensure validity. The SCL-90-R yields raw scores and T-values for each of the dimensions. The instrument is reliable and well validated.

## Diagnostic Assessment Instruments

### Present State Examination

The Present State Examination (PSE) (26) was the first clinical interview to be

adopted on an international basis. The PSE operationalised diagnostic criteria in a structured interview format. This helped in collaborative work across countries and formed the impetus for developing diagnostic criteria in psychiatry (27). The down-side of the PSE was that the diagnostic interviews were long and cumbersome and required extensive training for administration. These factors limited the wide-spread use of the instrument (28).

### **Diagnostic Interview Schedule (DIS)**

The Diagnostic Interview Schedule (DIS) (29) was developed for lay interviewers to assess current and lifetime psychiatric disorders according to DSM-III criteria for Epidemiological Catchment Area Study (ECA). It has undergone multiple revisions, with DIS-IV being the latest version published. It is a fully structured questionnaire designed to ascertain the presence or absence of major psychiatric disorders as outlined by the DSM-IV (30). The questionnaires are administered by trained lay interviewers who read verbatim, questions with a set of predetermined responses concerning symptoms arranged in diagnostic categories. The DIS begins with a demographic section, followed by 19 diagnostic modules. If a particular symptom is present, the interview proceeds through a flow chart model to determine the severity and duration of symptoms. The interviewers are allowed limited flexibility and encouraged to stick to the phrases described in the questionnaires. The various modules of the DIS-IV have been validated in multiple studies. The questionnaire can be completed in a single sitting of approximately 45 to 75 minutes.

### **Composite International Diagnostic Interview (CIDI)**

The CIDI was developed by the WHO in 1990 to overcome the major drawback of DIS which was exclusively based on the criteria of DSM (31). The CIDI (CIDI V2.1) included the diagnostic categories of ICD, so that major diagnostic classes of both ICD and DSM axis I diagnosis could be assessed(32). The CIDI has 11 diagnostic modules in addition to demographic information. There are screening questions followed by extensive follow-up questions. Like the DIS, all questions are to be read verbatim with the interviewers being allowed little flexibility in wording the questions. The instrument requires administration by trained mental health professionals. The latest version, CIDI-3, has a computer algorithm and screening questions as a separate section for convenience. The questionnaire takes an average of 120 minutes for administration

### **The Mini International Neuropsychiatric Interview (M.I.N.I.)**

The M.I.N.I. is a short structured diagnostic interview developed jointly by psychiatrists in Europe and America to diagnose psychiatric disorders according to ICD-10 and DSM-IV (33,34). The short structured interview fills the gaps between short screening instruments and detailed diagnostic assessments. It is easy to administer and takes only 15 minutes if the subject is 'well' and around 40 minutes if he/she is 'psychologically unwell'. The current version of the M.I.N.I. includes 17 Axis-1 disorders (which have at least 0.5% prevalence as per NCS/ECA survey), one Axis-2 personality disorder (anti-social personality disorder) and a suicidality module. M.I.N.I. 6.0 is the current version used.

The M.I.N.I. currently has multiple versions to be used in different settings: M.I.N.I. (Epidemiological studies); M.I.N.I. plus (Academic settings); M.I.N.I. Screen (Primary Care); M.I.N.I. Kid (Child/Adolescent population).

The instrument is well validated and has been translated into 30 languages to ensure adherence to the phenomenological accuracy of the questions across languages (28).

#### **Advantages of M.I.N.I.**

- Short and inexpensive
- Simple, clear and easy to administer
- Highly sensitive
- Specific
- Compatible with ICD-10 & DSM-IV
- Useful in clinical & population based settings
- Availability of software for use and administration on tablet .

- Short time to administer and complete interviews

## The M.I.N.I. for NMHS

M.I.N.I. has the inherent advantage of being an instrument with Indian language validated translations which could be administered to a large population with limited training to collect validated epidemiological data. The administration time for one subject is approximately 15 minutes, if there is no psychopathology. A computer generated version with appropriate coding means that analysis would not be difficult and diagnosis would be available. All these characteristics, in addition to the advantages described above, led to the choice of M.I.N.I. as the instrument for the National Mental Health Survey.

## 7. The Pilot Study

The NTAG in its first meeting (June 2013) recommended that the methodology, logistics and budget for the main study be finalised after the Pilot Study. Consequently, the NMHS Pilot study was undertaken in Kolar district, Karnataka, which is also the Public Health Observatory of the Centre for Public Health at NIMHANS during February to December 2014.

A well designed and properly implemented pilot study is often the foundation for a larger study. Pilot studies are often conducted to examine sampling techniques, test instruments, examine data collection steps, explore technology applications, obtain baseline estimates and to see the relevance

and feasibility of implementation. The pilot study also helps in planning the logistics and budget required for the main survey along with testing any predetermined hypothesis. Well implemented pilot studies bring to the fore the challenges and difficulties that help in the planning, design and implementation of the larger survey. In all pilot studies, especially in those for psychiatric epidemiological surveys, translations for cultural appropriateness and training for data collectors occupy centre stage.

The major objectives of the Pilot study under the NMHS were to understand the feasibility of the sampling design proposed for the main study, pilot the use of MINI and MINI KID

instruments and identify their applicability, test the feasibility of using handheld devices for data collection, obtain baseline estimates on the prevalence of mental disorders and related characteristics and to identify and finalise logistics including budgetary requirements, manpower and coordination mechanisms for the larger national survey. The salient findings from the pilot study are highlighted below.

1. Adequate preparatory work for the survey (translation of study instruments into Kannada, reliability exercise for MINI and other study instruments, field testing the hand held computer, obtaining administrative approvals, recruitment and training of field staff) was undertaken prior to the starting of the survey.
2. The ethics approval was obtained from NIMHANS IEC.
3. A stratified cluster sampling strategy was adopted using Probability Proportional to Size methodology. The survey was undertaken in all the 5 talukas (Community Development Blocks) covering urban and rural areas of the district from February to October 2014. A total of 50 clusters (urban -15 and rural - 35) were randomly drawn from the 2011 Census, and was proportional to the population size. The estimated sample size for the pilot study was 2,500 completed interviews.
4. The various instruments developed and used were socio-demographic information proforma, MINI adult / MINI Kid questionnaires, tobacco use and dependence questionnaire, screeners for epilepsy, intelligence deficiency and autism spectrum disorders, pathways to care, disability assessment schedule and socio-economic impact assessment.
5. All the study instruments were translated into Kannada, the local vernacular, using standard translation, back- translation protocols.
6. The survey team comprising of 6 Master's degree holders in the social sciences with prior experience in field data collection, were extensively trained over a 6-week period by a team drawn from the Epidemiology, Psychiatry and Clinical Psychology departments in class rooms, at the hospital and in the community on techniques of conducting the survey
7. Data collection was undertaken on handheld devices which were configured specifically for the purposes of the NMHS. Windows based tablets which specifically supported the MINI were used. An MOA was signed with M/s Medical Outcomes Systems which developed and maintained the software for MINI. M/s MOS also developed the software to capture information from other instruments needed for the NMHS pilot study.
8. Interviews in the community were undertaken using a door knock strategy and all eligible persons (4 years and above) within each household were contacted for a detailed interview.
9. Strict monitoring protocols were established and these included protocols for daily and weekly monitoring. Surprise on-field supervisory visits were periodically undertaken to ensure quality in data collection procedures.
10. Validation of the interviews was undertaken on a sub-sample comprising of all positive interviews and 10% of negative interviews.
11. A separate Mental Health Systems Assessment with standard

questionnaires was undertaken for the District of Kolar.

12. The referral network for managing the 'survey with service' included the training of local doctors in managing mental health problems and a special referral card facility established with the district psychiatrist and with NIMHANS.

A total of 3,190 individuals above 18 years were enumerated (average HH size of 4.7; 2,368 adults (> 18 year) as well as 701 children and adolescents in the age group of 4 – 17 years. The overall coverage was 90.2% at household level and 70.2% at the individual level (children and adolescents: 63.4% and adults: 74.7%). Thus, 2,420 persons (1768 adults: 792 males and 976 females and 472 children) were interviewed. The rates of completion of interviews between responders and non-responders were comparable except amongst females. The surveyed population was similar to the state population in socio-demographic characteristics. The overall prevalence of a current mental illness was 7.5% among those >18 years. Among adults, the rate was similar between the genders (males: 7.4% and females: 7.5%). However, even though differences were apparent in the rural and urban areas (7.8% v/s 6.7%, respectively) they were statistically not significant ( $p = 0.481$ ). Common Mental Disorders (CMD) including major depressive episodes and anxiety disorders had a greater share with a greater proportion of females being identified with these groups of disorders. Nearly one-fourth of the adult morbidity load was alcohol use. The alcohol dependence rates were greater amongst males and those in urban areas.

The mental health morbidity amongst children was 3.4%. The rates were greater amongst males than females (4.1% v/s 2.8%,

respectively) and those in rural areas than in urban areas (3.8% v/s 2.5%, respectively).

The pilot study experience indicated that the proposed methodology and study design was feasible and doable. The key implications for the main study were as follows:

- a. **Sampling:** The results of the pilot study helped refine the estimates for sample size calculation (prevalence, Intra-cluster Correlation Coefficient). A higher non-response rate of 30% had to be factored into the final sample size to obtain reliable estimates. Cluster sampling strategy using Probability proportion to size (PPS) methodology along with systematic sampling technique and interviewing of all eligible persons within the households was found to be the right choice.
- b. **Choice of study instruments:** The MINI as the key study instrument provided estimates of mental health morbidity of public health importance. However, certain modules of the MINI and the MINI-Kid were difficult for both the interviewer and the respondent. The pathways to care posed difficulties as respondents found it difficult to adequately respond. The Disability Assessment Schedule and the socio-economic burden questions were reported to be repetitive and difficult to comprehend. This brought to the fore the need for appropriate modifications and culturally relevant valid translation procedures. Hence, MINI modules were re-ordered (the suicidality module was shifted to the last), modules on anorexia and bulimia and anti-social personality disorders and organic medical conditions were excluded and the training sessions included more explanations, examples and interviews. The entire team reviewed results and in

consultation with Dr. David Sheehan, appropriate modifications were made in the final versions of the instruments.

- c. **Training:** The pilot study process underscored the critical need for high quality, periodic refresher training for data collectors both at the beginning and also during the entire survey. The induction training for the FDCs needed to be exhaustive and they had to be exposed to more number of practical sessions, mock and supervised interviews.
- d. **Technology:** Data collection using handheld devices was observed to have reduced the errors in data entry. Breakages, with respect to the tablets, were about 20%. To ensure better quality in the monitoring of data collection, there was a need for data transfer on a weekly basis. Over the survey period, tablets began functioning slowly and repeated charging cycles reduced the available power-on time in the field, hence there was a need to procure tablets with a higher configuration.

- e. **Logistics:** The need for a dedicated and committed state project and data collection team cannot be overemphasised. Dedicated transport and local accommodation for the field staff had to be specifically budgeted for. It was also found that, the critical determinant for the successful conduct of the survey was micro-planning for day to day work and periodic meetings of the entire study team.
- f. **Monitoring and Effective supervision:** Strict monitoring by dedicated teams at the national and state levels was found necessary to obtain reliable results.

Based on the lessons learnt during the Pilot study, the NMHS Master Protocol for the conduct of the main study was developed. The results of the Pilot study and the NMHS protocol were presented to the NTAG in its second meeting. Based on its recommendations the protocol was modified and discussed during the third meeting (Box 1).

## 8. The Preparatory Phase

### NMHS Master Protocol

A scientific protocol is a predefined written procedural method of conducting experiments and data collection. In the present context, the NMHS Master Protocol (NMP) was the set of written instructions and agreed upon document for the conduct of the National Mental Health Survey. In multisite studies, a master protocol ensures smooth implementation, uniformity in activities, and adherence to timeliness by all the participating teams. The NMHS Master

Protocol primarily outlined the defined objectives, different components, and delineated work flow primarily emphasising on 'what to do in the survey' with detailed specifications of each and every step.

**Process:** The development of the NMP was a process and evolved with each draft being reviewed, commented upon and scrutinised by subject and domain experts both within and outside NIMHANS. At various stages, the NTAG, the National Level Expert Panel, subject and domain experts, and NIMHANS Core Committee contributed to

different drafts of the document. During the initial stages, the draft document proposed several options – technical and operational, which were deliberated upon and the most suitable, appropriate, and scientific option(s) were retained and refined.

Keeping in mind the need for a participatory process in protocol development, pre-final versions of the NMP were circulated to the State teams seeking their observations. The same version was also discussed in detail during the first collaborators’ meeting in April 2015 with the Principal Investigators from all survey states and accepted as final. Except for budgetary changes based on the extent of work involved, the NST accepted that the NMP was feasible and possible.

**Contents:** The NMP is a 69-page document outlining different components and steps of the NMHS and has 20 sections. The introductory section identifies the role and importance of mental health information, sets out the need for a National Mental

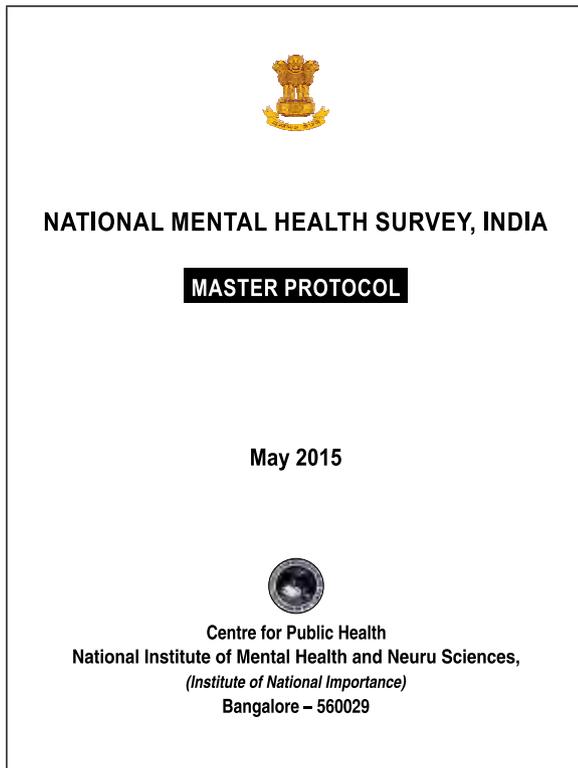
Health Survey, enumerates the scope and objectives for the NMHS and provides the framework for the expected outcomes. A brief overview of the Pilot study in Kolar (Objectives, methods and results) leads towards reviewing the implications of the pilot study findings and recommendations for the main study. This section also highlights the recommendations of the NTAG and the National Expert Panel for incorporation into the main study protocol.

The protocol for the main study listed the study sites (districts, talukas, Community Development Blocks, clusters, households and individuals) mentioned the methodology and reasons for their selection, delineated the sample size for each study site and described in detail the study design that needs to be adopted for the conduct of the main study. The section following this provided an overview of the study instruments. The methodology for translation of the study instruments was given to ensure their cultural appropriateness. The principles

Table 1: Comparison of limitations of previous mental health surveys and National Mental Health Survey, 2016

Sl.No	Previous surveys	Present survey
1	Undertaken in different places	12 states of India
2	Different time periods	Data collection in the same time period
3	Used different methodologies	Uniform methodology in all sites
4	Different sample size in each site	Same sample size in all sites
5	Different methods of sample selection	Identical methods employed to select sample
6	Different instruments in surveys	One set of common instruments
7	Different teams for data collection	Data collectors with similar background in all sites
8	Training details unclear	Uniformity in training for all members involved in data collection and at different levels
9	Supervision?	Fully supervised by a fixed team
10	Different prevalence rates	Identifies people who need services at the time of study based on current prevalence
11	Not linked to other issues	Linked to service development, human resources and service delivery
12	No state or national estimates	Extrapolations possible and state and pooled national estimates will be available

and process of translation and the 5 steps for translation, back-translation to ensure that there were no significant differences between the two versions were elucidated. The method of data collection using the hand held device, mechanism for data storage and transfer were detailed.



Project management at both NIMHANS and at the individual states was explained. Recognising that quality assurance is of the utmost importance, the NMP gives the principles and precepts for training the NST and the NSDCT and monitoring data collection activities. Training was devised as a comprehensive programme on the principle of see -- conduct -- practice -- supervise. This was described at three levels - training of trainers at NIMHANS, training of all PIs and CoPIs in the individual states and training of the field survey team at the individual state / sites. All data collection steps were highlighted and detailed in protocol. The section on monitoring delved into details on the monitoring mechanisms at the state level which apart from daily and

weekly monitoring, surprise checks, etc., also included 5% of random re-interviews by the NMHS state team. Thus, the combined monitoring (fortnightly review meetings at NIMHANS and monitoring at the state level) was to ensure good quality data under the NMHS. Apart from addressing ethical issues in the conduct of the NMHS, a plan of analysis, suggested dissemination and publication policy have been specifically included.

A separate section on the methodology of assessing the mental health resources and services at the state level is provided. Outlining the 3 phases of data collection / collation, it describes the process of finalising the study instrument whose broad components across 10 domains included assessment of resources, facilities, services and other activities undertaken within the state for mental health care.

The final sections delineate the timelines for the conduct of the NMHS and the budgetary allocation for the same. The approximate time frame for training was about 2 months, 6–8 months for field data collection, another 2 months for completing data collection related formalities and also for completing data collection for the Mental Health Systems Assessment.

## Ethics Approval

The final NMP was submitted to the NIMHANS Institutional Ethics Committee for approval. Before providing the final approval, the NIMHANS IEC sought and obtained clarifications on a few issues. It assured itself that adequate measures had been taken to maintain a safe and secure database. In view of this, a separate standalone database server with restricted

graded access security protocols dedicated exclusively to the NMHS was established at the Department of Epidemiology, NIMHANS.

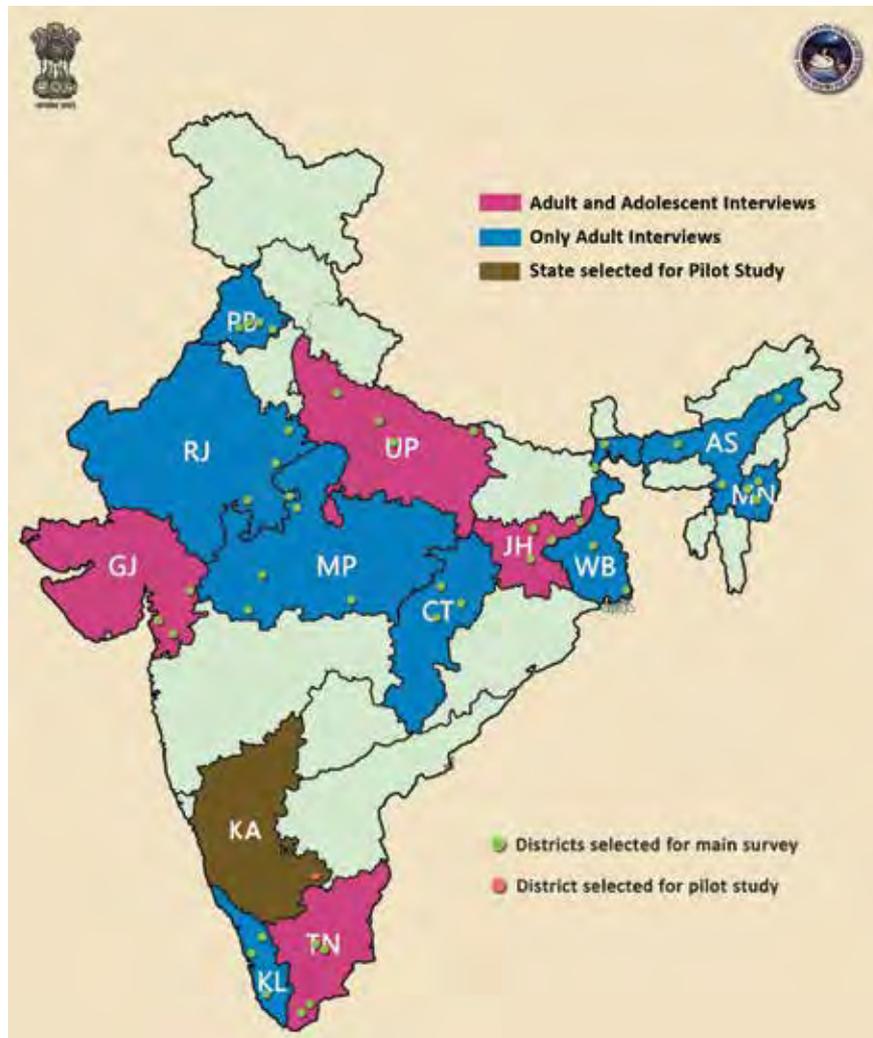
After deliberations, the NIMHANS IEC provided clearance for the NMP vide its letter No.NIMHANS/DO/97th IEC/2015 dated 29th April 2015.

In addition, each of the study sites, adopting the NMP, obtained separate IEC approval from their individual institutional ethical committees. As the NMHS in the State of Tamil Nadu was undertaken by the Office of the Nodal Officer of the NMHP in Tamil Nadu, the NIMHANS IEC was deemed valid.

## Selection of Study States

As mentioned earlier, national studies on mental health problems in India, using a uniform methodology are lacking. The key lessons from the Kolar Pilot study was the understanding that data collection for mental health morbidity is truly a sensitive matter at the community level and eliciting mental health problems / identifying mental disorders adopting a cold-calling, door knock strategy is indeed challenging. The use of hand held devices for data collection from a structured diagnostic instrument is a complex issue which needs highly trained personnel and strict monitoring

Figure 1: Indian states selected for NMHS - 2016



from an experienced state and central team for ensuring quality. Considering all these vexing issues, the NMHS was planned as a pragmatic endeavour to arrive at scientific estimates of mental health morbidity in the country. Maintaining scientific validity was of the utmost priority and compromises were to be minimal.

After due deliberations in the NTAG and with advise from the NIMHANS Advisory committee, the selection of study sites for Phase 1 of the NMHS were decided based on the following:

- (i) Representation for different geographical areas of India,
- (ii) Availability of interested and reliable partners (individuals and / or institutions) who would implement a population based epidemiological study as per defined protocols,
- (iii) Willingness of the partner to undertake the survey within the given parameters,
- (iv) Availability of MINI translated versions in the local languages (details given later),
- (v) Commitment for undertaking the survey within the given time-frame under the available budget

Keeping the need to generate pooled national and state estimates, the country was divided into 6 regions: North, South, East, West, Central and North-east. An exhaustive list of institutions (institutes of excellence in mental health, medical colleges with a psychiatry department) in different regions was prepared and deliberated in the NIMHANS Advisory Committee. This list included institutions who had responded positively to the invitation for participation in the NMHS by NIMHANS and the MoHFW. The final preference for Phase 1 of the NMHS selection of individual states / institutions within the

region / state was based on the availability of a comprehensive and experienced team which included (i) one or more psychiatrists either from a Centre of Excellence institution in Mental Health or local medical college or from within the state, (ii) Public Health / Community Medicine person from a national institute or a local medical college or an All India Institute of Medical Sciences (AIIMS) like institution (iii) ability of the local team to mentor / conduct the survey in their respective states. In case there were more than 2 states with competent teams, preference given was to the state where there is not much quality data regarding mental health morbidity. Thus, Phase 1 of the NMHS for India included the following states:

North	: Punjab and Uttar Pradesh,
South	: Tamil Nadu and Kerala,
East	: Jharkhand and West Bengal,
West	: Rajasthan and Gujarat,
Central	: Madhya Pradesh and Chhattisgarh and,
North-east	: Assam and Manipur.

## Selection of Study Centres and Principal Investigators (PIs)

One leading institution in each state was identified as the NMHS centre for the respective state. In each institution, the lead PI was identified and discussions were held in advance about their willingness to participate in the study. Thus, the state PIs were psychiatrists from a Centre for Excellence in Mental Health (7 states), local medical college (3 states) and from the office of the NMHP (1 state). In one state, as the single psychiatrist in the medical college there, resigned in the initial stages of the NMHS, the Community Medicine Co-PI

was re-designated as the PI and a local psychiatrist from an autonomous institution was inducted as the Co-PI.

In each state, the PI in consultation with the head of the institution and NIMHANS identified the Co-PI for the NMHS. The PI and Co-PI jointly identified other co-investigators and also co-opted other professionals / experts depending on local situations. The final list of the NMHS state teams is given at the beginning of this report.

Soon after selection, as a preparatory activity, an invitation to participate in the proposed survey was sent to all the 12 Institutes of excellence in mental health in the country (MoHFW DO No. V.1011/2012-PH-1 dated March 2014). The Director of NIMHANS and MoHFW also intimated the Principal Secretary, Health and Family Welfare or equivalent to all states where the NMHS was proposed seeking cooperation.

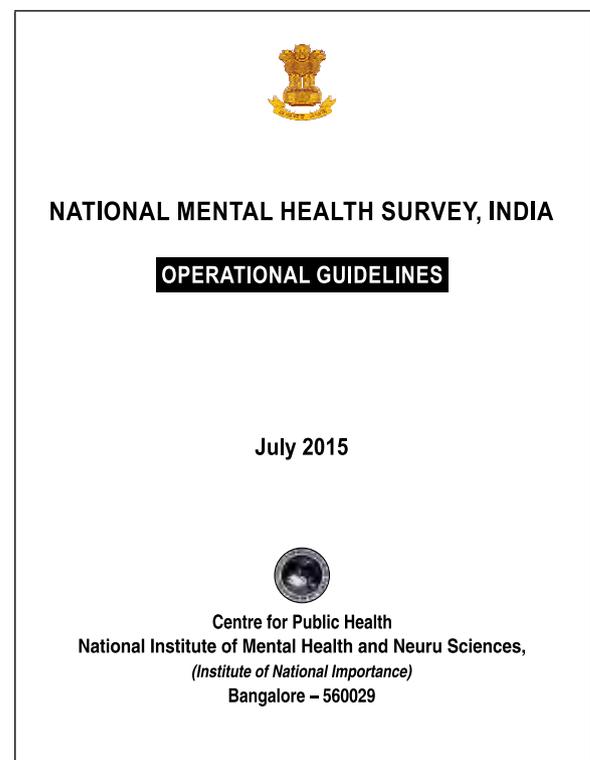
## Development of Operational Guidelines

The Operational Guidelines (OG) document for the conduct of the NMHS was developed as a companion document to the NMP and was intended as a step-by-step guide. While the Master protocol outlined components of 'What to do', the OG document specified 'How-to do'. The OG document supported and facilitated the smooth conduct of the National Mental Health Survey across 12 states of India and ensured that the different components of the survey were undertaken in a uniform manner.

The NMHS master protocol formed the basis of the NMHS OG document. The OG document clarified many of the queries

raised during the first National collaborators meet. To achieve its stated purpose, the language of the document was kept simple, easy to understand and follow, and the format designed was suitable for immediate application in the field like a hand book.

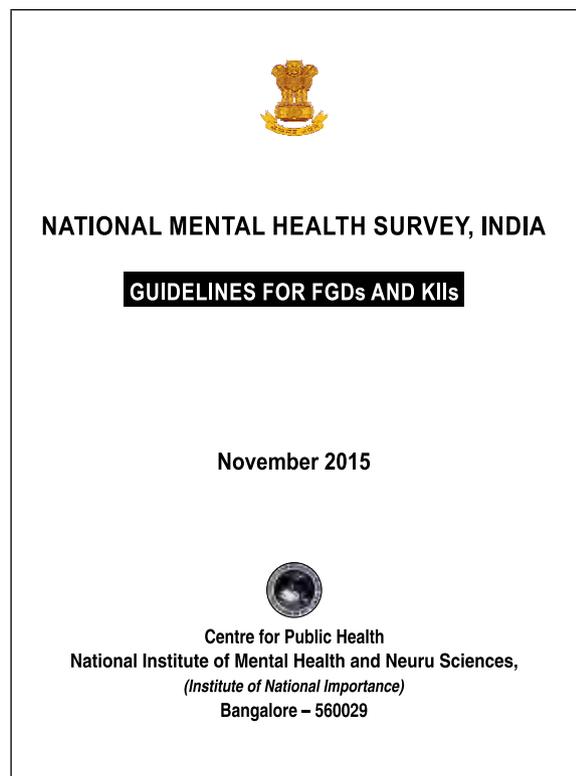
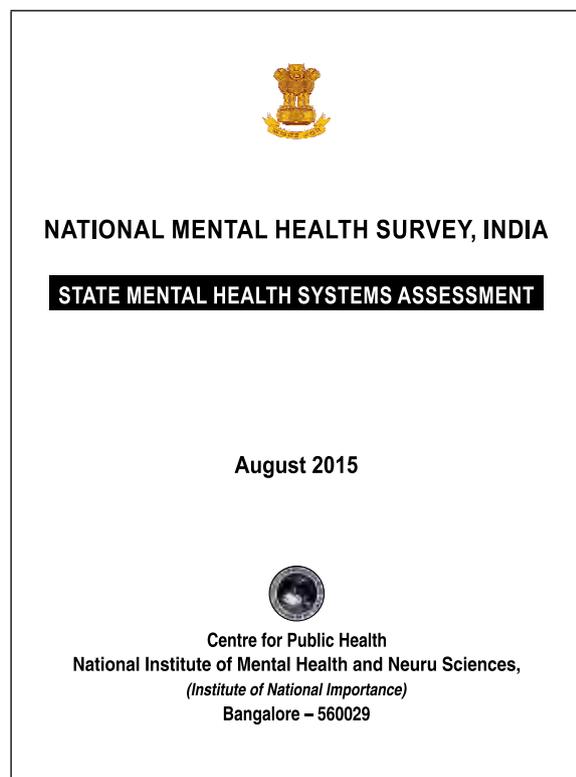
The NMHS 2015 – 16 used a combination of quantitative and qualitative methods for data gathering. The OG documents provided complete details of the need, process, contents of data collection for the entire survey. In all, there were three OG documents that were prepared during the period of the survey: 1) OG document 1 for data collection in the field 2) OG document 2 for planning–data collection and implementing the consensus meeting for finalising the SMHSA; 3) OG document 3 for undertaking Focussed Group Discussions (FGDs) and Key Informant Interviews (KII). The salient contents of OG 1 are provided below and details of the other 2 documents are provided in the appropriate sections of the report.



## Guidelines For Data Collection

Section A of the OG document provides general information about the survey, the burden of mental health and other issues related to seeking care viz., stigma, disability etc. and was a beginner's guide to mental health and epidemiological surveys, especially for FDCs.

Section B is the field work component and the first 3 sections provide overview of the NMHS, especially on project management and data collection methods. It outlines the survey sampling methodology, selection of field staff, recruitment and training procedures, coordination and support mechanisms and monitoring steps for their work. Subsequently, each section provides in-depth instructions on training methodology and the certification of FDCs (Sec 4). Sampling methodology including locating of households and interviewing individuals for data collection is dealt with in Section 5. The next section deals with preparatory activities that need to be undertaken (organisation of logistics for data collection). Section 7 lists steps in data collection using all instruments and Section 8, provides tips for conducting interviews. Section 9 is completing data collection in the clusters. Section 10 is supported by pictures– graphics– screenshots detailing the method of data collection on handheld devices. The sub-section on trouble shooting has FAQs. Section 11 illustrates data storage and transfer protocols at all levels of data collection. Routine record keeping, a pre-requisite for across-the-board monitoring is addressed in Sections 12 and 13. It may be noted that monitoring in the NMHS is a comprehensive effort involving field level monitoring on a daily and weekly basis,



re-interviews on a sub-sample for quality assurance and periodic review at the state level with the NIMHANS- NMHS team.

Section C is overview of the methodology that needs to be adopted for the MHSA. The three different phases of systems assessment are described. Phase 1 involves the collation of the necessary information from secondary data sources (Census 2011, state level administrative reports, annual reports, reports submitted to the Supreme Court monitoring committee on mental health care, NHRC, rural health statistics, etc.) In Phase 2, the state and the NIMHANS

teams jointly cross-checked and reviewed the available data for consistency and correctness. Completing the filling up of the format, development of indicators and scoring system, and consensus meetings at the state level took place in Phase 3.

The set of annexures of the OG document provided supplementary and support materials for the conduct of the survey.

## 9. NMHS Study instruments

### Household Information

The composition and socio-demographic details of the individuals within the household (HH) was documented adopting the standard methods used in epidemiological surveys.

The concept of a responsible respondent (*an adult member of the household, not necessarily the head of the household, who is aware of most of the socio-demographic details about the other members of the household*) was adopted to obtain details about the household and other family members. The general information and socio-demographic data recorded on the tablet was provided by this primary respondent on all individual family members.

Every HH was tagged with a unique ID (location code + HH number) assigned when obtaining details of the primary respondent which was subsequently linked with other members of the HH. Thus, all individuals who were enumerated had a unique ID (location code + HH number + Individual number).

For each HH contacted for interviewing, the cluster type (as rural, urban and metro), the period of residence, address (along with landmark), family composition, mobile number of family members, income from all sources (including whether family is classified as belonging to the below the poverty line strata) and the usual source of treatment when a family member falls sick were documented. Drop down menus (location codes, gender, relationship to the head of the HH, education, occupation, etc.), auto sum (HH income), self-generating numbers (with respect to individual members) were adopted wherever possible to eliminate data entry errors.

### Socio - Demographic Details

The socio-demographic variables included were kept to a minimum with the primary purpose of looking at the socio-demographic characteristics of the surveyed population and their relevance to mental health morbidity. The sociodemographic data

included completed age, gender, education, occupation, income (HH and individual income) and marital status.

Gender as reported by the respondent was recorded. There was a provision to record the third gender but the decision was based on the preference of the individual respondent. The option for education ranged from illiterate to professional and was as reported by the respondent; as was the marital status.

During the pilot study, the ICMR recommended options for classifying occupations (10 major categories and multiple subcategories) were used. The observations / experience of the field staff showed that it was untenable due its category-within-category strategy. Several alternatives reviewed included the classification under the Census 2011, National Classification of Occupations, the NFHS and classifications used in other multi-centric national surveys. Recognising that the classification of occupations in the Census 2011 would help in comparisons at the state and national levels and also correspond to the standards recommended by the Ministry of Health and Family Welfare for e-health records, the same was adopted after streamlining the occupation related variables under the Census 2011.

The census 2011 uses a set of eight questions to capture the economic activity (work) done by an individual in a given household. The 14 categories of occupations were created from this and included cultivator, agricultural labourer, employer, employee, single worker, family worker, other worker, student, household duties (included housewives), dependent, pensioner, other, not known and not applicable.

## Measuring Psychiatric Morbidity using MINI 6.0

Measuring mental morbidity is complex and challenging due to a variety of reasons. What is defined as a 'mental disorder' and how it can be appropriately assessed and classified have changed over the course of time, especially as the classificatory systems, notably the ICD-WHO and the DSM of the American Psychiatric Association have undergone regular revisions. While detailed clinical assessment by an experienced clinician after obtaining all possible historical and other information from multiple sources has been the recommended choice (gold standard) for establishing, diagnosing and classifying a mental disorder (especially for treatment purposes), it can be a cost-intensive and time consuming exercise at the field level in large population surveys. Such methods of assessment are not cost-effective and are not suitable for estimating the prevalence and patterns of mental disorders in the general population, given the likely variations that can occur even among trained psychiatrists.

The reasons for choosing MINI for NMHS are outlined in the section on diagnostic instruments of this report. The MINI(35) is a structured diagnostic interview instrument for screening and diagnosing mental disorders as per the DSM IV TR and ICD – 10. It comprises of screener questions followed by a set of closed ended questions with a Yes or No answer for each of the questions. While, it is primarily designed to meet the needs of a short and accurate psychiatric interview for use in both clinical and research settings, it has also been used in primary care settings and also with respect to specific diagnostic categories (major depressive disorder, Obsessive-Compulsive Disorder (OCD), Psychoses,

etc.). The NTAG and the National Expert Panel after deliberations approved the use of the MINI for the NMHS.

The MINI has separate versions for interviewing adults and children (less than 18 years of age referred to as MINI Kid). Version 6.0 (10/10/2010) was used for the NMHS. The MINI regular version was found suitable for the community based epidemiological survey as against MINIplus which is more suited for in-depth clinical interviews. The timeframe for diagnostic purposes is the current time; however, for Mania and psychotic disorders and Anti-Social Personality Disorders, it provides life-time prevalence. Additionally, it also picks up Recurrent Depressive Disorders.

The different modules of MINI and MINI Kid and their time frame for recording mental health morbidity are as below.

Each Module on the MINI starts with questions which are screener questions. If one or more questions are positive, detailed questions are asked and responses elicited. These questions compositely provide for making a diagnosis under DSM IV TR. Equivalent ICD classifications, as recommended by the authors of the MINI were used for purposes of the NMHS. The modules on anorexia nervosa, bulimia nervosa, anti-social personality disorder were dropped due to comprehension related issues. Considering the limited capability of the FDC to understand medical

MINI Adult 6.0		MINI Kid 6.0	
	Disorder Module		Disorder module
A	Major Depressive Disorder (2 weeks)	A	Major Depressive Disorder
B	Suicidality	B	Suicidality
C	Mania*	C	Dysthymia
D	Panic Disorder	D	Mania
E	Agoraphobia	E	Panic Disorder
F	Social Phobia	F	Agoraphobia
G	Obsessive Compulsive Disorder	G	Separation Anxiety Disorder
H	Post-Traumatic Stress Disorder	H	Social Phobia (Social Anxiety Disorder)
I	Alcohol Dependence / Alcohol Abuse	I	Specific Phobia
J	Drug Dependence / Drug Abuse	J	Obsessive Compulsive Disorder
K	Psychotic Disorder*	K	Post-Traumatic Stress Disorder
L	Anorexia (past 3 months)	L	Alcohol Abuse / Dependence
M	Bulimia (past 3 months)	M	Substance Abuse / Dependence (Non-Alcohol)
N	Generalized Anxiety Disorder	N	Tourette’s Disorder
O	Medical Organic Drug cause ruled out	O	ADHD
P	Antisocial Personality Disorder**	P	Conduct Disorder
		Q	Oppositional Defiant Disorder
		R	Psychotic Disorders
		U	Generalized Anxiety Disorder
		V	Adjustment Disorders

Note: All Modules provide Current diagnosis, \* = Current with Life time, \*\* Only Life time

problems and the complications of health problems, the Medical Organic drug rule out was also dropped. Administering the suicidality question as the second module posed a peculiar challenge, which witnessed greater non-cooperation from respondents, especially from children in the pilot study. Hence the module on suicidality was shifted to the end of the interview on mental health morbidity. The Drug list in the substance abuse / substance dependence module was modified to reflect the scenario in the Indian context.

## Measuring Psychiatric Morbidity Among Adolescents

Epidemiological studies of child and adolescent psychiatric disorders have most often followed a 2-stage approach. In the first stage, a screening checklist such as Child Behaviour Checklist (CBCL), Strengths and Difficulties Questionnaire (SDQ), or Rutter's questionnaire is used. Subjects who score above the cut-off in these screening checklists are administered a structured diagnostic instrument such as Kiddie-Sads-Present and Lifetime Version (K-SADS-PL) (Kiddie-SADS), Diagnostic Interview for Children and Adolescents (DICA), and DISC. The only major study that adapted a single stage diagnostic approach was the National Comorbidity Survey -Adolescent in the USA; a modified version of the Composite International Diagnostic Interview (CIDI) was used in this study to generate DSM-IV diagnoses.

There have been very few epidemiologic studies of child and adolescent psychiatric morbidity in India (36,37,38). All these studies have followed a 2-stage approach.

The second stage diagnostic evaluation has been based on either unstandardised clinical interviewing or with standardised diagnostic instruments. One such example is the ICMR task force study of child psychiatric epidemiology in which NIMHANS (20) and King George's Medical University (KGMC) Lucknow were the centres. Child Behavior Checklist (CBCL) was used in the first stage screening followed by second stage diagnostic evaluation by DISC- both the child and parent versions.

The MINI-KID is a short structured diagnostic instrument and is known to have good reliability and validity in children and adolescents (39). MINI-KID can be administered for the 6-17 year age group and the complete interview usually takes 25-30 minutes. The MINI-KID has also been used in several epidemiological and clinical studies of child and adolescent psychiatric morbidity (40-46). The MINI-KID has several advantages over other available screening instruments like CBCL, Strengths and Difficulties Questionnaire (SDQ), etc. and structured diagnostic schedules like Diagnostic Interview Schedule for Children (DISC), Child and Adolescent Psychiatry Assessment (CAPA), Developmental and Wellbeing Assessment (DAWBA) etc. These advantages include:

- a) suited for single stage epidemiological surveys
- b) diagnosis as per DSM-IV
- c) less time consuming than other structured diagnostic schedules
- d) good reliability and validity as well as sensitivity and specificity
- e) training of interviewers is relatively easy compared to other structured diagnostic schedules

During the NMHS pilot study, the MINI Kid was administered to all children above 4 years of age. A review of field interviews and documented responses showed that there is a greater challenge in administration. Based on the experience of administering MINI during the Pilot study, discussions were held with Prof David Sheehan. After detailed deliberation with the NTAG, it was decided to restrict the administration of the MINI to 13 - 17 year olds and also undertake this part of the NMHS on a pilot basis.

*Both the MINI and MINIKID provide a computer generated diagnosis based on an algorithm that is in accordance with DSM IVTR and equivalent ICD 10 classifications (47). In addition they provide lifetime and current prevalence of the disorders and are discussed in the plan of analysis section.*

## Tobacco Use Questions

Enquiry into tobacco use was not part of the MINI modules. Considering the importance and extent of tobacco use and its dependence as a public health problem, a new module was included. The tobacco use module is an expansion and adaptation of the original Fagerström Nicotine Dependence Scale (48) and includes both types of tobacco use: smoking and smokeless varieties. After the initial screener question, those who reported tobacco use answered questions related to the quantum of use, age at first use, regularity of use, expenses incurred for using tobacco and most importantly, the dependency related questions such as early morning use, difficulty in refraining use, use during waking hours and use during sickness. Tobacco abuse and dependence are rated on a scale of 0 to 1 or 0 to 5 depending of the question. The sum of scores indicated a low risk, moderate risk or significant risk of dependence.

## Screening for Epilepsy

Epilepsy is a neurological disorder which occurs due to abnormal and excessive brain cell activity and has been included under the National Mental Health Programme, for both operational and technical reasons. In accordance with the recommendations of the NTAG, it was decided to examine the epilepsy prevalence using a reliable and valid instrument based on predefined criteria.

Epilepsy can be of several types. However, Generalized Tonic Clonic Seizures (GTCS) which constitute nearly two-thirds of the cases are more common and can be easily recognised. Hence, it was felt that a screener would be able to tap and identify probable persons with epilepsy.

The South East Asia Regional Office of the World Health Organization recommended questionnaire, which provides an algorithm for screening persons with Generalized tonic-clonic Seizures in the community was used to estimate the prevalence under the NMHS (49). A person who answers positively to a history of two episodes of jerking or rigidity of the limbs as well to four or more other questions would be identified as having GTCS. The criteria for assessment also include - incontinence during the episode, presence of injury especially tongue biting, frothing, occurrence of episode during sleep, being unconscious during the episode and absence of stress. While, frothing, injury, incontinence, loss of consciousness and tongue biting are highly specific to GTCSs, the absence of stress and its occurrence in sleep helps rule out the possibility of pseudo-seizures or non-epileptic seizures. The algorithm has reported high specificity and moderate sensitivity for GTCSs. The original report of the study in its pooled analysis revealed a sensitivity of 72.1% (65.2–78.1) and a specificity of 100%

(84.0–100.0) with the performance being similar in both sexes (49).

## Other Screeners

Diagnosis of ID and Autism Spectrum Disorder (ASD) needs many rule-outs as well as the administration of a detailed questionnaire and evaluation. As ID and ASD are not adequately covered in the MINI, a set of separate screener questions developed by NIMHANS was utilised. For adults, only the ID screener was administered as it was felt that the behaviours related to ASD would not be distinct at this age. Both the ID and the ASD screeners were administered to adolescents and it was noted that developing preliminary information based on screener questions would help future studies.

Based on the experience of the pilot study, it was decided that the questions need to be asked to one or more family members and then documented.

## Screening for Intellectual Disability (ID)

Intellectual Disability, referred to as mental retardation in earlier times, has been included under the mental health programme for programmatic purposes. Being a developmental disorder, it is not a mental health problem; however, because of co-morbidities, overlaps still exist.

The ID screener consisted of two questions, the response for which was recorded as either Yes or No, and probably yes was also recorded as Yes. A yes to any one of the two questions was considered to be screener positive ID.

- 1) Did the person appear backward, slow, dull, or markedly less intelligent in everything since childhood?

- 2) Did the person always have a difficulty in learning to do things that other individuals of his age did easily (for e.g., eating by oneself, dressing, bathing, toilet management)

## Screening for Autism Spectrum Disorder (ASD)

There have been several anecdotal reports of an increase in the burden of autism spectrum disorder but these have not been substantiated due to methodological issues concerning the diagnosis of ASD in population surveys.

The ASD screener consisted of three questions, the response for which was recorded as either a Yes or a No with “probably yes” also being recorded as Yes. A yes to any one of the three questions was considered to be screener positive for ASD.

- 1) Has the child always remained solitary and self-absorbed, with no interest in people
- 2) From early childhood, does the child not respond to name calling and / or does not respond when spoken to most of the time, though he /she can hear other sounds.
- 3) Does the child keep on repeating the same action or activity, such as body rocking, shaking his hands in front of his eyes, or repeatedly making the same meaningless sounds since early childhood?

## Defining Morbidity - the NMHS Criteria

The NMHS defined any respondent as morbid if he/she was

1. Positive for one or more modules of the MINI either on the ICD format or the DSM format.

2. Positive for significant dependence on the Tobacco use module.
3. Positive on the screener for Epilepsy, ID and ASD.

If the respondent was positive on any of the NMHS morbidity indicators, details of health treatment and care, socio-economic impact and disability were measured using specific questionnaires.

## Health Care Utilisation

The major concern of any health programme is providing appropriate, adequate, accessible and affordable health care services. During the Pilot study, the Pathways Interview Schedule (Encounter Form) developed by the WHO(50) was used to gather systematic information about the paths which people with mental illness follow in the course of their search for help, the duration spent at each node, symptoms which hasten the process of referral, decisions regarding care, (first decision, duration to seek care, first symptoms to seek care and to which care giver), referral and sources of care used by patients. The respondents found it difficult to systematically recall the source of care details sought and also other related aspects.

Hence, a health treatment and care seeking module was developed that documents information on the duration of problems, whether currently on treatment with a formal / trained health care provider, source of treatment (formal, informal and community care), duration between the onset of symptoms and consultation with a formal health care provider and the number of treatment providers seen. The details of the latest / most recent treatment provider, whether working in a public facility, distance needed to be travelled , duration of taking treatment and the approximate

amount of money spent for treatment were also documented.

## Disability Assessment

The WHO observes that 'disabilities' is an umbrella term, covering impairments, activity limitations, and participation restrictions resulting in restrictions on an individual's ability to participate in what is considered 'normal' in everyday society (51). Persons with mental health problems suffer from disabilities in a wide spectrum of human interactions ranging from the work-place to social, educational and other milieus. With the goal of the health care system being to bring back the individual to the broader framework of society, disability assessment under the NMHS was included as a major activity to plan, organise and implement appropriate programmes.

The generic assessment instrument developed by WHO (WHODAS 2.0) (51) to provide a standardised method for measuring health and disability across cultures was used during the pilot study. The 12 item schedule (WHODAS 2.0) included assessments for all types of disabilities and was non-specific for mental health with questions like - standing for long periods such as 30 minutes, learning a new task, problem in joining in community activities, concentrating on doing something for ten minutes, walking a long distance such as a kilometer, washing your whole body, getting dressed, etc. Thus, responses to several of the variables were difficult to record / could not be recorded at all; either because they were not applicable or were non-specific for mental health. Hence, the three item Sheehan Disability Scale was used (52).

The Sheehan Disability Scale (SDS) is a composite of three self- or interviewer-rated items designed to measure the extent

to which three major domains (work, social life, and family life) of an individual's life is impaired. The rating is to what extent 1) work, 2) social life or leisure activities, and 3) home life or family responsibilities are impaired by the person's illness on a 10-point visual analog scale or a five point Likert-like scale of - not at all, mildly, moderately, markedly, and extremely. This corresponds to 0, 1-3, 4-6, 7-9 and 10, respectively, on the visual analog scale. Thus, SDS was applicable to NMHS morbidity and importantly being generic to any illness it could be used to compare to other illnesses too.

## Socio-Economic Impact Of Illness

Emerging evidence points to a greater socio-economic loss due to health and mental health problems. While recognising that measuring socio-economic impact is a challenge in itself, there have been several methodologies attempted to arrive at proxy measures. Two broad approaches have been attempted; the first, involves calculating the number of days that the individual or the care giver has not been able to perform a specific role and the second, estimates (or guesstimates) the monetary loss for different sets of activities done (expenses for medicine, doctors consultation, investigations, travel, admission) or not done (not being able to go to work, etc.,). The NMHS adopted a very pragmatic approach, realising the difficulties in arriving at precise economic or monetary loss and only one generic question regarding overall monthly expense was included in the module on socio-economic impact.

There were difficulties in measuring disability due to mental health morbidity using WHODAS 2.0 (51). However, the last 3 of the 12 item questionnaire (H1 to

H3) provided a quantitative measure of the impact of illness. This was expanded further keeping in mind that a) care giving is an important activity in mental illness and b) stigma related to mental illness is a major concern and households with persons with a mental illness get socially isolated. Thus, after due deliberations, a further set of three questions were added.

Thus, the final set of 7 questions comprehensively assessed the socio-economic impact of illness and included subjective reporting of overall difficulties, the duration of these difficulties in the past 30 days, its impact on the carrying out of daily routine activities either for the respondent or other family members and the number of days the respondent missed family, social or leisure activities because of illness. While the subjective reporting used a Likert scoring pattern, the other questions provided a quantitative estimate of the impact at different reference points of time. This was necessitated as different time frames provide for the possibility of events to happen

- 1) Past month: inability to carry out daily work
- 2) Past 3 months: One or more family members missing work
- 3) Past 12 months: missing family, social or leisure activities

## Instruments for Qualitative Research

Despite progress in the measurement of mental health morbidity, problems are still aplenty. Persons with mental health problems are frequently discriminated against and there is both public stigma and self-stigma. As a consequence, there is often

a variation in the presenting and reporting of illnesses and morbidity. Hence, it is prudent and pragmatic to collate and/ or triangulate information from different sources adopting two or more methods of enquiry.

In the early phase of data collection for the NMHS, it was realised that despite the best efforts of the team, a few areas were difficult to capture in terms of the quantitative component of the survey. Hence, a small qualitative study component was devised to fill the gaps .

Qualitative research involves the collection, analysis and interpretation of data that is not easily reduced to numbers. Qualitative research methods like Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) supplement and complement the quantitative data obtained from surveys. As recommended by the experts and discussed with the state teams during review meetings, 4 – 5 FGDs / KIIs were conducted in each state; one in the state headquarters and 3 – 4 in the districts where data collection was undertaken. The six major areas of qualitative enquiry were

- A. Extent, nature and patterns of drug use and abuse
- B. Region/state/area specific and culturally defined mental health problems
- C. Extent, nature of homeless mentally ill
- D. Stigma towards mental problems
- E. Health care seeking pattern and,
- F. Barriers/ challenges to mental health care

### **A. Characteristics of drug use and abuse**

Due to the law, police, social stigma and other societal issues, use of illicit and

prescription drugs is often under reported in filed surveys. Through FGDs and KIIS, the following issues were identified and focused on to fill the gaps.

- Region/state/area specific substances that are used and abused
- Burden of substance abuse in the community
- Specific groups at risk for substance abuse
- Probable reasons for substance abuse
- Impact of substance abuse on the family and community
- Legal and societal issues related to such substances

### **B. Region/state/area specific mental health problems**

Culture-bound syndromes (CBS) are increasingly seen in different cultures and geographical regions. They encompass certain behavioral, affective, and cognitive manifestations which are deviant from the usual behavior of the individuals in a specific culture. To name a few, Dhat Syndrome (somatic, psychic and sexual symptoms attributed by the patient to the passing of whitish fluid, believed to be semen (Dhat) in urine), Koro (Sudden and intense anxiety that is seen among females that the nipples and vulva will recede into the body leading to death), Possession syndromes (conversion symptom attributed to be due to possession by a deity or goddess) & other dissociative disorders, Somatoform Disorders etc.,are prevalent in Indian society. These behaviors ultimately lead to distress, labeling and discrimination. Hence, capturing and addressing such CBS becomes important for closing the gap as they contribute to the hidden burden of mental health problems.

The following areas were identified for discussion under qualitative enquiry.

- Mental health problems not captured by MINI
- Area /culture specific mental health problems
- Burden of such mental health problems
- Distribution of such mental health problems in the state
- Specific groups at risk of such mental health problems
- Help-seeking pattern for such mental health problems

### C. Homeless mentally ill

Homelessness is both a cause and consequence of mental illness. It is estimated that nearly one third to one-half of homeless persons suffer from a diagnosable mental disorder (53,54). Homeless mentally ill (HMI) persons represent a highly vulnerable and socially disadvantaged population, deprived of even the basic minimal human rights. The Mental Health Bill (2016) (55) of India has provisions for the treatment and rehabilitation of homeless mentally ill (HMI) persons. However, effective plans to deliver services remain limited due to the scarcity of information on the extent, pattern, and characteristics of HMI. Areas of enquiry included are

- Burden of HMI (experiences and frequency of encounter)
- Community's response and support to HMI
- Nearby institutions/places available for HMI
- Roles and responsibilities of the legal/Police towards HMI

### D. Stigma towards mental health problems

People with mental health problems are challenged not only by their symptoms and disabilities but also with the stigma and discrimination that contribute largely to the hidden burden of the disease. As a result, people with mental illnesses do not disclose their problems to others, including at times to family members. Further, they are deprived of social opportunities that define quality life in several areas like housing, employment, marriage, help seeking, satisfactory health care, and affiliation with a diverse group of people. The following areas of enquiry were identified to explore mental health stigma to provide valuable information for mental health decision making.

- Community's belief/attitude towards people with mental health problems
- Stigma experiences (personal experience, observations, media)
- Derogatory terms used in mental illnesses
- Forms and impact of mental health stigma and discrimination
- Stigma related to mental health care

### E. Health care seeking pattern and barriers/ challenges to care

Many people with mental illnesses do not seek or delay seeking care. The reasons include not knowing where to go for help, cost, transportation, confidentiality, feeling like they can handle the problem on their own, belief that the treatment will not help, thinking the problem will resolve itself and fear of being hospitalised (56,57). Often, due to the lack of awareness or the absence of

easily accessible treatment facilities, the patient and the family members may prefer to approach alternative service providers. Depending on their availability and accessibility, these resources, may include a traditional faith healer, family doctor, counsellor, psychologist or a physician (58). The topics included for interviews were

- Common sources for mental health care seeking
- Common places providing informal mental health care services
- Mental health care seeking patterns of communities
- Factors influencing mental health care
- Barriers/ challenges to mental health care

## Translation of Study Instruments

After reviewing all study instruments used during the pilot study for their relevance, content and appropriateness, final revisions were undertaken for the national survey after making appropriate changes. The socio-demographic form, the questionnaire on tobacco use, epilepsy and screeners on intellectual disability and autism spectrum disorder, treatment and care, socio-economic impact and Sheehan's disability scale were translated into the different local languages of the individual states. The selected versions of the MINI- adult and kid were also identified for translation after making the final revisions based on pilot experiences.

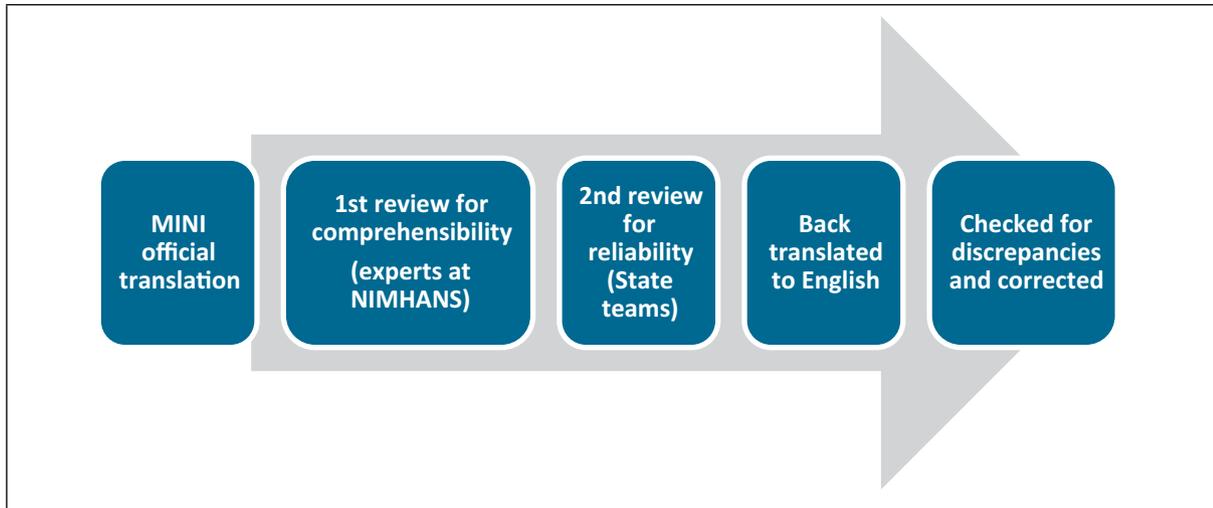
Post translation, they were reviewed by the individual state collaborators and translated back into English. This was checked for discrepancy in wording and phrases ensuring that there were no significant differences between the original and the back-translated versions. With reference

to the MINI schedules, the following steps were followed (Fig 2).

1. The official versions of MINI translations available in Hindi, Bengali, Tamil, Malayalam, Gujarati, Punjabi, (Kannada for the Pilot study) were reviewed for their appropriateness of translation especially with respect to their comprehensibility (being 'textual' and 'literal translation') by a team of experts at NIMHANS.
2. As a second step, the state study teams undertook a second review of the study instruments and made the necessary changes in the paper version of the MINI.
3. The list of required modifications was reviewed by the NIMHANS team and finalised during the national collaborators' meeting.
4. The final versions were checked for their comprehensiveness and approved
5. Field testing of the final version was undertaken
6. The final version was used for data collection on the tablets.
7. Only the Hindi translated version of MINI-KID was available which was translated into the Kannada, Tamil and Gujarati languages. The Kannada language version was used in the pilot study, whereas the other language versions have been used in the main phase of the NMHS in Tamil Nadu, Jharkhand, Uttar Pradesh and Gujarat.

The MINI instrument was also checked for inter-rater reliability based on interviews with actual patients and normal subjects in hospital settings by the respective state teams. Two experts rated the instrument independently blind to each other's rating. Details of the inter-rater reliability exercise of MINI are provided in detail in the section on training.

Figure 2: Process of translation of MINI instrument



## 10. Sampling Methodology

### Sample Size Estimation

The sample size for each state was calculated using standard methods based on the results and experience of the Pilot study and as advised and guided by experts at the national expert consultation. The sample size was computed with an absolute precision of 2% at 95% confidence level using the formula

$$\text{Sample size, } n = \frac{(Z^2 P(1-P))}{d^2}$$

Where, n is the sample size of a simple random sample, Z is the standard normal deviate, P is the prevalence, d is the allowable error or absolute precision. The final sample size was arrived at, by including 30% as non-response (based on pilot study experience) and a design effect of 3 since the sampling strategy was a stratified random sampling using probability proportionate to population size approach.

The previous reviews from India had reported a net prevalence of 5.8% to 7.3%

(2,3,5). The Pilot study under the NMHS provided the prevalence of any mental health morbidity among adults as 7.5% and with this assumption, the sample size required for a simple random sample was 666. The design effect was estimated to be 3 for the given Intra Cluster Correlation value of 0.05. Thus, (666\*3=) 1,998 or about 2,000 adults needed to be interviewed at each study site. To obtain the final sample size, a 30% non-response (2000/0.70= 2857) was included and further rounded off to 3000. Thus, in each study site, a minimum of 3000 adult respondents (>= 18 years) had to be contacted and interviewed.

The N-TAG recommended the surveying of adolescents aged 13 – 17 years on a pilot basis in four states of Gujarat, Tamil Nadu, Kerala and Jharkhand. To achieve this, it recommended the surveying of all adolescents (aged 13-17 years) in the same selected households as the adult survey. About 300 adolescents were expected to be included in each of the 4 states.

## Selection of Sample

For sampling under the NMHS, it was decided to include the 3 strata of rural, urban-non-metro and urban-metro in all the states. The number of clusters chosen was proportionate to the proportion of rural, urban metro and urban non-metro population at the state level. Further, the surveyed population included both adults and adolescents.

## Sample Size for Metro cities

In the 12 states where the adult survey was undertaken, the urban areas (as defined by the Census of India 2011) were stratified into non-metro areas and metro areas. Metro areas were considered as cities with a million plus population as per the 2011 census. The number of clusters chosen for each of this stratum was proportionate to the proportion of rural, urban metro and urban non-metro population at the state level.

## Sampling Design

The overall study design adopted was the multi-stage, stratified, random cluster sampling technique, with random selection based on Probability Proportionate to Size (PPS) at each stage (MSRS-PPS). Each named inhabited village as per Census 2011 constituted a rural cluster. The list of wards from Census 2011 constituted the urban and metro clusters. An overview of sampling design is provided in figure 3

## Sampling Design for States

Each selected state of India constituted the sampling frame and the districts within the

states constituted the Primary Sampling Units (PSU). Community Development Blocks (CDB) / Talukas constituted the Secondary Sampling Unit (SSU). The household was the Final Sampling Unit (FSU) and the individuals within the identified households formed the unit of analysis. This design was adapted based on the experience of the pilot study, the recommendations of the N-TAG and discussions with the expert group. Thus, in order to provide better representation, a 5 stage sampling was adopted (District → CDB / Taluka → Village / Ward → CEB → HH) in each state (Figure 2).

1) *Selection of Districts:* Poverty estimates at the state or district levels are based on the household consumer expenditure surveys conducted by the National Sample Survey (NSS). These surveys are normally conducted on a quinquennial (five yearly) basis and the latest consumer expenditure survey available for the year 2011-12 (68th round) was used. Based on the available evidence that socioeconomic status and poverty issues are closely related to mental illnesses, the district level poverty estimate was adopted to stratify the districts within the selected states.

The Planning commission periodically estimates the poverty line and the poverty ratio at the state level for each of the quinquennial (every 5 years) rounds based on the Tendulkar Committee's methodology. The Poverty line as per the Tendulkar methodology is expressed as Mean Per Capita Expenditure (MPCE) based on the Mixed Reference Period<sup>1</sup>. For the period 2011-12, the national poverty line, per capita was Rs 816 for rural areas and Rs. 1000 for urban areas. The corresponding state wise figures are shown in table 2. (Since district

<sup>1</sup> NSSO tabulates Monthly Per capita Consumer Expenditure (MPCE) on the basis of three different concepts: Uniform Reference Period (URP), Mixed Reference Period (MRP) and Modified Mixed Reference Period (MMRP)

price differentials were not available, it was assumed that consumers in all the districts within a state face the same prices. Thus, all the districts within a particular state would have the same poverty line, which is considered as the state poverty line. All members whose monthly per capita expenditure is below the poverty line are termed poor and the incidence of poverty (head count ratio) is percentage of poor in total. The table below provides poverty estimates for individual states where the National Mental Health Survey was conducted.

Table 2: State wise Poverty Lines and poverty incidence: 2011-12

States	Rural	Urban	Poverty Incidence
Punjab	1054	1155	8.23
Rajasthan	905	1002	14.78
Uttar Pradesh	768	941	29.50
Manipur	1118	1170	37.09
Assam	828	1008	32.50
West Bengal	783	981	20.43
Jharkhand	748	974	37.48
Chhattisgarh	738	849	40.19
Madhya Pradesh	771	897	31.98
Gujarat	932	1152	16.95
Kerala	1018	987	8.08
Tamil Nadu	880	937	11.71

1) Districts within each state were selected using the stratified random sampling technique. Stratification was based on the district level poverty estimates (Poverty Head Count Ratio). All the districts within the individual states were rank ordered and divided into three strata (upper third, middle third and lower third) based on poverty head count ratio and one district was randomly selected within each of the 3 strata.

**At the time of the field survey, 2 districts and 6 clusters were replaced due to sociopolitical tensions prevailing in the respective state as confirmed by the district authorities.**

2) *Selection of Talukas / CDB:* All talukas / CDBs within the district were listed and two CDBs / talukas were selected randomly within each identified district. Thus, a total of six talukas / CDBs were selected in each state.

3) *Selection of Clusters:*

A cluster was defined as a village in a rural area and an urban ward in an urban area. The numbers of urban and rural clusters within the selected CDB/ talukas were allocated proportional to the state urban – rural proportions and were drawn using the PPS strategy. Thus, in a particular state, the proportion of rural, urban metro and urban non-metro population was identified and the required number of rural, urban metro and urban non-metro clusters were selected based on their respective proportions for the state.

a. Rural clusters: Villages with a population >500 comprising at-least 1 CEB were listed and the requisite number of villages/rural clusters were selected randomly based on the PPS technique. For large villages (>5000 population), the village was geographically divided into two equal parts and one part was selected randomly to achieve the requisite sample size.

b. Urban clusters

i. Urban - Non metro clusters: The Urban wards within the randomly selected CDB/ taluka constituted the urban non-metro clusters. If the selected CDB/ taluka was a

million plus city metro as per the criteria of the census 2011, another urban area within the same CDB/ taluka was randomly selected for the urban non – metro sample.

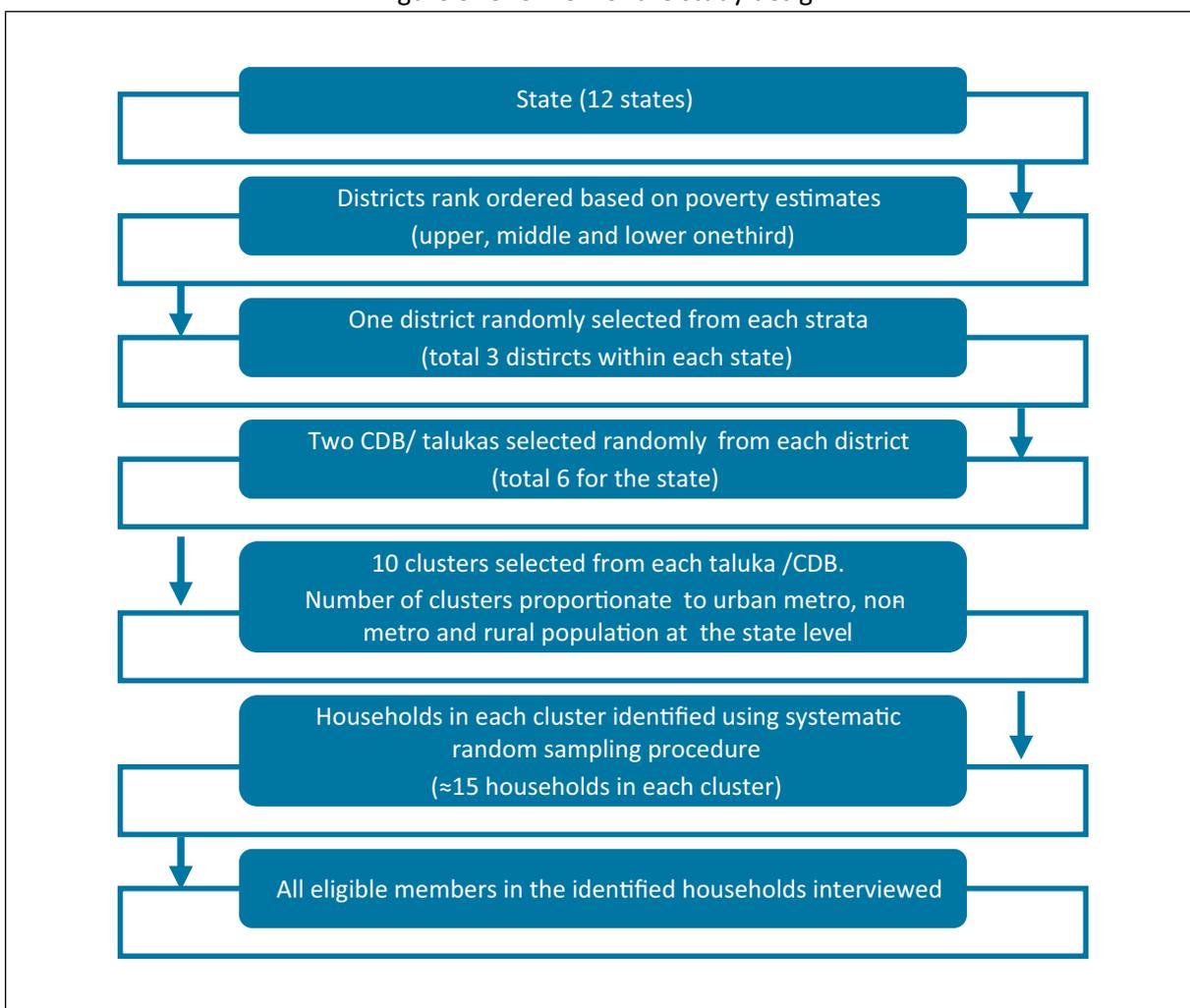
- ii. Urban – Metro clusters: A proportionate number of clusters were selected from at least one urban metro area within each state. If the urban metro was within the randomly identified CDB/ taluka, the same was selected. If there were no urban metros within the CDB/ taluka, the nearest urban metro within the same district or nearer to the already identified district within

the state was selected and the requisite number of clusters were selected randomly.

- 4) **Selection of CEBs:** In each of the urban areas (both metro and non-metro areas), wards were selected for the survey based on the PPS technique. If the ward was very large (>5000 population as per the census 2011) then one natural or administrative or revenue sub-division within the ward was selected and within the selected division one or more CEBs were randomly selected.

- 5) **Selection of households:** Households within the clusters were the final unit of selection for the conduct of the

Figure 3: Overview of the study design



NMHS. A systematic sampling strategy was used to identify households within the cluster (based on pilot study results and expert consultations). The Pilot study compared systematic sampling method with nearest door sampling (as used in coverage evaluation survey). This exercise revealed that there were no significant differences in the positivity rate of mental illnesses or of the response rates. However, the geographical coverage of the cluster was better in systematic sampling. Hence, the systematic sampling strategy was adopted.

## Household Selection Based on Sampling Interval

As the number of eligible individuals within a household is quite variable, the district level population of 18+ years as provided from the Census 2011 was used to calculate the household size.

The Sampling Interval (SI) was arrived at by dividing the number of HH in each cluster with the number of households needed which was based on the expected number of adults within each household.

A three step procedure was adapted for calculating the number of households to be surveyed in a given cluster and thus the sampling interval for each cluster.

Step 1: Calculating the Mean HH Size

$$\text{Mean HH size} = \frac{\text{Total population > 18 years in a district (rural/urban)}}{\text{Total No. Of HH (rural/urban)}}$$

The total population and total number of HH was as per the census of India 2011 for the district.

Step 2: Calculating the number of households to be surveyed in a cluster in order to get the requisite number of eligible individuals.

$$\text{No. of HH to be surveyed in a given cluster} = \frac{50}{\text{Mean HH size of eligible persons}}$$

Where, 50 was the minimum number of adult interviews that needed to be completed from each cluster.

Step 3: Calculating the Sampling Interval for a cluster

The sampling interval for the selection of households was arrived at by dividing the number of HH in each cluster with the number of households needed.

$$\text{Sampling Interval} = \frac{\text{No. of HH in the cluster}}{\text{No. of HH to be surveyed in a cluster}}$$

## House-listing and Enumeration exercise

Prior to the start of the survey, the house-listing exercise was undertaken in each cluster to implement the systematic sampling strategy. Adopting resource mapping techniques, uninhabited houses, commercial establishments, public places and others were excluded and a working map of each cluster was developed which showed the households that were available for interviews.

As part of the HH listing exercise, every road and every part of the village (starting from the first street / road selected randomly) including the hamlets, outgrowths, janata colonies, etc., was visited. A quick note was made as to whether a particular HH is habited (has one or more members living there) or is un-inhabited. For the inhabited houses, a unique running number was given

to the HH and a set of numbers within the street / road was marked on the local area map of the cluster developed by the data collection team.

### Locating the first HH

After selecting the first road for the survey, the first HH was identified using the method adopted in epidemiological surveys (as in Immunisation Coverage Evaluation Surveys) using the currency method. The households were enumerated starting with the number 1001. The first household to be surveyed in the first street was selected randomly. The random numbers for selection of the first household to be surveyed were sent to all the state teams before the start of the survey by the NIMHANS team.

### Locating the second HH

The second HH was first HH + Sampling interval on the right hand side of the first HH enumerated in house-listing. The third HH was second HH + SI on the right hand side of the second HH, thus following a circular manner till the requisite number of individuals (50 minimum) were selected.

For Ex: if the 1st randomly selected HH for data collection is HH no. 1003 and sampling interval is 23, then the 2nd HH for data collection would be HH NO. 1026 (1003+23), 3rd HH=1049 (1026 + 23), 4th=1072 (1049 + 23) and so on.

### Numbering of the HH

Each HH was given a unique non-duplicate 4-digit number. The HH was enumerated from the 1st randomly selected street and proceeded in a left to right direction in the

street and the next street was chosen in a circular manner (clockwise direction). The enumeration started from 1001 and went onwards upto 9999 (The 1st HH =1001, 2nd HH=1002 and so on). ‘

A few necessary modifications were made keeping in mind the scientific principles of conducting a random and representative survey, after understanding field situations. For ex: In the initial stages of the survey, especially in the states of Kerala and Gujarat, the house-listing exercise was taking more time in villages having dispersed houses as well as in villages in hilly regions. A review of the household list available at the local revenue office or the panchayat was found to be near complete. After a quick scrutiny and modifications, the same was adopted. As numbering of the HH and randomly selecting the HH was operationally taking a longer time, the first street in the cluster was selected randomly using the currency method and the first household in that street was selected using the pre-selected random first household list provided by NIMHANS.

### Selection of respondent

After locating and selecting the households for the survey, all resident members of the household were enumerated. A responsible member of the household (usually father, mother or any senior member who was familiar with all the other members of the household) was identified and interviewed to make a list of the residents of the household. Within this list all eligible members above 18 years (above 13 years in the 4 states where adolescents were included – Tamil Nadu, Gujarat, Uttar Pradesh and Jharkhand) in the HH were interviewed. Temporary visitors / visiting relatives who are not members of the household were excluded.

When the eligible respondent was available, the interview was conducted. In case an individual member was not available, two more visits were planned (with prior intimation and telephonic contact with the individual) based on the availability of the respondent. A particular respondent was declared a non-responder when he/she was not available even after the third visit.

In situations where there were more number of individuals in the last household even after the requisite sample size of 50 was obtained, all individuals within the household were interviewed. In situations where the requisite number of 50 individuals were not obtained in a particular cluster, then the survey was continued in the nearest cluster adopting the same strategy for selecting the first household.

*In conclusion, 3000 adults above 18 years of age ( and 300 adolescents in the 13 – 17 age group in 4 select states) were proposed to be included for the National Mental Health survey in each state. Thus, in total 36,000 adults and about 1200 adolescents drawn from 12 states were targeted for data collection purposes.*

**In summary, the sampling strategy (MSRS-PPS) for the National survey was Multi site (12 states), Representative (6 regions), Stratified (3 districts in each state), Random (2 CDB / Talukas in each district and 10 clusters in each), based on Population Proportional to Size (PPS strategy) and included and all individuals above 18 years (13+ years in 4 states) were included.**

## 11. Hand held devices for Data Collection

Traditionally, Paper and Pencil instruments (PAPI) have been used during the process of data collection. However, PAPI presents specific difficulties in different stages of data collection and entry. PAPI necessitates the printing, distribution and transportation of study instruments to and from the survey office to the point of data collection and the return of the same after the completion of interviews. This implies, cost of printing questionnaires (and in multiple languages in a country like India), transportation, storage and transfer. In addition, human errors during questionnaire administration and recording of responses, mistakes during data entry compound the problems in the subsequent analysis of the data. Thus, the PAPI method is more resource intensive especially in terms of time consumed for all these activities. It is better suited and

appropriate for studies with smaller sample sizes, lesser number of study sites and studies with minimal heterogeneity in the culture and language of the study subjects.

In recent times, Hand-Held Electronic Devices (HHEDs) have become more popular and are slowly replacing the PAPI method of data collection. Apart from reducing the manual errors in data entry, HHEDs have proven their utility in easy data transfer of data, better storage as well as less expensive. The different HHEDs include, laptops, note books, netbooks, tablets, etc., with the latest addition being the ubiquitous smart phones. The newer ones are not just technologically superior but have also multiplied and enhanced data collection processes. However, the problems associated with the HHED, include the specific configuration



of the devices, differing operating systems / software platforms, need for a dedicated software etc., with their battery capability being a critical handicap.

The NTAG advised and recommended the use of the HHED for data collection under the NMHS. The earlier experiences of NIMHANS in the use of such HHED for several projects was found helpful and reassuring in undertaking data collection.

### Pilot Study in Kolar

For the purposes of the Pilot study, 9 windows OS based Acer tablets were used for data collection. The Windows based platform was chosen as the MINI software was built on the same. Developing the same in the android platform would be more expensive and more importantly time, especially for validating the algorithm for generating psychiatric diagnoses with MINI.

The tablets were loaded with the MINI (adult and Kid) along with the customised, additional questionnaires identified for use in the NMHS. This permitted stand alone

data collection and transfer onto servers at NIMHANS. The field data collectors were trained in the use of tablets for the administration of the questionnaires. A detailed review of the use, advantages and problems faced is available in the Kolar Pilot study report.

A key learning from the Kolar Pilot study was the identification of problems and mechanisms to trouble shoot them. Some of the issues which were thus resolved included hardware related issues (like the need for a higher configuration of the tablets, bigger screen size and better battery backup) and methodology related issues (data storage and transfer). Breakages / malfunctions were estimated to be about 20%. Tablets were found to be easy to carry and handle and the experience in using them indicated that Tablet Assisted Personal Interviews (TAPIs) were faster, reliable, valid, cost-effective and were an easier way to monitor the data collection process.

The use of TAPIs also solved the vexing problem of the need for multiple language versions of the instruments. By providing flexibility to use multiple languages or choose the language of choice of the respondent, (each tablet had the option to conduct interviews in 7 languages) the validity of data collection could be further enhanced.

### Tablet Selection and Customisation

Based on experiences from the pilot study, a market survey was conducted and the available windows based tablets were listed and compared. A testing protocol involving 100, 200, 300 and 500 interviews were simulated and the data was uploaded.

The evaluation parameters were time taken to load the patient data, time taken to start the main interview, time taken to execute the interview process. In addition, the subjective impression of the field information officers was also recorded. Battery life, service centre availability and ease of handling was also compared and reviewed. Additional parameters included the ability of the Original Equipment Manufacturer (OEM) to supply the requisite number of tablets and being able to support updates.

Based on the assessments, Dell Venue 8 Pro 5000 Series (32 GB Windows 8.1) tablets with higher processor speed of 2GB ram was shortlisted for data collection in the NMHS survey. Detailed technical specifications of the tablet used are shown in the Table 3. After factoring breakages/ non-functionality, 128 Dell Venue 8 Pro 5000 Series (32 GB Windows 8.1) were procured.

Table 3: Technical specifications of hand held devices in NMHS

Feature	Specification
Model	Dell Venue Pro 8 #
Display	8.0 inch IPS Display with HD resolution (1280X800)
Processor	Intel® Atom™ processor Z3740D (2MB Cache, up to 1.8GHz Quad-Core)
Operating System	Windows 8.1 pro 64 bit
Hard Drive	32GB eMMC storage
Memory	2GB DDR3
Wireless	Yes
Battery	10 Whr
Power Adapter	Yes
Card Reader	Yes
Ports & Connectors	Micro USB
Weight	388g
Warranty	1 year

## Development and installing Software

M/s Medical Outcome Systems (MOS), are the sole global copyright holders (35) to administer the MINI. During the preparation for the Kolar Pilot study, a specific Memorandum of Agreement was signed with M/s MOS for the conduct of the NMHS. Further, M/s MOS agreed to integrate additional questionnaires (Socio-demographic, ID / ASD screener, Epilepsy screener, Tobacco use questionnaire, Health care seeking, Socio-economic impact assessment and Disability assessment) into the MINI package and also provide technical assistance to trouble shoot software related problems (Level 2 support). Frequent on-line meetings were held to finalise all the components of the software. Graded access controlled security features were built into the functionality which permitted differential access to the study team, clinical re-interviewers, study coordinators, and FDCs.

## Field testing of Tablets

Several rounds of testing were undertaken to test the software and the performance of the hardware of the tablets. A trial demonstration was undertaken primarily to review the performance of the tablets with a loaded database under simulated field conditions. The demonstration field testing was conducted in the Department of Epidemiology, NIMHANS as well as in the NIMHANS Hospital and was undertaken at three different levels: faculty, field staff and technical staff.

## Training in the use of Tablets

The requisite number (10 for States doing adult survey only and 12 for states doing adult and adolescent survey) of fully

loaded tablets were either couriered or hand-delivered to each state team. Care was taken to ensure that it reached before the 2<sup>nd</sup> week of training in all the 12 states to enable the FDCs to use the tablets during the training process. The training involved demonstration, familiarisation for use in classroom settings, followed by use in hospital settings and later in community settings (described in the Training section in detail). Clarifications regarding the use of the tablet were also provided at every stage by the dedicated NMHS IT team.

*Previously,  
I had collected data on  
paper and pencil. This was the first time  
I collected data on tablets and this has  
been an amazing experience for me.  
- an FDC.*

### Advantages of the use of TAPI

- **Improvement in the quality of data collection:** Validity and reliability are vital quality parameters in the data collection process. The order and flow of each item/module in the NMHS study instrument was dependent on the individual's response to the earlier item. The correct response - guided skipping and appearance of subsequent items is vital to arrive at the correct diagnosis of the psychiatric disorder in the interviewed subjects.

The application of 'skip' commands and the programmed flow to subsequent items/modules based on the response to earlier items eliminated errors pertaining to the order of the interview process. The field staff did not have to remember, pay attention to and comply with various **SKIP** commands

within each questionnaire as these were automated in the TAPI method. This improved the accuracy of identifying psychiatric disorders in the interviewed person, thereby improving validity. This feature programmed appearance of items helped to standardise the interview process, thereby enhancing reliability as well.

- Reduction in the duplication of entries and the loss of data also contributed to increased reliability.
- It enabled data collection in low light settings, especially in rural areas where data collection was undertaken even during the evening hours.
- The use of Tablets drastically reduced the time taken for data entry and data transfer. Data was saved on the tablet and subsequently transferred periodically without difficulty.
- Tablets were a novelty factor and their use by FDCs was likely to have evoked more curiosity among rural respondents which may have further contributed to the increased response to interviews.
- **Monitoring of data collection:** As every step of data collection in the tablet was logged, it enabled the monitoring of data collection and the tracing of errors back to its origin at the level of the individual and the FDCs. This aided in the rectification of data at the field level. This process would have been time consuming in the PAPI method.
- **Cost-benefit:** The review of evidence suggests that though the initial investment for tablet-based interviews was higher, the recurring costs per interview were lower. They may be costlier than paper for small samples but are more cost effective for large studies (59). They also avoided the loss of time

Table 4: Summary of advantages of PAPI versus TAPI in NMHS-India

	PAPI	TAPI
Errors in compliance to MINI algorithm	Expected.	Eliminated
Time per Interview	Consumes more time	Lesser
Time for data entry	Additional and substantial	Eliminated
Cost of data entry	Additional and Substantial	No additional cost
Data storage	Additional copies required.	Every interview stored and secure
Data transfer	Cumbersome	Secured
Interview in low light settings	Difficult	Possible
Duplication of entries	Manual errors	Possible due to system error
Interest Evoked among respondents	As usual	Better
Error identification and monitoring	Difficult	Easier
Additional Assets	No	Tablets reusable for other surveys

and resources involved in the printing of the study instrument in 7 different languages, data entry in 12 states; not to mention the additional costs involved in data collection.

- **Logistical advantages:** The use of TAPIs enabled the completion of data collection in about 6-8 months and the average duration of an interview was estimated to be between 30 – 40 minutes. This was possible due to the automated functioning of the software.

Time per interview and total interview duration would have been higher in PAPI resulting in a lesser number of interviews being completed per day, thereby prolonging the time and costs of data collection.

The problems identified in the main study and the trouble-shooting mechanisms for the same which were adopted are shown in the table 4.

## 12. Training for Data Collection

### 12.1 State Data Collection Teams

The NMHS state data collection team (NSDCT) consisted of the NMHS state team and the NMHS field data collection team. Guidelines were laid out in the Master

Protocol and the Operational Guidelines document for the recruitment of the state team as per the policies of their respective institutions.

In all, 104 Field Data Collectors (FDCs) (8-member teams in 8 states undertaking adult surveys and 10 member teams in 4 states for undertaking both adolescent

Table 5: Numbers and qualification of FDCs

State	No of FDCs	Mental Health background	Social work background	Others
Assam	9	4	4	1
Chhattisgarh	8	2	5	1
Gujarat	10	1	6	3
Jharkand	10	8	2	0
Kerala	8	4	3	1
Madhya Pradesh	8	6	1	1
Manipur	7	3	4	0
Punjab	8	3	4	1
Rajasthan	6	6	0	0
Tamil Nadu	10	2	7	1
Uttar Pradesh	10	2	8	0
West Bengal	7	2	4	1
<b>Total</b>	<b>101</b>	<b>43 (42.6%)</b>	<b>48(46.5%)</b>	<b>10(9.9%)</b>

Note: Information about those FDCs who left soon after training or did not completely participate for the entire duration of the Survey has been excluded.

and adult surveys) with a background in psychology / social work / sociology/ rural development or related areas were recruited for data collection purposes in 12 states. All of them had a completed master’s degree in their respective areas and had prior field data collection experience, able to liaise with different stakeholders and ability to communicate in local languages and dialects. Around 40% of them were from the mental health academic background (psychology or psychiatric social work) and 50% were from a social work background (Fig 4 and Table 5)

One amongst the FDCs was designated as the Study Coordinator. The Study Coordinator in addition to collecting data had the responsibility of planning, coordinating, supervising and monitoring all field activities on a day to day basis. The specific roles and responsibilities of FDCs and Study Coordinators is presented in the Table:

## 12.2 Training of state and field teams

### Overview of the Training Process

In mental health surveys, translation and training are two critical requirements to obtain valid and reliable data from the community. The translation process has been discussed earlier. Under the NMHS, the training of field staff was conducted in a systematic and rigorous manner to facilitate reliable field level data collection. The Kolar

Figure 4: Academic background of FDCs, n(%)

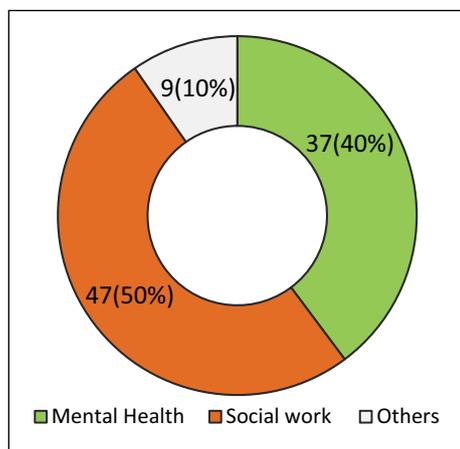


Table 6: Roles and responsibilities of FDCs and Study Coordinators

Study coordinator	Field Data Collector
<ol style="list-style-type: none"> <li>1. Liaising with state team on a regular basis and with local authorities</li> <li>2. Planning for field data collection on a week to week basis.</li> <li>3. Preparing daily, weekly and monthly reports as per specified formats</li> <li>4. Undertaking data collection in the field as per the protocol and training imparted</li> <li>5. Monitoring data collection on a daily basis and maintaining status logs of survey activity</li> <li>6. Ensuring data backup on a daily basis</li> <li>7. Data checking/ editing for completeness</li> <li>8. Other responsibilities as may be assigned from time to time by the PI and Co-PI</li> <li>9. Working with NIMHANS team for data editing purposes</li> <li>10. Following ethical practices</li> </ol>	<ol style="list-style-type: none"> <li>1. Planning for field data collection Undertaking data collection in the field as per the plan</li> <li>2. Ensure data backup on a daily basis</li> <li>3. Preparing daily and weekly reports and maintaining records as per specified formats</li> <li>4. Other responsibilities as assigned from time to time</li> <li>5. Following ethical practices</li> </ol>

Pilot Survey provided a firm basis and underscored the importance of adequate training for field staff.

Training was conducted at 3 levels, firstly at NIMHANS for the core team, secondly for all PIs –CoPIs of all selected states and thirdly for the state data collection teams. The main objective of the training was to build capacity of field data collectors to understand the objectives of the survey, components of data collection and to administer the study instruments in a specified and uniform manner.

### Training of Trainers

The core team at NIMHANS comprised of a team of epidemiologists and psychiatrists, with a long-standing experience in conducting population based surveys and the use of MINI and other instruments. Prior to the conceptualisation of training, the core team of NIMHANS had a series of on-

line discussions (Skype meetings) with Prof David Sheehan to seek further clarifications on the administration of the MINI at the field level as well as on diagnostic issues. The overall purpose was consensus building and updating of information regarding the MINI and its training to all core team members of NIMHANS. The central team was also trained in the use of all other instruments, the use of tablets and the completing of interviews based on the experience of the Pilot study.

### Training of State PIs and Co-PIs

The state teams comprising of mental health and public health professionals had sound knowledge and experience. However, for some, as this was a new activity, training was essential. Training during the first week of April 2015 was held for all state level collaborators at NIMHANS focusing on the

technical, administrative and ethical aspects of the NMHS. This also included planning for training of field data collectors and supervisors and the technicalities of training in MINI and all other instruments.

## Training at the State Level

This was undertaken by the Resource Persons for Training (RPT) Team put together by the State PI. The RPT was led by the PI of the project in the individual state and included selected staff and residents of the Departments of Psychiatry and Community medicine. Three to four persons among the RPT were designated as Core Trainers who along with the PI and Co-PI primarily conducted the training related activities at the state level. A training coordinator was identified from among the core trainers, and was responsible for the day to day conduct of the training. In addition, identified resource persons from the NIMHANS team visited the state during the process of training to provide technical support and also to participate in the certification of the process of training.

## Preparatory activities for training

Prior to training, the state team, including RPTs, familiarised themselves with all components of the survey including the NMHS study instruments / tools by reading through the NMHS Master Protocol and the Operational Guidelines document of the NMHS. The training team was also provided with PowerPoint presentations on specific psychiatric problems / disorders by the NIMHANS team

The training coordinator handled all the

logistical arrangements and facilitated the training. Each FDC was given a training kit before the start of the training which contained the NMHS objectives and process, ID cards, training package consisting of an FDC handbook, a CD which contained all the power point presentations and videos to be used in the training programme, handouts containing case vignettes, different study instruments, monitoring formats, stationery like writing pad, pen, notebook, one tablet for data collection and one water proof lap top backpack.

To make the FDCs and FDSs proficient in conducting the survey at the door step of respondents, each state's PI and Co-PI developed a training calendar for their respective state lasting over an 8 week period and strictly adhered to it (Table 7). In all 104 FDCs were trained to conduct the NMHS.

## The Training Process

The training was undertaken over a period of 7 to 8 weeks (8 weeks in states where adolescent and adult interviews were held) in both English and the local language and it adopted the principles of adult learning. It was participatory in nature and involved a mix of training methods: class room sessions - training in the hospital (observation and demonstration of interviews), and training in the community (both supervised and independent).

The training was imparted as per the training schedule (Table 7), starting with general discussions on the importance of surveys and moved to specific methods (selecting populations), techniques (using tablets), instruments (there were 10 instruments to be used) and the interview process. In the first two weeks, training was done using the

Paper and Pencil Instrument (PAPI) versions and the FDCs were trained with the tablet version from the third week onwards. As far as possible, the interview process especially was conducted in the local language to understand the terminologies and colloquial equivalents of the different mental health symptoms. FDCs were trained to interview patients and non-patients using the MINI and other instruments, both in hospital and community settings. At the end, each FDC was certified for the satisfactory completion of the training.

*The FDCs were unanimous in mentioning that the quality of training was very good. Training related experience was mixed with some saying the length of the training was adequate and some lengthy.  
- PI, State 1*

## Training Schema

1. Detailed training guidelines based on the precept of seeing-and-doing was developed in the beginning.
2. The focus of training was on exposing the FDC to real life situations through a combination of demonstration, simulation, mock, observation and supervision of live interviews. An NMHS resource person for training (RPT) panel was formed to provide adequate training opportunities for the FDCs.
3. The training conceptually relied on **SEE – PRACTICE – CONDUCT – REFINE** and the training schema facilitated this principle. FDCs would **SEE** the process of interviewing for the first three weeks, **PRACTISE** conducting interviews from the end of the third week till the 5th week – **CONDUCT them** independently under supervision in the 6<sup>th</sup> and 7<sup>th</sup> weeks and **REFINE** their skills in the 8<sup>th</sup> week.
4. The discussion sessions on mental disorders was interactive and backed up by relevant videos and power point presentations.
5. Training videos and PowerPoint presentations were developed that provided as many different examples as possible to circumvent the difficulty in comprehension of one or more specific questions in the administration of the MINI to the respondents.
6. PowerPoint presentations of the NMHS, psychiatric disorders, and videos were organised – day wise / session wise and pre-loaded so that every training day started on time. In addition, case demonstrations were also planned.
7. The training started with the paper and pencil format and later shifted to using hand held devices. The preloaded tablets sent from NIMHANS were used from the 3<sup>rd</sup> week of training.
8. Both unsupervised and supervised interviews were part of the training. For supervised training, a structured Discrepancy Resolution Form was adopted to enhance the feedback to the trainee and also to make it more objective.
9. The training involved 8 stages (Table 7) each approximately done in about 1 working week (6 days). In addition, refresher training programmes were conducted at each site during the course of data collection.
10. Thus, at the end of 8 weeks of training, each FDC had observed nearly 100 interviews and completed doing 40 interviews including 15 in the community. In all, as

a team, the FDCs would have observed, administered or interviewed a total of nearly 500 interviews or more collectively in each centre.

## The Training Schedule

A brief version of the training schedule, the detailed day to day schedule and the structured training week - wise, with defined study objectives/outcomes for each week is presented in Table 7 and timelines followed in Figure 5.

## Certifying the FDCs training

Adequacy of training for all the FDCs was considered quintessential for undertaking the NMHS. While the training calendar documented the purpose and process, evaluation of the competency and proficiency of the FDCs at the end of the training programme was done through a

process of certifying individual FDCs. The different methods followed included

**Training related evaluation:** Each FDC was assessed by RPTs for their understanding, involvement, interview skills and proficiency in conducting interviews. The RPT (preferably the PI or Co-I) in consultation with the training coordinator verified log books, independently interacted with FDCs and rated the overall performance of the FDCs as *good*, *average* or *poor*. Those falling in the categories of *average* or *poor* were provided additional skills training over 3 – 4 days based on the observations in the discrepancy resolution form.

**Objective assessment of the quality of interviews:** This was done at the community level by RPTs who observed interviews undertaken by each FDC at the field level using a 10 item checklist. The 10 item checklist form included – approach, obtaining consent, clarity in administering the MINI / MINI kid screener, other relevant sections of the

Figure 5: Training Calendar of NMHS

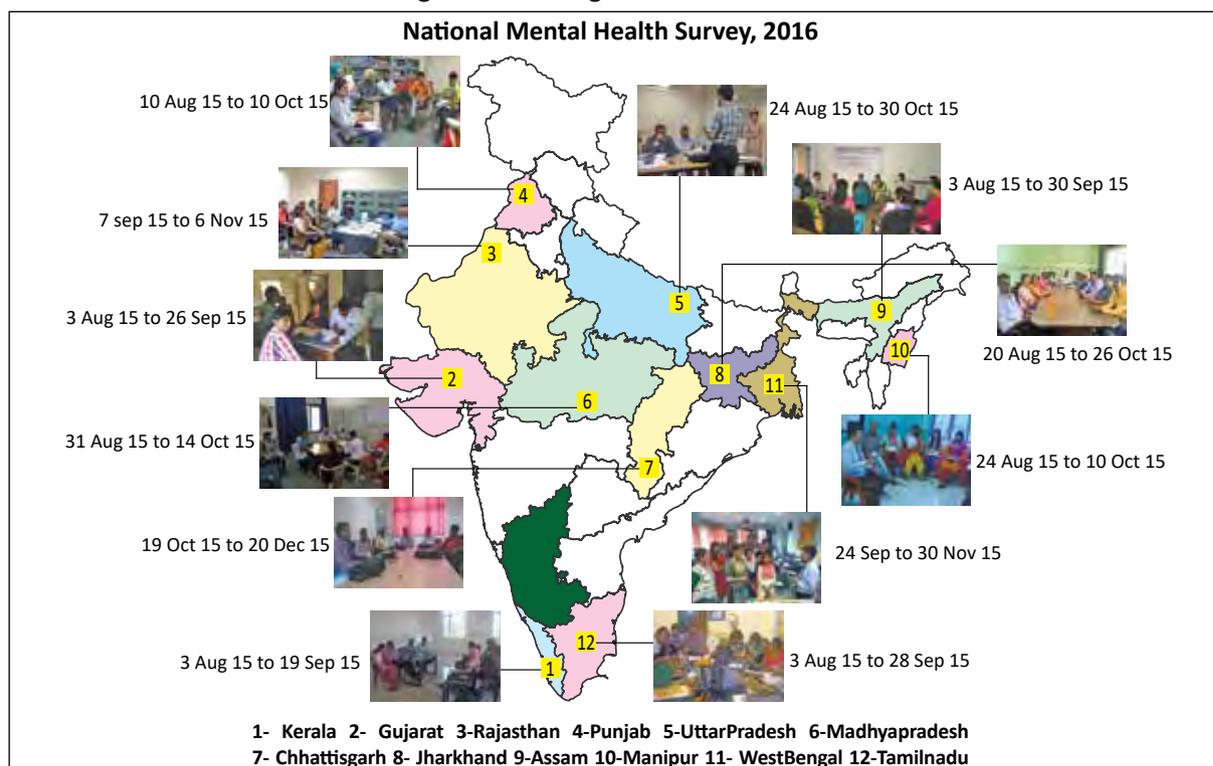


Table 7: Overview of Training

Stage / Week	Focus of training / Activity	Expected outcome
Stage 1: Week 1	ORIENTATION AND SENSITISATION Understanding mental health problems and their presentation and Orientation to NMHS and familiarity with methods and NMHS tools	The reasons for doing NMHS and its importance Study sites and different instruments being used in the survey and the purpose of each one Overall survey technique, procedures to be followed. Ethical, cultural and gender-related issues
Stage 2: Week 2	OBSERVATION AND DISCUSSION Observation of psychiatric interviews in the clinic or hospital as conducted by a trained mental health professional and case discussion	Observed 10 interviews in a routine clinical setting (at least 2 per day) Discussed details of all the observed cases and their presentation Learnt specific interview skills, familiarized themselves with skills required for conducting interviews Became comfortable with the interview process, terms and nomenclature used Understood the method of use of tablets
Stage 3: Week 3	DEMONSTRATION Demonstration of administering NMHS instruments in the hospital Attempt NMHS interviews	Administer the NMHS instruments, specifically MINI Ask questions appropriately, elaborate as necessary, frame and reframe questions within the boundaries of the MINI and other survey instruments Witnessed demonstration of 15 NMHS interviews with focus on MINI Observed simulated interviews being done on 5 volunteers by other FDCs and do 1 interview (simulated interview) on volunteers. Also become familiar in using tablets for NMHS
Stage 4: Week 4	ADMINISTERING NMHS INSTRUMENTS FDC would learn to administer NMHS instruments on both persons with and without mental illness	Gain an understanding of the NMHS interviews in more detail. Able to critique the 'partner's' interview objectively, while offering solutions Interact with patients and 'non-patients' in an appropriate and respectful manner and learn interview skills. Able to conduct the NMHS interview using tablets. Each FDCs should have done 2 supervised interviews and witnessed 15 supervised interviews. Each FDCs should have done 5 unsupervised interviews.
Stage 5: Week 5	GAINING PROFICIENCY IN INTERVIEWS Acquiring proficiency in administering NMHS instruments and being evaluated for the skills	Gain sufficient ability to independently conduct NMHS interviews in the hospital setting. Each FDCs should have done in all 15 independent interviews and 2 of these interviews (One case and other normal / person without mental illness) been evaluated at least once by the NMHS State Team member
Stage 6: Week 6	ADMINISTERING MINI and MINI KID Acquiring skills in interviewing adolescents and administering MINI Kid	Each FDC would have 6 completed interviews on MINI-KID (4 with patients and 2 with non-patients / normal / healthy volunteers). Gained proficiency in administering the MINI Kid module of the NMHS instruments
<p><b>The 6<sup>th</sup> week of training was for the four states where adolescent survey was being conducted; other states directly went onto the next stage of community based training for NMHS</b></p>		

Stage 7: Week 7	<p><b>TRAINING IN THE COMMUNITY</b></p> <p>Administration of NMHS instrument in the community</p>	<p>FDC is able to administer the NMHS instruments in the field.</p> <p>Each FDC would have completed 15(3 interviews per day) interviews in the community.</p>
Stage 8: Week 8	<p><b>MICROPLANNING MONITORING AND SUPERVISION</b></p> <p>Identify HH within clusters, and individuals within the HH, Initiating interview, and continued training to ensure completion of an interview including declaring non-responders and filling up of monitoring formats</p>	<p>FDC will gain enough competency to complete the NMHS interview in the field and report the field survey activities and fill up the daily monitoring formats and other field survey records</p>

NMHS, level of probing, obtaining unbiased response, entering information on tablets, providing referrals and closing the interview (fixing reappointments if required).

**Post Training Evaluation:** This aspect of the evaluation was done during the third week of data collection of the main survey wherein

each FDC was observed by a member of the RPT on the entire interview process at the door step of the respondent. The evaluation done at the end of the training in the community was repeated at this stage as well. A total of 30 interviews (35 interviews in the states doing the adolescent survey) was observed for such evaluation by the team of RPT.



### Box 2: Opinions of FDCs on training

- a. (It) was very interesting; during the two months, it was every day learning and hard work.
- b. Acquired new skills; got subject knowledge and as well as practical knowledge.
- c. Initially we had fear of doing interviews, but training helped solve them especially for suicide, alcohol, etc. among opposite gender,
- d. Training session provided us lots of experience and skills to tackle all types of respondents.
- e. Training was excellent.
- f. In our MSW course only a few cases were shown, here we got to see many types of cases.
- g. During training, contests were held to decide who makes minimum or no mistakes; such activities motivated us and we became more meticulous.

# 13. Data collection process

## Contacting Local Sources

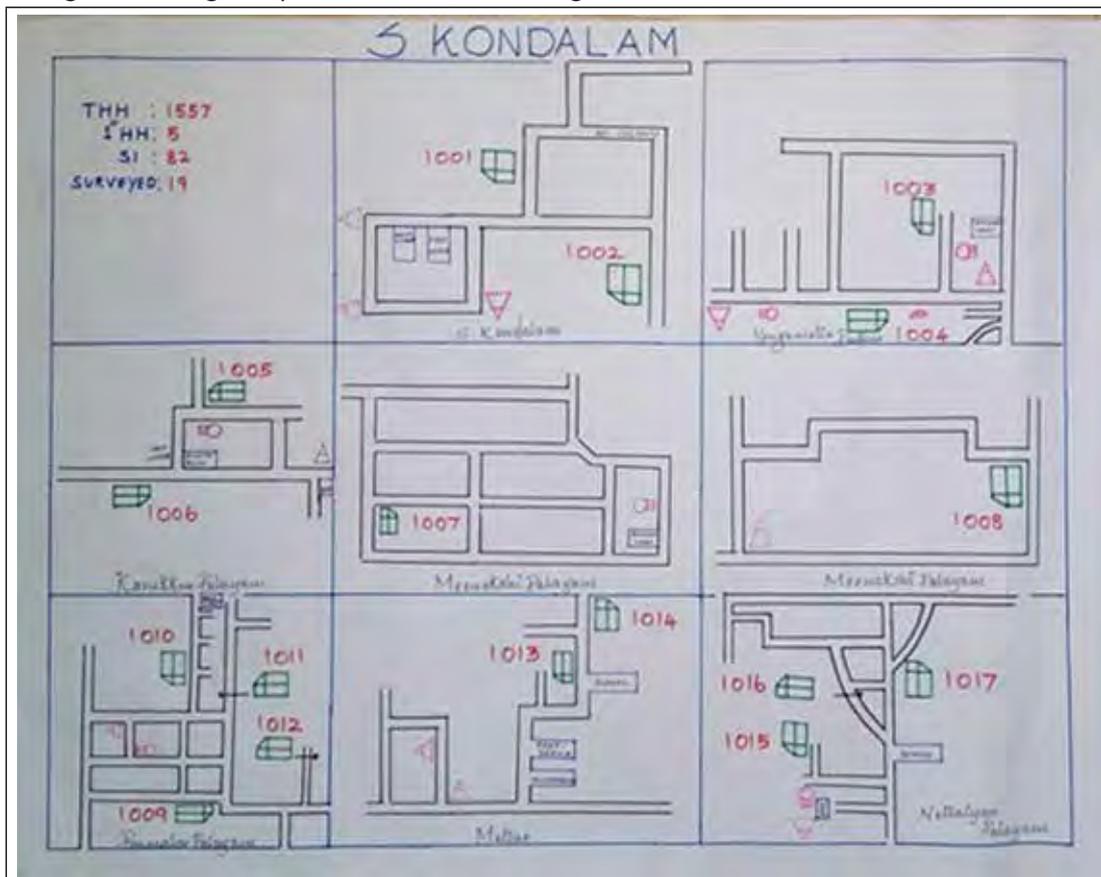
Before starting the survey in each cluster, the field team contacted the local officials (police, local health teams, anganwadis and others as required) and local leaders (urban/ local bodies) to inform them about the survey and sought their co-operation. Locally available resources like the panchayat list/voter list etc were examined and utilised for household listing activities. As and when required, assistance was obtained from the local personnel like ASHAs and Angawadi workers for mapping and household listing activities.

## Mapping and Enumerating Households

Households within the clusters were the final unit of selection and in each cluster 50 individuals were to be interviewed; an individual was always interviewed with respect to the HH in which he/she was staying.

After ascertaining and re-confirming the cluster boundaries with the help of the local resource person, the households were identified by listing all the dwelling units / structures in the selected cluster. Structures such as abandoned non-residential buildings,

Figure 6: Village Map: S.Kondalam, Tiruchengode taluka, Namakkal district, Tamil Nadu



commercial establishments, temporary settlements, hostels and PG accommodations were excluded from the listing.

All the households (HH) within each cluster were listed and numbered systematically using a unique non-duplicate 4 digit number starting with 1001 and a quick note was made whether a particular HH is habited (has one or more members living there) or un-inhabited. Un-inhabited HH found frequently in rural areas were used mainly as cattle sheds, godowns, pump houses, watch houses and temporary sheds for storing grains or other articles .

These mapping and HH listing activities which required nearly one day to complete helped the field team to comprehend the cluster and acquaint themselves with the different contours and parts of the cluster.

By the complete enumeration of HHs in each cluster, an unbiased sampling frame for systematic random sampling was ensured. The final list of habited households formed the sampling frame for systematic selection of representative households within each cluster.

*We tried to contact the respondent four times, but could not; so at 7 o'clock on that day as we were about to leave, this person calls up and said 'Sir, I am coming in 5 minutes, please take my interview'; I felt very happy with this response*  
 - an FDC

A cluster area map (sketch map) was developed using standard mapping



symbols. After completing the survey in each cluster, these cluster maps were updated with the households interviewed in the survey. Mapping all households was found to be an important step as it helped in locating – visiting – interviewing household members for both primary interviews and reinterviews and especially for revisits. An example of a local map is shown as figure

### Building rapport with the respondent

On reaching the identified HH and confirming that the period of residence was for more than 6 months, a primary respondent who could provide details about the other members within the HH was identified. This primary respondent was not necessarily the head of the household.

The interviewer's introduced themselves and mentioned the study objectives by showing the letter/identification card given by the state team. Assistance was obtained from the local leaders, ASHAs and Anganwadi worker for identifying and building rapport especially with hesitant primary respondents. The rapport building with the other respondents within the HH was established through the primary respondent. The primary respondent's first impression of the interviewer not only influenced his/her willingness to co-operate with the study, but also the co-operation of the other respondents in the HH. Where ever possible, male and female interviewers were assigned respondents of the same sex to ensure the comfort of the respondents while talking about sensitive topics.

Each of the interviewers had adopted the the following approaches and techniques in building and maintaining a rapport with the respondents:

- friendly manner
- having positive attitude and approach
- interviewing the respondent in private ( to the best possible extent)
- interviewing in local languages using colloquial words
- answering clearly and frankly to any questions from the respondent
- not making any false promises and assurances
- offering help at all possible times

### Selecting Respondents for Interview

After building a rapport with the primary respondent in a household, an informed consent was first sought from him/her. Then, socio-demographic information (SDI) on all the individual members who were ordinarily residing there for at least 6 months was obtained from the primary respondent and enlisted in Form 1. Students / adults who were staying away from the household due to reasons of study or work, visitors / visiting relatives who were not members of the household were excluded.

From the SDI, all the eligible members who were 18 years and above (13 and above years in the 4 states where adolescents are included – Tamil Nadu, Gujarat, Uttar Pradesh and Jharkhand) in the HH were selected for interviewing.

The interview was conducted, when the eligible respondent was available.

As far as possible, the first repeat visit was planned when the respondent was available at home or on a holiday. If the identified

respondent was not available even during the first repeat visit, then a second repeat visit was planned on a mutually convenient date and time. Even after the second repeat visit, if the individual was not available then he/she was declared a non-responder and the same was noted in Form 1.

Refusal and the reason for refusal were documented in Form 1, daily and weekly monitoring sheets and in the cluster summary form. (The details of various forms are discussed in the record keeping section.)

The survey was stopped for that particular cluster after the completion of the interviews of a minimum of 50 eligible respondents. If the target of 50 eligible respondent’s interviews could not be achieved in a cluster even after systematic random sampling, then the closest village / ward was selected to complete the requisite number of interviews using the same procedure that was followed in the previous cluster.

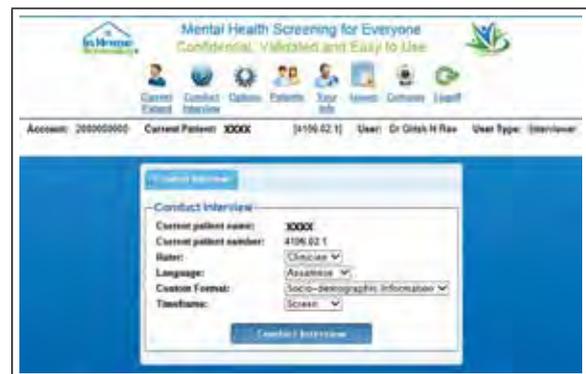
## Conducting an Interview

The flow of an interview is given in figure 7. Before initiating the interview for each adult member/adolescent , an informed consent was obtained ( In the case of an adolescent, his her consent as well as the consent of the parent/ guardian were separately taken).

Following the collection of SDI from the primary respondent, all the eligible members were interviewed using the MINI, Intellectual Disability (ID) & Autism Spectrum Disorders (ASD) screeners, Tobacco use questions, questions to identify persons with Epilepsy, Disability assessment, Health treatment and care and Socio-economic burden of illness questionnaires.

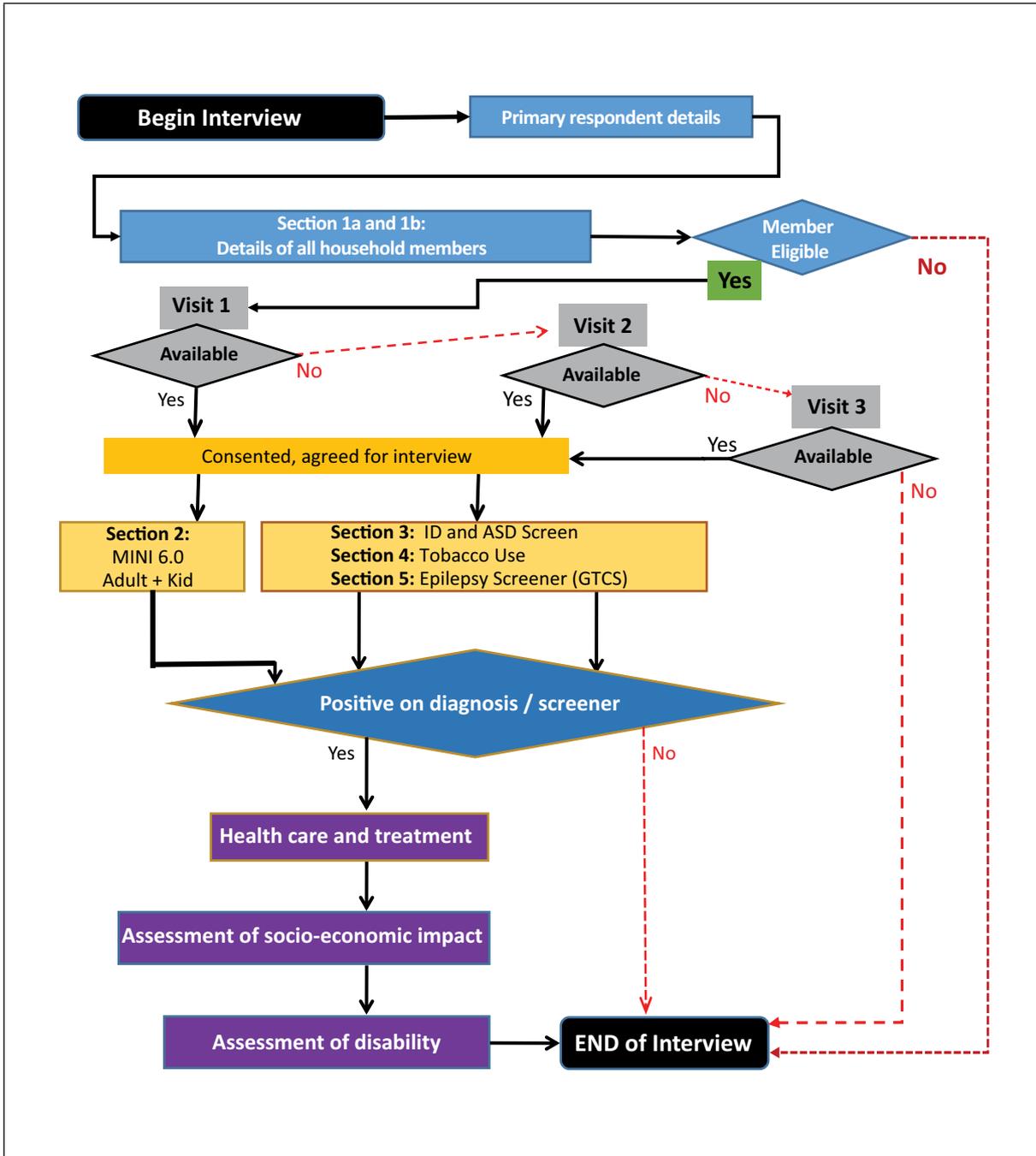


The FDC assigned a ten-digit unique Id number to the primary respondent. The first four digits of the unique Id represented the location code (state and cluster), the next four digits represented the household code assigned by the interviewer and the last two digits represented the individual code. By default, an individual code of 01 was assigned to the primary respondent. Next, the SDI of the HH was filled up by navigating to the ‘Patient’ button which listed the enrolled participants. The primary respondent in this case was selected as the current patient for interview. Next, the SDI was completed by navigating to the ‘Conduct Interview’ button and selecting the socio-demographic information from the drop down menu of the custom format.



The SDI questionnaire was shown after completing the entry in the above fields. The SDI was first entered onto the tablet

Figure 7: Flow of Interview



using the information from Form 1. The unique Id was assigned automatically to all the other members of the household in the chronological order of entry starting from individual code 02A. Due care was taken while filling the SDI in the tablet because the entry once made could not be modified.

The purpose of the SDI Questionnaire was to elicit information on the general

characteristics of the participants and their households. The SDI questionnaire has two sections 1a and 1b. Section 1a collected information on the cluster type, nearest landmark of the HH and also the auto-filled location code and HH code. Section 1b started with the collection of information on the period of residence in years and the address of the household.

## Socio-demographic details

Starting from the primary respondent, the name and relationship of a member to head of the household was noted down. The full name was elicited including the first name and surname (if any). For the relationship to the head of the household column, the member's relationship to the head of the household (not how the head was related to the member) was collected by selecting the appropriate options in the drop-down menu. The options in the drop-down menu were head of the household, husband, wife, son, daughter, father, mother, grandfather, grandmother, brother, sister, son-in-law, daughter-in-law, father-in-law, mother-in-law, other relatives.

After obtaining the SDI for all family members, details with regard to age (in completed years and using the local calendar method), gender, marital status, education, occupation, income, BPL card status were entered for each household member. Individuals below 18 years (below 13 years in 4 states) were not included for the NMHS interviews.

## Source of treatment

The most common source of treatment for any general medical condition was enquired in the survey, as this could also be the source of any mental health problem. If the respondent gave more than one answer, he / she was asked to mention the most common among them. The responses were then categorised and recorded using the options in the drop-down menu. Sometimes probing was used to place the response in the exact category.



The SDI was completed in the tablet was filled only once and none of the fields could be left blank.

## Conducting MINI interviews

The main interview was conducted by selecting the current patient with the '**Patient**' button. By default, the primary respondent was selected as the current patient and the main interview was conducted by navigating to the '**Conduct Interview**' button and selecting the '**Interview Adult**' from the drop down menu of the custom format. This took the interviewer to the MINI questionnaire page. The MINI for the NMHS is divided into 16 modules identified by the letters A-P, each corresponding to a diagnostic category. At the beginning of each diagnostic module, screening questions corresponding to the main criteria of the disorder were asked. The remaining questions of each diagnostic module were asked based on the positivity of the screener questions. If the screener was negative, the page was automatically shifted to the screening questions corresponding to the next module for further interviewing. This flow was controlled automatically through programmed skip patterns.

Interviewers were sensitive to the diversity of cultural beliefs during the administration of the questions and the rating of the responses. All the necessary questions were rated. The questions were read out without any modifications. The interviewer read the sentences in bold letters that indicated the time frame being studied as often as necessary. Only symptoms occurring during the time frame indicated were considered in the scoring of the responses. Examples of the symptom wherever provided in parentheses were read out to the patient to clarify the question. The interviewer also asked for examples and provided examples from the respondents when necessary, to ensure accurate coding. The rating for each question was done at the right hand- side of each question by entering the codes as Yes or No.

On the successful completion of the MINI interview, an interview summary with diagnosis was generated automatically through a programmed algorithm which was also stored automatically in the database.

## Conducting the Interviews for Other Disorders

Following the completion of the MINI interview, the respondents were interviewed for epilepsy, tobacco use, and intellectual disability (ID).

The interview on epilepsy was used to arrive at an algorithm diagnosis for identifying cases of Generalised Tonic-Clonic Seizures (GTCS) in the community. The interview began with the screener question which asked about the history of two or more episodes of jerking or rigidity of the limbs.

Many of the events would have happened in one episode, but not in others and almost never in all the episodes. The respondents were also reminded about past episodes. (The response was rated as 'yes' only if there was a history of two or more episodes. Entering 'yes' for the screener question would lead to another six confirmatory questions for a further interview).

If the screener question was negative, then the interview was shifted automatically to the ID screening questions. The ID screener consisted of two questions, the response for which was recorded as either 'yes' or 'No'; a probably yes answer was also recorded as 'yes'. The ID screener was considered positive, if the answer was YES to any of the above questions.

On the completion of the five questions on the ID & ASD screeners, the page would navigate automatically to the module on tobacco use. For those who reported positive for tobacco use, further questions were asked on the quantum of use, age at first use, regularity of use, and expenses incurred for using tobacco. For those who reported negative for tobacco use, the interview was stopped without moving to further questions.



After completing the tobacco use questionnaire, if the respondent was found to be negative for the whole of the above interviewed module, then the NMHS interview was concluded for that respondent and the NMHS interview for the next eligible respondent was initiated as described above. However, if the respondent was positive for any of the above interview questions, then further interviews were conducted to administer questionnaires on health seeking patterns, socio-economic impact and disability by selecting the third tab on the tablet.

## Health Treatment and Care

The purpose of this questionnaire was to document the health care seeking pattern, accessibility and cost of treatment for the illness identified through the interview. The interview recorded the following details: whether currently on treatment with a formal / trained health care provider, duration of problems, ranking of the source of treatment (multiple care providers) duration between onset of symptoms and consultation with a formal health care provider, number of treatment providers seen. The details of



the latest / most recent treatment provider, whether working in a public facility, referral sources, distance from the treatment facility, duration of treatment and the approximate amount of money spent on treatment were documented.

## Disability Assessment

The interview moved to the Disability Scale section, which was designed to measure the extent of impairment in the work, social life, and family life domains of the patient. The scale was rated by the family member who was taking care of the individual or the respondent itself on a 10-point visual analog scale. This anchored visual analog scale used visual-spatial, numeric, and verbal descriptive anchors simultaneously to assess disability across three domains. The respondents were shown the tablet screen containing the scale and were asked to rate each of the three domains.

## Socio - Economic Burden of Illness

Once the disability scale was completed, the page shifted automatically to the module on the socio-economic burden of illness. This contained the final set of 7 questions on the socio-economic impact of illness. The questions recorded the subjective reporting of the overall difficulties, the duration of these difficulties in the past 30 days, its impact on the daily routine activities either of the respondent or of his/her family members and the number of days on which the respondent missed family, social or leisure activities because of illness.

Different time frames were included for specific questions to provide for the

possibility of events to happen: past month for the inability to carry out daily work, past 3 months for one or more family members missing work, past 12 months for missing family, social or leisure activities. For family members missing work or the person missing social or recreational activities, the number of days was rounded off to the nearest whole number. In case there was no reported burden then a Zero was recorded. Considering the inherent difficulty in recalling the exact financial expenses, an approximate total monthly expense for medicines, laboratory tests, doctor's visits, nursing care, counselling, etc. was recorded.

Completing the socio-economic impact of illness module concluded the NMHS interview for that respondent and the NMHS interview for the next eligible respondent was initiated as described above.

## MINI KID Interviews

If the next respondent was aged between 13 and 17 years, then the MINI Kid interview was conducted by navigating to the '**Conduct Interview**' button and selecting the 'Interview Kid' option from the drop down menu of the custom format. This took the interviewer to the MINI Kid questionnaire page. The MINI kid for the NMHS was divided into 21 modules identified by the letters A-W, each corresponding to a diagnostic category. The interview on the MINI Kid was conducted in a manner similar to the MINI interview for adults and wherever possible, the parents were contacted for further clarifications. Following the completion of the MINI Kid interview, the respondents were interviewed for epilepsy, tobacco use, intellectual disability (ID) and

autism spectrum disorder (ASD) screener questions. The ASD screener consisted of three questions, the response for which was recorded as either 'yes' or 'No'; with probably yes also being recorded as 'yes'. The ASD screener was considered positive, if the answer was YES to any of the above questions and the supervisor was informed of it, and he/she in turn recorded the details for making a subsequent visit to administer other specific diagnostic instruments .

*'Across different places the slangs were different and sometime what exactly the person intended to convey was difficult to guess. For example, in some areas people are talking to us in their native slang we will feel that they are being rude with us but as days went we understood that it is their normal way of conversation. We became more sensitive of the cultural differences that exist even between different parts of the same district which was an opportunity for us to learn' - an FDC.*

As mentioned earlier, additional questionnaires on health seeking patterns, socio-economic impact and disability were administered depending on their positivity in any of the above modules.

## Completion of Survey in the Cluster

Once the requisite numbers of respondents were interviewed in the cluster, the Cluster Summary Form (Form 4A) was prepared using Form 3B. The numbers on Form 1, Form 3A and the Cluster Summary Form 4A

were tallied and matched. Then the location of the interviewed HH and the major landmarks were recorded in the cluster area map. A photo of the field team was taken in front of an educational institution or any other public building with a visible board indicating the name of the cluster, district and state. Finally, the survey in each cluster was completed by meeting and thanking the local leaders or VIPs for their support and co-operation.

## 13.1 Qualitative Methods

Details with regard to need, scope and focus of qualitative research are provided in section 9 of this report. The qualitative components of the survey included

- A. Characteristics of drug use and abuse
- B. Region/state/area specific mental health problems
- C. Homeless mentally ill
- D. Stigma towards mental health problems
- E. Mental health care seeking pattern of communities and barriers/ challenges to mental health care

### Guidelines for qualitative research

After identifying the major areas and their themes for qualitative enquiry, an OG document was developed in consensus with the member teams of the 12 states. A structured guide with a standard set of questions, probes, and lead points for both the KII and the FGD was developed and finalised with the team of experts in NIMHANS and the participating members of the NMHS. The guide along

with the micro plan for scheduling and the processes for conducting the KII and FGD was then sent to the member state teams for implementation. This guideline represented a structured protocol which standardised the design, conduct and reporting of qualitative research across the participating states. Key Informant Interview (KII) and Focus-Group Discussion (FGD) methods were adopted to cover the above identified areas under qualitative enquiry.

### Conduct of qualitative research

In each state, the data on drug abuse available from hospital data (OPD registrations, admissions for the year 2015) and from the State narcotics bureau (seizure of drugs, convictions, penalties, most common places of drug haul or seizures, etc.,) were collected before the starting of the qualitative enquiry. Using the guideline and the guide, the Principal Investigator of the respective state trained the NMHS study coordinator on the general principles of conducting KIIs and FGDs (establishing personal rapport, active listening, asking questions clearly, being neutral, and documentation) and also on the 5 focused areas of enquiry.

Following the training, the NMHS Study team along with the study coordinator conducted the KIIs and FGDs as per the protocol. To conduct the KIIs and FGDs, a two-day visit was planned to each district. In each state, 3- 4 FGDs on community members and others and 1 KII for doctors-administrators-pharmacists were conducted. The focus of the KII for doctors was designed to supplement and complement information about the NMHS while the focus of the KII for pharmacists was with respect to prescription drug use.

Members identified for the KIIs included psychiatrists (either public or private sector) or specialists (internal medicine / general medicine), pharmacists, state representatives, the police, legal and welfare sector representatives along with a local NGO and a media representative. Members identified for the FGD included general members of the community (adults, adolescents and the elderly with due representation of males and females) and key local members of the community (the police, health workers, teachers, local priests and others).

In each state, 4 to 5 FGDs with one in each of the district headquarters covered by the NMHS (with due representation of urban and rural areas) and one at the state headquarters were conducted. The FGD at the state headquarters was conducted for a group of mental health care providers comprising of 3 to 4 psychiatrists (working outside the study institutions doing the NMHS; from other mental health care

institutions or medical college hospital or in private practice), 3 to 4 physicians and 2 to 3 general practitioners (well-known with long standing reputation, drawn from both public and private institutions).

## Reporting of Qualitative Research

In addition to the conventional recording of responses for the KII and FGD, all the deliberations were audio-recorded after obtaining the informed consent of the participants. The entire exercise was completed within 10 working days in a month. After completing all the KIIs and FGDs in a state, the findings were summarised in the structured format provided for KIIs and FGDs and were reported along with the photograph of the deliberations.

**In total, 69 KIIs and 57 FGDs were conducted during the survey period on the 5 domains of enquiry.**

*The FDCs, in general, felt positive about the survey including training, data collection, conduct and coordination of the survey.*

*Some loved the vast diversities of nature in different places of survey, some felt they were blessed looking at the hardships the people face and their living conditions. They have expressed feeling of oneness in the name of team spirit and also the cooperation of villagers.*

*- a NMHS State team member*

# 14. Record keeping

Good record keeping in field surveys is needed for both administrative and technical purposes. It also serves as a monitoring tool. Keeping a log of the activities either daily or at defined intervals by all persons involved in the conduct of the survey is a prudent practice. Records help field data collectors to keep track of their survey related activities and help them to organise and plan effectively for the conduct of the survey on a day to day basis. It also supports the survey team in monitoring the progress of data collection and assists them in taking corrective actions whenever needed.

Different types of records/monitoring forms were maintained at various levels by the NMHS study team members. These forms were developed specifically for the survey

based on the experiences of the Kolar pilot study and were powerful tools to monitor the progress, coverage and quality of the survey over time. The broad categories of persons and the records maintained by them are given in Figure 8 and Table 8.

**Field data collectors:** maintained 2 types of forms; Form-1 and Form-2. Multiple copies (50 pages) of Form-1 were spiral bound to ensure that they were well preserved for daily handling. This booklet was the master document containing details of all the contacts made during the survey including those of refusals and non-responders were recorded in Form-1. It also had provisions to record the number of visits made. Subsequent to the household assignment, the FDC entered the identifying information

Figure 8: Overview of record keeping in NMHS

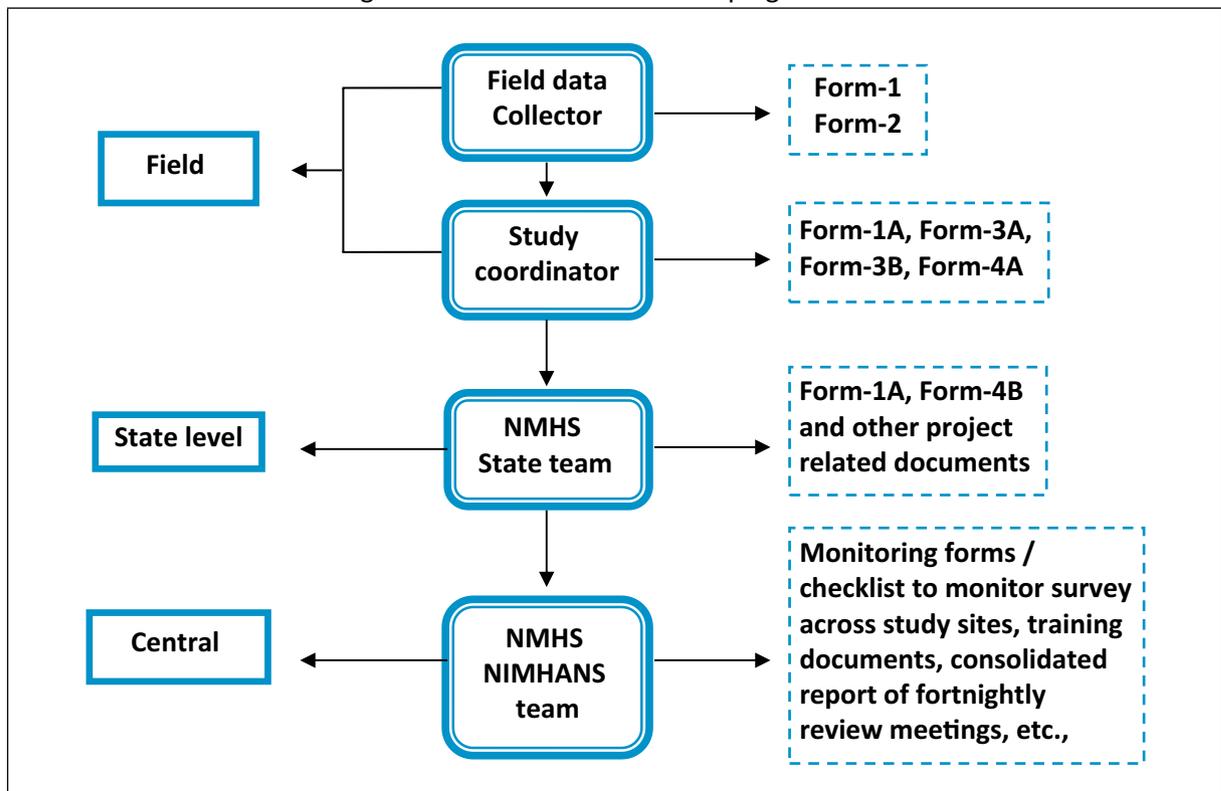


Table 8: Summary of records maintained at different levels.

Category of NMHS study team	Types of records maintained	Focus of the form and person responsible for checking it.	Frequency of maintenance
Field Data Collectors (FDC)	Form 1	Details of each and every contact made during the day of survey and checked by the study coordinator.	Daily
	Form 2	Summary of the day's field work and checked by the study coordinator.	Daily
FDC supervisor / Study coordinator	Form 1 A	Details of re-interviews and checked by state NMHS team	After conducting re-interviews (usually daily)
	Form 3A	Summary details of all the FDC's daily activity and verified by the state team.	Daily
	Form 3B	Summary details of all the FDC's weekly activity and verified by the state team.	Weekly
	Form 4 A	Summary details of survey in one cluster and scrutinised by the state team and NIMHANS NMHS team.	After completing survey in one cluster
State NMHS team	Form 4 B	Summary details of survey in one district and is scrutinised by NIMHANS NMHS team.	After completing survey in one district
	Form 1 A	Records details of re-interviews.	After conducting re-interviews (usually fortnightly)
NIMHANS NMHS team	Institution approvals, Ethics committee approval, training related documents, Checklist for monitoring survey across all study sites and consolidated report of fortnightly review meetings		

(complete HHID), sl no., age and sex of all the eligible members of the household in Form 1. Cell phone contact numbers were recorded to facilitate further contacts for re-visits and re-interviews.

*In case of a refusal to give an interview or a non-response, the same was entered in the remarks column along with reasons for the same. The date of each visit made was entered against columns 1, 2 or 3 as relevant. (date and month only)*

*Thus, if the individual was available, had consented and was able to complete the interview in the first visit, then the entry (date and month only) was made against the column with #1, if the interview was completed on the second visit, then the entry (date and month only) was made against column with #2 and if the interview was*

*completed on the third visit, then the entry was recorded against column 3*

Form 2 was the daily record of the field work of each FDC. This form recorded the total number of households visited on any given day, the no. of eligible members in the household, the gender of the eligible members, the no. of completed interviews and pending interviews with respect to adolescents and adults. Information for Form-1 was recorded on a daily basis and it helped the FDC to keep track of their interviews and plan the survey accordingly. Information on Form-2 was also recorded on a daily basis and each FDC shared the details of work done with the study coordinator at the end of each day. This in-turn helped the study coordinator to track the progress of the survey and plan for the next day.

**FDC Supervisor / Study Coordinator:** maintained 4 different forms: Forms-1A, 3A, 3B and 4A. The format of form-1A is very similar to Form 1 and it helped the study coordinator to document the re-interviews being done and assisted to keep a track of the same. As and when re-interviews were done by the study coordinator, usually daily, they were recorded in Form-1A.

Form-3A was similar to Form-2, being the FDC supervisor's daily monitoring sheet. It contained an extra column to include the name of the individual FDC. This contained the collation of the individual FDC's daily activities and helped the study coordinator to monitor the progress of work each day and also to compare it with the preceding day's work. The FDC supervisor obtained data from each FDC at the end of the day and made entries into form-3A. This helped him to plan work for the next day for visiting locked households and HHs where one or more individuals were not available on the previous visit. This was in addition to the planning of the newer HHs that needed to be visited that day.

Form-3B is an extension of Form 3A and was meant for review at the weekly meetings. The FDC supervisor compiled information from Form-3A and entered it into Form-3B once a week. This provided information on the survey work completed during the week by each FDC as also the total number of interviews for the week and the cumulative total till the day of review. This form was reviewed by the state team during their review meetings and facilitated the monitoring of the progress of the survey in the preceding weeks.

Form-4A is the cluster summary form and was maintained by the study coordinator. One form was filled for each completed cluster. It provided the cluster level summary at both

the household and individual levels. Form-4A recorded the following information: the starting date and the ending date of the survey in the cluster, no of HHs in the cluster, no of HHs contacted, no of HHs interviewed and no of HHs which refused to be interviewed. This form was reviewed by the state team towards the end of the survey in each cluster. It helped the state team to specially track the number of refusals and non-responders in a given cluster and also to monitor the progress of the survey. Along with the state team, the NIMHANS- NMHS team also reviewed the cluster summary form after it was uploaded onto the NIMHANS server on a fortnightly basis.

**State study team:** maintained two forms, 1A and 4B. Information pertaining to re-interviews done by the state team was entered into Form-1A and it helped them to track the same. The state team collated information from form-4A and entered it into Form-4B which gave the summary of the survey at the district level. It contained information on the number of clusters in a given district, the starting and ending dates of the survey, the no. of individuals interviewed and the no. of individuals who refused to give interviews. It helped the state team to monitor the progress of the survey at the district level. Apart from these records, the state team also maintained all other administrative records and discussed during fortnightly meeting.

**THE NIMHANS- NMHS team:** maintained administrative records like- institution approvals, ethics committee approvals, training related documents, fortnightly e-meeting details and consolidated reports of the fortnightly review meetings at the state level. A checklist was developed and maintained by the NIMHANS team to monitor all survey related activities across all study sites and discussed during fortnightly meeting.

## 15. Monitoring and Quality Assurance

Obtaining good quality data from community based surveys is quite a complex and challenging task. It is of prime importance to ensure the accuracy, reliability and validity of the survey results. A high quality of survey implementation is a key element that determines whether the survey data is of a good quality or not. Hence, careful attention should be paid to the quality of implementation of the actual survey and the monitoring of the same, so that problems can be addressed while it is in progress.

At the National level the project was guided by the National Technical Advisory Group (N-TAG) comprising of persons of eminence drawn from different domains. N-TAG (provided support and guidance for undertaking the nationwide survey, improving quality, monitoring progress and providing timely approvals).

At NIMHANS, a core project advisory committee was formed to give inputs for various components of the survey. Three national collaborators' meetings were held at NIMHANS, in which the principal investigators and co-investigators from all the 12 states participated.

Under the NMHS, a robust three-tier monitoring mechanism was deployed at the field, state and central levels to ensure the collection of good quality data (Figure 9).

### Field Level Monitoring

One of the important functions of the field coordinator was to ensure the quality of data

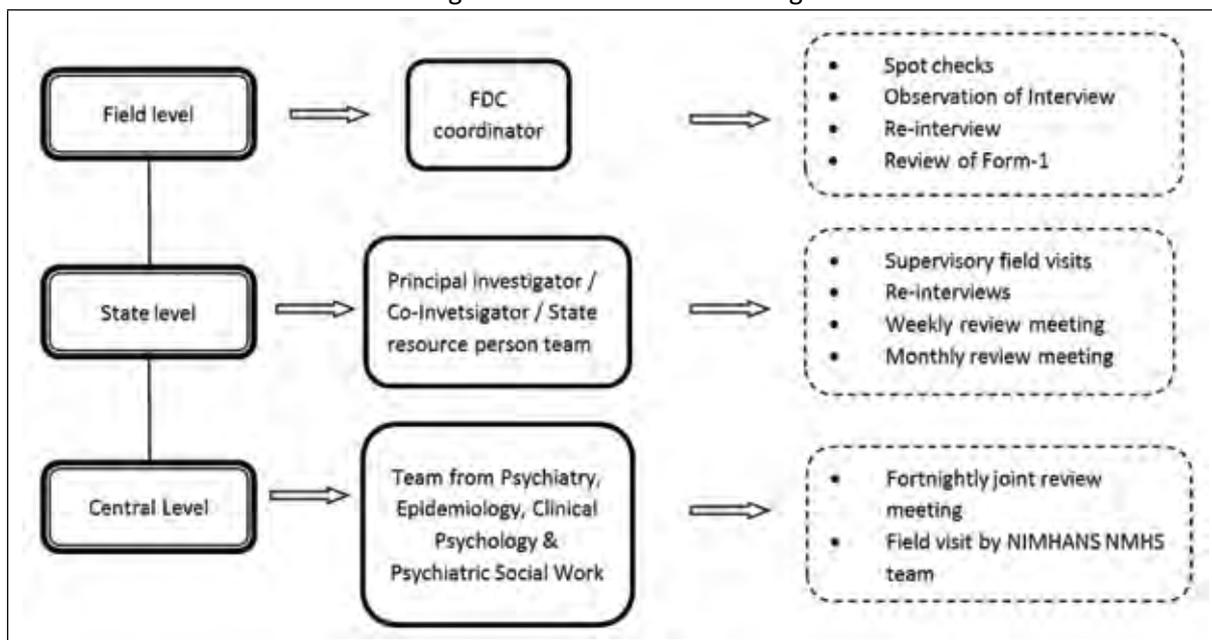
collection by monitoring the data collection process of the FDCs. This was achieved by reviewing the daily monitoring sheets (Form-1), doing spot checks and by observing the actual interviews being conducted by the FDCs. Daily monitoring sheets maintained by the FDCs were reviewed at frequent intervals, mostly at the end of each day of the survey by the field coordinator. Form 3B facilitated the field coordinator to monitor the progress of the survey on a weekly basis.

The field coordinator conducted spot-checks on a random basis to verify the household composition noted by all the FDCs. He observed the interviewers' work regularly to ensure that the quality of the data collection remained high throughout the survey. A minimum of one interview per day, conducted by the FDCs, was observed by the study coordinator. During this process, the field coordinator monitored the interviewer's style of asking questions, entering the response and following the skip patterns in the tablet. Problem areas and issues identified were noted in the field diary and were taken up for discussion later with the interviewer.

### State level Monitoring

Weekly meetings by the state team with their FDCs were scheduled on a fixed day to review the progress of work, trouble shoot field level problems and resolve other survey related issues. Depending on the convenience and logistics, the weekly review meetings were conducted in person (either at the headquarters or in the field)

Figure 9: Schema of monitoring



and at times over the phone. The NIMHANS team regularly scrutinised the data that was uploaded onto the NIMHANS server by the state team. Critical issues identified in the collected data set were communicated regularly to the state study teams for discussion and corrective action.

The state team undertook regular supervisory field visits during the data collection process for providing supportive supervision as well as for monitoring. These visits were either stand alone or were clubbed with the re-interview visits. During such visits, the state team observed interviews being conducted by the FDCs, did spot-checks of households visited by FDCs, conducted re-interviews and scrutinised the monitoring sheets for correctness, completeness and coverage of information gathered. Apart from monitoring, the state team gave on-site support to field level problems.

The state project team conducted monthly review meeting towards the end of each month. These meetings were attended by

all the FDCs and study coordinators and were chaired by the principal investigator/co-principal investigator. The field coordinators' cluster summary sheets and district summary sheets were reviewed in the meetings and the progress of the survey and the future course of action was discussed in detail.

## Re-interviews

Re-interviews are one of the quality control measures that were built into the survey to ensure the validity and reliability of information collected. They were also used as a method to evaluate field work. Interviews in mental health surveys have to be conducted in a specified manner by asking questions in the correct way to elicit an unbiased response.

In the NMHS, besides spot-checks and observation by the FDC supervisor, a 5% of re-interviews were built into the survey plan. For each FDC, a minimum of 20 re-interviews were to be conducted by the NST. The

algorithm built into the software provided the diagnosis based on the responses during the interviews and the FDCs were not required to make any diagnosis. They were only required to ask the questions correctly, elicit and document the response properly without any bias. Hence, re-interviews were conducted to make sure that the interview was conducted properly and to ascertain that the quality of interviews was of the desired level.

Of the total of 34,802 interviews, 2162 (6.21%) of them were re-interviews, well above the target of 5%. As per the guidelines, re-interviews were conducted within 15-30 days of the main interviews. The maximum number of re-interviews were conducted in Tamil Nadu (10.10%).

Cohen’s kappa was used to measure the reliability of diagnosis by measuring the agreement between the interviews and re-interviews. Landis and Koch have proposed guidelines for interpreting Kappa values: (0.01 - 0.20 = slight, 0.21 - 0.40 = fair, 0.41 - 0.60 = moderate, 0.61 - 0.80 = substantial, and 0.81 - 1.00 = almost perfect agreement) (60). It is to be noted that the Kappa values and thereby the agreement depends on the classification scale and benchmark (61, 62). In addition, variations in the time gap between interviews and re-interviews, variations in the category of disorders, nature of the disorders and the severity of the disorders under consideration, recall bias, problems with repeated interviewing (fatigability, loss of interest, forgetting, rumination bias) especially associated with mental health surveys influence the outcome.

Table 9: Overall Agreement between interviews and re-interviews for diagnosis

Interviews completed	Re-interviews completed	Kappa-statistic value	P-Value
34802	2153 (6.2%)	0.52	<0.001

For the entire set of re-interviews, the kappa value was 0.52 indicating a moderate agreement (Table 9). Amongst the individual states, in the majority the agreement was also moderate; slightly lower rates were observed for Gujarat, Jharkhand, Kerala, Manipur and West Bengal where a fair agreement was reported. It is noteworthy that none of the states reported a poor agreement in kappa values. All kappa values were found to be statistically significant.

The overall moderate agreement observed for the survey indicates that the quality of data obtained from the survey was quite reasonable and satisfactory despite the limitations inherent to mental health disorders.

## Monitoring at Central Level

### A. Joint review meetings.

The NIMHANS- NMHS team undertook joint fortnightly review meetings through a video conference facility set up at the Centre for Public Health / Department of Epidemiology. Every week a selected group of 6 NMHS states participated (Table 10). The progress of the survey, the quality of the data collected, other logistics, technical and operational issues were reviewed in these meetings. During these review meetings, greater attention was drawn towards the quality of the data that was being collected. Data that was regularly transferred to the NIMHANS- NMHS server by the FDC coordinator was analysed on the following parameters: - number of clusters completed, age and gender distribution of those interviewed, number of interviews completed, number of incomplete

interviews, average time taken for one interview, positivity rates for morbidity, high volume and low volume conditions and others. A brief report of the analysis was sent to the state team for discussion prior to the review and was discussed once again with the state teams during the meetings.

### Field visits by NMHS team

The team from NIMHANS undertook field visits to the NMHS states to hand hold the state team for the smooth conduct of the survey. Two to three visits were made by the team during different phases of the survey: when the training of the FDCs was going on, during the initial days of the data collection process and at the time of state experts' consensus meeting for finalising the state mental health systems assessment. The

team from the Department of Epidemiology, NIMHANS undertook field visits during the second /third month of the data collection process. During these visits, the progress of the survey, the micro plan prepared for the data collection process and activities relating to the state mental health systems assessment were reviewed in detail. The State team was assisted in preparing the micro plan for the rest of the survey period. The CPH team also facilitated the data collection needed to assess the mental health system of the state. Field visits were also made to those places where data collection was going on and during such visits the survey methodology adapted in the field was verified to make the necessary corrections whenever needed. Critical issues observed by the NIMHANS team and those issues raised by the FDCs and the state teams were adequately discussed for corrective action during the visits to the state for monitoring

*The FDCs opined that the survey was a wonderful experience which provided opportunities for them to learn in terms of the difficulties which they had to face initially and as an opportunity to make new friends.*

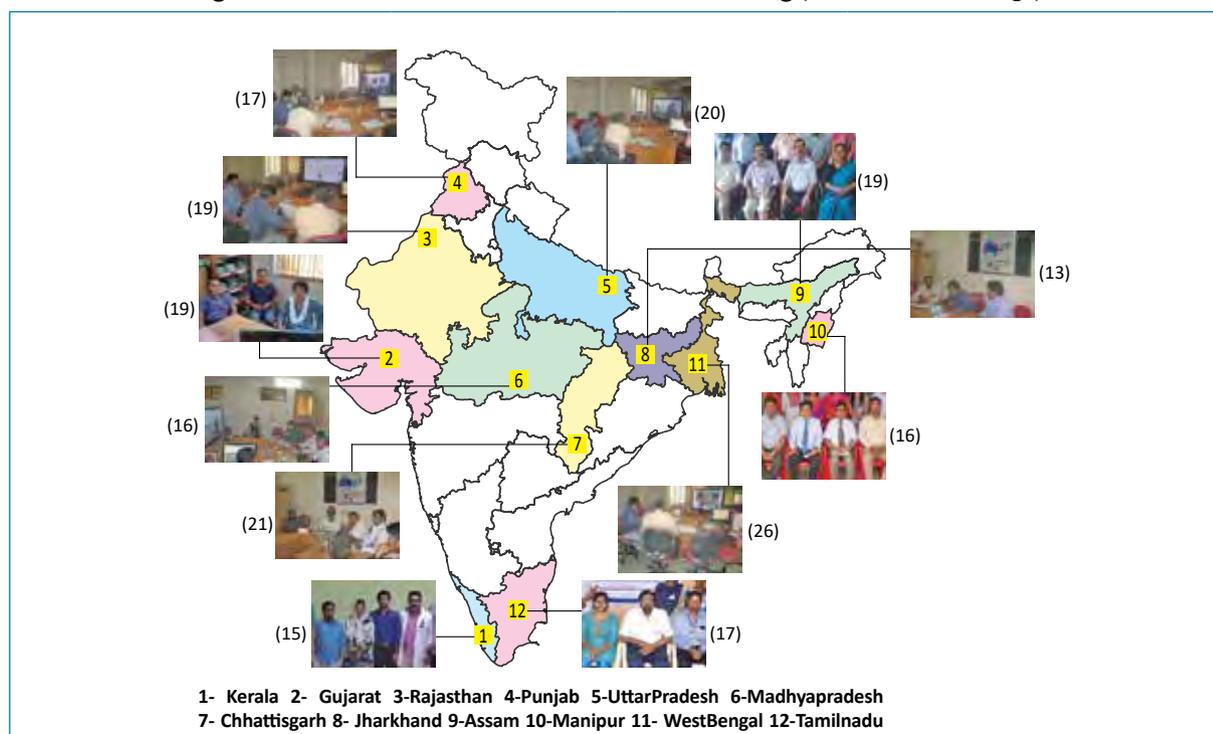
*Having lunch together with the team when we discussed about days activities, planning for afternoon visit and planning for next day was very fruitful*

Table 10: Schedule for fortnightly review meeting with the state team

1 <sup>st</sup> and 3 <sup>rd</sup> Wednesday		
3:00 to 3:20 PM	3:21 to 3:40 PM	3:41 to 4:00 PM
<b>ASSAM</b>	<b>TAMIL NADU</b>	<b>GUJARAT</b>
4:00 to 4:20 PM	4:21 to 4:40 PM	4:41 to 5:00 PM
<b>KERALA</b>	<b>JHARKHAND</b>	<b>MADHYA PRADESH</b>
2 <sup>nd</sup> and 4 <sup>th</sup> Wednesday		
2:40 to 3:00 PM	3:01 to 3:20 PM	3:21 to 3:40 PM
<b>WEST BENGAL</b>	<b>MANIPUR</b>	<b>PUNJAB</b>
3:41 to 4:00 PM	4:01 to 4:20 PM	4:21 to 4.40 PM
<b>RAJASTHAN</b>	<b>CHHATTISGARH</b>	<b>UTTAR PRADESH</b>



Figure 10: E-discussions for review and monitoring (Number of Meetings)



# 16. Data Management

## Transfer and Storage

The NMHS used the digitalised version of the Mini International Neuropsychiatric Interview (MINI 6.0) and other customised questionnaires for data collection purposes. In this context, storing the interview details was very critical and important. The NIMHANS epi team along with the state team (PI/Co-PI) ensured that there was restricted and strictly authorised access to the data. The flow of data transfer and storage is given in Figure 11.

It was the responsibility of all concerned to maintain a sufficient and an adequate number of backup files of the daily interviews. The primary responsibility of the safety of every day data rested with the FDCs and FDSs.

## Data Storage at the Field Level

At the end of every day of the survey, the FDCs took the back up of the data collected on their tablet by clicking 'data backup' icon on the desktop of the tablet. By this process the backup of all the interviews done for the day using the tablet got stored in a folder named 'backup' on a specific location of the Operating System (C:) drive. The software automatically provided a unique date and time stamp for every backup generated. In this way, the data was cumulatively stored in the tablet. At the end of each day, when the FDC took the back up of the data on his/her tablet, he/she checked for the time & date

stamp and the size of the saved file. If the file size was less than 14 MB (by default the minimum size of the file without any data in it was 14MB), he/she would once again take a back up of the data to ensure that the complete dataset was stored appropriately.

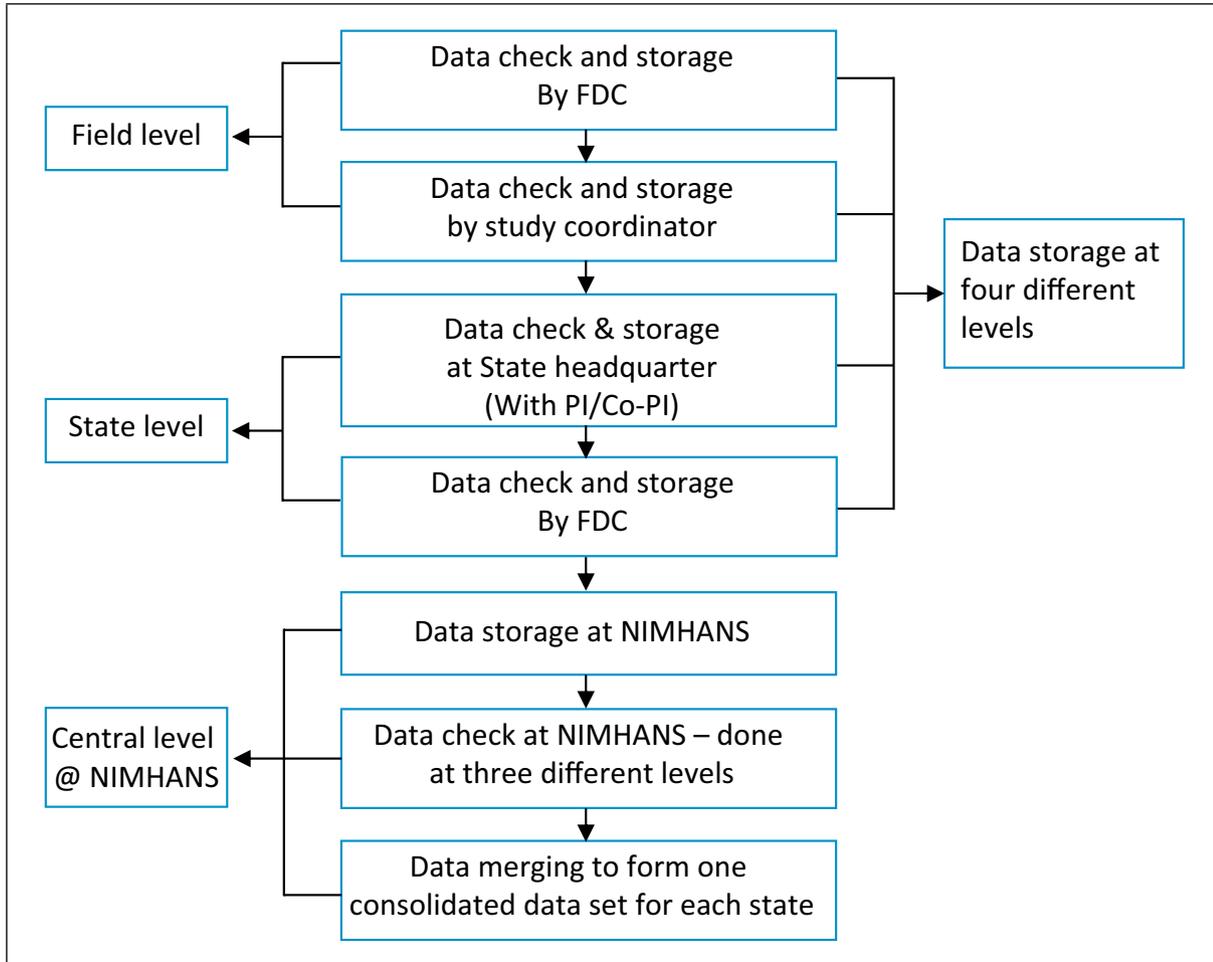
## Data Checking by the FDC

The FDCs, after taking the backup of the data on their respective tablets, handed over their tablets to the study coordinator. The Study coordinator collected the data from each of the FDCs onto a dedicated 16 GB pen drive. Subsequent to collecting the data, the study coordinator checked for the date and size of the data backup file (size of the file should not be less than 14MB). The Study coordinator then stored the data in a separate folder with the day's date. Whenever, the FDCs were not able to hand over the data on the same day of the survey, the study coordinator collected the data the very next day before starting their survey.

## Data Storage at the State Level

On a weekly or fortnightly basis, while attending the review meetings at the state collaborating site, the study coordinator transferred the date stamped folders of the data set on to the dedicated computer maintained by the state NMHS team. The dedicated computer and the data contained in it were under the custody of the PI/Co-PI

Figure 11: Data transfer and storage mechanism



or their designate to ensure restricted access to the data.

## Data Transfer

Data transfer from the survey states to the NIMHANS- NMHS server was planned to ensure that there was restricted access to data and also that there was no unauthorised access to data on the National Knowledge Network (NKN) grid. A separate secure authenticated webpage was created with the domain name “indianmhs”. (<http://indianmhs.nimhans.ac.in>)

Each state had a dedicated folder on the NIMHANS server and access to

this folder was possible only through the unique username and password. Access was restricted to the PI, Co-PI or their designated persons. The NMHS-NIMHANS team assigned a username and generated a password for each of the state NMHS teams. After the first login by the PI or the Co-PI or their designated persons, they were allowed to change their password as desired. The login permitted only the uploading of data to their particular state folder. The study coordinator transferred their respective state data onto the NIMHANS server on a fortnightly and occasionally on a monthly basis. Immediately after receipt of the data on the NIMHANS server, confirmation mails were sent to the state team.

## Data Management at NIMHANS

Data from the NMHS data server was stored in different computers and also in the external hard disc to ensure adequate data backup. The computers and the hard discs were in the custody of the NIMHANS-NMHS team and it was ensured that there was no unauthorised access to the NMHS data set.

### Data Checking

On receipt of the data from each state, the NIMHANS -NMHS IT team undertook a thorough checking of the data in order to identify and clean errors, if any. Identified errors were listed and were taken up for discussion with the concerned study coordinator and state team to clean the data and for taking corrective action during the subsequent data collection process. The data received from the NMHS states was scrutinised at three different levels by the NIMHANS -NMHS team. The first level of scrutiny involved a broad overview of the data on a number of parameters. The second level of scrutiny involved the checking of the data at the individual level ( i.e. data pertaining to those enumerated and interviewed for the survey) on select variables. At the third level of data checking, any data duplication between tablets, interviews of individual family members conducted using two different tablets and Interviews done in the evaluator account and re-interviews done in the regular FDC account.

Data checking was a crucial step and it ensured the collection of good quality data. This was undertaken on a continuous basis during the entire survey period. Errors

observed with respect to the parameters indicated above were taken up for discussion with the state team during the fortnightly review meetings. The cause for such errors and the solutions for the same were adequately discussed with the state teams. On a regular basis, the NIMHANS project team fixed up a date with the state study coordinator and FDCs for seeking clarifications and correcting the errors in the data set. Error corrections were undertaken with the help of monitoring formats developed for the survey and these were done remotely by using the software 'Team viewer version 10'(63).

### Data Merging

The final data set uploaded onto the NIMHANS server consisted of 10-12 back up files for each state corresponding to the number of FDCs. In the first step, using the 'Red Gate MySQL data compare software'(64) all the 10 - 12 files of each state were compared and merged to form one single data file for each state which was in the SQL format. In the next step, the single data file was run in MOS software to get the final export file in '.txt' format which contained 6 different sub files (Enumerated individuals, Eligible members, Socio Demographic Information, MINI Interviews, Custom Modules and Additional Questionnaire). These 6 text files were later converted into the excel format and then merged using 'MySQL query' software to form one final data set (both in Excel & SQL format) for that state. The ICD-10 diagnostic variables were subsequently included into the final dataset using the software package 'SPSS version 22'(65).

All merged final data were analysed as per the plan of analysis using SPSS.

## 17. Ethical Issues

Persons with mental illness as well as their families are the most directly affected by stigma, discrimination and human rights violations. People have the right to living conditions that respect and promote their dignity. People with mental illnesses should be informed of their rights when interacting with mental health and related services and this information should be conveyed in such a way that they and their family members are able to understand it.

In any research, it is the responsibility of the researcher to protect the rights of the study participants. The NMHS adopted widely accepted standards for ethical, scientific and professional conduct (66). Appropriate referral service, for those who needed it, was planned under the study. In addition, interviewers in the study completed specialised training on how to interview subjects in a number of situations on a variety of issues.

The NMHS questionnaire enquired about personal details and behavioral issues related to one or more members of the family. Respondents may be hesitant to answer one or more questions, they had the right to refuse to answer one or more questions, and refuse to continue to answer questions at any stage of the interview. During the training of the field staff, it was made clear that the field staff understood the 5 principles of conducting the survey in an ethically acceptable and desirable manner.

- (1) Minimising the risk of harm.
- (2) Obtaining informed consent.

- (3) Protecting anonymity and confidentiality.
- (4) Avoiding deceptive practices.
- (5) Providing the right to withdraw.
  - The study protocol was submitted to the NIMHANS Institutional Ethics Committee and the approval for the same was obtained by the NIMHANS-NMHS project team. This approval was applicable for all the other study sites. States participating in the NMHS also sought ethical clearance from their respective IECs as per their institutional policies. However, since the participating agency in the State of Tamil Nadu was a non-teaching institute, they utilised the ethical clearance obtained by the NIMHANS-NMHS project team for all their practical purposes and also obtained permission from the state health department.
  - At the state level, the respective state NMHS team had informed the concerned authorities about the NMHS and their permission was obtained.
  - Field data collectors, on their first visit to the district and the taluka/tehsil selected under the survey, informed the respective administrative authorities, health officials and police personnel about the survey and sought their support and permission
  - The survey staff, after selecting the household and the individual, obtained the informed consent of the

respondent before conducting the survey. Informed consent implied that the person responding to the survey questions does so after being told / informed about the background as to why this survey was being done, its objectives, methodology, the nature of the survey and the questions. Most importantly, the respondents were informed that they may not immediately benefit from the survey. They had the right to refuse to answer one or more questions and their refusal would not be considered in a negative manner. The Informed consent form was read in the local language of the participant, consent was sought and the signature / thumb impression of the individual respondent was obtained. One IC form was filled for each respondent and was identified by his/her unique code.

- Respondents older than 18 years could give a legally valid informed consent for themselves. However, for respondents between 13 and 17 years of age, the assent was obtained from their respective parents or other legally valid elders. In addition to their parents / guardians giving their consent for the NMHS interviews, an assent to the conduct of the interview was obtained from the adolescents themselves.
- Furthermore, the survey staff assured the respondents that any information provided would be treated as strictly confidential and maintained accordingly. They also informed the respondents that only pooled inferences would be utilised for the purposes of the study. As the data was being collected on a handheld device, all efforts were made to restrict access only to authorised persons from amongst the survey team. Strict, detailed protocols were drawn up for data storage and transfer at the individual study sites.
- To maintain confidentiality, all the collected data was stored on a dedicated computer in the state collaborating centre and was subsequently transferred and stored on a dedicated server at NIMHANS. Access to identifiable data, both at the state level and at NIMHANS, was restricted to the PI, Co-PI or authorised persons named by the Principal Investigators and any access was documented with date and time stamps.
- The presence of a third person during an interview can often be an impediment in getting frank and honest answers from the respondent. Requests were made to other persons present to let them conduct the interview in private. During the interview, if there was a disruption by the arrival of another person, the interviewer paused the interview, and resumed it after making sure that he was once again alone with the respondent. In this way, the respondent was interviewed privately to the best possible extent and all questions were answered by him/her.
- One key ethical issue in the conduct of any survey is providing referral services for a health problem that has been reported by the individual / family. The NMHS field team identified the nearest district or taluka level service provider in all villages/ urban areas during resource mapping. These service

providers were informed by the state teams about the survey and they were requested to help those referred for treatment and care. The nearest health care service provider was most often not a mental health professional and hence the nearest health professional's help was also enlisted during the conduct of the survey. Thus, all respondents who expressed a need for service or where the FDCs felt that there was a need for care were referred to the nearest health care provider for treatment. In some situations, referrals were made

to higher centres of care. Referral services were provided not just for a mental health problem but also for general health problems.

- In some states (Gujarat, Madhya Pradesh) IEC materials (pamphlets) were developed on topics pertaining to mental health and used for providing information to households and to the community. In Madhya Pradesh, health education sessions were conducted in survey sites to sensitise the community about the NMHS and mental illness.

## 18. Plan of Analysis

### 18.1 Definitions adopted

The International Classification of Disease, 10<sup>th</sup> revision, Diagnostic Criteria for Research (ICD 10 DCR) (67) was adopted and utilized to classify the different mental disorders. The broad ICD group classification along with the expanded (upto 1 decimal place) classification is reported (Box 3).

The definitions / categories used for analysis is as follows:

1. Mental Morbidity
  - a. **Any Mental Morbidity** was defined as those disorders as per ICD10 DCR and captured by MINI instrument: Schizophrenia and other psychotic disorders, Mood disorders, Neurotic and stress related disorders and substance use disorders. MINI does not capture Tobacco use disorders and the same has been excluded. Though MINI captures Risk of Suicidality the

#### *Box 3: ICD-10 DCR classification of Mental and Behavioural Disorders*

##### **F10 - F19 - Mental and behavioral problems due to psychoactive substance use**

F10 Alcohol use disorder

F17 Tobacco use disorders

F11-19, except 17 Other substance use disorder

##### **F20 – F29 Schizophrenia, other psychotic disorders**

##### **F30 - F39 Mood (Affective) disorders**

F30-31 Bipolar affective disorders<sup>5</sup>

F32-33 Depressive disorder

##### **F40 - F48 Neurotic & stress related disorders**

F40 Phobic anxiety disorders

F40.0 Agoraphobia

F40.1 Social Phobia

F41 Other anxiety disorders

F41.0 Panic disorder

F41.1 Generalized anxiety disorder

F42 Obsessive Compulsive Disorder

F43 Reaction to severe stress & adjustment disorders

F 43.5 Post Traumatic Stress Disorders

- same has been reported separately and excluded for defining any mental morbidity.
- b. The different disorders were further grouped as Common Mental Disorders and Severe mental Disorders
    - i. **Common mental disorders** include depressive disorders (mild, moderate and severe without psychotic features), neurotic and stress related disorders and alcohol and other substance use disorders.
    - ii. **Severe mental disorders** include Schizophrenia and other psychotic disorders, bipolar affective disorders, and severe depression with psychotic features.
  - c. **Any Substance use disorders** include alcohol use disorders, other substance use disorders and tobacco use disorders. Further,
    - i. **Alcohol Use Disorders** include both dependence and harmful use
    - ii. **Any substance use disorder** include both dependence and harmful use for other substances and includes the broad categories of Opioids, Cannabinoids, Inhalants and Prescription drugs,
    - iii. The Fagerström instrument for tobacco dependence was modified to include non-smoking variety of tobacco use to estimate **Tobacco Use Disorders**. A score of 1 to 4 was considered low dependence; 4 to 8 was moderate dependence and >8 was significant dependence.
2. MINI diagnostic algorithm
    - a. The MINI diagnostic algorithm for DSM IV diagnosis is equivalent to the ICD-10 DCR criterion in most of the disorders, with two exceptions:
      - i. In diagnosis of depressive disorders, the MINI and DSM IV TR takes into account the item of dysfunction, while in the ICD-10 DCR, only number of symptoms are taken into consideration. Hence 4 or more symptoms were used to indicate a depressive episode as per the ICD 10 DCR criteria regardless of the item of dysfunction.
      - ii. Alcohol and other substance use disorders included dependence, abuse and harmful use as detailed in the ICD 10 DCR. The DSM IV dependence criterion is equal to the ICD-10 DCR criteria for dependence. For harmful use, as per the ICD 10 DCR, the criterion of DSM IV abuse and in addition substance use and its impact on physical and social areas was considered for ICD 10 DCR Harmful use.
    - b. Due to the complexities in documenting observations related to psychotic behaviours in an epidemiological community based study, MINI captures Schizophrenia and other psychotic disorders as a group and not as individual categories. The same as per the ICD 10 DCR criteria has been adopted.
  3. MINI suicidality risk module was used to categorise as low risk (score 1-8), moderate risk (score 9-16) and severe risk (score >17).
  4. **Co-morbid mental morbidity** was defined as the presence of combined diagnosis on more than one mental health condition and included the

following conditions and their combinations: Major Depressive Disorder, Schizophrenia and other psychotic disorders, Bipolar Affective Disorder, Alcohol use disorders, Other substance use disorders, Agoraphobia, Social Phobia, Panic Disorder, Generalised anxiety disorders, Obsessive Compulsive Disorders, Post Traumatic Stress Disorder.

## 18.2 Plan of analysis

1. After checking for errors in data entry, the data set was edited and cleaned. Individual frequencies and descriptive statistics were obtained for socio-demographic and economic characteristics of the sample for the entire data set (inclusive of all 12 states) as well as individually for each state.
2. In addition, amongst those with morbidity, the treatment gap, care related details, socio-economic impact and disability were calculated and reported.
3. Initially, the un-weighted estimates were obtained for different mental disorders and related characteristics, which permitted an overview of the data set.
4. Subsequently, weighted estimates were calculated as shown below

## Sampling Weight Estimation

The National Mental Health Survey (NMHS) adopted a multi-stage sampling design and the selection was based on probability proportional to size. The sample size calculation permitted state level estimates of select mental health morbidity and pooled estimates at the national level.

Sampling weights increase the representativeness of the sample by neutralising / adjusting the sampled data for unequal probabilities of selection and accommodating differential non-response rates. In multi-stage sampling, design weights must reflect the selection probabilities at each stage. In general, sampling weight is the product of the reciprocal of the probability of selection/ interview of a sampled unit at every stage of sampling.

In the National Mental Health Survey, the state and national estimates were calculated. Hence, only the probability of selection of districts and talukas for design weight calculation was utilised. The individual non-response rate was used for the calculation of national pooled weights.

The design weight was calculated and pooled to get a state level weight and the state level weights were pooled to get a national level weight. The sample weights were calculated using the formula

$$NPW = (D_{wi} * IRR_w)$$

Where,

$NPW$  is the National Pooled weight

$D_{wi}$  is the Design weight, calculated using the formula

$$D_{wi} = 1 / (P_{di} * P_{ti})$$

where

$P_{di}$  is the probability of selection of a district within each strata of the poverty index calculated using the formula

$$P_{di} = n_{di} / N_d$$

Where,

' $n_{di}$ ' is the number of districts selected from ' $i_{th}$ ' division;

' $N_d$ ' is the total number of districts in the ' $i_{th}$ ' division and

$P_{ti}$  is the probability of selection of

a taluka within the selected district calculated using the formula

$$P_{ii} = n_{ii} / N_t$$

Where,

' $n_{ii}$ ' is the number of sub-districts selected from ' $i_{th}$ ' selected district;

' $N_t$ ' is the total number of sub-districts in the ' $i_{th}$ ' district.

$IRR_w$  is the weight for the individual response rate, calculated using the formula

$$IRR_w = 1/IRR$$

Where, IRR is the overall individual response rate.

The National pooled estimates were calculated using the functionality of applying weights (weights on) in the SPSS (65) package and re-checked with survey command in STATA (68).

### 18.3 Prevalence Estimates

Estimates for low prevalence disorders were possible only at the national level due to concerns of broad confidence intervals. Thus,

- a. Any mental health problem prevalence was estimated at both State and national level.
- b. Prevalence estimates of Major Depressive Disorder, Alcohol use disorders, Tobacco use disorders, Agoraphobia, Social Phobia, Panic Disorder, Generalised anxiety disorders, Obsessive Compulsive Disorders, Post Traumatic Stress Disorder have been done at the state and national level.
- c. Prevalence of Schizophrenia and other psychotic disorders, Bipolar Affective Disorder, Other substance use disorders

and Epilepsy (GTCS only) have been done at the national level.

- d. The Current (Point) prevalence is reported for all diagnostic groups and Life-time prevalence (ever in the life of an individual in the past) is reported for any mental morbidity, schizophrenia and other psychotic disorders (F 20-29), mood disorders (F 30-39), combined neurotic and stress related disorders (F 40 – 48), other anxiety disorders (F 41) and panic disorder (F 41.0).
- e. For all diagnostic categories, age-groups, gender and place of residence were the explanatory variables and in addition, for any mental morbidity, education, occupation, marital status and income levels were included.

### 18.4 National Estimates of Mental Disorders

Based on the prevalence estimates, the number of Indians who need treatment for a mental health problem was derived as follows:

- 1) Using the Census 2011 single age-group table, the proportions of individuals in the 13 to 17 years age group and those above 18 years of age (after excluding those with age not stated) was calculated.
- 2) These proportions were applied to the population clock of India on the Janasankya Sthirtha Kosh website (<http://www.jsk.gov.in>) as on 7th October 2016 10:36 am to estimate the current numbers of persons in 13 to 17 years age-group and for those above 18 years of age.

A	B	C	D
	Population 2011	%	Population 2016 (estimates)
All age groups	1,210,854,977	100.00	1,330,783,327*
Population aged 13-17 years	121,248,066	10.01	133,257,002#
Population aged ≥18 years	762,211,845	62.95	837,704,625#

\* Source: Jana Sankhya Sthirata Kosh estimate as of 7<sup>th</sup> October 2016 10:36 am

# Calculated as column C multiplied with 2016 all age group population estimates

First National collaborator's meeting at NIMHANS



Second National collaborator's meeting at NIMHANS



Third National collaborator's meeting at NIMHANS



# 19. Results

## A. General characteristics

The population characteristics shown in Table 11 depict the overall macro level factors that are closely associated with the health and mental health of the community. The NMHS was carried out in 12 states representing different regions in the country and covered nearly 60% of the country's population (71,85,94,525 out of 1,21,05,69,573) (69). The male and female population proportion in all the 12 states was found to be similar to the national census figures.

The 12 states had a wide diversity in its administrative and economic characteristics (Table 12). These varied in terms of the number of districts and talukas in the state, the number of villages, the per capita income and the poverty headcount ratio (PHCR). The PHCR is defined as the percentage of population whose living standards (usually measured looking at consumption as a proxy measure) lie below the poverty line. The PHCR ranged from a low of 8.08% in Kerala to 40.19% in Chhattisgarh. The states selected represent the vast diversity of the population between the states and also within the country.

Table 11: Demographic characteristics of states selected for NMHS

	North		East		South		West		North-east		Central	
	PB	UP	JH	WB	KL	TN	GJ	RJ	AS	MN	CG	MP
1. Population (in crores)	2.77	19.98	3.29	9.13	3.34	7.21	6.04	6.85	3.12	0.28	2.55	7.26
2. Sex ratio (females per 1000 males)	895	912	948	950	1084	996	919	928	958	985	991	931
3. Male population (%)	52.77	52.29	51.32	51.28	47.98	50.09	52.10	51.86	51.08	50.37	50.24	51.79
4. Female population (%)	47.23	47.71	48.68	48.72	52.02	49.91	47.90	48.14	48.92	49.63	49.76	48.21
5. <18 years age group population (%)	31.50	42.71	41.94	32.87	28.15	28.64	34.61	41.05	38.70	36.19	38.16	39.60
6. 60 years and above age group population (%)	10.33	7.73	7.14	8.48	12.55	10.41	7.92	7.46	6.66	7.00	7.84	7.87
7. Overall literacy rate (%)	75.84	67.68	66.41	76.26	94.00	80.09	78.03	66.11	72.19	76.94	70.28	69.32
7.1. Male literacy rate (%)	80.44	77.28	76.84	81.69	96.11	86.77	85.75	79.19	77.85	83.58	80.27	78.73
7.2. Female literacy rate (%)	70.73	57.18	55.42	70.54	92.07	73.44	69.68	52.12	66.27	70.26	60.24	59.24
8. Urban population (%)	37.48	22.27	24.05	31.87	47.70	48.40	42.60	24.87	14.10	29.21	23.24	27.63
9. Tribal population (%)	--	0.57	26.21	5.80	1.45	1.10	14.75	13.48	12.45	40.88	30.62	21.09

Source: Census 2011

Table 12: Administrative and economic characteristics of the NMHS states

Sl. no	Characteristics	South		West		North		Central		East		North-east	
		KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN
1	Districts*(n)	14	32	26	33	20	71	18	50	24	19	27	9
2	Districts as on 2016# (n)	14	32	33	33	22	75	27	51	24	20	35	9
3	Taluka/Sub-district * (n)	63	215	225	244	77	312	149	342	260	341	153	38
4	Villages* (n)	1,018	15,979	18,225	44,672	12,581	1,06,773	20,126	54,903	32,394	40,203	26,395	2,582
5	Towns with 1 lakh to <1 million population* (n)	11	28	26	27	16	57	7	29	8	27	7	1
6	Million plus cities*(n)	7	4	4	3	2	7	2	4	3	2	0	0
7	Per capita Income in 2013-2014 (in INR) <sup>§</sup>	1,03,820	1,12,664	1,06,831	65,974	92,350	36,250	58,547	51,798	46,131	70,059	44,263	41,573
8	Poverty Headcount Ratio <sup>§§</sup>	8.08	11.71	16.95	14.78	8.23	29.5	40.19	37.09	37.48	20.43	32.5	31.98

Source: \*Census 2011; #-State Govt. websites (AS-<http://assam.gov.in/>; CG- <http://explore-chhattisgarh.blogspot.in/2011/08/districts-of-chhattisgarh-18-existing-9.html>; GJ- <http://www.gujaratindia.com>; MP- <http://www.mpdistricts.nic.in/>; PB- <http://www.archive.india.gov.in/knowindia/districts/andhra1.php?stateid=PB>; UP- <http://www.archive.india.gov.in/knowindia/districts/andhra1.php?stateid=UP>; WB-<https://wb.gov.in/portal/web/guest/district>); §-Central Statistical Organization; §§-NSSO 68th round - 2011-12.

Table 13: Sampling framework of National Mental Health Survey (Selection of households & Individuals)

	South		West		North		Central		East		North-east		TOTAL
	KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN	
Total no. of Districts	14	32	26	33	20	71	18	50	24	19	27	9	343
No of Districts Selected	3	4	3	4	4	4	3	4	4	4	3	3	43
Total no. of Taluka in the selected Districts	15	32	19	30	17	19	29	33	52	88	21	11	366
No of Taluka Selected	6	7	7	7	7	7	6	7	7	7	6	6	80
Total no. of Clusters in the Selected Taluka	265	1082	738	1200	1103	2544	1067	1239	967	966	1035	272	12,478
No. of Clusters selected	60 (22.6%)	60 (5.5%)	60 (8.1%)	60 (5.0%)	60 (5.4%)	60 (2.4%)	60 (5.6%)	60 (4.8%)	60 (6.2%)	60 (6.2%)	60 (5.8%)	60 (22.1%)	720 (5.8%)
Total no. of Households in the Selected Clusters	192,569	76,322	360,678	49,184	76,161	68,033	50,603	62,462	58,281	89,017	34,594	51,971	1,169,875
Total no. of Households Contacted	1223 (0.6%)	1083 (1.4%)	953 (0.3%)	602 (1.2%)	723 (0.9%)	880 (1.3%)	738 (1.5%)	1051 (1.7%)	685 (1.2%)	842 (0.9%)	954 (2.8%)	876 (1.7%)	10610 (0.9%)
Total no of Households interviewed	926 (75.7%)	1069 (98.7%)	927 (97.3%)	576 (95.7%)	719 (99.4%)	795 (90.3%)	722 (97.8%)	918 (87.3%)	637 (93%)	654 (77.7%)	926 (97.1%)	797 (91%)	9666 (91.1%)
Total no of eligible Individuals in the selected households (≥18 years)	3149	3462	3439	3233	3158	3788	3079	3240	3673	2818	3104	3389	39,532
Total no of Eligible Individuals interviewed	2479 (78.7%)	3059 (88.4%)	3168 (92.1%)	3108 (96.1%)	2895 (91.7%)	3508 (92.6%)	2841 (92.3%)	2621 (80.9%)	3022 (82.3%)	2646 (93.9%)	2603 (83.8%)	2852 (84.2%)	34802 (88.0%)

## 19.1 Sampling framework

The overall sampling frame consisted of 343 districts from all the 12 states out of 640 Indian districts (69) with 43 districts chosen randomly for the survey. Districts selected in seven states, namely, Tamil Nadu, Rajasthan, Punjab, Uttar Pradesh, Madhya Pradesh, Jharkhand and West Bengal also had a metro sample within the same selected district. For the remaining five states, a new district with a metro sample was selected. Furthermore, 80 talukas were selected from within these 43 districts for the conduct of the survey (Table 13). The overall, household response rate from all the 12 states was 91.1%, ranging from 75.6% in Kerala to 99.3% in Punjab with a minimum response rate of more than 85% in the remaining 10 states. Similarly, the individual response rate was 88% in all the 12 states. The individual response rate was more than 78% in all the states and ranged from 78.7% in Kerala to 96.1% in Rajasthan.

## 19.2 Socio-demographic characteristics

It is widely accepted that age, residence, education, occupation, income and marital status are contextually related not only to the prevalence of mental disorders, but also for many related characteristics. Understanding the differentials in the distribution of these characteristics in the study sample facilitates the meaningful interpretation of the prevalence of mental morbidity.

The socio-demographic and economic characteristics of eligible and interviewed subjects (n=34802) in the NMHS is presented in Table 14. Individuals aged between 18-29

years (youth) (70) formed the predominant age group in the study sample (34%, 11,833 individuals) and was similar to the youth population proportion (34%) of the country. However, the proportion of youth in the sample was comparatively lesser in the States of Kerala (21%), Tamil Nadu (26%) and Manipur (26%). The proportion of respondents in the other age groups is presented in (Table 1-annexure). The age distribution of the study subjects was similar to the Census-2011 in all age-groups, excepting for a slightly higher proportion of respondents in the 60+ age group (16% vs. 13.1% in Census-2011). This pattern was similar across all states except in Kerala (26.3%).

Generally, population based sample surveys record a higher representation of the elderly and females, due to their increased availability in households at the time of the interviews. In our study sample, females comprised of 52.3% of all respondents (48.9%, Census 2011). Gender differentials across the states revealed that the proportion of females in the study sample was higher in Kerala, Assam and Manipur (57%), probably due to the increased male migration for work and study (Table 1-annexure).

Rural respondents comprised of 68.8% of study subjects which is similar to the national rural-urban distribution patterns. Rural, urban non-metro and urban metro respondents in the sample were observed to be proportionately distributed across all age-groups and both sexes (Table 2-annexure).

Nearly, three-fourths (74.7%) of the study subjects were currently married (78% in Census 2011 for 19+years) and 6.2% were widowed/separated/divorced. The divorced /separated/ widowed proportion was higher in female respondents (9.8% of females) in contrast to 2.2% of males. The divorced/separated female

Table 14: Socio-demographic characteristics of study subjects selected for NMHS

	Males	Females	Total
	n (%)	n (%)	n (%)
<b>Total</b>	<b>16585 (47.66)</b>	<b>18217 (52.34)</b>	<b>34802 (100.0)</b>
<b>Age group</b>			
18-29	5537 (33.39)	6311 (34.64)	11848 (34.04)
30-39	3377 (20.36)	3685 (20.23)	7062 (20.29)
40-49	2731 (16.47)	3123 (17.14)	5854 (16.82)
50-59	2088 (12.59)	2360 (12.95)	4448 (12.78)
60 and above	2852 (17.20)	2738 (15.03)	5590 (16.06)
<b>Place of Residence</b>			
Rural	11384 (68.64)	12573 (69.02)	23957 (68.84)
Urban non-metro	3162 (19.07)	3439 (18.88)	6601 (18.97)
Urban metro	2039 (12.29)	2205 (12.10)	4244 (12.19)
<b>Education</b>			
Illiterate	2450 (14.77)	5959 (32.71)	8409 (24.16)
Primary	3112 (18.76)	3048 (16.73)	6160 (17.70)
Secondary	3075 (18.54)	2647 (14.53)	5722 (16.44)
High School	3498 (21.09)	2995 (16.44)	6493 (18.66)
Pre University	1916 (11.55)	1598 (8.77)	3514 (10.10)
Vocational	250 (1.51)	109 (0.60)	359 (1.03)
Graduate	1600 (9.65)	1313 (7.21)	2913 (8.37)
Post Graduate	450 (2.71)	411 (2.26)	861 (2.47)
Professional	188 (1.13)	82 (0.45)	270 (0.78)
Not known	46 (0.28)	55 (0.30)	101 (0.29)
<b>Occupation</b>			
Cultivator	2882 (17.38)	376 (2.06)	3258 (9.36)
Agricultural Labourer	2104 (12.69)	927 (5.09)	3031 (8.71)
Employer	327 (1.97)	48 (0.26)	375 (1.08)
Employee & Other workers	6872 (41.44)	3264 (17.92)	10136 (29.12)
Student	1559 (9.40)	1277 (7.01)	2836 (8.15)
Household duties	227 (1.37)	10227 (56.14)	10454 (30.04)
Dependent	1210 (7.30)	1548 (8.50)	2758 (7.92)
Pensioner	649 (3.91)	361 (1.98)	1010 (2.90)
Others	755 (4.55)	189 (1.04)	944 (2.71)
<b>Marital Status</b>			
Never Married	3903 (23.53)	2614 (14.35)	6517 (18.73)
Married	12235 (73.37)	13745 (75.45)	25980 (74.65)
Widowed/Divorced/ Separated	361 (2.18)	1783 (9.79)	2144 (6.16)
Others	86 (0.52)	75 (0.41)	161 (0.46)
<b>Census 2011 proportions:</b> Age group 18-29 yrs=34.3%, 30-39 years=22.8%, 40-49 years=17.7%, 50-59 years 11.6 %, 60 yrs above 13.6%.(1) Residence: Rural Population % (68.4%), Urban 31.6%. Education: Illiterate=25.9%. (2) Marital status: Married=78.6%% (19+years), Widowed/Divorced/ Separated=8%(3)			

proportion was higher in Kerala (14.2%), Tamil Nadu (13%) and Gujarat (13%) and lower in Assam (2.6%) (Table 3 - annexure).

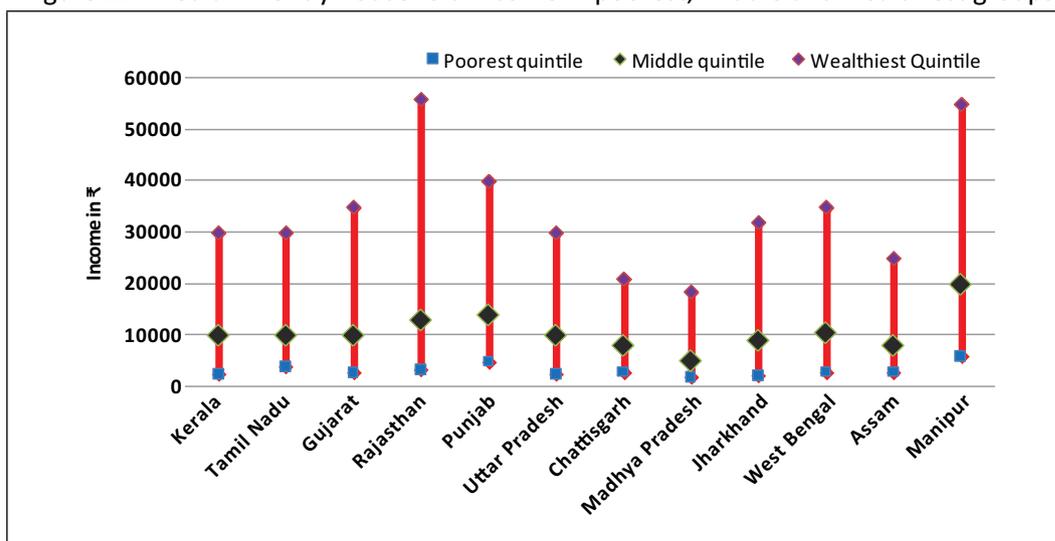
Of the total respondents, 8422 individuals (24.3%) themselves reported that they were 'illiterate'. Literacy levels in study sample was similar to national average (64%, Census 2011, Adult Literacy). In our study sample, 5 States (Rajasthan, Uttar Pradesh, Chhattisgarh, Madhya Pradesh and Jharkhand) had literacy levels less than the national average. Kerala had the least proportion of respondents who were not literates (4.6%) and had the highest proportion of respondents with a minimum graduate level qualification (21%) as well as the highest proportion of female graduates (22.5%) (Table 4-annexure).

'Household duties' was the predominant occupation reported by the study subjects (30%), mainly due to 56% of females reporting their occupation as 'household duties'. The proportion of agriculturists was the highest in the States of Madhya Pradesh (35.8%) and Chhattisgarh (32.9%) and the least in Kerala (4.3%). Dependents as well as pensioners were the highest in Kerala (Table 5-annexure).

The income distribution of households was ascertained from the head of the household (including for all other members of the household) and has to be interpreted with caution. The household income was distributed into quintiles and the median income within each quintile was recorded. The median HH income in the surveyed households across all 12 states was observed to be ₹9000 per month. The median monthly household income in the lowest quintile was ₹3000 as against ₹32,000 in the highest quintile (Table 6 & 7-annexure). The median income of households in different states (Figure 1) varied from ₹5,000 to 20,000. In addition one-third (34%) of households were in possession of a BPL card (Below Poverty Line cards a proxy indicator for income) and variations as low as 5% in Tamil Nadu to as high as 75.6% in Chhattisgarh was seen. Nearly 79% of rural households reported the possession of a BPL card.

Overall, it was observed that the distribution of age, gender, marital status and literacy status of the NMHS study population matched the Census 2011 proportions. Minor variations in the elderly and female populations were noticed across the different states.

Figure 12: Median monthly household income in poorest, middle and wealthiest groups



## 19.3 Prevalence of disorders

Under NMHS 34,802 persons were interviewed across the 12 states and the number of persons interviewed varied from a 2,479 in Kerala to a 3,508 in Uttar Pradesh. The NMHS adopted the MINI 6.0 to estimate mental morbidity (including alcohol harmful use and dependence), the modified Fagerström Nicotine dependence scale to measure tobacco dependence and screeners for epilepsy (GTCS) and intellectual disability. A module of the MINI separately evaluated the risk of suicide.

From the pooled statistics, the overall unweighted lifetime morbidity as observed in the Survey was 13.9% for any mental disorder including alcohol abuse and dependence and was 10.6% current prevalence (Figure 13). It was 6.4% for the risk of Suicide and 18.9% for tobacco dependence. Across the states, the overall positivity rates varied between 8.1% in Assam to 19.9% in Manipur for mental disorders including alcohol use disorders. For the risk of suicide, the rates varied from 2.2% in Chhattisgarh to 12.5% in Kerala. For tobacco use disorders the crude prevalence ranged from 5.4% in Punjab to 39.6% in Rajasthan.

Only weighted prevalence is discussed henceforth in the report and results refer to

adult rates unless indicated otherwise.

As per the ICD10 classification, the significant morbidity under the NMHS was contributed by mental and behavioral problems due to psychoactive substance use (F10 to F19) with a prevalence of 22.4% (Table 15).

A lifetime prevalence of 1.4% was observed for Schizophrenia and psychotic disorders (F20 to F29) and 5.6% for mood disorders (F30 to F39). The lifetime prevalence of depressive disorders was 5.1% and was nearly double the current prevalence rate (2.7%). The current rates for schizophrenia and other psychotic disorders were about one-fourth of the lifetime prevalence indicating the chronicity of the disorder.

The prevalence for neurotic and stress related disorders (F40 to F48), life time and current, was 3.7% and 3.5%, respectively. Among the neurotic and stress related disorders, the maximum prevalence was seen for agoraphobia without panic disorder (1.6%), while panic disorder (F41) and Generalised Anxiety Disorders (F41.1) were 0.5% and 0.6%, respectively. This was followed by social phobia (F40.1 - 0.5%), OCD (F42.0 - 0.3%) and Post Traumatic Stress Disorder (PTSD) (F43.1 - 0.2%).

Figure 13: Crude prevalence of Mental Neurological & Substance use disorders across NMHS states

	South		West		North		Central		East		North-east		
	KL (n=2479)	TN (n=3059)	GJ (n=3168)	RJ (n=3108)	PB (n=2895)	UP (n=3508)	CG (n=2841)	MP (n=2621)	JH (n=3022)	WB (n=2646)	AS (n=2603)	MN (n=2852)	TOTAL (n=34802)
<b>Total interviewed</b>													
<b>Mental morbidity (lifetime,%)</b>	347 14.0%	590 19.3%	295 9.3%	479 15.4%	525 18.1%	304 8.7%	383 13.5%	410 15.6%	335 11.1%	399 15.1%	212 8.1%	567 19.9%	4846 13.9%
<b>Mental morbidity (current,%)</b>	278 11.2%	361 11.8%	247 7.8%	359 11.6%	387 13.4%	230 6.6%	328 11.6%	333 12.7%	259 8.6%	313 11.8%	155 6.0%	395 13.9%	3645 10.5%
<b>ID#</b>	10 0.4%	13 0.4%	12 0.4%	14 0.5%	14 0.5%	16 0.5%	17 0.6%	22 0.8%	31 1%	15 0.6%	15 0.6%	30 1.1%	209 0.6%
<b>Tobacco</b>	185 7.0%	255 8.3%	569 18%	1230 39.6%	155 5.4%	616 17.6%	790 27.8%	837 31.2%	307 10.2%	369 13.9%	723 27.8%	588 20.6%	6624 18.9%
<b>Epilepsy#</b>	9 0.36%	8 0.26%	6 0.19%	3 0.1%	18 0.62%	17 0.48%	4 0.14%	5 0.19%	13 0.43%	1 0.04%	7 0.27%	10 0.35%	101 0.29%
<b>Total no of individual with suicidal risk</b>	309 12.5%	204 6.7%	129 4.1%	247 7.9%	150 5.2%	249 7.1%	62 2.2%	190 7.2%	103 3.4%	139 5.3%	142 5.5%	294 10.3%	2218 6.4%

Table 15: Prevalence of Mental morbidity as per ICD-10 DCR among adults 18+ years (n = 34802) (%)

<b>ICD-10 DCR</b>	<b>Lifetime (95% CI)</b>	<b>Current (95% CI)</b>
<b>Any mental morbidity</b>	<b>13.67</b> <b>(13.61 - 13.73)</b>	<b>10.56</b> <b>(10.51 - 10.61)</b>
<b>F10-F19 - Mental and behavioral problems due to psychoactive substance use (Includes tobacco use disorders F17)</b>	<b>22.44</b> <b>(22.37- 22.52)</b>	
F10 Alcohol use disorder	4.65 (4.61- 4.69)	
F11-19, Other substance use disorder (except F17)	0.57 (0.56- 0.59)	
F17 Tobacco use disorders (Any level of dependence)	20.89 (20.82- 20.96)	
<b>F20 –F29 Schizophrenia and other psychotic disorders</b>	<b>1.41</b> <b>(1.39 - 1.43)</b>	<b>0.42</b> <b>(0.41 – 0.44)</b>
<b>F30-F39 Mood (Affective) disorders</b>	<b>5.61</b> <b>(5.57- 5.65)</b>	<b>2.84</b> <b>(2.81 – 2.87)</b>
F30-31 Bipolar Affective Disorders <sup>§</sup>	0.50 (0.49 - 0.51)	0.30 (0.29 – 0.31)
F32-33 Depressive Disorder	5.25 (5.21 - 5.29)	2.68 (2.65 – 2.71)
<b>F40-F48 Neurotic and stress related disorders</b>	<b>3.70</b> <b>(3.67 - 3.74)</b>	<b>3.53</b> <b>(3.49 - 3.56)</b>
F40 Phobic anxiety disorders	1.91 (1.89 – 1.94)	
F40.0 Agoraphobia	1.62 (1.60 - 1.65)	
F40.1 Social Phobia	0.47 (0.46 – 0.48)	
F41 Other anxiety disorders	1.34 (1.32 – 1.36)	1.15 (1.13 – 1.17)
F41.0 Panic disorder	0.50 (0.49 - 0.52)	0.28 (0.27 – 0.29)
F41.1 Generalized Anxiety Disorder	0.57 (0.56 – 0.59)	0.57 (0.56 – 0.59)
F41.9 Panic disorder with limited symptoms	0.33 (0.32 – 0.34)	
F42 Obsessive Compulsive Disorder	0.76 (0.75 – 0.78)	
F42.0 to 42.8 OCD current	0.32 (0.31 – 0.33)	
F42.9 OCD NOS	0.76 (0.75 – 0.78)	
F43 Reaction to severe stress and adjustment disorders	0.24 (0.23 – 0.25)	
F43.1 PTSD	0.24 (0.23 – 0.25)	

Note: \*All figures in Weighted percentages. Number not differentiated as life time and current prevalence should be interpreted as current weighted prevalence rates (in Table 15 and all other tables)

## Mental morbidity and socio-demographic characteristics

The overall weighted prevalence of mental morbidity was 10.6% for current and 13.7% for lifetime (Table 16). The prevalence of current mental morbidity was found higher in males as compared to females for both current (13.9% vs. 7.5%) and lifetime (16.7% vs. 10.8%). The age group of 40-49 years (14.5 %) had the highest prevalence, while urban metro residents (14.7%) had a higher prevalence for current experience of mental morbidity.

The mental morbidity rates (both current and lifetime experience) were reported to be higher in those who had primary schooling and it was even high when compared to those who had no education. Among those who had education, the mental morbidity rates decreased as the education status increased. Similarly, the mental morbidity rates (both current and lifetime experience) were higher among the working population and those who were widowed/separated than their counterparts (Table 16).

Table 16: Prevalence of mental morbidity as per socioeconomic characteristics (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>13.67</b> (13.62- 13.74)	<b>10.56</b> (10.51 - 10.61)
<b>Age group</b>		
18-29	9.54 (9.46-9.63)	7.39 (7.31-7.47)
30-39	14.60 (14.47-14.74)	11.58 (11.46-11.70)
40-49	18.36 (18.20-18.53)	14.48 (14.33-14.63)
50-59	16.16 (15.98-16.35)	12.42 (12.25-12.58)
60 and above	15.11 (14.95-15.27)	10.90 (10.76-11.04)
<b>Gender</b>		
Male	16.75 (16.65 - 16.84)	13.86 (13.77 - 13.95)
Female	10.80 (10.72 - 10.87)	7.47 (7.40 - 7.53)
<b>Residence</b>		
Rural	12.28 (12.21-12.35)	9.57 (9.51 - 9.63)
Urban non-metro	12.76 (12.61-12.91)	9.73 (9.59 - 9.86)
Urban metro	19.33 (19.17-19.49)	14.71 (14.56 - 14.85)

Continued...

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Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Education</b>		
Illiterate	14.64 (14.52 - 14.76)	11.81 (11.70 - 11.92)
Primary	17.12 (16.97 - 17.27)	13.49 (13.36 - 13.63)
Secondary	15.16 (15.00 - 15.31)	11.40 (11.26 - 11.54)
High School	12.04 (11.90 - 12.18)	9.41 (9.28 - 9.54)
Pre-university & Vocational	9.57 (9.41 - 9.72)	7.61 (7.47 - 7.75)
Graduate and above	9.62 (9.47 - 9.78)	6.03 (5.91 - 6.15)
Not known	11.93 (10.82 - 13.03)	10.05 (9.02 - 11.07)
<b>Occupation</b>		
Workers	16.95 (16.85 - 17.04)	13.67 (13.58 - 13.76)
Non-Workers	10.90 (10.83 - 10.98)	7.92 (7.86 - 7.99)
Others	18.48 (17.49 - 19.47)	14.77 (13.86 - 15.67)
<b>Marital status</b>		
Never married	9.58 (9.47 - 9.70)	7.66 (7.55 - 7.76)
Married	14.38 (14.31 - 14.45)	11.16 (11.10 - 11.22)
Widowed / Divorced / Separated	19.01 (18.72 - 19.30)	12.89 (12.65 - 13.14)
Others	9.70 (8.92 - 10.49)	8.66 (7.92 - 9.41)
<b>Income quintile</b>		
Lowest	15.69 (15.63-15.75)	12.28 (12.14 - 12.41)
second	15.04 (14.98-15.10)	12.14 (12.01 - 12.27)
Middle	13.55 (13.50-13.61)	10.53 (10.41 - 10.65)
Fourth	12.28 (12.22-12.33)	9.61 (9.50 - 9.72)
Highest	12.20 (12.14-15.25)	8.76 (8.65 - 8.86)

The mental morbidity, both current and lifetime experience, was higher in households in the lowest income quintile.

For current experience, the mental morbidity was 12% in households in the lowest income quintile, 11% in middle income quintile

households, and 9% in the highest income quintile households. Households in the highest income quintile experienced only three-fourth the rate of mental morbidity as in households belonging to lowest income quintile.

### 19.3.1 Substance Use Disorders (F10-F19)

The current pattern and trends of substance abuse provides an understanding of the severity of the problem in the community. Psychoactive substance use disorders include alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other stimulants, hallucinogens, volatile solvents and tobacco. Psychoactive substance abuse has considerable detrimental effect on individuals and the society and is of greater public health concern in India.

For alcohol and other drug disorders, MINI captures abuse and dependance. Similarly for tobacco use disorder, moderate to severe use is captured through the specific questionnaire.

The overall weighted prevalence for any substance use disorder (current use)

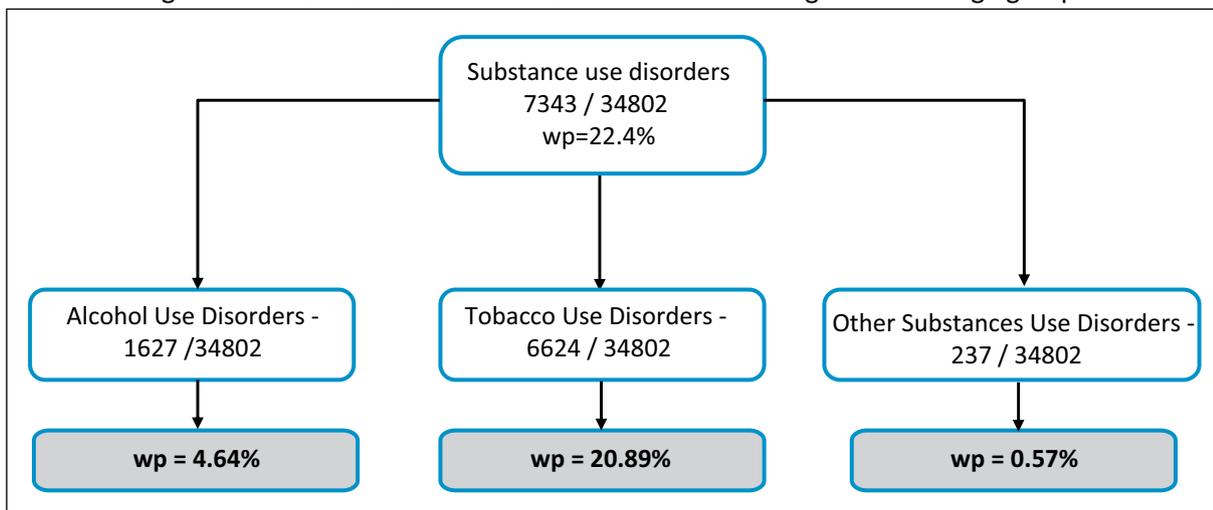
was 22.4% with tobacco use disorders contributing to the maximum (20.9%). The prevalence of alcohol use disorders was 4.6% and those for other drugs was 0.6%. (Figure 14)

The prevalence of SUDs was reported to be the highest in the 50-59 age group (29.4%) and among the sexes, it was higher in males (35.7%). The prevalence was more in rural areas (24.1%) as compared to urban non metro (20.3%) and urban metro areas (18.3%) (Table 17). Among the states, the prevalence was the highest in Rajasthan (38.9%) followed by Madhya Pradesh (36.6%) (Table 8- annexure).

Reported prevalence rate of Alcohol use disorder was 4.6% with higher rate observed in 40-49 year age group (6.7%) and among males (9.1%). The burden was more in the urban non- metro area (5.6%) (Table 17). The prevalence of alcohol use disorder was the highest in Madhya Pradesh (10.3%) followed by Punjab (7.9%), while it was the lowest in Uttar Pradesh (1.5%) (Table 8- annexure).

Current tobacco use was reported by one fourth of the respondents and among them 83.6% were observed to have tobacco use disorder (low to moderate dependence

Figure 14: Prevalence of Substance use disorders among adults 18+ age groups



-52.4%, significant dependence -31.2%) (Fig 15) with a prevalence of low to moderate dependence of 13.1% and significant dependence among 7.8%. The weighted prevalence of tobacco use disorder was 20.9%, being higher among males (32.8%) and in those aged between 40-49 years (27.5%) (Table 17). The prevalence rate was nearly twice in the 30-39 year age group (22.7%) as compared to the 18-29 year age group (12.4%). The burden was relatively more in rural areas (22.7%). The percentage of respondents with tobacco use disorders ranged from 5.5% in Punjab to 38.3% in

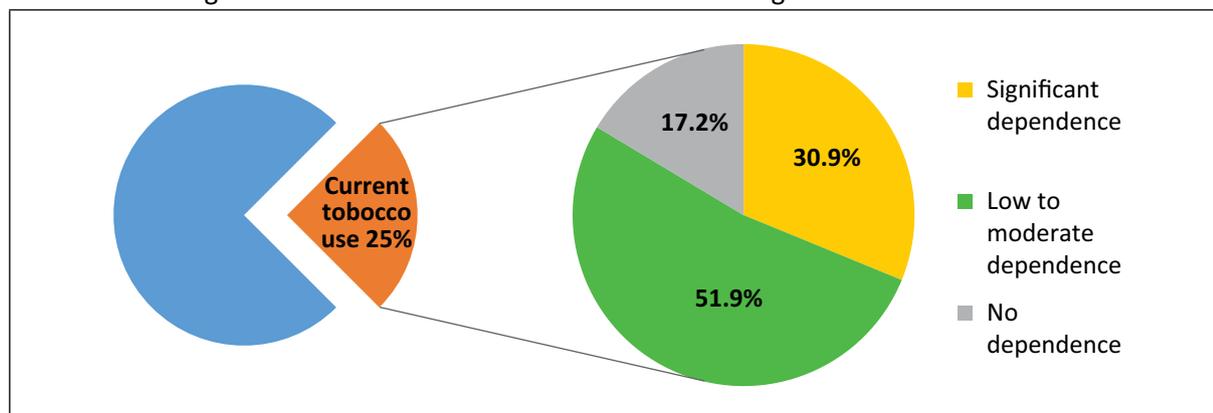
Rajasthan. Only three states (Punjab, Tamil Nadu, Kerala) reported a prevalence that was less than 10.0% (Table 8- annexure)

The prevalence of other SUDs was 0.6% and was predominant amongst males (Males: 1.1% ; Females: 0.1%). The prevalence rate was high in the 40 – 49 age group. The prevalence in the urban metro areas (1.0%) was twice as much as in the urban non metro or rural areas (Table 17). The reported percentage of subjects with other substance use disorders was the highest in Punjab (2.5%) and the lowest in Kerala (0.1%) and Gujarat (0.1%) (Table 8- annexure).

Table 17: Prevalence of Substance Use Disorders by age, gender and place of residence (%)

Characteristics	Any substance use disorder (95%-CI)	Alcohol use disorder (95%-CI)	Other substance use disorder (95%-CI)	Tobacco use disorder (95%-CI)
<b>Total</b>	<b>22.44</b> <b>(22.37-22.52)</b>	<b>4.65</b> <b>(4.61-4.69)</b>	<b>0.57</b> <b>(0.56-0.59)</b>	<b>20.89</b> <b>(20.82-20.96)</b>
<b>Age Group</b>				
18-29	13.54 (13.44-13.64)	2.95 (2.90-3.00)	0.47 (0.45-0.49)	12.45 (12.35-12.55)
30-39	24.58 (24.42-24.75)	5.76 (5.67-5.85)	0.57 (0.54-0.60)	22.71 (22.55-22.87)
40-49	29.21 (29.02-29.40)	6.72 (6.61-6.82)	0.77 (0.73-0.81)	27.48 (27.29-27.67)
50-59	29.40 (29.17-29.62)	5.62 (5.51-5.74)	0.63 (0.59-0.67)	27.17 (26.95-27.39)
60+	27.78 (27.58-27.99)	4.07 (3.98-4.16)	0.56 (0.53-0.60)	26.34 (26.14-26.54)
<b>Gender</b>				
Male	35.67 (35.55-35.79)	9.10 (9.02-9.17)	1.09 (1.06-1.11)	32.76 (32.64-32.88)
Female	10.05 (9.98-10.12)	0.48 (0.47-0.50)	0.09 (0.09-0.10)	9.78 (9.71-9.85)
<b>Residence</b>				
Rural	24.12 (24.03-24.21)	4.57 (4.52-4.61)	0.49 (0.47-0.50)	22.73 (22.64-22.82)
Urban non- metro	20.27 (20.09-20.45)	5.58 (5.48-5.69)	0.49 (0.46-0.52)	18.20 (18.03-18.37)
Urban metro	18.28 (18.12-18.43)	4.19 (4.11-4.27)	0.95 (0.91-0.99)	16.59 (16.44-16.74)

Figure 15: Patterns of tobacco use disorder among current tobacco users



Substance use disorders were reported in 1/5 of the respondents with tobacco use disorders and alcohol use disorders being prevalent in 20.9% and 4.6% of the subjects respectively. Prevalence was more in middle aged individuals and among males. Other SUDs were more common in urban metro areas. There were noticeable variations across the different states. It was realised that data in areas related to SUDs are either

not available and / or difficult to capture. Persons with mental health problems/SUDs are frequently discriminated against and there is both public stigma and self-stigma. Furthermore, due to the family's fear of the police and legal consequences, respondents often hide these behaviors and do not report the same. In view of this, KIIs and FGDs were conducted in all NMHS states regarding substance use.

### Alcohol dependence.....

.....is a 40 years old male, carpenter by profession, resides in a village. He is staying with his wife and 2 children and belong to a low socioeconomic status family.

When he was around 20 years old, he started taking alcohol occasionally along with his father who used to take alcohol daily. He would work as a carpenter all day and used to get tired at night. He gradually started consuming alcohol regularly and within 4 – 5 years he was taking it daily. He had also increased the quantity of alcohol and it used to help him sleep well after a tiring day.

He got married when he was 25 years old and in due time had 2 children. Gradually, his alcohol intake increased to such an extent that he started taking alcohol in the evening even while he was at his shop. He would work as a carpenter under the influence of alcohol in the evening.

He spends nearly Rs.5000 a month which is a huge part of his total income. He is unable to spend quality time with his children and they miss him a lot, since he keeps taking alcohol even when he comes home from work, then takes his dinner and goes to sleep.

He has never seen a doctor for his alcohol problems as he was not aware that it could be treated.

## • Problem of illicit drug use in India

A wide variety of illegal drugs are available in India and their use among youth is a growing concern. This scenario is due to a combination of three specific factors. Firstly, India's close proximity to major opium producing regions of South West and South East Asia (Golden Crescent and the Golden Triangle, respectively) makes it vulnerable to transit and trafficking leading to consumption of Opium derivatives in various forms. Secondly, internal factors like illicit cultivation of Poppy and the diversion from the licit Opium sources into illicit production in interior areas. Thirdly, the emerging threat of manufactured synthetic drugs and diversion of precursor chemicals as a major issue. Recent trends indicates that the synthetic drugs are now replacing the natural and semi-synthetic drugs that have been abused over time.

Cannabis products are one of the most widely abused substances in India. Cannabis weed largely grows unaided in large parts

of the country. However, there have been reports that it is also cultivated in the remote hilly terrains. The drug scenario in the country is further complicated by the acceptance of drug use due to cultural issues.

One of the methods to assess drug availability and its circulation is through the understanding of drug seizures by the Narcotic bureau of India. Table 18 shows that large quantities of variety of drugs transiting through India are seized routinely in large quantities and is worrying.

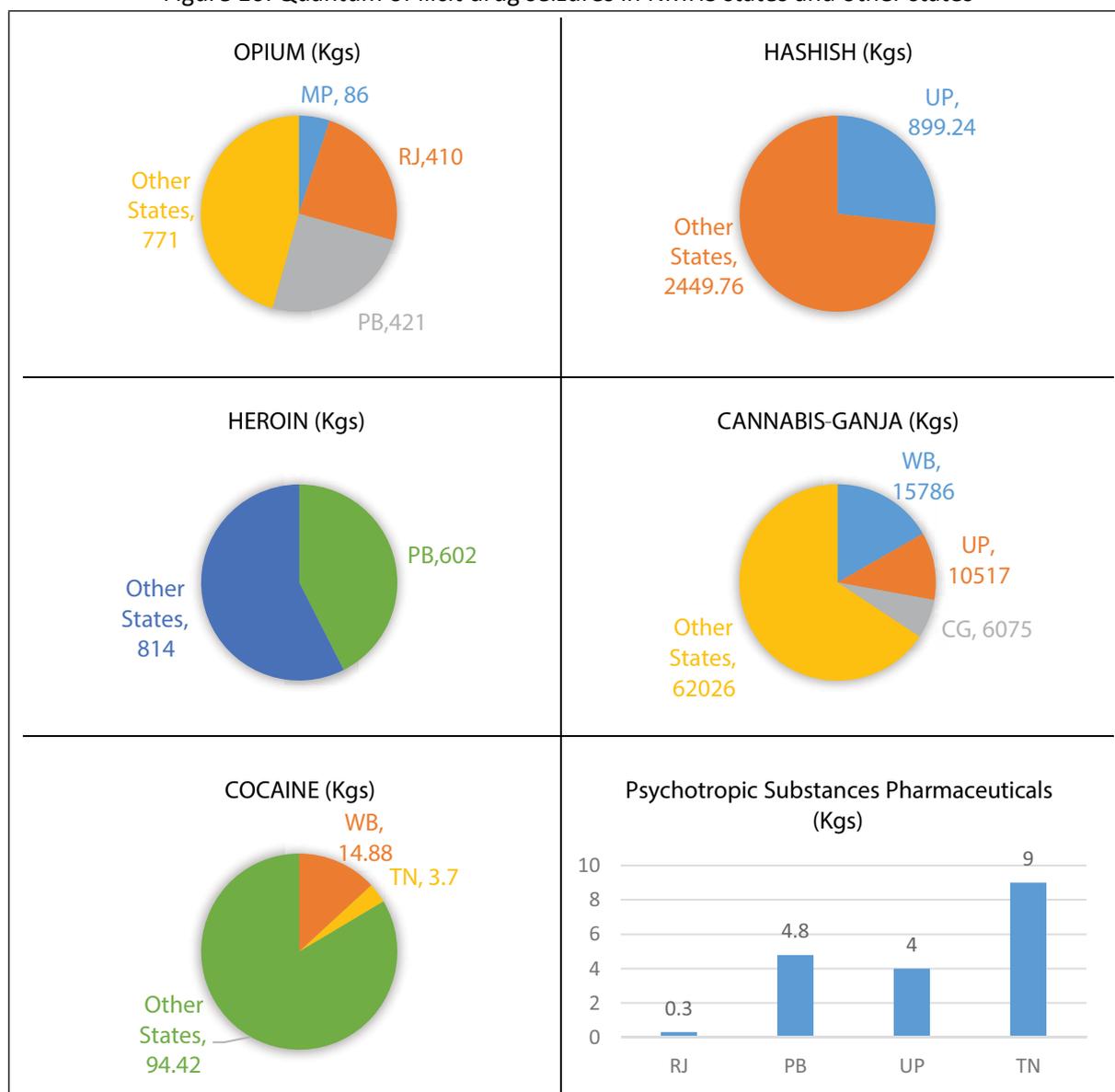
Among the NMHS surveyed states, the data from the Narcotics bureau indicate the seizure of drugs over years and this is just the tip of iceberg (Figure 16). The internal circulation of drugs, specially the new synthetic drugs, though small as reported by seizures, is a huge problem as per anecdotal reports. Our participants in FGDs and KIIS informed that a variety of drugs, both old and new ones, are easily available, hidden in nature and widely used by a section of population. The real extent, nature of problem is difficult due to sensitivity of the issue.

Table 18: Trends of drug seizure (in Kg) in India, 2009-2015

Drugs	2009	2010	2011	2012	2013	2014	2015
Opium	1,732	1,829	2,348	3,625	2,333	1,766	1,687
Morphine	42	25	53	263	7	25	61
Heroin	1,047	766	528	1,033	1,450	1,371	1,416
Ganja	208,764	173,128	122,711	77,149	91,792	108,300	94,403
Hashish	3,549	4,300	3,872	3,385	4,407	2,280	3,349
Cocaine	12	23	14	44	47	15	113
Methaqualone	5	20	72	216	3,205	54	89
Ephedrine	1,244	2,207	7,208	4,393	6,655	1,330	827
Acetic Anhydride	658	74	62	363	243	54	4
Amphetamine Type Stimulants (ATS)	38	20	474	40	85	196	166

Source: Narcotics Control Bureau. Annual report – 2015. Government of India, Ministry of Home Affairs, New Delhi

Figure 16: Quantum of illicit drug seizures in NMHS states and other states



Note: CG: Chattisgarh; MP: Madhya Pradesh; PB: Punjab; RJ: Rajasthan; TN: Tamil Nadu; UP: Uttar Pradesh; WB: West Bengal

### • Observation from FGDs and KIIs

Alcohol and tobacco (upto 60.0%) were found to be the commonest substances abused. Information on other substances of abuse (other than alcohol and tobacco) as revealed by service providers and community members are provided in the Table 19.

The substances of abuse (other than tobacco and alcohol) used across states can broadly be categorised into three groups

viz cannabis, opioids and sedatives. Cough syrups and inhalants like volatile solvents were also reported as commonly abused substances. The approximate percentage of users of these substances varied widely from 0.5% to 40% across states.

### • Problem and patterns of substances users

Changing societal values fuelled by urbanisation, migration and industrialisation are driving young people to experiment and

Table 19: Commonly abused drugs/substances of abuse, an overview from FGDs

States	Common drugs	Approximate % of users*
Assam	Opium, Brown Sugar, Morphine, Heroin, Codex, Dendrite, Cannabis, Spasmo (SP), Clonazepam, LSD, Nitrazepam, Diazepam, Nimuselide	0.2% to 3.0%
Chhattisgarh	Pain killer, Weed, Cough Syrups, Spasmo-proxyvon, Alprazolam, Sleeping pills, Bonfix / Dendrite Opium related products viz Ganja, Bhang, Thinner, Whitener, Sura, Heroine, Nitrazepam, LSD	0.5 to 20.0%
Gujarat	Ganja, Bhang, Alprazolam, Opioid, Benzodiazepines.	Minor proportion of the population
Jharkhand	Cannabis, Volatile solvents, Opioids, Sedatives	2.0% to 10.0%
Kerala	Cannabis, Dextropropoxyphene, Nitrazepam, Alprazolam	Not known
Madhya Pradesh	Ganja (Cannabis), Solvent, Brown sugar, Cough syrup, Alprazolam, Pain killers, Opioids, diazepam, nitrazepam, Charas, Nus, Madhumunika (sasan)	3.0% to 25.0%
Manipur	SP Capsule, Cannabis, Heroin Injection, Inhalants, Sedatives, Pain Killers, Benzodiazepines (Alprazolam, Nitrazepam, clonazepam), WY drugs(ATS), Ganja(Marijuana), Dendrite(Volatile substance), Spasmoproxyvon Tablet	0.5% to 40.0%
Punjab	Opioids, cannabis, sedatives ( especially benzodiazepine), Inhalants	1% to 40.0%
Rajasthan	Heroin / Smack, Bhang, Ganja, Codeine Syrup, Tramadol, Pain Killers, Proton pump inhibitors, Steroids, nail paint remover, Benzodiazepines, Doda post, Cannabis oral preparation, Cannabis smoking, Prescribed drugs	10.0% to 40.0%
Tamil Nadu	Cannabis, Anxiolytics	Not Known
Uttar Pradesh	Alprazolam, Opioid, Cannabis, Ganja, Bhang, Diazepam, Alprazolam, Codeine phosphate, Charas, Spasmoproxyvon, Nitrazepam, Heroin	5.0% to 65.0% (65% is for ganja/bhang)
West Bengal	Volatile substances, Cannabis, Opioids, inhalants, sleeping tabs, cough mixtures, Sedative(Benzodiazepam group), Pain killers	1.0% to 5.0%

\*As reported by key informants (Psychiatrist and Pharmacist) and community members.

use substances of abuse. The problem is more common among the youth and in the adult population. This is reiterated by the following quotes – ‘Most of the Individuals abusing substances fall in the age range 16-30 years’ (Chhattisgarh), ‘Cannabis, volatile solvents, opioids and other sedatives are especially used by youth’ (Jharkhand), ‘Substance use is seen mostly among men in the age group of 20 to 35 years’ (Tamil Nadu). Substances abuse is not uncommon among the elderly as it was observed that the abuse of sedatives

especially prescription drugs are common among the elderly in Punjab.

Substance abuse, though a male phenomenon, is also observed among females. Participants from UP had noted that ‘Alprazolam use is more common among females’. Similar responses were obtained from other states as well- ‘Seen a few women who had alcohol dependence’ (Kerala), ‘Although males predominate, women also are addicted to various substances, especially tobacco and

alcohol' (Jharkhand). Another respondent from Punjab had expressed that 'elderly females would also abuse Non Steroidal Anti - Inflammatory Drugs (NSAIDs) and alcohol (like beer) abuse in young females is on the rise'.

There are specific groups of individuals who are at a higher risk of embracing this health impacting behaviour which is brought out by one of the participants from Chhattisgarh – 'Substance abuse is more common in males, urban slum inhabitants, those in low socioeconomic status and in unemployed individuals'. In Punjab, they had expressed that 'Cannabis is mainly used by labour class people but nowadays, students are getting hooked to it'.

- **Reasons for Substance use/abuse**

Drug abuse is a complex phenomenon. There are several macro and micro issues that determine the use of psychoactive substances in the community. Stress relief, curiosity, recreation, lack of family support/ emotional support for youths and depression were some of the reasons brought out by participants in many states. Interestingly, it was also pointed out that drugs (opioids) are also used to increase sexual performance. One particular response sums up the entire reasons - 'The main reason for substance use is peer pressure, family environment, social approval of a particular substance and its availability/ accessibility' (Chhattisgarh).

- **Stigma / Fear of Police / Societal concerns**

In general, individuals who use psychoactive substances as well as their families are stigmatised and discriminated against by the society. This is exemplified by the following quote - 'Very difficult to marry a girl/

boy whose family is addicted; people boycott such families; it is difficult for such families to borrow money' (Rajasthan). The level of stigma in the community also affects the health seeking behavior of affected individuals leading to a vicious cycle as noted by the following quote - 'What if I go for treatment, what will other locality members say, what if I am seen by others' (Manipur). Having said this, it must also be emphasized here that society has approved the use of certain substances which is reiterated by the following statements – 'Society is very much concerned for substance related issues, but sometimes promotes (cultural sanctioned use of cannabis and alcohol) it' (Uttar Pradesh); 'especially in rural places, alcohol use is a societal norm during celebrations and there are many events round the year to celebrate' (Jharkhand); 'Bhukki (opium) and alcohol use are socially sanctioned and so less stigmatizing' (Punjab).

Several measures have been taken by the government to curb the menace of substances use, including the implementation of "The Narcotic Drugs and Psychotropic Substances Act, 1985", in which the police department also has a stake. However, participants have expressed mixed responses with respect to fear of the police among substance users: 'Even though fear for police is there, but it does not affect that much on these people' (Manipur); 'The well-connected just do not care about the police as they know they would not be harmed. Other persons fear the police as the laws related to illegal substances are very strict' (Punjab). (Refer to Part 2 of NMHS for status of implementation of legislation)

- **Impact of substance use/abuse**

There is a lot of documented evidence on the impact of various psychoactive substances on individuals, families and the society at large. Both the health and non-health

related aspects of one’s life gets affected due to substance use disorders. Accidents, liver problems, delirium, tuberculosis and cancer were some of the health problems highlighted by the participants. The impact on family members is far more significant and distressing, especially on the spouse and children as highlighted by the following statement - *‘Financial loss, family bankruptcy, loss of the peace in the family, stressed relationships between the family & neighbors, divorcel separation of spouses, negative impact on their children are some of the impacts,’ (Rajasthan); ‘The impact is severe, especially on women in the family’ (Jharkhand)*. Further School/college dropout, unemployment and increasing crime rates were expressed to be common in communities where the burden of substance use disorder is more.

### 19.3.2 Schizophrenia and other Psychotic disorders (F20-29)

With a prevalence of 0.5% for current and 1.4% for lifetime experience, the prevalence of Schizophrenia and other Psychotic disorders was significant (Table 20). The rate among males was slightly higher than those among females (0.5% in males vs. 0.4% in females). Compared to other age groups, 40-49 age groups (0.6%) had a higher prevalence for current experience of Schizophrenia and other Psychotic disorders. The rates for current experience was higher for urban metro residents (0.7%) than for others.

Table 20: Prevalence of Schizophrenia and other Psychotic disorders by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>1.41</b> <b>(1.39 - 1.43)</b>	<b>0.42</b> <b>(0.41 - 0.44)</b>
<b>Age group</b>		
18-29	1.39 (1.36 - 1.43)	0.38 (0.37 - 0.40)
30-39	1.33 (1.28 - 1.37)	0.47 (0.44 - 0.50)
40-49	1.61 (1.56 - 1.66)	0.59 (0.56 - 0.63)
50-59	1.31 (1.26 - 1.77)	0.31 (0.28 - 0.33)
60 and above	1.43 (1.37 - 1.48)	0.36 (0.33 - 0.39)
<b>Gender</b>		
Male	1.49 (1.46 - 1.52)	0.46 (0.45 - 0.48)
Female	1.33 (1.31 - 1.36)	0.39 (0.37 - 0.40)
<b>Residence</b>		
Rural	1.05 (1.03 - 1.08)	0.37 (0.36 - 0.39)
Urban non-metro	0.92 (0.88 - 0.97)	0.36 (0.33 - 0.39)
Urban Metro	3.05 (2.98 - 3.12)	0.66 (0.62 - 0.69)

## Psychotic disorder.....

..... is a 55 year old female living with her joint family members in an urban area. For the whole of her life, she was a nice person as reported by family members but used to get moody at times. She had a good family life throughout and used to fulfil her responsibilities. Several years later, ..... used to get very suspicious and always picked up fights with other family members and those from the village. She stopped doing any household work, neglected her personal hygiene and took bath only when someone forcedly gave her a bath. She suddenly started telling everyone she had become a goddess who was asked by gods to cure people. She got married and also had two children but never took proper care of them.

The family initially went to a local faith healer. Since then she has met several faith healers and everyone in the family believed in them. Finally, one of them referred the family to a hospital. In the hospital, she was diagnosed to have Schizophrenia and was given medications which she has been taking regularly for the last 20 years. After taking medicines, her problems reduced and she started helping in household work. She has been stable for many years now. Even though her family did not show any interest in her, they were looking after her. Once she improved, all members began showing affection and interest in her.

### 19.3.3 Mood disorders (F30-39)

With a prevalence of 2.9% for current among urban metro residents (5.6%) when (Table 21), experience, mood disorders was compared to their respective counterparts. higher in the 40-49 age group (3.9%) and Also, the current rates for females (3.1%)

Table21: Prevalence of mood disorders by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>5.61</b> (5.57 - 5.65)	<b>2.84</b> (2.81 - 2.87)
<b>Age group</b>		
18-29	3.35 (3.30 - 3.40)	1.76 (1.72 - 1.80)
30-39	5.63 (5.55 - 5.72)	2.77 (2.71 - 2.83)
40-49	7.94 (7.82 - 8.05)	3.87 (3.79 - 3.96)
50-59	7.01 (6.88 - 7.14)	3.75 (3.65 - 3.84)
60 and above	7.31 (7.19 - 7.43)	3.65 (3.57 - 3.74)
<b>Gender</b>		
Male	5.19 (5.14 - 5.25)	2.57 (2.53 - 2.61)
Female	6.00 (5.94 - 6.06)	3.09 (3.05 - 3.13)
<b>Residence</b>		
Rural	4.79 (4.74 - 4.83)	2.24 (2.21 - 2.27)
Urban non-metro	5.22 (5.12 - 5.32)	2.05 (1.99 - 2.12)
Urban metro	8.82 (8.71 - 8.93)	5.57 (5.48 - 5.66)

were higher as compared to those for males (2.6%).

### Bipolar Affective Disorders (F30-31)

Bipolar affective disorders, lie in the category of severe mental disorders and had an overall weighted prevalence of 0.3% for current and

0.5% for lifetime experience (Table 22). Males had a slightly higher rate for current prevalence of bipolar affective disorder (0.3%) when compared to females (0.2%). Among various age groups and residence categories, those in the 40-49 (0.4 %) and urban metro residents (0.7%) had a higher prevalence for current experience of bipolar affective disorder.

Table 22: Prevalence of Bipolar Affective Disorder by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>0.50</b> <b>(0.49 - 0.51)</b>	<b>0.30</b> <b>(0.29 - 0.31)</b>
<b>Age group</b>		
18-29	0.41 (0.39 - 0.43)	0.25 (0.24 - 0.26)
30-39	0.48 (0.45 - 0.51)	0.28 (0.26 - 0.31)
40-49	0.62 (0.58 - 0.65)	0.39 (0.36 - 0.41)
50-59	0.55 (0.51 - 0.59)	0.32 (0.29 - 0.35)
60 and above	0.56 (0.52 - 0.59)	0.30 (0.28 - 0.33)
<b>Gender</b>		
Male	0.58 (0.56 - 0.60)	0.33 (0.32 - 0.35)
Female	0.42 (0.41 - 0.44)	0.26 (0.25 - 0.27)
<b>Residence</b>		
Rural	0.41 (0.39 - 0.42)	0.19 (0.18 - 0.20)
Urban non-metro	0.35 (0.32 - 0.38)	0.21 (0.19 - 0.24)
Urban metro	0.94 (0.90 - 0.97)	0.73 (0.70 - 0.77)

### Bipolar Affective Disorder.....

.....a 30 year old female said that she has a mind problem from past few years. Earlier, she was admitted in the hospital one year back to stabilize her mood. She was brought to the hospital by her parents and brothers; she tried to convince people that she is unique in this world and was found banging her hands on the wall, throwing things here and there and abusing people. From past few weeks she avoided medication and hardly slept for more than an hour. When she has periods of depression she avoids taking medicine.

She quit her studies very early and now stays with her parents. Earlier she used to work with her parents in their farm. She said she loves to visit relatives and friends and engages herself routinely in this way. The family took her to hospital only when it seemed to be severe.

She has been hospitalized twice in the past in public hospital. In the past few days, she had hardly slept for more than few hours and is having very severe symptoms; shouting on people around her and always getting into a fight. She talks loudly and feels that she is 'pressured' to show her power. Her uncle who also suffered from mental health problem had committed suicide.

## Depressive Disorders (F32-33)

The overall weighted prevalence of depressive disorders was 2.7% for current experience and 5.3 % for lifetime experience (Table 23). For current experience of

depressive disorders, the rates for females (3.0%) were slightly higher compared to that for males (2.3%). Prevalence in the 40-49 age group (3.6%) and among urban metro residents (5.2%) were higher when compared to their respective counterparts.

Table 23: Prevalence of Depressive Disorder by age, gender and residence(%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>5.25</b> <b>(5.21 - 5.29)</b>	<b>2.68</b> <b>(2.65 - 2.71)</b>
<b>Age group</b>		
18-29	3.03 (2.99 –3.08)	1.61 (1.57 - 1.64)
30-39	5.30 (5.21 - 5.38)	2.63 (2.57 - 2.69)
40-49	7.47 (7.36 - 7.59)	3.64 (3.56 - 3.72)
50-59	6.64 (6.51 - 6.76)	3.60 (3.51 - 3.70)
60 and above	6.93 (6.82–7.05)	3.53 (3.44 - 3.61)
<b>Gender</b>		
Male	4.75 (4.70 - 4.80)	2.37 (2.34 - 2.41)
Female	5.72 (5.66 - 5.77)	2.97 (2.92 - 3.01)
<b>Residence</b>		
Rural	4.48 (4.43 - 4.52)	2.15 (2.12 - 2.18)
Urban non-metro	4.93 (4.83–5.02)	1.90 (1.84 - 1.96)
Urban metro	8.23 (8.12 - 8.34)	5.17 (5.09 - 5.26)

### Depression.....

Mrs....., 45 years old married lady is a shop keeper. She was managing the shop without many problems as her husband was working in another place.

Since the last 10 to 11 months, she complains that she is not able to fall asleep; even when she is able to sleep, she wakes up early. Of late, she is not able to eat, not interested to do anything in her day to day life and often feels exhausted. In her shop she is not able to attend to her customers.

All these symptoms started when she was involved in a money fiasco. She loaned some money to her friend who never returned it . To construct her house, she had to borrow money from her neighbour and when her friend did not return the money she did not have money to give for house construction. Her neighbor abused her when she did not return the money and it resulted in constant quarrels. As her husband is posted outside the town for duties, she had to face all these situations herself.

Faced with these situations, she even says she wants to commit suicide; once she consumed some rat poison and was hospitalised for few days. She has approached many people for help and has not been successful. In the meantime, her friend who took the money has disappeared. She said her life is hanging in balance and who knows what is in store.

### 19.3.4 Neurotic and Stress related disorders (F40-48)

Not much difference was noticed between current and lifetime prevalence of neurotic and stress related disorders (3.5% vs. 3.7 % (Table 24). Compared to other age groups,

Table 24: Prevalence of Neurotic & Stress related disorders by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>3.70</b> (3.67 - 3.74)	<b>3.53</b> (3.49 - 3.56)
<b>Age group</b>		
18-29	3.00 (2.95 - 3.05)	2.95 (2.90 - 3.00)
30-39	4.00 (3.92 - 4.07)	3.79 (3.71 - 3.86)
40-49	4.65 (4.56 - 4.74)	4.39 (4.30 - 4.48)
50-59	4.16 (4.06 - 4.26)	3.87 (3.77 - 3.96)
60 and above	3.53 (3.45 - 3.62)	3.30 (3.22 - 3.39)
<b>Gender</b>		
Male	2.85 (2.81 - 2.89)	2.72 (2.67 - 2.76)
Female	4.50 (4.45 - 4.55)	4.29 (4.24 - 4.33)
<b>Residence</b>		
Rural	3.03 (3.00 - 3.07)	2.84 (2.80 - 2.87)
Urban non-metro	2.42 (2.35 - 2.49)	2.29 (2.22 - 2.36)
Urban metro	7.08 (6.98 - 7.18)	6.93 (6.83 - 7.03)

#### Post-Traumatic Stress Disorder .....

..... is a 24 year old male living in a village adjacent to the national highway. Normally a fun loving guy, he has become increasingly withdrawn, jumpy and irritable in recent times. His parents are really worried about what to do.

On that fateful day about 8 months back, he was waiting for his fiancée who planned to visit him. At the intersection, suddenly, a truck with a drunken driver came and hit her and ran over her. He says he vividly remembers the scene. He raced to her side, embraced her crumpled fully blood soaked body as she died in his arms in the middle of the road. He had to transfer the body to her native place a few Kms away and was involved in all activities soon after.

He said, no matter how hard he tries, he is not able to forget it and frequently the entire incident comes back to him as if it was happening all over again. On several nights he wakes up with nightmares about the accident. He has stopped going to the farm because he has to cross the same spot where his fiancée died. He has now begun to avoid going to that road and to the other side of the village.

Even though everyone tells him the past is past, he feels that the past is ever present for him. His family members are persuading him to seek help.

the prevalence of current experience of neurotic and stress related disorders were higher in the age group of 40-49 years (4.4 %). When examined across the genders, it was found that females were nearly twice as likely as males to have current experience of neurotic and stress related disorders (4.3% for females vs. 2.7% for males). Urban metro residents (6.9%) had the highest prevalence for current experience of neurotic and stress related disorders when compared to their counterparts.

## Phobic anxiety disorder (F40)

The overall weighted Prevalence of Phobic anxiety disorder was 1.9% for current experience (Table 25). The females had higher rates (2.4%) when compared to males (1.5%). Similarly, rates for 40-49 age group (2.5%) and rates for urban metro residents (3.8%) were reported higher when compared to their respective counterparts.

Table 25: Prevalence of Phobic anxiety disorder by age, gender and residence (%)

Characteristics	Current (95% CI)
<b>Total</b>	<b>1.91</b> <b>(1.89 - 1.94)</b>
<b>Age group</b>	
18-29	1.76 (1.72 - 1.80)
30-39	1.86 (1.81 - 1.91)
40-49	2.47 (2.41 - 2.54)
50-59	1.92 (1.85 - 1.99)
60 and above	1.72 (1.66 - 1.77)
<b>Gender</b>	
Male	1.46 (1.43 - 1.49)
Female	2.34 (2.30 - 2.37)
<b>Residence</b>	
Rural	1.53 (1.51 - 1.56)
Urban non-metro	1.26 (1.21 - 1.31)
Urban metro	3.77 (3.69 - 3.84)

### Phobia .....

..... is a 20 years old female, 8th pass, unmarried, living with her parents and 2 siblings at a village in the Jaitu tehsil of district Faridkot.

She was studying in 8th class and was 15 years old when she suddenly started being fearful. She would stay in a corner of her room, would talk to herself and gesture in the air as if talking to someone. Her family members asked her why she was doing this. She said that there are a few people who were trying to harm her and kill her. She hears voices of 4 – 5 people who talk to her. They say they would kill her and take her with them away from her parents. She also started feeling that they were actually doing things to her like touching her private parts and even having sex with her. She would not be able to sleep at night properly due to fear of being harmed.

She was immediately taken to a faith healer in a nearby village as her family members thought that she was possessed by a spirit. The faith healer gave her his blessings but he also told the family members to take her to the medical college at Faridkot. She was taken to the emergency department where she was referred to the Department of Psychiatry. She was admitted in the psychiatry ward and prescribed medications. Her fear and aggression reduced and gradually the voices and other symptoms also disappeared. She was discharged after 15 days and told to continue medications for at least 1 year and follow up regularly. She took treatment for 1 year and then it was stopped gradually by the treating doctor.

She remained well for 1 year and then again she developed the same problems. This time, the family was well aware of her illness and they took her immediately to the psychiatrist before her symptoms could become severe. She was prescribed the same medications and her symptoms remitted. She continued medications for 1 year and then it was stopped. She and her family members reported that she is better now.

## Generalized anxiety disorder (F41.1)

The overall weighted prevalence of generalized anxiety disorders was 0.6% for current experience (Table 26). For current experience of generalized anxiety disorders

,the rates for females (0.8 %) were higher as compared to those for males (0.4%). Similarly, the rates for the 40-49 age group (0.8 %) and the rates for urban metro residents (1.3%) were higher has compared to their respective counterparts.

Table 26: Prevalence of Generalized anxiety disorder by age, gender and residence (%)

Characteristics	Current (95% CI)
<b>Total</b>	<b>0.57 (0.56 - 0.59)</b>
<b>Age group</b>	
18-29	0.43 (0.41 - 0.45)
30-39	0.63 (0.60 - 0.66)
40-49	0.77 (0.73 - 0.81)
50-59	0.74 (0.70 - 0.78)
60 and above	0.47 (0.44 - 0.50)
<b>Gender</b>	
Male	0.38 (0.36 - 0.39)
Female	0.76 (0.74 - 0.78)
<b>Residence</b>	
Rural	0.41 (0.40 - 0.42)
Urban non-metro	0.38 (0.36 - 0.41)
Urban metro	1.30 (1.25 - 1.34)

### Generalised Anxiety Disorder .....

..... is a 38 year old divorcee with 2 teenage children. Due to constant altercations with her alcoholic husband, she finally decided to divorce him 6 years back. This was a very difficult time and finally she was happy that it got over. She has a regular job with a good salary for the past several years in a school.

Since the last 3 to 4 years, she is found to be constantly worrying about losing her job and is worried about not being able to provide care for her children. This has only increased in the last 8 to 10 months. Initially she thought it was some fear, but it only started getting worse. She said that despite her best efforts, she is not able to shake off her negative thoughts. Whenever, she gets worried, she gets restless, tired and tense. She often paces in her office when she's alone. She has had several embarrassing moments in meetings where she has lost track of what she was trying to say. When she goes to bed at night, she says, it's as if her brain won't shut off. She finds herself mentally rehearsing all the worst case scenarios regarding losing her job and ending being homeless.

After being in turmoil for quite some time, she went and met a local doctor. With medications, she started feeling better and started regaining her strength. She said that life will improve in the coming days.

### 19.3.5 Suicidal risk

The police at both the state and district levels collect detailed information regarding suicide, as this is considered a criminal act and is investigated. Data on suicide was obtained from the state crime records bureau in all states, while data on suicidal risk was collected from direct interviews through MINI interviews. Even though a few reports from different agencies have highlighted the limitations of existing data, in the absence of other reliable information, this is often the starting point. Being a punishable offence in India, under reporting of suicide is expected at all levels (decriminalization of suicide attempt is included in the new mental health bill).

The national suicide rate was 10.6 per lakh population for the reporting year 2014 (Table 27). Seven of the 12 surveyed states recorded suicide rates higher than the national average [Assam (11.1), Chhattisgarh, Gujarat and Kerala (22.4 each), Madhya Pradesh (11.9), Tamil Nadu (23.4) and West Bengal (15.5)]. Suicide rates were the lowest in Uttar Pradesh (1.7) and Manipur (2.0) which needs to be interpreted with caution considering the role of under reporting and other contextual factors. A higher female suicide rate (15.1 per lakh) was observed in Kerala, Chhattisgarh and Gujarat. Suicide rates in middle aged individuals were the highest in Kerala. The above information is only with regard to suicide and the proportion of suicidal risk is expected to be much higher in all these states.

Table 27: Suicide incidence rate (per 1,00,000 population) across NMHS states

	AS	CG	GJ	JH	KL	MP	MN	PB	RJ	TN	UP	WB	India
<b>Total</b>	<b>11.1</b>	<b>22.4</b>	<b>11.7</b>	<b>4.0</b>	<b>23.9</b>	<b>11.9</b>	<b>2.0</b>	<b>3.3</b>	<b>6.3</b>	<b>23.4</b>	<b>1.7</b>	<b>15.5</b>	<b>10.6</b>
<b>Gender</b>													
Male	15.75	29.32	14.62	5.26	40.01	14.20	2.15	4.85	9.09	30.34	2.01	18.98	14.30
Female	6.79	15.10	9.06	2.55	11.70	10.56	1.34	1.78	3.71	14.32	1.56	12.20	7.24
<b>Age group</b>													
<14 years	0.11	1.28	0.33	0.40	0.73	0.64	0.37	0.11	0.35	1.72	0.12	1.33	0.50
14 -17 years	15.90	20.37	9.60	6.69	13.02	14.97	3.87	2.79	5.17	18.94	1.66	20.88	9.52
18 -29 years	17.47	37.94	19.75	7.15	23.75	24.55	2.37	5.87	11.96	31.46	4.12	23.67	17.15
30 -44 years	19.12	32.91	19.05	5.95	32.55	17.97	2.37	5.21	11.76	30.78	2.89	24.32	17.24
45 -59 years	17.12	32.44	14.46	4.99	40.31	14.27	1.96	4.19	8.51	29.70	1.73	15.86	15.74
>60 years	3.32	18.06	8.98	1.57	42.16	7.58	0.49	1.15	3.33	18.96	0.64	9.75	9.40

Source: National Crime Records Bureau-2014

• **Suicidal risk**

Suicidal risk includes ideation, preparing and making a plan, repeated thoughts of attempts and attempting it .The presence of these symptoms along with their intensity and severity is classified as low, moderate or high.

In the NMHS, the individual’s risk for suicide in the past one month was assessed by using a set of algorithmic questions. The proportion of respondents having a risk of suicide in the past one month was 6.0%, with high risk being recognised among 0.9% of the subjects (Table 28 & Figure 6).

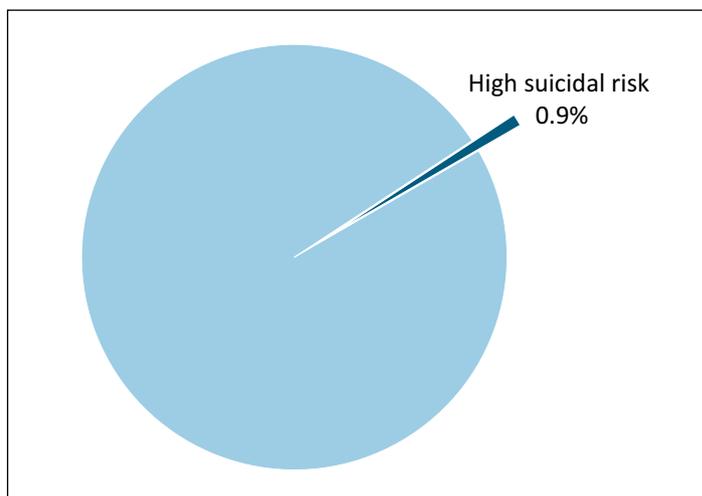
The percentage of respondents with the risk of committing suicide was the highest in the 40-49 year age group (7.1%). It was also high among females (6.7%). The risk is observed to be more among respondents from urban metro areas (8.6%) than among those from urban non metro (4.9%) and rural areas (5.5%) (Table 28).

The risk for suicide was low in Chhattisgarh (2.9%) and high in Kerala (12.6%) followed by Manipur (10.5%).High risk for suicide was maximally observed from Kerala (2.2%) which was closely followed by west Bengal (1.7%) (Table 9-annexure).

Table 28: Prevalence of suicidal risk by age, gender and place of residence (%)

Characteristics	Moderate risk (95%CI)	High risk (95%CI)
<b>Total</b>	<b>0.72 (0.71-0.74)</b>	<b>0.90 (0.89-0.92)</b>
<b>Age group</b>		
18-29	0.56 (0.54-0.58)	0.87 (0.84-0.89)
30-39	0.87 (0.83-0.90)	0.81 (0.78-0.85)
40-49	0.88 (0.84-0.92)	1.19 (1.15-1.24)
50-59	0.60 (0.57-0.64)	1.02 (0.97-1.07)
60+	0.85 (0.81-0.89)	0.70 (0.66-0.73)
<b>Gender</b>		
Male	0.61 (0.59-0.63)	0.66 (0.64-0.68)
Female	0.83 (0.81-0.85)	1.14 (1.11-1.16)
<b>Residence</b>		
Rural	0.68 (0.66-0.69)	0.76 (0.74-0.78)
Urban non-metro	0.60 (0.56-0.63)	0.54 (0.50-0.57)
Urban metro	0.99 (0.95-1.03)	1.71 (1.66-1.77)

Figure 17: Prevalence of high suicidal risk among study subjects



### Suicidality .....

..... is a 65 years old female, is a home maker and mother of five children.

She has history of attempted suicide once by using pesticides. Somehow she was rescued but unfortunately because of intense pesticide, she has developed severe stomach pain, mouth ulcer and other digestion ailments. These symptoms led her to have depression for the past several years along with fatigue, decreased sleep, poor appetite, and irritability that was further aggravated by her daughter in laws who were not showing any concern on her.

She has revealed to the FDC that there was no point to live anymore as her biological complications are unresolved for last several years. She did not consult anyone for her illness and attributed her symptoms to earlier suicidal attempt.

Psycho education was given to her with the focus on reality therapy as well as BMT. We have also addressed the pertaining issue among her family members in a therapeutic way as how could they help in the process of recovery. We have motivated the subject to undergo pharmacological treatment for her severe depression. With the concurrence of .....and as well as her family members, we have referred her to the psychiatrist. She adhered with her treatment in a consistent way and her treating psychiatrist informed that she has noted dramatic changes in the cohesiveness of her family.

## 19.4 Mental Morbidity among adolescents (13-17 years)

NMHS examined mental morbidity among adolescents (13 – 17 years) using MINI KID structured diagnostic instrument in 4 of the 12 NMHS states on a pilot basis. The overall prevalence of any mental morbidity was 7.3% with a similar distribution between males and females (M: 7.5%; F:7.1%) (Table 29). Interestingly, the problem in urban metro

regions was higher as compared to rural and urban non-metro areas (13.5% vs. 6.9% and 4.3% respectively). Common Mental disorders constituted to 5.4% of the disease burden and Neurotic and stress related disorders contributed to about 4.2% of the current burden. The life time burden of Psychotic disorders was 1.4% and nil currently.

Table 29: Prevalence of mental disorders amongst adolescents (n= 1191) (%)

Characteristics	Prevalence (95% CI)
<b>Any mental morbidity</b>	<b>7.3 (5.8-8.7)</b>
<b>Gender</b>	
Male	7.5 (5.1-9.8)
Female	7.1 (5.1-9.0)
<b>Place of residence</b>	
Rural	6.9 (4.0-9.7)
Urban	4.3 (2.3-6.2)
Urban Metro	13.5 (10.4-16.5)

Most frequent mental disorders (current prevalence) among adolescents were Anxiety disorders and mood disorders (Table 30). The risk of suicides (including moderate to high risk) was 1.3%. Several other disorders with low prevalence were identified in the survey. The screener positivity rate of Autism spectrum disorder among adolescents was 1.6% and requires further investigation. It is important to

highlight that data has to be cautiously interpreted as this was undertaken on a pilot basis on a small sample of adolescents and used a screener instrument.

Table 30: Prevalence of mental disorders amongst adolescents by diagnosis (n= 1191)(%)

Diagnostic Categories	Prevalence (95% CI)
Depressive Episode & Recurrent Depressive Disorder	0.8 (0.3 – 1.4)
Agoraphobia	2.3 (1.4-3.1)
Intellectual Disability	1.7 (1.0 - 2.4)
Autism Spectrum Disorder	1.6 (0.9-2.3)
Phobic Anxiety Disorder	3.6 (2.6 - 4.7)
Dysthymia	0.8 (0.2-1.3)
Social Phobia	0.8 (0.3-1.4)
Conduct disorders including Oppositional Defiant Disorder	0.8 (0.3-1.4)
Bipolar Affective Disorder	0.6 (0.1-1.0)

## 19.5 Common and Severe mental morbidity

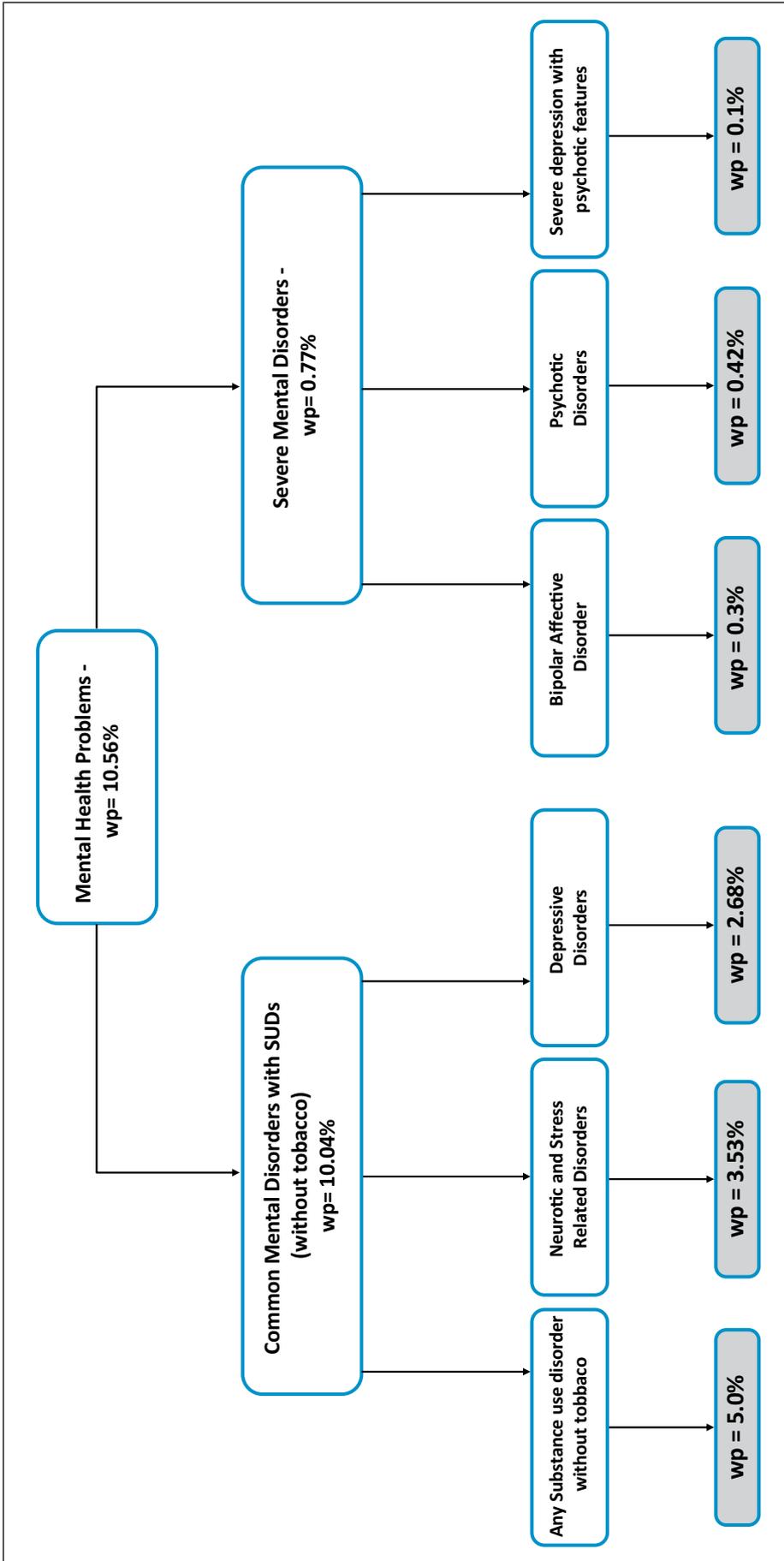
Common mental morbidity represents a group of disorders which are highly common and are often misdiagnosed as physical illnesses in primary care settings leading to their mismanagement and resulting in long term disability. It includes depression (excluding severe depression with psychotic symptoms), neurosis and substance use disorders (excluding tobacco use disorders).

Severe mental disorder represents a group of disorders with greater morbidity and mortality requiring intensive and prolonged

care. It includes bipolar affective disorders, non-affective psychosis and severe depression with psychotic symptoms.

The overall weighted prevalence for any mental illness was 13.7% - lifetime and 10.6%- Current (Table 15 and Figure 18). Compared to severe mental disorders, common mental disorders were nearly 6 times higher for lifetime prevalence and more than 12 times for current prevalence. For lifetime Common Mental Disorders, depressive disorders had a relatively higher prevalence of 5.1%

Figure 18: Current Prevalence of common and severe mental morbidity among adults 18 years and above



as compared to neurotic and stress related disorders. It may be noted that individuals with depressive disorders would also have had one or more neurotic and stress related disorders. Within severe mental disorders, non-affective psychoses contributed to a prevalence of 1.4% and bipolar affective disorders to 0.5% (Figure18).

The overall weighted prevalence of common mental morbidity was 10.0% for current experience and 12.3% for lifetime experience (Table 31). It was found that males were nearly twice as likely to have current experience for common mental morbidity as females (13.3% vs. 6.9%). The age group of 40-49 years (13.7%)

and urban metro residents (13.8%) had the highest prevalence of current experience of common mental morbidity when compared to their counterparts.

The overall weighted prevalence of severe mental disorders was 0.8 % for current experience and 1.9 % for lifetime experience (Table 32). Current experience of severe mental morbidity was higher in the 40-49 age group, than in other age groups (1.2%). Similarly, males had a slightly higher prevalence (1.0%) as compared to females (0.7%) for current experience of severe mental disorders. Urban metro residents (1.6%) when compared to their counterparts had higher rates.

Table 31: Prevalence of common mental morbidity by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	<b>12.30</b> (12.25 - 12.36)	<b>10.04</b> (9.99 - 10.09)
<b>Age group</b>		
18-29	8.22 (8.14 - 8.30)	6.95 (6.88 - 7.03)
30-39	13.39 (13.26 - 13.52)	11.05 (10.93 - 11.17)
40-49	16.75 (16.59 - 16.91)	13.67 (13.53 - 13.82)
50-59	14.84 (14.66 - 15.01)	12.07 (11.90 - 12.23)
60 and above	13.64 (13.48 - 13.79)	10.38 (10.24 - 10.52)
<b>Gender</b>		
Male	15.22 (15.13 - 15.31)	13.32 (13.24 - 13.41)
Female	9.57 (9.50 - 9.64)	6.96 (6.90 - 7.02)
<b>Residence</b>		
Rural	11.26 (11.19 - 11.33)	9.15 (9.09 - 9.21)
Urban non-metro	11.79 (11.64 - 11.93)	9.26 (9.13 - 9.39)
Urban metro	16.39 (16.25 - 16.54)	13.79 (13.65 - 13.93)

Table 32: Prevalence of severe mental morbidity by age, gender and residence (%)

Characteristics	Lifetime (95% CI)	Current (95% CI)
<b>Total</b>	1.93 (1.91 - 1.96)	0.77 (0.75 - 0.78)
<b>Age group</b>		
18-29	1.78 (1.74 - 1.82)	0.67 (0.65 - 0.70)
30-39	1.81 (1.76 - 1.86)	0.76 (0.73 - 0.79)
40-49	2.41 (2.34 - 2.47)	1.16 (1.12 - 1.21)
50-59	1.85 (1.78 - 1.92)	0.62 (0.58 - 0.66)
60 and above	2.00 (1.93 - 2.07)	0.68 (0.64 - 0.72)
<b>Gender</b>		
Male	2.15 (2.12 - 2.19)	0.98 (0.86 - 0.90)
Female	1.73 (1.69 - 1.76)	0.66 (0.64 - 0.68)
<b>Residence</b>		
Rural	1.46 (1.43 - 1.48)	0.57 (0.56 - 0.59)
Urban non-metro	1.28 (1.23 - 1.33)	0.58 (0.55 - 0.62)
Urban metro	4.12 (4.04 - 4.20)	1.60 (1.55 - 1.65)

## 19.6 Co-morbid mental disorders

Co-morbidity is the concurrent presence of two or more medically diagnosed diseases / disorders in the same individual, with the diagnosis of each contributing disease based on established, widely recognized criteria. In NMHS, the different modules of MINI provided about 20 clinically distinct diagnostic categories. Clinically relevant categories of Psychotic disorders, Depression, BPAD, Alcohol use disorder,

Other substance use disorder, Agoraphobia, Panic disorder, Generalised Anxiety Disorder, Social phobia, Obsessive and Compulsive Disorder, and Post Traumatic Stress disorder. Majority of the individuals surveyed (83.4%) had only one disorder, while 12.3% had a dual diagnosis, 4.3% had 3 or more diagnoses (Table 33). The top 10 conditions amongst those with single diagnosis based on descriptive analysis

of unweighted prevalence included: Depression (37.1%), Alcohol use disorders (33.2%), Psychoses (8.2%), Agoraphobia (7.8%), OCD (3.1%), Substance use disorder (other than alcohol) (2.6%), Bi-polar Disorder (2.2%), General Anxiety Disorder (2.1%), Panic disorder (2.1%) and Social phobia (1.1%). Amongst those with a dual

diagnosis, depression was found in 4 of the top 5 combinations: Depression and alcohol use disorder (17.6%), Depression and Agoraphobia (13.3%), Depression and panic disorder (6.5%) and Depression and OCD (4.9%); alcohol use disorders and Substance use disorders (other than alcohol) was found amongst 13.0% of those with dual diagnosis.

Table 33: Frequency distribution of Co-morbid Mental disorders

Number of Disorders	Frequency	Percentage
1 disorder	3978	83.4
2 disorders	586	12.3
3 or more disorders	204	4.3

## 19.7 Intellectual Disability

The NMHS included the estimation of the burden of Intellectual Disability (ID). Intellectual disability earlier referred to as mental retardation, though not a mental disorder was included as it was expected to contribute to a larger proportion of care seeking and required welfare measures from the state. Intellectual disability involves impairments of general mental abilities that impact adaptive functioning in three domains viz conceptual, social and practical domains and begins during the developmental period of one’s life. The pooled prevalence from the 12 states was observed to be 0.6%.Ascertaining ID,

needs a definitive evaluation at the second stage and hence only screener for ID was adopted.

The study found that 0.6% of the respondents were positive for ID screening (Table 34). The ID screener positivity was the highest in the age group of 18-29 years (0.8%) and relatively more among males (0.7%) and in urban metro areas (0.9%). Across the states, the ID screener positivity ranged from 0.3% in Gujarat to 1.3% in Jharkhand. Except in Jharkhand and Manipur the prevalence in all other states was as given below 1.0% (Table 10-annexure).

Table 34: Prevalence of (screener positive) Intellectual Disability by age, gender and residence (%)

Characteristics	ID screener positive (95% CI)
<b>Total</b>	<b>0.63 (0.62-0.65)</b>
<b>Age group</b>	
18-29	0.81 (0.79-0.84)
30-39	0.72 (0.69-0.75)
40-49	0.55 (0.52-0.58)
50-59	0.43 (0.40-0.46)
60+	0.33 (0.30-0.35)
<b>Gender</b>	
Male	0.69 (0.67-0.71)
Female	0.58 (0.56-0.60)
<b>Place of residence</b>	
Rural	0.59 (0.58-0.61)
Urban non metro	0.50 (0.47-0.53)
Urban metro	0.88 (0.84-0.91)

Among adolescents (13 – 17 years) surveyed in 4 states, the screener question on Intellectual disability yielded a prevalence of 1.7%. This data has to be cautiously interpreted as this was undertaken on a pilot basis on a small sample of adolescents and used a screener instrument.

## 19.8 Epilepsy (GTCS type)

The NMHS adopted the screener - diagnostic instrument developed by the WHO to screen persons with the Generalized Tonic Clonic Seizure (GTCS) variety of Epilepsy. The typical presentation and easy recognition

of symptoms and signs permits better identification of GTCS as against other types of epilepsy and it contributes to nearly two-thirds of the cases of epilepsy. The overall prevalence of screener positivity rate for epilepsy (GTCS only) across the 12 states was 0.3% .

The proportion of respondents positive for the GTCS specific epilepsy screener question was 0.3% (Table 35). It was reported to be more in the 30-39 age group (0.4%) and among males (0.4%).The prevalence was observed to be more in the urban metro areas (0.4%). Punjab recorded the highest rate of 0.7% (Table 11-annexure).

Table 35: Prevalence (screener positive) epilepsy (GTCS) by age, gender and residence (%)

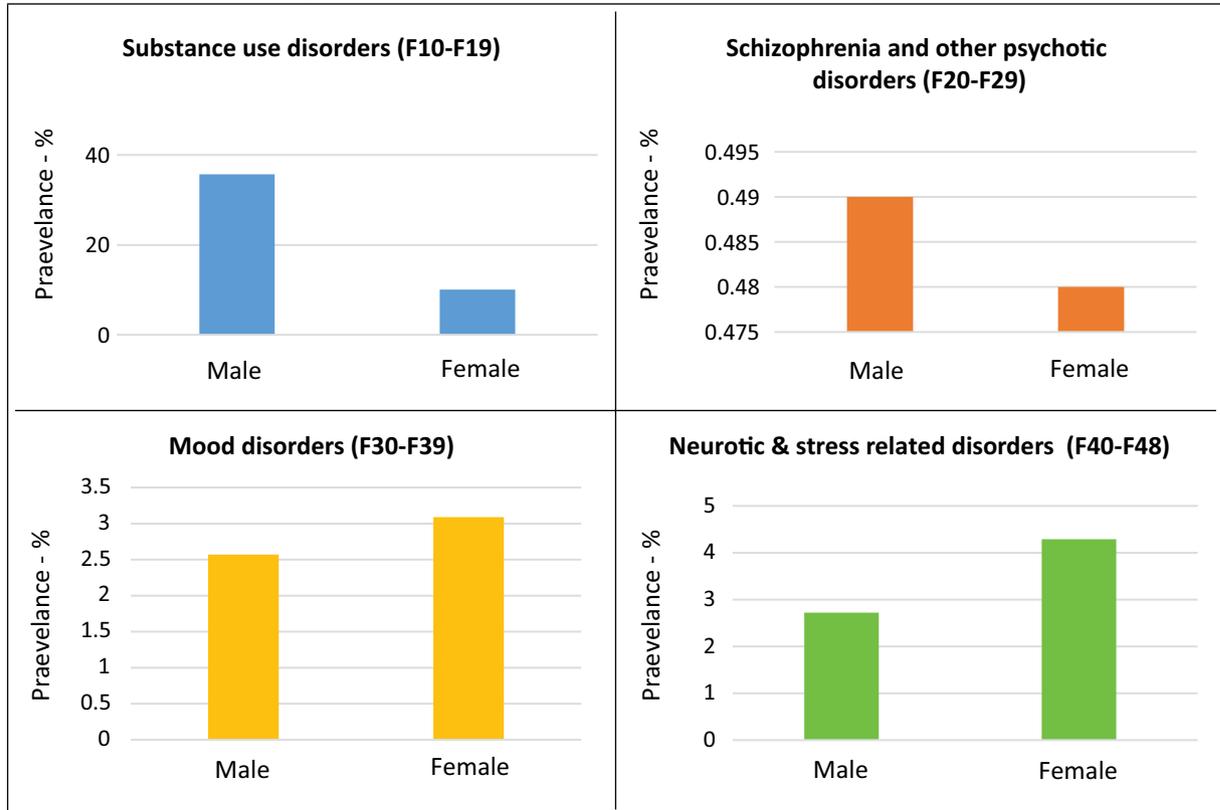
Characteristics	Epilepsy screener positive (GTCS) (95% CI)
<b>Total</b>	<b>0.28 (0.27-0.29)</b>
<b>Age group</b>	
18-29	0.28 (0.26-0.29)
30-39	0.37 (0.34-0.39)
40-49	0.30 (0.27-0.32)
50-59	0.20 (0.17-0.22)
60+	0.20 (0.18-0.22)
<b>Gender</b>	
Male	0.36 (0.34-0.37)
Female	0.20 (0.19-0.22)
<b>Place of residence</b>	
Rural	0.27 (0.26-0.28)
Urban non metro	0.19 (0.17-0.21)
Urban metro	0.37 (0.34-0.39)

## 19.9 Mental morbidity by gender

A specific pattern was observed for the distribution of various mental morbidities among males and females (Figure 19). The prevalence rates were reported to be higher in males for substance use disorders

(F10-F19) and psychotic disorders (F20-F29) whereas with the exception of BPAD, the prevalence rates were higher in females for mood disorders (F30-F39) and neurotic & stress related disorders(F40-F48).

Figure: 19 Prevalence of mental morbidity across gender

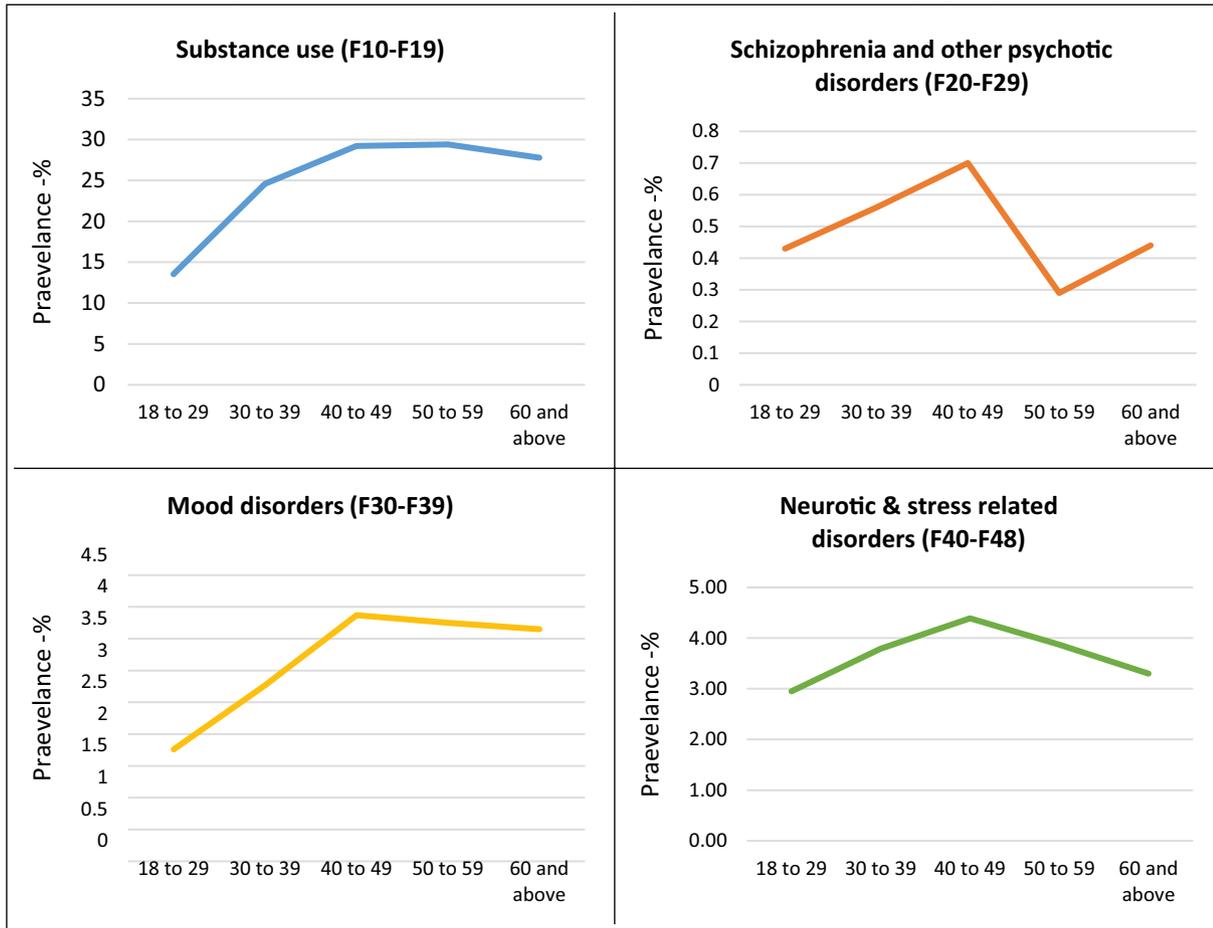


## 19.10 Mental morbidity by age

A fixed trend was observed for the distribution of mental morbidity across the age groups.(Figure 20). For all the disorders, low prevalence rates were reported in the 18-29 age group, followed by a rising trend with increasing age. With the exception of the broad category of substance use

disorders (F10-F19) where they peaked at 50-59 years, the prevalence rates for most of the disorders attained a peak in the 40-49 age group followed by a declining trend with increasing age. However, for psychosis, a bimodal distribution was noted with a second peak at 60 and above age groups.

Figure 20: Trend of mental morbidity rates across various age groups

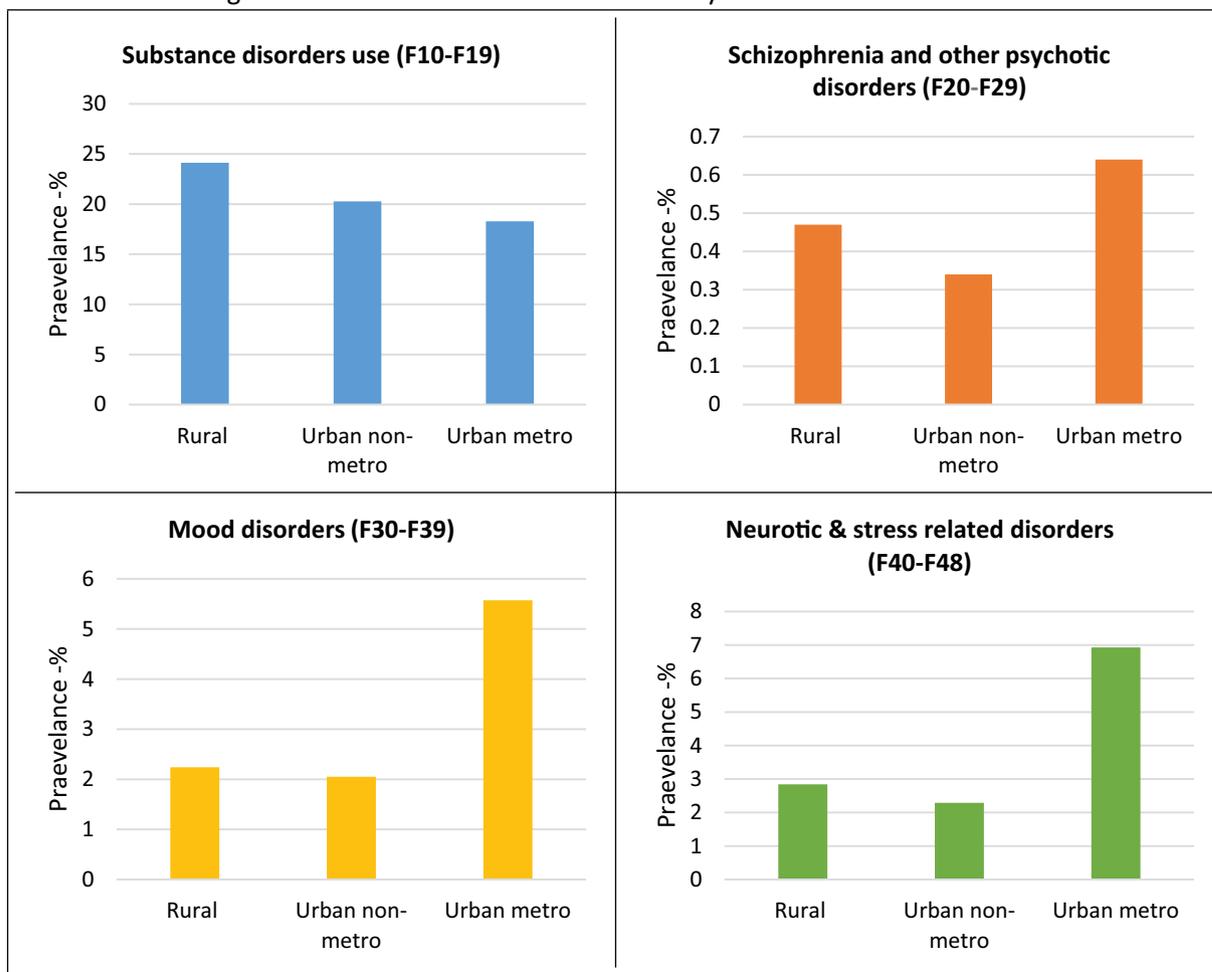


### 19.11 Mental morbidity by place of residence

With the exception of substance use disorders, the prevalence of mental morbidity across different categories, was high in the urban metro areas and low in the urban non metro areas (Tier-2 and 3 cities/towns) (Figure 21). There was little variation in the prevalence between rural

and urban non metro areas. However, considerable variation was observed between urban metro and urban non metro/rural areas. The burden of substance use disorders was high in rural areas and non-metro areas reported a higher prevalence of alcohol use disorder.

Figure 21: Distribution of mental morbidity across Place of residence



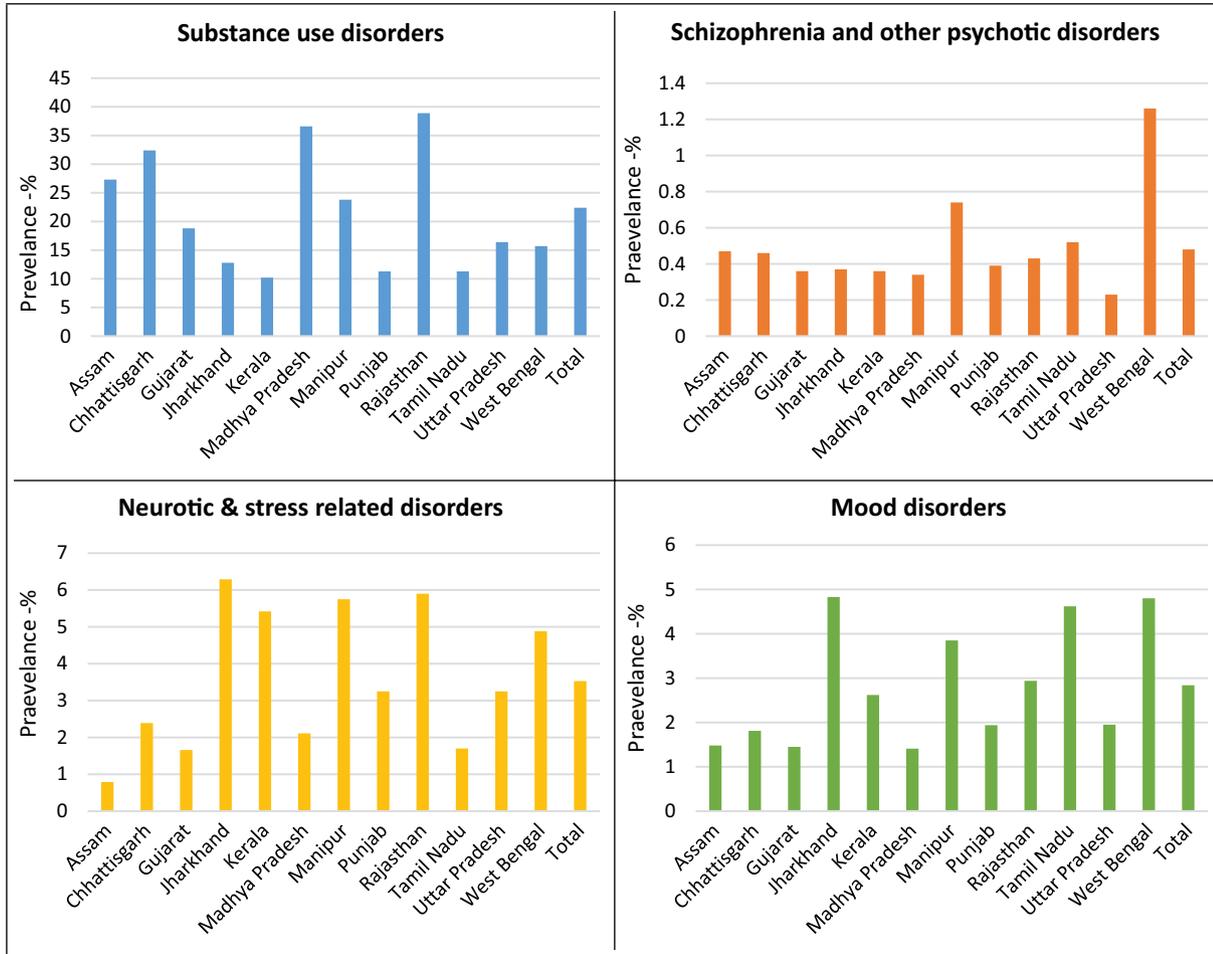
### 19.12 Mental morbidity across NMHS states

The prevalence of mental morbidity varied across states without any observable pattern in its distribution. Four states viz Rajasthan (38.9%), Madhya Pradesh (36.6%), Chhattisgarh (32.4%), and Assam (27.3%) reported a high prevalence of substance use disorders. (Figure 22)

Alcohol use disorder was more prevalent in Madhya Pradesh (10.3%) followed by Punjab and Chhattisgarh. Any psychosis (including schizophrenia) was high in the state of West Bengal (1.26%) and in most of

the states it ranged between 0.3% to 0.5%. The States of Jharkhand (4.83%), West Bengal (4.80%) and Tamil Nadu (4.62%) reported a high prevalence of mood disorders and a similar pattern was observed with respect to depressive disorders. The burden of neurotic and stress related disorders was high in Jharkhand (6.29%), Rajasthan (5.90%), Manipur (5.75%) and Kerala (5.42%). The variation in rates across states has to be interpreted with caution as exploring reasons requires further data analysis on specific areas.

Figure 22: Distribution of mental morbidity across the NMHS states



## 20. Treatment Gap

Treatment gap is defined as the number of people with active disease who are not on treatment or on inadequate treatment and is expressed as a percentage of the total number of people with active disease. Treatment gap is a useful indicator for accessibility, utilisation and quality of health care and undoubtedly, a very high treatment gap would result in increased disease burden (70).

Even though evidence based cost-effective interventions are available for the treatment of mental disorders in low-income and middle-income countries, the treatment gap

for mental disorders are still reported to be large in many countries. A large multi-country survey supported by the WHO showed that 35–50% of the serious cases in developed countries and 76–85% in the less-developed countries had received no treatment in the previous 12 months (71). Globally, the estimates of treatment gap for various disorders expressed as a median are 32.2% for schizophrenia including other non-affective psychosis, 56.3% for depression, 56.0% for dysthymia, 50.2% for bipolar disorder, 55.9% for panic disorder, 57.5% for Generalized Anxiety Disorder (GAD),

57.3% for OCD and 78.1% for alcohol abuse and dependence (72).

In India, there are very few reliable studies that report treatment gap for mental disorders. A treatment gap of 50-60 % was reported for schizophrenia and 88% for depression (73,74) For alcohol use disorders, a treatment gap as high as 97.2% was reported(75). An unpublished population-based epidemiological study by the Government of India (between 2002 and 2005) reported a treatment gap of about 95% for common mental disorders and substance use disorders(76). For epilepsy, studies from India have reported a treatment gap between 22% and 95% (70). Overall, only about 1 in 10 people with mental health disorders are thought to receive evidence-based treatments in India .

Consistent with the previous studies from India, the findings from the NMHS reported an overall treatment gap of 83% for any mental health problem (Figure 23). The treatment gap reported for common mental disorders (85.0%) was higher when compared to those for severe mental disorders (73.6%). Amongst the common mental disorders, major depressive disorders and anxiety disorder had a treatment gap of 85.2% and 84.0% respectively. Among the severe disorders, the treatment gap for non-affective psychoses (75.5%) was little higher when compared to Bipolar Affective Disorder (70.4%).

For substance use disorders, the NMHS reports a treatment gap of 90%. The treatment gap for both tobacco and alcohol use disorders were 91.8% and 86.3%, respectively. The treatment gap for other drug use disorders (72.9%) was comparatively lower when compared to tobacco and alcohol use disorders (Figure 23). The treatment gap reported for epilepsy (GTCS) was 31.3% and

it was the lowest amongst all the morbidities that were studied under the NMHS (Figure 15). The treatment gap for any suicidal risk behavior was above 80%. It was observed to be higher for both low and moderate risk (86% and 87%, respectively) when compared to those with high risk (81%) (Figure 23).

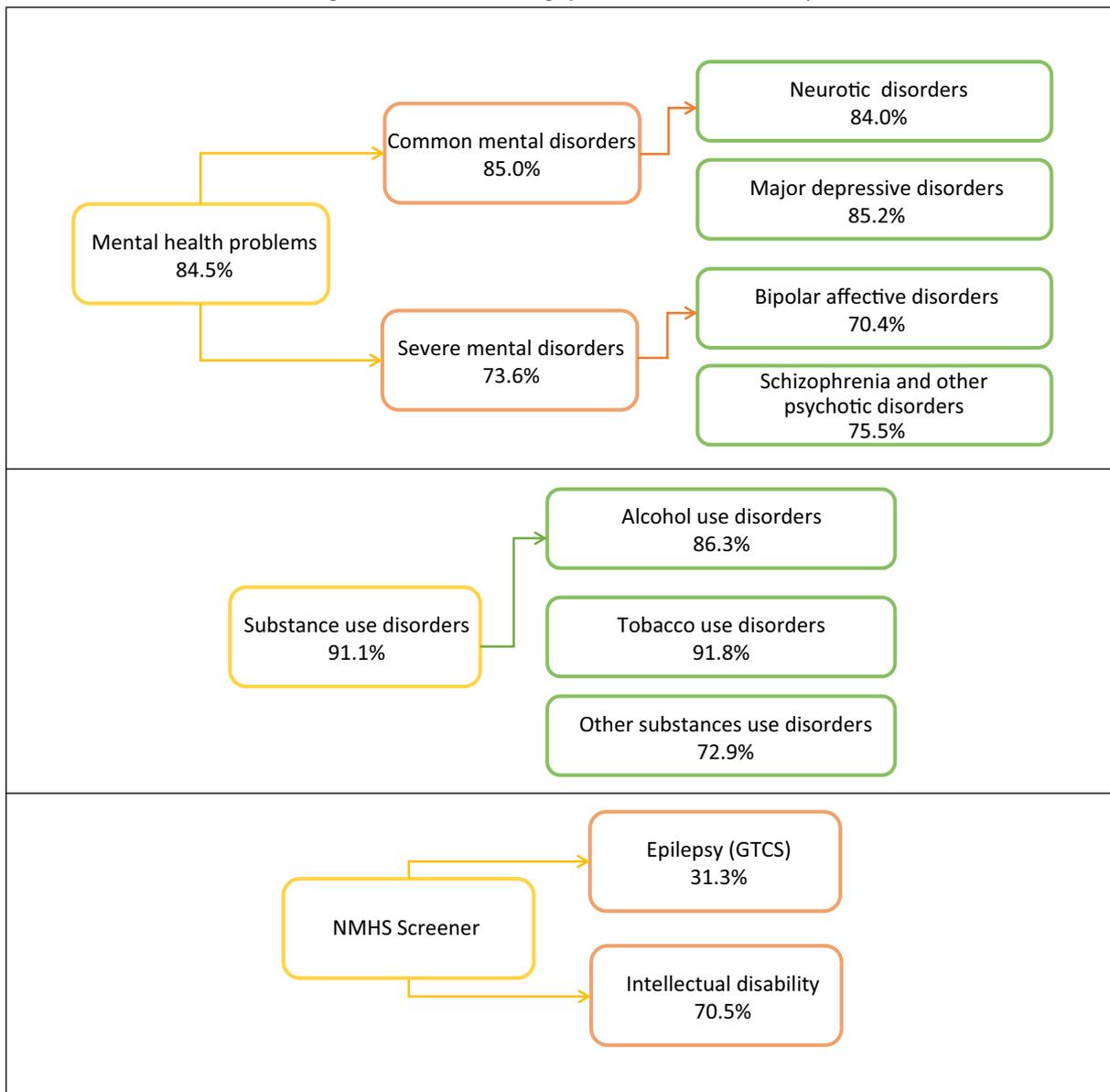
There are various barriers that are attributed to the wide treatment gap. The key demand-side barriers that contribute to the treatment gap include low perceived need due to limited awareness, socio-cultural beliefs, values and stigma, while the supply side barriers include insufficient, inequitably distributed, and inefficiently used resources (17,76). The treatment gap was also influenced greatly by high out-of-pocket costs and the poor quality of care associated with mental health services. Studies from India have reported that primary health-care professionals are often inadequately trained, and reluctant or unable to detect, diagnose, or manage common mental disorders (77-79). Many people with mental health problems even experienced stigma within the health care services by health care providers (80).

Substantiating this, the FGDs and KIIs from the NMHS observed that most of the persons with mental health problems usually underwent unnecessary treatment mainly faith healing before getting professional care. Communities perceive that mental health problems are caused by bad deeds or black magic which forces them to seek help from traditional healers. Overall, a delay in help-seeking was reported because of the community's perception about a person with a mental health problem. Similarly, the narrative accounts of the respondents clearly revealed cost and distance factors as important barriers for mental health help seeking besides stigma and the availability of services.

To narrow the treatment gap, there is a need to address both the supply-side barriers and demand-side barriers. Interventions for the demand-side should focus on creating public awareness about mental health, increasing demand through active community engagement, strengthening the protection of the human rights of people with mental disorders as well as those of their families (76,81). The supply side intervention should focus on the integration of mental health into primary care. Alongside this integration, strengthening the health system’s response to reduce the treatment gap should focus on

increasing the availability and distribution of the mental health workforce through capacity building and task-sharing, increasing the financing for mental health care, scaling up of existing services (like District Mental Health Programme), integrating mental health into the on-going NPCDCS (National Programme For Prevention and Control Of Cancer, Diabetes, Cardiovascular Diseases & Stroke), inter-sectoral coordination, developing mental health management information systems to monitor their progress towards implementation and developing innovative mental health services to reach remote areas.

Figure 23: Treatment gap for mental morbidity



## 21. Service Utilization Patterns

The median duration of problems at the time of the survey for various mental morbidities varied from 36 months for Depressive disorder and neurosis to 98 months for epilepsy. Individuals with Bipolar Affective Disorder (BPAD) on an average were suffering from the illness for 72 months (Table 36). There seems to be a huge time gap between the onset of symptoms and the seeking of care among individuals with mental health morbidities. The median duration for seeking care from the time of the onset of symptoms varied from 2.5 months for depressive disorder to 12 months for epilepsy. Though the number of treatment providers consulted varied

widely across conditions, on an average 2 treatment providers had been consulted for mental morbidity. For nearly 2/3<sup>rd</sup>s of the individuals with psychosis (including schizophrenia) and alcohol use disorder, government doctors were the most recent treatment providers.

The median distance travelled to seek care for BPAD and Psychoses is the longest (30 kilometers) and the shortest for alcohol use disorder and neurosis (9-10 kilometers). With the exception of neurosis and alcohol use disorder, for other mental morbidity individuals had to travel an average of 20-40 kilometers for treatment.

Table 36: Treatment patterns and care characteristics

	Alcohol use disorder (n=532)	Schizophrenia and other psychotic disorders(n=94)	Bipolar Affective Disorder (n=27)	Depressive disorder (n=465)	Neurosis (n=613)	Epilepsy (n=48)
Currently on treatment	73	23	8	69	98	33
Treatment gap (%)	86.3	75.5	70.4	85.2	84.0	31.3
Median duration of illness (in months)	36 (3-360)	66 (2-360)	66 (12-160)	36 (1-480)	36 (1-420)	98 (7-600)
Median Interval between onset of illness and consultation (in months)	4 (2-20)	4 (1-128)	11 (2-84)	2.5 (1-120)	8 (1-120)	12 (1-276)
Median number of treatment providers consulted	2 (1-4)	2 (1-5)	2 (1-6)	2 (1-11)	2 (1-30)	2 (1-15)
Most recent provider being a government doctor	50 (68.5%)	14 (60.9%)	4 (50%)	33 (47.8%)	36 (36.7%)	13 (39.4%)
Median duration of being on treatment (in months)	12 (3-60)	29 (2-360)	36 (6-84)	24 (1-180)	24 (1-420)	60 (2-100)

Note: Figures in parenthesis indicate minimum and maximum values for the range; Analysis undertaken for individuals with mutually exclusive diagnosis, currently ill and for whom information is available

## Observations from FGDs and KIIs

The NMHS tried to obtain information regarding the most common sources of health care for a person with mental health problem (s) in all the states. This was found to be either traditional faith healers or psychiatrists. The general tendency was to first consult the local priests and when this does not result in the condition being cured, then they visit a local doctor and later psychiatrist. This fact is reiterated by the following quote *'people (who seek care for mental health problems) usually visit the local traditional faith healers first, before consulting a mental health professional. This could be because, it is acceptable in our society that someone is possessed by demons or evil spirits. Nobody wants to be called mentally ill as it is associated with discrimination and stigma' and 'first they go through the faith healing process and then to a psychiatrist in government or private hospitals' (respondent).*

There seems to be no uniformity in opinion about the proportions of those who access care at traditional or faith healing facilities or any other facility among the respondents in the states. Many of them have expressed their inability to provide the proportions.

### • Sources of treatment

Table 36 shows the difference between median duration of illness and being on treatment, highlighting delays in seeking care.

The respondents opine that those who seek care from religious places of worship, faith

healers and other traditional healers have various reasons to visit them. The reasons vary from belief in super natural powers, to stigma, to low costs of care, to ignorance. The respondents opine here that mostly everyone visits a faith healer at some point in time when they have a mental health problem.

As one respondent said, *'People from rural backgrounds, dissociation disorder patients, chronic patients, psychotic patients who talk more about God and magic and seeing things are taken first to faith healers as it appears to family members that some supernatural influence is there' (respondent).*

*'About 90% of people seeking mental health care do go to these people at some point or the other. Fifty percent of people seek their help first' (respondent).*

The proportion of patients seeking care at a modern health care delivery system varied across states. However, the opinion was that the most severe cases are taken to a modern health care facility (50% to 100%). Further it was felt that, everyone who seeks care will first contact traditional healers and eventually visit a psychiatrist.

*'Normally the persons with mental health problems especially related to severe cases seems to be about 1-2% who seeks care with the modern health care delivery system. The person who suffers (by) severe (cases) normally visits the hospital' (respondent).* The respondents felt that people who are severely mentally ill usually visit a hospital.

## 22. Homeless mentally ill persons

Homelessness amongst those who are mentally ill is due to a combination of several factors ranging from stigma to societal discrimination. Thus, Homeless Mentally ill (HMI) persons represent the most neglected, disadvantaged and vulnerable section among the mentally ill. In household surveys, this is difficult to examine due to methodological reasons. However, the burden of HMI has a definite bearing on the delivery of services for mental health care. Considering the larger implications for health care delivery, the burden, scope and existing provisions have been examined through the qualitative component of NMHS.

As regards the burden of HMI, key informants were unaware of the same. Their estimates varied with respect to the approximate number of HMI's seen in their districts, city and / or state. This not only reflects their lack of awareness but also signifies the difficulties in data quantification. The estimates (for the number of homeless mentally ill) ranged from 'NIL' or 'almost minimal' to '1% of mentally ill' to as high as '15,000'. Some reflections of respondents included, 'It is difficult to quantify'- (Assam respondent), 'Within the city 40-50 HMI, totally 500 in the State' – (Jharkhand respondent), 'In Urban areas and big cities, homelessly people are commonly seen' – (Gujarat respondent); Interestingly, HMIs were reported to be more in the urban areas and bigger cities.

The homeless mentally ill are usually affected by chronic mental illness or by extreme poverty or by economic bankruptcy (all are linked in most situations) and require interventions on a long term basis. There was

both a lack of awareness about rehabilitation and also an absence of facilities / services for the 'rehabilitation' of HMIs. 'There is no service (for homeless mentally ill) available to the best of my knowledge' said the respondent from Uttar Pradesh. This was echoed by a respondent from Jharkhand, 'No place of rehabilitation for wandering mentally ill persons in the district'. Thus, it can be surmised that facilities for the rehabilitation of HMIs were generally non-existent in many states and wherever available, it was reported to be provided by NGOs often located in bigger cities. 'Aware that nowadays NGOs are more active in such activities'- (Assam Respondent); 'In recent times, NGOs have become more active', 'Only in big cities not in small town like'- (Gujarat respondent), 'A few NGO's keep this kind of patient for some period of time or reach them to the mental hospital', said the Jharkhand respondent. However, the number of HMIs being able to access care in these NGOs were reported to be limited. Apart from NGOs, mental hospitals and beggar's home were the other options available for the rehabilitation of the homeless mentally ill.

Across the 12 states, 'No specific action' appears to be the predominant action taken for a homeless mentally ill person. Action is initiated only when HMIs have resorted to violence. The 'actions' which are supposed to be 'care and support mechanisms' is limited to either handing over the HMIs to the police or to NGOs which provide short stay services, before referring them to a hospital ('Some NGO provide shelter for short stay or reach to the hospital'- Jharkhand respondent). Even in a hospital, treatment is provided only for a limited duration and

HMIs are again lost, owing to lack of follow-up on the part of the caregiver and also due to limited resources (*'Sometimes treatment is given for few days and the person gets lost again. There is no one to take care of such persons' – Assam respondent*). The role of community members is limited to informing the police or the ambulance services.

Even today, after many decades of mental health programme implementation in India, discrimination, negative attitudes, neglect, stigma and social separation hinder the care of the homeless mentally ill. (*Discrimination; Social separation; mostly people neglect or ignore them- Madhya Pradesh respondent*). Models of community based rehabilitation were not reported by any respondents.

Generally, police personnel are likely to encounter the Homeless Mentally Ill whenever they are involved in violence and disruptive behaviour. *'None, Police has not done anything. Does not see police taking any responsibility' - (Assam respondent); 'Police usually don't intervene until and unless violence or any disruptive activities done by homeless people' – (Chhattisgarh respondent)*; There is discordance on the exact role and the extent of involvement of the police in the care of HMIs. Though a few respondents opined that the *'police have no role'*, many strongly felt that the police have a *'vast role'* but do not take the responsibility. Apart from lack of concern, poor awareness, no training regarding HMIs, limited manpower and the fear of sexual exploitation, the limited support and synchronisation from mental health services as well as the failure of the government to provide rehabilitation services to HMIs contribute to the *'inaction'* of the police. It emerged that there is no clarity regarding the role of the police in the care of HMIs. However, the police do have a role to facilitate the transfer of HMIs for psychiatric

evaluation as per legal procedure and finally refer the HMIs to either a shelter home or a mental hospital. The Manipur respondent gave logistical reasons for the inability of the police to help HMIs, *'Even though the police has a role, they cannot do anything as there are no places for them to provide food, shelter and medicines'.* *'Without mental hospitals, the police can do nothing' – (Manipur respondent); 'Bring such patient to hospital for treatment via proper channel through Mental Health Act, help in certification/ reception order, reach them to MH facility' – (Gujarat respondent)*. Thus, the role of the police gets even more circumscribed when there are no mental health care facilities locally or a place to provide food, shelter and medicines.

Understanding the perceptions of the community is vital to implementing behavioural change communication strategies for mental health. Decades of implementation of mental health programmes seem to have had a minimal impact on the community's perceptions with regard to the homeless Mentally ill. Even today, there are negative perceptions concerning HMIs. They are thought of as predominantly criminal, insane, neglectful, violent, harmful and aggressive. *Some 'never considered them human beings' (Manipur respondent)*. The community perceives that HMIs are to be isolated or ignored, though a few reported perceptions of sympathy and philanthropy (providing food and clothing). HMIs are subjected to physical and sexual abuse frequently as there is community resistance to view them as persons afflicted with an illness. Though chronic mental illness can be treated or these patients rehabilitated, people still perceive that HMIs *'can't be helped'* or treated. A few respondents did perceive that it is an illness and expressed anger at the failure of the system (Government) to deal with them.

## 23. Disabilities and Mental Morbidity

Persons with mental illnesses are likely to experience disabilities resulting from the impairment of mental or emotional functions. Persons experience 'mental disability' when their mental illness significantly interferes with the performance of major life activities, such as learning, working and communicating with each other. Understanding the distribution and severity of disabilities among different mental disorders is useful for planning treatment and rehabilitation services. Disability among respondents with mental morbidities was assessed by using the Sheehan Disability Scale (52). Only those individuals affected by a mental disorder were administered this scale. The affected individuals /family members rated the extent to which these domains were impaired on a 10-point visual analog scale. Based on the response to the 10-point scale, disability was re-grouped into 5 categories (No Disability, Mild (Score 1-3), Moderate (Score 4-6), Marked (Score 7-9) and Extreme disability (Score 10). All individuals scoring more than 0 were grouped as 'Disability Present'.

The disability proportion across the different domains (work, social and family life) was observed to be higher among individuals with epilepsy (68.1 - 72.3%), depressive disorder (67.3 - 70.2%) and bipolar affective disorders (59.3 - 63.0%). At least half of those affected with either epilepsy, depressive or bipolar affective disorders reported disability in their work, social and family life (Table 37). Among those reporting disability, extreme disability was the highest among persons with Schizophrenia and other psychotic disorders (20.5-28.2%) followed by those with bipolar affective disorders (11.8-17.6%) indicating that disability experience correlates with severity of mental disorders.

More than 50% of subjects reported disability in family life across all mental disorders except those with neurosis and alcohol use disorder. BPAD, Schizophrenia and epilepsy are identified as mental disorders wherein at least 60% of the affected reported disability in work and social life. They emerge as priority mental disorders to be targeted for disability assessment and rehabilitation interventions at all levels.

Table 37: Self-Reported Disability among respondents with current mental Illness

Self-reported Disability*	Alcohol Use Disorder	Schizophrenia and other psychotic disorders	Bipolar Affective Disorder	Depressive disorder	Neurosis	Epilepsy
<b>N</b>	<b>506</b>	<b>73</b>	<b>27</b>	<b>324</b>	<b>586</b>	<b>47</b>
<b>Work Life</b>	144 (28.5)	39 (53.4)	17 (63.0)	218 (67.3)	275 (46.9)	32 (68.1)
<b>Social Life</b>	150 (29.6)	44 (59.5)	16 (59.3)	223 (68.6)	287 (49.0)	34 (72.3)
<b>Family life</b>	190 (37.5)	44 (59.5%)	17 (63.0%)	228 (70.2)	272 (46.4)	34 (72.3%)

Note: Analysis undertaken for individuals with mutually exclusive diagnosis, currently ill and for whom information is available.

\*Sheehan Disability Scale

## 24. Socioeconomic Impact

Table 38: Respondents with mental morbidity experiencing difficulty with activities of daily life (%)

Interference with activities of life	Alcohol use disorder	Schizophrenia and other psychotic disorders	Bipolar Affective disorder	Depressive disorder	Neurosis	Epilepsy
<b>N</b>	<b>506</b>	<b>73</b>	<b>27</b>	<b>325</b>	<b>586</b>	<b>47</b>
Could do as usual	86.4	56.2	59.3	48.3	75.6	48.9
Could do but not everything	10.1	15.1	11.1	30.8	16.4	27.7
Could do only something	2.2	12.3	14.8	13.5	5.3	17.0
Extreme or could do nothing	1.4	16.4	14.8	7.4	2.7	6.4

Note: Analysis undertaken for individuals with mutually exclusive diagnosis, currently ill and for whom information is available.

Table 39: Socioeconomic impact of mental health morbidity

	Alcohol use disorder	Schizophrenia and other psychotic disorders	Bipolar affective disorder	Depressive disorder	Neurosis	Epilepsy
<b>N</b>	<b>532</b>	<b>94</b>	<b>27</b>	<b>465</b>	<b>613</b>	<b>48</b>
Median number of days with difficulties to carry daily activities, in the past 30 days	10	15	24	20	10	5
Median number of days family members were not able to go for work in the past three months, for care of the patient	20	10	10	8.5	5.5	5
Median number of day's family, social or leisure activities was missed.	15	17.5	20	10	10	10
Median monthly expense (Indian rupees)	2250	1000	2000	1500	1500	1500

Note: Analysis undertaken for individuals with mutually exclusive diagnosis, currently ill and for whom information is available.

Mental disorders are associated with considerable disability which is further worsened by stigma and discrimination. Hence these conditions are known to significantly interfere with social life and also have an impact on daily activities.

Respondents with mental illnesses reporting difficulties in carrying out daily activities varied across conditions with the highest impact being observed in depressive disorders (51.7%) and the lowest being in alcohol use disorders (13.6%). A significant

impact, where individuals were not able to do anything or do only some activities, due to mental illness were higher for Bipolar affective disorder (29.6%) and epilepsy (23.4%). However, such an impact among those with neurosis and alcohol use disorder was low (Table 38).

Individuals with depressive disorders and bipolar affective disorders on an average were unable to carry out their daily activities for 20 days in the previous one month. Similarly, those having schizophrenia and

other psychotic disorders experienced such difficulties for 15 days. Those with neurosis or alcohol use disorder reported relatively less difficulty but the difficulty was present for 10 days of the month (Table 39).

People with mental illnesses need support and supervision from family members during certain phases of their illness. In the NMHS, it was observed that family members had to forego on an average 10 working days in the previous 3 months to take care of those with chronic conditions like schizophrenia and other psychotic disorders and BPAD. Interestingly, for those with alcohol use disorders, family members missed out a

median of 20 working days for taking care of affected individuals (Table 39).

**The median expenditure for each visit to a health care provider ranged from ₹500 for psychoses and alcohol use disorders to ₹1200 for Bipolar affective disorder. On an average ₹1500 was spent towards treatment and care of persons affected with alcohol use disorder, ₹2000 per month for bipolar affective disorder. For any category of mental disorder ₹1000 (median) and above had to be spent for care and treatment which is a significant amount in the light of the relationship between poverty and mental illness (Table 39).**

## 25. National Estimates of Mental Morbidity

The prevalence estimates of any mental morbidity amongst the two age categories (13 to 17 years old and >18 years of age) were applied to the numbers obtained in Section 18.4 and the 95% range has been utilised to provide minimum and maximum estimates. Based on the prevalence rates and the confidence interval ranges the minimum and the maximum number of persons needing services has been estimated. Epilepsy

burden is also included in the estimates as it is covered in the Mental Health Program and those needing clinical services related to risk of Suicidality and Intellectual Disability have been included.

Accordingly, an estimated 150 million Indians require mental health care at any given point of time and this includes both acute care and long term rehabilitation services.

Table 40: National Estimates of Mental Morbidity

	Prevalence range (%)	Estimates Minimum – Maximum
<b>1] Mental Morbidity among adolescents (13 to 17 years)</b>	<b>5.8 to 8.7</b>	<b>7,728,906 – 11,593,359</b>
<b>2] Morbidity amongst adults (≥18 years)</b>		
- Any Mental Morbidity	13.6 to 13.7	114,011,599 – 115,016,845
- Suicidality risk (High)	0.89 to 0.92	7,455,571 – 7,706,883
- Suicidality risk (Moderate)	0.71 to 0.74	5,863,932 – 6,199,014
- Positive on Intellectual Disability screener	0.62 to 0.65	5,026,228 – 5,445,080
- Positive on Epilepsy screener	0.27 to 0.29	2,261,802 – 2,513,114
		<b>142,348,038 – 148,474,295</b>
<b>Total</b>		<b>≈ 150 million</b>

## 26. Stigma and mental health

The narrative accounts of the respondents during focused group discussions revealed that the community generally perceived severe mental illness as the result of either bad deeds or black magic. There was some difference between urban and rural residents regarding awareness about mental illnesses. Person with mental health problems are usually perceived as weak, untidy, harmful, and dangerous. They are also considered as a nuisance to the public. In general, most of them believed that either they had to be treated by traditional healers or there is no cure for a person with a mental health problem. They also felt that persons with a mental health problem require a longer duration of treatment. So, they are often neglected without any support and few of them end up begging or as homeless mentally ill. A respondent from Rajasthan remarked that *'Once mentally ill, always mentally ill'* highlighting the strong beliefs and limited awareness about mental health problems.

Because of the community's perception about the illness experience, most of the persons with severe mental health problems usually undergo unnecessary treatment in faith healing practices before they receive any professional care. They try to hide their illness from the family and community and become reluctant to seek medical care. Sometimes they are taken away to far away places and left as a destitute because of stigma, high cost of the treatment and lack of knowledge. Overall, there is a delay in help-seeking because of the community's perception about a person with a mental health problem. In one of the FGDs, it was

noted that *'The community interferes with the treatment, they force them to take help of Bhopas and go for jhadufounk which only lengthens, worsens the problem of the patient and makes them chronic sufferers'*.

Despite advances in the understanding of mental health issues, mentally ill persons are referred to in various derogatory terms by the public as well as the media. These words used for the mentally ill vary from community to community and different languages have different terms (Table 40). It was quite obvious from the narrative accounts that using derogatory terms to characterize and brand a person with a mental health problem was a universal phenomenon. Sometimes the name of the mental health hospital's was used to brand a person with mental health problems (Table 40).

Portraying mental illness in a stigmatizing or derogatory manner by the media was also a common phenomenon. People with mental illnesses are depicted as being untidy, dangerous, dependent and a burden to the family. Anyone behaving slightly differently was referred to as 'pagal' even by the media. They were shown to be excluded from participating in social activities. A few movies show them being verbally and physically abused. Sometimes they are portrayed as felons (crime committers).

The media shows patients being given shock treatment in mental hospitals and makes it appear like it is the only modality of treatment. The modern modalities of

management are often left out and are usually described and discussed in such a way that it seems that they can never be well and get back in society. It was glaringly obvious that the rights and rehabilitative aspects of a person with mental illness are hardly discussed in the media. The overall portrayal of mental illness and its stigma by the media is quite discouraging and calls for immediate action. A respondent from Manipur mentioned that *‘Picturising mentally ill persons (especially women) unable to look after her family thereby abusing her verbally & physically in few movies of Manipur’*. Who is there to control media these days – community respondent

People with mental illnesses are significantly excluded from social activities and are deprived of social opportunities. Poor

educational attainment and discontinuation was quite common and they usually face discrimination from the peers in school. The job opportunities for these persons were reduced and for those who were employed, responsibilities and promotions were denied leading to job dissatisfaction, absenteeism, and voluntary retirement. It was felt that persons with mental illnesses are affected most in the area of marriage. Most of them do not marry or they end up marrying late. Further, most of the marriages conclude in nullity. Overall, people with mental illnesses lead a poor quality of life due to stigma and discrimination in key social activities and opportunities. In Chhattisgarh, a participant mentioned that *‘Usually, the public believes that individuals with psychiatric illnesses are incompetent, irrational and untrustworthy consequently, they have low marriage opportunities’*

Table 41: Commonly used derogatory terms for mental disorders

States	Derogatory terms
Assam	Pagol, Dhila, Boliya, Brain NostoHuwa
Chhattisgarh	Pagla, Mental, Baihya, Jhakala
Gujarat	Mad men(gando), man with loose screw
Jharkhand	Pagal, Kanke return, ghaskal;, screw dheela, dimagghaskahuwa, Pagalpan, Ekitahilgelo, sathiyagaya
Kerala	Vattan, Bhranthan, oolampara (place where mental hospital is located), piri loose
Madhya Pradesh	Pagalbavala, dimagchalgayahai
Manipur	Angaobi/Angaoba, kokchakpa, sonothungba, kokleikhatpa, angaoba(insane), psyche naba(mental problem) kokbhera(not similar with other people), crack chuba
Punjab	Pagal, sanki, half mental, sidra, mental, jhalla, kamla, crack, sarphira, shadai
Rajasthan	Pagal, Psychic, aradvikshipt, gadha, dayan, Mad
Tamil Nadu	Loosu, Mental, Paithiyam, Kiruken, Crack, PithuPuduchavan, Psycho
Uttar Pradesh	Pagal, Sanki, Half Mind, Screw Dhila
West Bengal	Pagol, khyapa, mathakharap

## 27. Implications of NMHS results

- The National Mental Health Survey, 2015-16, undertaken across 12 states of India, representing 6 regions and 700 million people was based on multi stage random sampling methods with due representation for rural, urban and metro regions . This unique endeavor has provided reliable estimates for different mental disorders at state level and pooled estimates for selected mental disorders at the national level among individuals aged 18 plus years (including a sample of 13 – 17 years across 4 states).
- The study has overcome some of key the limitations of previous studies (viz., small sample size, different populations, varying time periods, different screening and diagnostic instruments, different sample sizes, varying statistical analysis and interpretations and several others as outlined earlier) by using - appropriate sample size, scientific sampling methods, inclusion of urban-metro-rural populations, using one and more valid instruments, standardized procedures of translation and training, uniformity in data collection across all study sites and appropriate statistical procedures (Table 1).
- NMHS 2016 has provided lifetime and current prevalence estimates of a range of mental disorders for individuals above 18 years at both national and state levels and preliminary estimates for mental morbidity among 13 – 17 year olds in a select population drawn from 4 states of India.
- In addition, the study systematically assessed treatment gap, health care utilization patterns, disability status among persons with mental disorders and impact on individual and family in the surveyed population.
- Furthermore, the study assessed the mental health systems, services and resources in all the 12 states to obtain a comprehensive understanding of various system components required for delivery of mental health care at state levels using quantitative and qualitative methods.
- The current performance of District Mental Health Programme, the implementation arm of NMHP was also undertaken to identify programme performance for further strengthening in the coming days.
- Moving beyond numbers, the study adopted qualitative research methods to explore and understand issues beyond prevalence numbers. These are important issue to obtain a comprehensive understanding of mental health issues in India.
- The results of the study are presented in a two part series with the first one “National Mental Health Survey, 2015-16 : Prevalence, pattern and outcomes ” covering objectives 1 and 2 of NMHS , while the second report “National Mental Health Survey, 2015-16: Mental Health Systems ” reports on the current status of mental health systems in the 12 states. It is important that both reports are read together to obtain a complete understanding of the entire study.

- *Mental disorders contribute for a significant morbidity in India*

The survey identified that 11% of individuals above 18 years are suffering with a mental disorder (current prevalence) necessitating active interventions. This estimate is a combination of different mental health problems of varying nature and severity ranging from common to severe mental disorders including substance use disorders (and excluding tobacco use disorders). Translated to real numbers (based on procedures adopted through weightages for different levels), nearly 150 million Indians are in need of active interventions.

- *Mental disorders are high in both urban and rural areas*

Almost all mental disorders were high in the urban areas while rural areas had substantial numbers to care where availability of care is limited. One can speculate and consider the contribution of various factors like greater stress, complexities of living, breakdown of support systems, changing life styles, challenges of economical and agricultural upheavals and other issues for mental health. While the causes, risk factors and protective factors vary in urban and rural populations, availability, accessibility and affordability of care are different in both areas; awareness is still limited. Thus, the need for coverage of mental health services across India on an equitable basis merits importance.

- *Common mental disorders are a huge unrecognized burden in mental health*

Common mental disorders, which include a number of mental disorders like

depression, neurotic and anxiety disorders (excluding dysthymia), and substance use disorders (and excluding tobacco use disorders) contributed for nearly 90% of total morbidity among 18 + adults. This group of disorders is closely linked to both the causation and consequences of several NCDs, injury and violence, social problems, a common comorbid condition of many terminal and chronic conditions, a major component in disaster situations and is largely ignored and unaddressed in health care programmes. Individuals and families also ignore and neglect these disorders till it reaches significant threshold and severity that warrants attention.

- *The economic burden of mental disorders is huge*

Our assessment of the economic costs towards care of a person with mental disorder, mainly as out of pocket expenditure, reveals a huge economic burden. Families had to spend nearly ₹1000 – 1500 a month for costs of care which mainly includes travel and treatment costs. The hidden and intangible costs are not included. In our FGDs, few participants informed that some of the cultural and religious practices ( few being harmful as well) leads to greater spending, driving families to economic crisis.

- *Treatment gap for mental disorders still remains very high*

Finally, despite the slow progress made in mental health care delivery across the country, the study revealed the huge treatment gap for all types of mental health problems ranging from 74% to 90% all mental disorders and 81% to 86% for

common mental disorders and substance use disorders, respectively. Most of those identified had not sought care or when sought, was not available. Factors ranging from awareness to affordability, varying between rural and urban areas, needs to be critically delineated to address specific issues in bridging treatment gap.

- *Poverty, low levels of education and working status are closely interlinked to mental disorders*

Data from NMHS reveal that mental disorders were significantly high in households with lesser income, poor education and limited employment. These individuals have greater vulnerability to mental disorders through social determinants of health through a web of causative factors. On the other hand their access and utilization of mental health services is also limited due to economic issues. Our study showed that the median out of pocket expenditure per month was nearly ₹ 1000 - 1500 per month just for drugs and travel. Qualitative interviews revealed that this is a big problem in the absence of state or self-insurance coverage for most families.

- *Alcohol, tobacco and other drugs are major mental and behavioural problems*

Substance use disorders, especially among young adults to the extent of 22.4% in all the 12 surveyed states highlight the seriousness of problem. The present study tapped only abuse and dependency for alcohol and included moderate to severe forms of tobacco use. The number of persons with alcohol use requiring interventions could be much higher. The high rate of consumption of

illicit drugs was reported by participants in many states during our focused group discussions. Data from the Central Narcotics Bureau has shown the flow of illegal drugs (cannabis, heroin, synthetic drugs) in Indian region and significant amounts could stay internally. For both tobacco and alcohol, easy availability, increasing purchase power, aggressive media promotion, and liberalized attitudes of people are some contributory factors. A much stronger coordinated approach to address these problems from both demand and supply side in the coming years is urgently warranted.

- *High suicidal risk is an increasing concern in India*

With suicide and its attempts along with suicidal ideations being an important public health problem (amidst the political and social sensitization of this issue), the fact that nearly 1% of population are at high suicidal risk warrants the need for multisectoral actions. Apart from loss of lives (mostly younger ones), the causes, risk factors and consequences are poorly understood in Indian region and calls for good quality research at national and state levels as well as coordinated and comprehensive interventions.

- *Severe mental disorders are still equally important*

Severe mental disorders comprising of schizophrenia, non-affective psychosis and bipolar affective disorders ranged from 0.4% to 2.5% across states. These disorders that affect all domains of life needs long term care and rehabilitation along with stigma removal and community integration.

- *The productive age groups of 30 – 49 years are affected most*

Even though mental disorders are seen in all age groups, the weighted prevalence in the age group of 30 – 39 years and 40 – 49 years was higher, to the extent of 11.58 % and 14.48 %, respectively. Mental disorders in this population, if inappropriately managed or not addressed, affect all domains of their life.

- *Burden of mental disorders among genders is almost equal*

The male to female ratio of mental disorders was 1:1.8 across all diagnostic categories. Common mental disorders like depression and anxiety affect women to a greater extent, a finding consistent with other studies. Severe mental disorders were identified more among men. The impact of gender differentials on the family are varied and depends on who is affected due to their varying family roles and responsibilities. Apart from suffering of their own, mental health of women significantly affects all family members.

- *Children and adolescents are vulnerable to mental disorders*

The current prevalence in the age group of 13 – 17 years was nearly 7 % and was nearly equal among both genders. The most common problems were depressive episode & recurrent depressive disorder (2.6%), agoraphobia (2.3%), intellectual disability (1.7%), autism spectrum disorder (1.6%), phobic anxiety disorder (1.3%) and psychotic disorder (1.3%). A recent study among 15 – 24 years in the state of Himachal Pradesh revealed that adolescents suffered from a wide range of mental health conditions like depression

(6.9%), anxiety (15.5%), tobacco (7.6%), alcohol (7.2%), suicidal ideation (5.5%), requiring urgent interventions (82). While the fact that it interferes in their growth, development, education and day to day social interactions is undisputed, if left unattended could lead to lifelong adverse consequences.

- *Are elderly free from mental disorders ; NO, definitely not*

India is home to nearly 104 million elderly citizens and this number is likely to increase in the coming years. The fact that nearly 10.9% are in need of mental health care signifies the problem and need for elderly mental health programmes.

- *Variations in prevalence exist at regional and state levels*

Significant variations exist in the prevalence and nature of mental disorders across regions and states despite uniform and standardized procedures in data collection. This observation across all studies both globally and in India is true for mental disorders and other public health problems as well (Table 41 and B1A and B1B annexure). Variations could be due to natural and true variations in disorders itself, differences in perception of symptom threshold, cultural interpretations, sociodemographic differentials and assessment procedures.

- In large scale population based surveys covering diverse populations choice of study instruments, translation procedures (including cultural meaning and interpretations), training methods (uniformity), field logistics (travel, accommodation, food weather, etc.,) and other issues contribute for minor variations in results. However, the completion

of data collection on all aspects within the given time frame is noteworthy. As mental disorders are a diverse group of conditions varying in their presentation ranging from acute to recurrent to chronic or mild to severe, multiple disorders to single illness, morbid or co-morbid conditions capturing these disorders in population based surveys was a challenge and will continue to be a challenge in the years to come across the globe.

- *Epilepsy and Intellectual disability are major public health problems*

The prevalence of epilepsy (GTCS type) was 0.3%, with nearly 3 million persons requiring care. ID was reported by 0.6% individuals. It is essential to highlight that the prevalence of both are based on screener positivity and includes specified categories and needs more research.

- *Three out of four persons with a mental disorder have significant disability*

Despite the presence of several

epidemiological studies in the area of mental disorders, the understanding about disability and impact of mental disorders has been limited in India. The present study has revealed that two-thirds to half of those with a detected mental disorder had significant disability and nearly one-fourth of them had marked or extreme disability in work, family and social domains, significantly affecting family and social life.

- *Mental and substance use disorders significantly affect quality of life*

Mental disorders impose significant morbidity, disability and even mortality. As nearly 80 % had not received any treatment despite presence of illness for more than 12 months, it results in poor quality of life, decreased productivity and lower earning potentials. Furthermore, the stigma associated with mental disorders is huge affecting work, education and marriage among those with a disorder and their families.

Table 42: Psychiatric morbidity across different studies

	Kolar Pilot Study	NMHS 2016	Pune, India	Puducherry, India	Nigeria	Egypt
Instrument used	MINI	MINI	CIDI	CIDI	CIDI	MINI Plus
Reference period	Current	Current	12 month prevalence	12 month prevalence	12 month prevalence	Current
Year of survey	2014	2015-16	2003-2004	2003-2004	2001-2003	2002-2003
Sample size	2,240	34,802	3,023	2995	4,984	14,640
Age group included	18+	18+	18+	18+	18+	18 to 64 years
Overall	7.5%	10.6%	3.2%	15.8%	5.8%	16.9%
Any anxiety disorder	3.6%	4.9%	0.8%	7.1%	4.1%	4.8%
Any mood disorder	1.5%	4.1%	1.8%	7.4%	1.3%	6.4%
Alcohol abuse	0.2%	4.6%	1.0%	5.9%	0.5%	0.03%
Alcohol dependence	1.6%				0.1%	
Treatment rates	7%	17%	5.1%	(5.0%)	1.2%	NM

## 28. Summary

In conclusion, the National Mental Health Survey 2015 – 16 has revealed a huge burden of mental disorders in the Indian community. This finding is based on a methodology that was scientific, uniform and standardized, undertaken across 12 states at one point of time. The fact that nearly 11% of Indians above 18 years are suffering from mental disorders and most of them do not receive care for a variety of reasons deserves the urgent attention of our policy makers and professionals. The impact is huge affecting all areas of an individual and his / her family

life affecting quality, productivity and earning potentials. This data should be used as evidence to strengthen and implement mental health policies and programmes and should be the driving force for future activities in India. Equipped with the National Mental Health Policy, Mental Health Action Plan, Mental Health Bill, Several national programmes for children, youth, elderly, women and others, India is at an opportune and appropriate juncture to build population centered and public health oriented mental health programmes for the coming years.

## 29. Recommendations

The organisation and delivery of comprehensive and integrated mental health services in India that is socio-culturally and politically diverse and economically stratified is indeed a challenging task for policy makers ; but is definitely required. In recent times, the Mental Health Policy, the new Mental Health Bill, judicial directives, National Human Rights Commission initiatives and advocacy actions aim at improving the scenario and undeniably are the right steps in this direction.

It is well acknowledged that there is no single solution that gives complete and / or quick results. Several components and activities need to be integrated into the larger existing systems, new actions need to be promoted and implementation stringently followed.

Building strong health systems that integrate mental health with the larger public health system based on evidence backed practices is the need of the hour.

Data driven policies and programmes play a key role in this process. The National Mental Health Survey, 2016, conducted across 12 states with uniform and standardised methodologies and unique strategy of combining prevalence, health seeking and systems analysis attempts to provides the stimulus to develop a roadmap for mental health services.

An estimated 150 million persons are in need of mental health interventions and care (both short term and long term) and considering the far reaching impact of mental health

(on all domains of life), in all populations (from children to elderly), in both genders, as well as in urban and rural populations, urgent actions are required. Considering the burden among children and adolescents (not included in this survey), thousands more are in need of care.

*This huge burden of mental, behavioural and substance use disorders, in India, calls for immediate attention of political leaders, policy makers, health professionals, opinion-makers and society at large. It is hoped that the data from the NMHS will inform mental health policy and legislation and help shape mental health care delivery systems in the country. Most significantly, mental health should be given higher priority in the developmental agenda of India. All policies and programmes in health and all related sectors of welfare, education, employment and other programmes need to include and integrate mental health agenda in their respective policies, plans and programmes.*

Based on the study results of this report and the accompanying report, interactions with stake holders, views of community respondents and a review of past lessons to improve mental health systems in India, the following recommendations are placed herewith.

1. The existing National Mental Health Programme, and its key implementation arm the District Mental Health programme (DMHP), needs significant strengthening. In consultation between central and state stakeholders, there is an urgent need for formulating explicit written action plans, increasing compliance towards implementation

by supportive supervision, enhancing mechanisms of integration, developing dedicated - ring fenced financing, devising mechanisms for accelerating human resources, improving drug delivery and logistics mechanisms and devising effective monitoring frameworks, so as to provide the widest possible coverage to affected citizens.

2. Broad-basing of priorities and planning of services to address the triple burden of common mental disorders, substance use disorders and severe mental disorders is required through focused as well as integrated approaches.
  - Mental health should be integrated with programmes of NCD prevention and control, child health, adolescent health, elderly health and other national disease control programmes. Specific programme implementation strategies and guidelines should be provided to all state governments in relation to activities, programmes, human resources, funding as well as monitoring.
  - In particular, in all these programmes, screening for common mental disorders (depression, suicidal behaviours, substance use problems, etc.), health promotion (through yoga and other methods) and continuity of care / referral services should be an integral component.
  - In addition, existing platforms of educational institutions and work places should be strengthened to include mental health agenda. Such programmes should first be initiated in DMHP sites based on the experiences of pilot studies and expanded in the next phase.

3. All Indian states should be supported to develop and implement a focused “Biennial mental health action plan” (covering severe mental disorders, common mental disorders and substance use problems) that includes specified and defined activity components, financial provisions, strengthening of the required facilities, human resources and drug logistics in a time bound manner. It should include implementing legislations, coordinated Information Education Communication (IEC) activities, health promotion measures, rehabilitation and other activities. These action plans should indicate responsible agencies or units for each defined activity component, their budget requirements and time lines of implementation along with monitoring indicators. Monitoring and evaluation should be an inbuilt component of this action plan and could be revised once in five years to measure progress.
4. Capacity strengthening of all policy makers in health and related sectors (education, welfare, urban and rural development, transport, etc.) at the national and state levels should be given priority. Furthermore, human resource development for mental health in health and all related sectors should be systematically planned and implemented over the next 5 years. Based on their roles and responsibilities, these strategies should focus on (i) sensitisation of policy makers and professionals in health, education, welfare, women and child development, law, police and others, (ii) training all existing and new state mental health programme officers in programme implementation, (ii) training all district mental health programme officers in programme implementation, (iv) building skills and knowledge of doctors (modern and traditional), health workers, ANMs, ASHAs and USHAs, Anganwadi workers and others.
  - The DMHP is the key implementation arm of the NMHP, currently led by a psychiatrist or a medical doctor trained in mental health. Strengthening the knowledge and skills of DMHP officers in each state should move beyond diagnosis and drugs towards acquiring skills in programme implementation, monitoring and evaluation. Training in leadership qualities as required at the district level are essential.
5. Human resource development at all levels requires creating mechanisms by identifying training institutions – trainers – resources – schedules – financing at the state level.
  - In all human resource activities, creating virtual internet based learning mechanisms to successfully train and hand-hold all non-specialist health providers’ needs expansion; this can achieve the task shifting to non-specialists or other disciplines of medical care.
  - Technology based applications for near-to-home-based care using smart-phone by health workers, evidence-based (electronic) clinical decision support systems for adopting minimum levels of care by doctors, creating systems for longitudinal follow-up of affected persons to ensure continued care through electronic databases and registers can greatly help in this direction. To facilitate this, convergence with other

flagship schemes such as Digital India needs to be explored.

- The existing Centers of Excellence, mental hospitals, NIMHANS, medical college psychiatry units or state training institutes should be given the responsibility of developing the requisite training calendar / programmes.
6. Minimum package of interventions in the areas of mental health promotion, care and rehabilitation that can be implemented at medical colleges, district and sub-district hospitals, and primary health care settings should be developed in consultation with state governments and concerned departments and an action plan formulated for its implementation in a phased manner.
    - Focused programmes need to be developed and / or the existing programmes strengthened in the areas of child mental health, adolescent mental health, geriatric mental health, de-addiction services, suicide and violence prevention and disaster management. This should start with state level and subsequently extended to the district level.
    - These activities should be developed initially within DMHP programme and expanded to non-DMHP programmes, scaled up as mental health extension-outreach activities within their districts with the involvement of local medical college psychiatry units and district hospitals. Inaccessible areas and underprivileged communities should be given priority.
  7. Upgradation of existing facilities to treat and rehabilitate persons with mental

illness will require further strengthening of existing mental hospitals as mandated by the National Human Rights Commission and provided by other previous schemes of the Health ministry. This will require the creation of an accessible stepped care system of mental health care in mental hospitals, district hospitals and medical colleges (in both public and private sector) in addition to existing public systems of care, recognizing that at present more than 85% of medical care occurs in the private non-governmental sphere.

8. Drug logistics system at state level needs strengthening in indenting, procurement at state and local levels, distribution and ensuring availability on a continuous and uninterrupted basis in all public sector health facilities. The important issue of ensuring last-mile availability of the drug logistics system needs greater attention in planning and budgeting, and should be embedded in the state mental health action plans.
9. The funding for mental health programmes needs to be streamlined with good planning, increased allocation, performance based timely disbursement, guaranteed complete utilisation and robust mechanisms for oversight and accountability. There is a need for greater apportioning in the NCD flexi pool budget and the necessary mechanisms for dedicated funding for mental health within both the central and state health budgets should be included in national and state level plans. (Ring-fenced budgeting)

Furthermore, the economic impediments to health seeking by people needs serious attention as treatment for mental health

disorders is impoverishing the families and communities. To ameliorate the problems of access among the affected due to economic disparity, mechanisms such as access to transport, direct payments, payment vouchers for economically backward sections, health insurance and other schemes need to be explored. Steps to develop actuarial data on mental disorders will help private insurance companies to provide coverage for mental disorders.

10. A National registry of service providers from different disciplines (psychiatrists, psychologists, social workers, public and private mental health facilities in the area which also includes all other resources), which is periodically updated through systematic geo mapping at the state level will encourage greater participation of public and private health care providers and promote long term mental health care. This will also benefit local communities in healthcare seeking. While, this is incorporated in the new mental health bill, it requires an agency to be designated for the purpose.
11. Rehabilitation, to remedy long-standing disabilities and multiple areas of negative impact suffered by affected individuals and their families requires critical attention.
  - Firstly, this requires establishing mechanisms for creating facilities and services at district and state levels (day care centers/ respite care, half way homes, etc.,) through organised approaches.
  - Secondly, it involves economic and social protection for the mentally ill through protected housing and social security / unemployment benefits for persons with SMDs (especially the wandering mentally ill), as well as protection from discrimination and neglect.
  - Thirdly, it requires the provision of facilities for re-skilling, protected employment for persons with mental illness, provision of loans or micro-finance schemes for the affected and their family members. Convergence with other flagship schemes of the government such as Skill India needs to be explored.
  - Legal, social and economic protection for persons with mental illness should be ensured through existing legislative provisions (eg: Mental Health Care Bill) and state specific legislations to guarantee mental health care to citizens should be strictly implemented. The provisions under these instruments need to be widely disseminated; people should be made aware of their rights and delivery channels strengthened. Side by side, efforts should be made to empower the National Human Rights Commission, Right To Information act, citizen's advocacy groups, self-help groups of mentally ill, civil society organisations to bring in greater accountability in these activities.
12. With a high prevalence of mental disorders in urban areas and with growing urbanisation, the urban health component under the National Health Mission should have a clearly defined and integrated mental health component for implementation of services (defined services in identified institutions).

Similarly, mental health in work places and educational institutions using life skills techniques can aim at health promotion, early detection as well as awareness programmes on mental health (for common mental disorders like depression, anxiety, stress reduction, alcohol and tobacco use, etc.) and should be promoted at all levels; development of programme implementation guidelines, mechanisms and resources are critical requirements.

13. A National Mental Health literacy (including IEC) strategy and plan of implementation should be developed to strengthen and focus on health promotion, early recognition, care-support – rights of the mentally ill and destigmatisation.

- IEC activities should move towards creating opportunities for better care, employment, educational and income generation activities for persons with mental disorders.
- Advocacy for mental health with the active engagement of the media is critical to develop programmes for the advancement of mental health. While negative portrayal needs to be stopped, positive portrayal on creating opportunities, rights and opportunities, recovery aspects need more coverage.
- Integrating mental health and substance use disorder within the ambit of governmental and non-governmental schemes on social and economic development (e.g. woman and child, micro-finance etc) will broad base coverage as well as reduce stigma.

- Civil society organisations, professional bodies and the private sector should take a lead role in these activities.

14. All mental health activities, programmes, plans and strategies should be scientifically and continuously monitored at the national, state and district levels. A mental health monitoring framework with clearly defined processes, indicators and feedback mechanisms should be developed and evaluated at periodical intervals.

- All DMHP activities should be reviewed by the District Collector or equivalent (once a month) and state level activities should be reviewed by the Principal Secretary Health (at 6 monthly intervals).
- A select set of indicators should be finalised and standardised for uniform data collection and monitoring to measure service delivery components through routine systems
- Sample surveys on representative populations at should be undertaken at defined intervals to independently measure status and progress.
- As evaluation is critical in measuring the outcomes and impact, mental health programmes should be evaluated by external agencies every 5 years.

15. The research base in mental health should be strengthened with a focus on the following areas

- Prioritised mental health questions should be included in the regular

- ongoing national surveys like NCD risk factor survey, National Family and Health Survey, National Sample Survey Organisation (NSSO) and others.
- Delineating the burden and impact of mental and substance use disorders in primary care settings using uniform and standardised techniques.
  - Operational research focusing on programme pitfalls and achievements, barriers and challenges, integration mechanisms and coordination challenges.
  - Expanding the present survey on adolescents in the 13 – 17 years group (implemented as a pilot study) to larger populations.
  - Understanding the treatment gap to unfurl macro and micro level issues from both demand and supply angles.
  - Identifying risk and protective factors involved in causation, recovery and outcome of different mental disorders.
  - Understanding cultural perceptions and beliefs with regard to mental health for increasing the utilisation of mental health services.
- Use of m-health and e-health to develop services, databases, registries, distant care and promote convergence with other programmes.
  - Comprehensive understanding of the rehabilitation needs of the mentally ill at the district and state levels along with a longitudinal follow-up of affected individuals.
  - Better understanding of the economic impact of mental health disorders that include both direct and indirect costs.
  - Evaluating the different strategies for mental health promotion
  - National agencies like Indian Council for Medical Research (ICMR), Indian Council of Social Science Research (ICSSR), Department of Biotechnology (DBT), Department Of Science & Technology (DST), private sector and international agencies like World Health Organisation (WHO) and other United Nations (UN) agencies should dedicate and enhance research funds for mental and substance use disorders.

*A National Empowered Commission on Mental Health, comprising of professionals from mental health, public health, social sciences, the judiciary and related backgrounds should be constituted to oversee, support, facilitate, monitor and review mental health policies – plans – programmes in a continuous manner. Such a task force that works closely with the Ministries of Health at the national and state levels can provide strategic directions for mental health care programming to ensure speedy implementation of programmes.*

## 30. References

1. Dube KC. A Study of prevalence and biosocial variables in mental illness in rural and urban community in Uttar Pradesh, India. *Acta Psychiatr Scand* 1970;46:327-59
2. Reddy MV, Chandrasekar CR. Prevalence of mental and behavioural disorders in India: A metaanalysis. *Indian J Psychiatry* 1998;40:149-57
3. Gururaj G, Girish N, Isaac MK. Mental, neurological and substance abuse disorders: Strategies towards a systems approach. In: Rao S (Ed). *NCMH Background Papers-Burden of Disease in India*; Ministry of Health and Family Welfare, New Delhi: 2005
4. Math SB, Chandrashekar CR, Bhugra D. Psychiatric epidemiology in India. *Indian J Med Res* 2007;126:183-92
5. Ganguli HC. Epidemiological finding on prevalence of mental disorders in India. *Indian J Psychiatry* 2000;42:14-20
6. Nandi DN, Banerjee G, Mukherjee SP, Sarkar S, Boral GC, Mukherjee A, *et al.* A study of psychiatric morbidity of a rural community at an interval of ten years. *Indian J Psychiatry* 1986;28:179-84
7. Nandi DN, Banerjee G, Mukherjee SP, Ghosh A, Nandi PS, Nandi S. Psychiatric morbidity of a rural Indian community: Changes over a 20-year interval. *Br J Psychiatry* 2000;176:351-6
8. Reddy PR, Murthy KK, Anand B. An interval study of mental morbidity in a south Indian rural community in 1981-91. *Indian Journal of Social Psychiatry* 1994;10:11-19.
9. Kessler RC, Aguilar-Gaxiola S, Alonso J, Chatterji S, Lee S, Ormel J, *et al.* The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. *Epidemiol Psychiatr Soc*. 2009 Jan-Mar;18(1):23-33.
10. Deswal BS, Pawar A. An epidemiological study of mental disorders at Pune, Maharashtra. *Indian J Community Med* 2012;37:116-21
11. Bromet E, Andrade LH, Hwang I, Sampson NA, Alonso J, de Girolamo G, *et al.* Cross-national epidemiology of DSM-IV major depressive episode. *BMC Med*. 2011 Jul 26;9:90. doi: 10.1186/1741-7015-9-90.
12. Bruffaerts R, Vilagut G, Demyttenaere K, Alonso J, Alhamzawi A, Andrade LH, *et al.* Role of common mental and physical disorders in partial disability around the world. *Br J Psychiatry*. 2012 Jun;200(6):454-61. doi: 10.1192/bjp.bp.111.097519. Epub 2012 Apr 26.
13. Math SB, Srinivasaraju R. Indian psychiatric epidemiological studies: Learning from the past. *Indian J Psychiatry* 2010;52, Suppl S3:95-103
14. ICMR-DST. A collaborative study of severe mental morbidity. New Delhi: Indian Council of Medical Research – Department of Science and Technology; 1987.
15. Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. *Bull World Health Organ*. 2004 Nov;82(11):858-66. Epub 2004 Dec 14.
16. Begley CE, Baker GA, Beghi E, Butler J, Chisholm D, Langfitt JT, *et al.* Cross-country measures for monitoring epilepsy care. *Epilepsia*. 2007 May;48(5):990-1001. Epub 2007 Feb 23.
17. WHO. WHO Mental Health Gap Action Programme (mhGAP) [Internet]. Accessed on 25<sup>th</sup> Nov 2015. Available from: [http://www.who.int/mental\\_health/mhgap/en/](http://www.who.int/mental_health/mhgap/en/)
18. Kessler RC. Psychiatric epidemiology: selected recent advances and future directions. *Bull World Health Organ* 2000;78 : 464-74.
19. Regier DA, Kaelber CT, Rae DS, Farmer ME, Knauper B, Kessler RC, *et al.* Limitations of diagnostic criteria and assessment instruments for mental disorders: implications for research and policy. *Arch Gen Psychiatry* 1998; 55 : 109-15.
20. Spitzer RL. Diagnosis and need for treatment are not the same. *Arch Gen Psychiatry* 1998; 55: 120
21. Isaac MK, Kapur RL. A cost effectiveness analysis of three different methods of psychiatric case finding in the general population. *Br J Psychiatry* 1980; 137 : 540-7.
22. Chandrashekar CR, Isaac MK. Development of psychiatric epidemiology in India. *NIMHANS J* 1999; 17 : 297-306.

23. Goldberg DP. The detection of psychiatric illness by questionnaire. Oxford, England, Oxford University Press, 1972.
24. Goldberg D, Williams P. A user's guide to the General Hospital Questionnaire, Berkshire, England, 1991.
25. Derogatis CR. SCL-90-R. Administration, Scoring and Procedures Manual. Towson MD, Clinical Psychometric Research, 1983.
26. Wing JK. A standard form of psychiatric present state examination. In: Hare EH, Wing JK, eds. *Psychiatric Epidemiology*. London. England. Oxford University Press. 1970:93-131
27. Wing JK, Cooper JE, Sartorius N. *Measurement and Classification of Psychiatric Symptoms: An Instructional Manual for the PSE and CATEGO program*, London, England: Cambridge University Press: 1974
28. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry* 1998;59 Suppl 20:22-33.
29. Robins LN, Helzer JE, Croughan J, et al: National Institute of Mental Health Diagnostic Interview Schedule. *Archives of General Psychiatry*, 1981;38:381-89
30. Robin LN, Marcus L, Reich W et al. *Diagnostic Interview Schedule. Version IV*. St. Louis, MO, Department of Psychiatry, Washington School of Medicine, 1996.
31. World Health Organisation. *Composite International Diagnostic Interview (CIDI), Version 1.0*. Geneva, Switzerland, 1990.
32. Wittchen HU. Reliability and validity studies of WHO-Composite International Diagnostic Interview (CIDI): a critical review. *Journal of Psychiatric Research*, 1994;28:57-84
33. Lecrubier Y, Sheehan DV, Weiller E, et al. Mini International Neuropsychiatric Interview (M.I.N.I.): a short diagnostic structured interview: reliability and validity according to the CIDI. *European Psychiatry* 1997; 12:223-231
34. Sheehan DV, Lecrubier Y, Harnett-SheehasK, et al. The Validity of Mini International Neuropsychiatric Interview (M.I.N.I) according to the SCID-P and its reliability. *European Psychiatry* 1997; 12:232-241
35. Mini International Neuropsychiatric Interview. Medical Outcomes Systems. [Internet]. Accessed on 30<sup>th</sup> July 2013. Available from: <http://www.medical-outcomes.com/index/mini>
36. Verghese A, Beig A. Psychiatric disturbances in children: An epidemiological study. *Indian J Med Res* 1974;62:1538-42 Gaur et al, 2003;Srinath et al ,2005
37. Srinath S, Girimaji SC, Gururaj G, Seshadri S, Subbakrishna DK, Bhola P, et al. Epidemiological study of child and adolescent psychiatric disorders in urban and rural areas of Bangalore, India. *Indian J Med Res* 2005;122:67-79
38. Anita, Gaur DR, Vohra AK, Subash S, Khurana H. Prevalence of psychiatric morbidity among 6 to 14 year old children. *Indian J Community Med* 2007;28:7-9.
39. Sheehan DV, Sheehan KH, Shytle RD, Janavs J, Bannon Y, Rogers JE, Milo KM, Stock SL, Wilkinson B. Reliability and validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID). *J Clin Psychiatry*. 2010 Mar;71(3):313-26. doi: 10.4088/JCP.09m05305whi.
40. Kar N, Bastia BK. Post-traumatic stress disorder, depression and generalised anxiety disorder in adolescents after a natural disaster: a study of comorbidity. *Clinical Practice and Epidemiology in Mental Health: CP & EMH*. 2006;2:17. doi:10.1186/1745-0179-2-17.
41. Wang SJ, Juang KD, Fuh JL, Lu SR. Psychiatric comorbidity and suicide risk in adolescents with chronic daily headache. *Neurology*. 2007 May 1;68(18):1468-73.
42. Abbo C, Kinyanda E, Kizza RB, Levin J, Ndyabangi S, Stein DJ. Prevalence, comorbidity and predictors of anxiety disorders in children and adolescents in rural north-eastern Uganda. *Child Adolesc Psychiatry Ment Health*. 2013 Jul 10;7(1):21. doi: 10.1186/1753-2000-7-21.
43. Chakraborty S, Kommu JV, Srinath S, Seshadri SP, Girimaji SC. A comparative study of pathways to care for children with specific learning disability and mental retardation. *Indian J Psychol Med*. 2014 Jan;36(1):27-32. doi: 10.4103/0253-7176.127243.
44. Rao TSS, Darshan MS, Tandon A, Raman R, Karthik KN, Saraswathi N, et al. Suttur study: An epidemiological study of psychiatric disorders in south Indian rural population. *Indian J Psychiatry*. 2014 Jul;56(3):238-45. doi: 10.4103/0019-5545.140618.

45. Qu Y, Jiang H, Zhang N, Wang D, Guo L. Prevalence of Mental Disorders in 6–16-Year-Old Students in Sichuan Province, China. Tchounwou PB, ed. *International Journal of Environmental Research and Public Health*. 2015;12(5):5090-5107. doi:10.3390/ijerph120505090.
46. Jayanthi P, Thirunavukarasu M, Rajkumar R. Academic stress and depression among adolescents: a cross-sectional study. *Indian Pediatr*. 2015 Mar 8;52(3):217-9.
47. Mini International Neuropsychiatric Interview. Medical Outcome Systems [Internet]. Accessed on 30<sup>th</sup> July 2013. Available from: <http://www.medical-outcomes.com/index/miniforstudentsclinicians>
48. Fagerström KO. Measuring degree of physical dependence to tobacco smoking with reference to individualization of treatment. *Addict Behav*. 1978;3(3-4):235-41.
49. Anand K, Jain S, Paul E, Srivastava A, Sahariah SA, Kapoor SK. Development of a validated clinical case definition of generalized tonic-clonic seizures for use by community-based health care providers. *Epilepsia*. 2005 May;46(5):743-50.
50. Pathways Interview Schedule (Encounter Form). [Internet]. Accessed on 30<sup>th</sup> Sep 2014. Available from: [http://apps.who.int/iris/bitstream/10665/61855/1/MNH\\_NAT\\_87.1.pdf](http://apps.who.int/iris/bitstream/10665/61855/1/MNH_NAT_87.1.pdf)
51. WHO Disability Assessment Schedule 2.0. (WHODAS 2.0) [internet] accessed on 23<sup>rd</sup> June 2016. Available from <http://www.who.int/classifications/icf/whodasii/en/>
52. Sheehan Disability Scale (SDS). [internet] accessed on 10<sup>th</sup> March 2014. Available from <http://www.medical-outcomes.com/index/sds>
53. Bharti S, Tripathi A, Kohli A, Srivastava M, Tiwari S, Sharma A. Homeless mentally ill in India Challenges in Psychiatry. *Indian Journal of Behavioural Sciences*. 20 (2); 2010: 51-6
54. Fischer PJ, Breakey WR. The epidemiology of alcohol, drug, and mental disorders among homeless persons. *American psychologist*. 1991 Nov;46(11):1115.
55. Government of India. Mental Health Bill, 2016 [internet]. accessed on 13<sup>th</sup> Aug 2016. <http://www.prsindia.org/uploads/media/Mental%20Health/Mental%20health%20care%20as%20passed%20by%20RS.pdf>
56. Clement S, Brohan E, Jeffery D, Henderson C, Hatch SL, Thornicroft G. Development and psychometric properties the Barriers to Access to Care Evaluation scale (BACE) related to people with mental ill health. *BMC Psychiatry*. 2012 Jun 20;12:36.
57. Gulliver A, Griffiths KM, Christensen H. Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC Psychiatry*. 2010 Dec 30;10:113.
58. Chadda RK, Agarwal V, Singh MC, Raheja D. Help seeking behaviour of psychiatric patients before seeking care at a mental hospital. *Int J Soc Psychiatry*. 2001 Winter;47(4):71-8.
59. Giduthuri JG, Maire N, Joseph S, Kudale A, Schaetti C, Sundaram N, et al. (2014) Developing and Validating a Tablet Version of an Illness Explanatory Model Interview for a Public Health Survey in Pune, India. *PLoS ONE* 9(9): e107374. doi:10.1371/journal.pone.0107374.
60. Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1977;33(1):159-74
61. Sim J, Wright CC: The Kappa Statistic in Reliability Studies: Use, Interpretation, and Sample Size Requirements. *Phys Ther*. 2005, 85 (3): 257-268.]
62. Junge T, Balsnes S, Runge L, Juul-Kristensen B, Wedderkopp N. Single leg mini squat: an inter-tester reproducibility study of children in the age of 9-10 and 12-14 years presented by various methods of kappa calculation. *BMC Musculoskeletal Disord*. 2012 Oct 19; 13:203.]
63. TeamViewer v11.0.59518, TeamViewer, Germany, <https://www.teamviewer.com/en/download/windows/>
64. MySQL Data Compare, Red Gate Software Ltd, UK, <http://www.redgate.com/products/mysql/mysql-data-compare/>
65. IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.
66. Ethical Guidelines for Biomedical Research on Human Participants, 2006 [internet]. Accessed on 18<sup>th</sup> April 2013. Available from [http://www.icmr.nic.in/ethical\\_guidelines.pdf](http://www.icmr.nic.in/ethical_guidelines.pdf)
67. World Health Organization. The ICD-10 classification of mental and behavioural disorders: diagnostic criteria for research. Geneva: World Health Organization, 1993. Available at <http://apps.who.int/iris/handle/10665/37108>

68. StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP.
69. Census of India Website : Office of the Registrar General & Census Commissioner, India [Internet]. Accessed on 30<sup>th</sup> Aug 2016. Available from: <http://censusindia.gov.in/>
70. Amudhan S, Gururaj G, Satishchandra P. Epilepsy in India II: Impact, burden, and need for a multisectoral public health response. *Ann Indian Acad Neurol* 2015;18:369–81.
71. Demyttenaere K, Bruffaerts R, Posada-Villa J, Gasquet I, Kovess V, Lepine JP, et al. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *JAMA* 2004;291:2581–90.
72. Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. *Bull World Health Organ* 2004;82:858–66.
73. Thirthalli J, Venkatesh BK, Kishorekumar KV, Arunachala U, Venkatasubramanian G, Subbakrishna DK, et al. Prospective comparison of course of disability in antipsychotic-treated and untreated schizophrenia patients. *Acta Psychiatr Scand* 2009;119:209–17.
74. Raban MZ, Dandona R, Kumar GA, Dandona L. Inequitable coverage of non-communicable diseases and injury interventions in India. *Natl Med J India* 2010;23:267–73.
75. Rathod SD, Nadkarni A, Bhana A, Shidhaye R. Epidemiological features of alcohol use in rural India: a population-based cross-sectional study. *BMJ Open* 2015;5:e009802.
76. Patel V, Xiao S, Chen H, Hanna F, Jotheeswaran AT, Luo D, et al. The magnitude of and health system responses to the mental health treatment gap in adults in India and China. *Lancet*. 2016 May 17. pii: S0140-6736(16)00160-4. doi: 10.1016/S0140-6736(16)00160-4. [Epub ahead of print]
77. Iyer RS, Rekha M, Kumar TS, Sarma PS, Radhakrishnan K. Primary care doctors' management behavior with respect to epilepsy in Kerala, southern India. *Epilepsy Behav* 2011;21:137–42.
78. Cowan J, Raja S, Naik A, Armstrong G. Knowledge and attitudes of doctors regarding the provision of mental health care in Doddaballapur Taluk, Bangalore Rural district, Karnataka. *Int J Ment Health Syst* 2012;6:21.
79. D'Costa G, Nazareth I, Naik D, Vaidya R, Levy G, Patel V, et al. Harmful alcohol use in Goa, India, and its associations with violence: a study in primary care. *Alcohol Alcohol* 2007;42:131–7.
80. Sreevani R, Revathi S. Assessment of the attitude of staff nurses towards hospitalised psychiatric patients in Kolar (Karnataka). *Nurs J India* 2012;103:44–6.
81. Lancet Global Mental Health Group, Chisholm D, Flisher AJ, Lund C, Patel V, Saxena S, et al. Scale up services for mental disorders: a call for action. *Lancet* 2007;370:1241–52.
82. Gururaj G, Pradeep BS, Beri G, Chauhan A, Rizvi Z. Report of Youth Health Survey- Himachal Pradesh. Centre for Public Health. Bangalore, NIMHANS, 2014.

# 31. Annexure

## ANNEXURE A

Table 1: State wise Age and gender distribution of study subjects (%).

Region	South		West		North		Central		East		North-east	
State	KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN
<b>Total (N=34802)</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
<b>Gender</b>	%	%	%	%	%	%	%	%	%	%	%	%
Male	42.4%	46.1%	49.6%	49.7%	50.6%	51.2%	48.6%	47.8%	49.5%	48.3%	43.0%	42.7%
Female	57.6%	53.9%	50.4%	50.3%	49.4%	48.8%	51.4%	52.2%	50.5%	51.7%	57.0%	57.3%
<b>Total</b>	<b>100.0%</b>											
<b>Age group (years)</b>	%	%	%	%	%	%	%	%	%	%	%	%
<b>18-29</b>	22.4%	26.4%	29.9%	42.0%	33.5%	42.0%	37.7%	34.7%	37.3%	36.3%	35.0%	28.4%
<b>30-39</b>	16.3%	21.3%	22.0%	19.3%	18.7%	17.6%	19.4%	22.9%	20.6%	23.1%	22.1%	20.6%
<b>40-49</b>	18.4%	19.8%	17.5%	13.3%	16.6%	15.0%	17.2%	17.5%	15.7%	15.9%	17.2%	18.4%
<b>50-59</b>	16.9%	15.5%	13.7%	10.1%	12.8%	11.4%	12.0%	12.2%	11.0%	11.9%	11.9%	14.8%
<b>60-69</b>	26.00%	16.90%	16.90%	15.20%	18.50%	14.00%	13.80%	12.60%	15.50%	12.80%	13.80%	17.70%
<b>Total</b>	<b>100.0%</b>											

Table 2: Distribution of study subjects (%) by age and residence.

Age group (years)	RURAL	URBAN	
		Urban( Non-Metro)	Urban(Metro)
<b>N=34802</b>	<b>23957 (68.8%)</b>	<b>6601(19.0%)</b>	<b>4244(12.2%)</b>
18-29	35.2%	31.7%	31.2%
30-39	20.1%	21.1%	19.9%
40-49	16.4%	17.8%	17.5%
50-59	12.5%	12.8%	14.1%
60 and above	15.70%	16.60%	17.30%

Table 3: State wise distribution of study subjects by marital status and gender (%)

Region	South		West		North		Central		East		North-east	
State	KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN
<b>Total (n)</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
<b>Male</b>	<b>1051</b>	<b>1410</b>	<b>1571</b>	<b>1545</b>	<b>1464</b>	<b>1797</b>	<b>1382</b>	<b>1254</b>	<b>1496</b>	<b>1278</b>	<b>1119</b>	<b>1218</b>
Never Married	23.2%	22.3%	18.7%	18.3%	28.2%	34.2%	21.7%	19.6%	21.5%	26.9%	23.7%	21.8%
Married	75.3%	75.7%	75.8%	79.9%	68.0%	63.4%	75.8%	78.4%	76.3%	70.9%	74.6%	74.1%
Widowed/ Divorced/ Separated	1.5%	0.9%	2.0%	1.5%	3.8%	2.2%	2.5%	1.9%	2.2%	1.9%	1.6%	4.2%
Others	0.0%	1.1%	3.5%	0.4%	0.0%	0.2%	0.0%	0.1%	0.0%	0.3%	0.1%	0.0%
Total	42.4%	46.1%	49.6%	49.7%	50.6%	51.2%	48.6%	47.8%	49.5%	48.3%	43.0%	42.7%
<b>Female</b>	<b>1428</b>	<b>1649</b>	<b>1597</b>	<b>1563</b>	<b>1431</b>	<b>1711</b>	<b>1459</b>	<b>1367</b>	<b>1526</b>	<b>1368</b>	<b>1484</b>	<b>1634</b>
Never Married	10.7%	11.8%	10.3%	10.2%	15.0%	24.2%	15.5%	10.5%	10.9%	18.6%	14.4%	18.8%
Married	75.1%	75.0%	76.0%	81.1%	73.2%	69.5%	76.0%	80.0%	82.1%	70.8%	78.6%	69.0%
Widowed/ Divorced/ Separated	14.2%	13.2%	13.2%	8.7%	11.7%	6.3%	8.5%	9.4%	6.9%	10.5%	2.6%	12.2%
Others	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	4.4%	0.0%
Total	57.6%	53.9%	50.4%	50.3%	49.4%	48.8%	51.4%	52.2%	50.5%	51.7%	57.0%	57.3%
<b>Total</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
Never Married	16.0%	16.6%	14.5%	14.2%	21.7%	29.3%	18.5%	14.9%	16.1%	22.6%	18.4%	20.1%
Married	75.2%	75.3%	75.9%	80.5%	70.6%	66.4%	75.9%	79.2%	79.3%	70.8%	76.9%	71.1%
Widowed/ Divorced/ Separated	8.8%	7.6%	7.6%	5.1%	7.7%	4.2%	5.6%	5.8%	4.6%	6.3%	2.2%	8.8%
Others	0.0%	0.5%	2.0%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.2%	2.5%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4: State wise distribution of study subjects by education and gender (%)

Region	South		West		North		Central		East		North-east	
State	KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN
<b>Total (N=34802)</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
<b>Education</b>	%	%	%	%	%	%	%	%	%	%	%	%
<b>MALES</b>	<b>1051</b>	<b>1410</b>	<b>1571</b>	<b>1545</b>	<b>1464</b>	<b>1797</b>	<b>1382</b>	<b>1254</b>	<b>1496</b>	<b>1278</b>	<b>1119</b>	<b>1218</b>
Illiterate	2.5%	10.6%	13.0%	17.0%	18.6%	17.9%	16.5%	23.0%	16.6%	13.1%	17.6%	7.1%
Primary	10.8%	20.5%	3.0%	20.8%	18.1%	17.6%	21.3%	25.7%	16.0%	43.7%	17.4%	12.3%
Secondary	8.8%	32.0%	29.0%	17.5%	14.8%	18.9%	18.6%	16.3%	11.6%	18.3%	18.6%	14.3%
High School	41.7%	11.8%	26.3%	12.1%	31.0%	15.5%	20.3%	14.8%	24.3%	12.6%	21.7%	26.8%
Pre University	13.3%	0.1%	14.4%	12.1%	10.1%	16.2%	13.0%	9.3%	14.2%	3.5%	11.8%	19.3%
Vocational	3.6%	6.0%	1.0%	0.1%	1.6%	0.4%	0.7%	2.1%	1.7%	0.5%	1.1%	0.0%
Graduate	14.3%	9.0%	9.0%	14.9%	2.0%	9.8%	6.6%	6.0%	13.1%	7.0%	9.4%	15.7%
Post Graduate	2.5%	4.1%	2.5%	5.5%	1.3%	3.2%	2.9%	2.8%	1.5%	0.9%	1.7%	3.0%
<b>FEMALES</b>	<b>1428</b>	<b>1649</b>	<b>1597</b>	<b>1563</b>	<b>1431</b>	<b>1711</b>	<b>1459</b>	<b>1367</b>	<b>1526</b>	<b>1368</b>	<b>1484</b>	<b>1634</b>
Illiterate	6.2%	25.3%	29.1%	50.9%	29.9%	41.2%	39.4%	47.8%	43.8%	26.2%	31.0%	21.2%
Primary	9.9%	21.6%	2.6%	17.9%	17.6%	16.2%	17.3%	18.9%	14.1%	39.8%	14.7%	12.9%
Secondary	8.1%	26.3%	25.9%	9.3%	11.4%	12.2%	14.1%	12.9%	7.5%	15.5%	15.8%	13.6%
High School	36.8%	10.4%	19.7%	4.8%	24.5%	7.8%	15.8%	8.3%	17.0%	8.3%	21.8%	23.4%
Pre University	12.9%	0.0%	12.1%	7.0%	10.1%	12.0%	8.0%	5.3%	9.4%	2.7%	9.8%	15.1%
Vocational	1.7%	2.2%	0.3%	0.0%	1.1%	0.1%	0.3%	0.3%	0.5%	0.4%	0.2%	0.1%
Graduate	17.6%	9.3%	7.6%	6.8%	2.5%	6.3%	4.0%	4.3%	6.7%	5.2%	5.3%	10.2%
Post Graduate	4.3%	3.6%	2.1%	3.3%	1.1%	3.7%	1.0%	1.5%	0.7%	1.6%	1.2%	2.4%
<b>TOTAL</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
Illiterate	4.6%	18.5%	21.1%	34.0%	24.2%	29.3%	28.3%	35.9%	30.3%	19.8%	25.2%	15.2%
Primary	10.3%	21.1%	2.8%	19.3%	17.9%	16.9%	19.3%	22.1%	15.1%	41.7%	15.9%	12.7%
Secondary	8.4%	28.9%	27.4%	13.4%	13.1%	15.6%	16.3%	14.5%	9.6%	16.9%	17.0%	13.9%
High School	38.9%	11.0%	23.0%	8.4%	27.8%	11.7%	18.0%	11.4%	20.6%	10.4%	21.7%	24.9%
Pre University	13.1%	0.0%	13.3%	9.6%	10.1%	14.2%	10.4%	7.2%	11.8%	3.1%	10.6%	16.9%
Vocational	2.5%	3.9%	0.7%	0.1%	1.3%	0.3%	0.5%	1.1%	1.1%	0.4%	0.6%	0.0%
Graduate	16.2%	9.2%	8.3%	10.8%	2.2%	8.1%	5.3%	5.1%	9.9%	6.0%	7.0%	12.6%
Post Graduate	3.5%	3.8%	2.3%	4.4%	1.2%	3.4%	1.9%	2.1%	1.1%	1.3%	1.4%	2.7%

Table 5: State wise distribution of study subjects by occupation and gender (%)

Region	South		West		North		Central		East		North-east	
State	KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN
<b>Total (N=34802)</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
<b>Male</b>	<b>1051</b>	<b>1410</b>	<b>1571</b>	<b>1545</b>	<b>1464</b>	<b>1797</b>	<b>1382</b>	<b>1254</b>	<b>1496</b>	<b>1278</b>	<b>1119</b>	<b>1218</b>
Cultivator	5.0%	9.1%	15.6%	21.8%	17.0%	23.9%	28.9%	34.2%	17.5%	4.7%	14.9%	10.0%
Agricultural Labourer	3.1%	8.4%	15.1%	15.9%	13.6%	7.0%	22.6%	20.8%	19.5%	11.3%	8.9%	2.9%
Employer	1.1%	5.5%	3.2%	0.5%	4.7%	0.4%	1.3%	1.9%	0.6%	3.0%	0.5%	0.8%
Employee & Other workers	60.9%	54.7%	46.5%	34.4%	41.1%	41.0%	25.9%	26.8%	20.3%	51.0%	44.4%	58.7%
Student	10.0%	6.4%	5.4%	11.6%	8.8%	15.1%	11.0%	7.1%	13.7%	6.6%	4.9%	9.4%
Household duties	1.0%	0.4%	1.2%	0.2%	2.6%	0.6%	0.3%	0.5%	1.9%	3.4%	2.8%	2.2%
Dependent	8.8%	7.4%	7.9%	4.8%	5.2%	6.1%	6.1%	6.4%	7.2%	13.4%	8.8%	7.1%
Pensioner	8.2%	3.0%	3.2%	5.3%	5.1%	2.4%	3.6%	0.7%	4.2%	3.0%	4.4%	5.0%
Others	1.7%	5.0%	2.0%	5.5%	2.0%	3.5%	0.3%	1.6%	15.0%	3.7%	10.3%	3.9%
<b>Female</b>	<b>1428</b>	<b>1649</b>	<b>1597</b>	<b>1563</b>	<b>1431</b>	<b>1711</b>	<b>1459</b>	<b>1367</b>	<b>1526</b>	<b>1368</b>	<b>1484</b>	<b>1634</b>
Cultivator	0.2%	2.4%	1.0%	7.7%	0.2%	0.8%	2.3%	5.9%	0.3%	1.2%	0.9%	2.0%
Agricultural Labourer	1.1%	9.2%	8.6%	4.9%	0.5%	0.6%	13.0%	12.2%	0.1%	3.4%	7.5%	0.7%
Employer	0.0%	0.4%	0.1%	0.1%	1.3%	0.1%	0.3%	0.1%	0.1%	0.3%	0.1%	0.1%
Employee & Other workers	74.1%	22.2%	14.0%	5.6%	5.9%	4.0%	5.3%	6.7%	2.4%	16.7%	9.6%	48.8%
Student	7.6%	5.5%	4.5%	7.0%	8.0%	11.5%	8.2%	4.2%	8.4%	7.0%	5.2%	6.5%
Household duties	2.9%	50.9%	63.8%	64.6%	76.9%	72.3%	57.2%	64.2%	80.5%	33.8%	67.9%	34.9%
Dependent	11.6%	5.7%	6.1%	3.5%	2.9%	9.6%	9.7%	5.8%	6.1%	33.8%	5.9%	4.2%
Pensioner	2.2%	0.8%	0.6%	6.5%	4.0%	0.5%	4.0%	0.5%	1.5%	1.2%	0.7%	1.5%
Others	0.3%	2.9%	1.2%	0.3%	0.3%	0.6%	0.0%	0.2%	0.6%	2.6%	2.2%	1.2%
<b>Total</b>	<b>2479</b>	<b>3059</b>	<b>3168</b>	<b>3108</b>	<b>2895</b>	<b>3508</b>	<b>2841</b>	<b>2621</b>	<b>3022</b>	<b>2646</b>	<b>2603</b>	<b>2852</b>
Cultivator	2.3%	5.5%	8.2%	14.7%	8.7%	12.6%	15.2%	19.5%	8.8%	2.9%	7.0%	5.4%
Agricultural Labourer	2.0%	8.8%	11.8%	10.4%	7.1%	3.9%	17.7%	16.3%	9.7%	7.2%	8.1%	1.6%
Employer	0.5%	2.7%	1.6%	0.3%	3.0%	0.3%	0.8%	1.0%	0.4%	1.6%	0.3%	0.4%
Employee & Other workers	68.5%	37.2%	30.1%	19.9%	23.7%	22.9%	15.3%	16.3%	11.3%	33.3%	24.6%	53.1%
Student	8.6%	5.9%	5.0%	9.3%	8.4%	13.4%	9.5%	5.6%	11.0%	6.8%	5.1%	7.7%
Household duties	2.1%	27.7%	32.8%	32.6%	39.3%	35.5%	29.5%	33.7%	41.6%	19.1%	39.9%	20.9%
Dependent	10.4%	6.5%	7.0%	4.2%	4.0%	7.8%	7.9%	6.1%	6.7%	23.9%	7.1%	5.4%
Pensioner	4.8%	1.8%	1.9%	5.9%	4.5%	1.5%	3.8%	0.6%	2.8%	2.0%	2.3%	3.0%
Others	0.9%	3.9%	1.6%	2.9%	1.1%	2.1%	0.1%	0.9%	7.7%	3.1%	5.6%	2.4%

Table 6: Household Income State wise (Quintiles)

Region		South		West		North		Central		East		North-east		Total
State		KL	TN	GJ	RJ	PB	UP	CG	MP	JH	WB	AS	MN	
<b>Qui</b>	<b>ntile</b>	<b>HH</b>												
		<b>Income</b>												
		<b>(Median)</b>												
<b>Q1</b>	No of House holds	177	183	184	116	144	155	148	176	132	146	178	147	1,886
	Min	0	0	0	500	0	0	0	0	0	0	0	0	0
	Max	5,100	5,000	4,100	5,500	7,000	4,000	4,500	2,500	3,700	4,500	4,000	9,700	9,700
	Median	2,700	4,000	2,900	3,500	5,000	2,700	3,000	2,000	2,400	3,000	3,000	6,000	3,000
<b>Q2</b>	No of House holds	212	218	194	110	104	161	134	169	125	110	195	159	1,891
	Min	5,300	5,500	4,500	6,000	7,250	4,100	4,800	2,600	4,000	4,850	4,200	10,000	2,600
	Max	9,000	8,500	7,800	9,800	10,000	7,500	6,500	4,000	6,600	8,000	6,000	15,500	15,500
	Median	8,000	7,000	6,000	7,500	10,000	5,500	5,850	3,000	5,000	6,000	5,000	12,500	6,000
<b>Q3</b>	No of House holds	163	244	192	119	163	159	151	226	119	136	190	180	2,042
	Min	10,000	9,000	8,000	10,000	10,250	8,000	6,700	4,100	7,000	8,100	6,200	16,000	4,100
	Max	14,000	12,700	13,500	17,000	15,000	13,000	10,000	6,900	11,000	12,250	9,800	24,500	24,500
	Median	10,000	10,000	10,000	13,000	14,000	10,000	8,000	5,000	9,000	10,500	8,000	20,000	10,000
<b>Q4</b>	No of House holds	205	208	174	115	162	165	141	170	134	130	178	154	1,936
	Min	15,000	13,000	14,000	17,500	15,050	13,200	10,200	7,000	11,500	12,500	10,000	25,000	7,000
	Max	20,500	20,000	24,900	31,000	25,000	19,500	15,300	11,500	20,800	23,000	17,700	40,000	40,000
	Median	16,000	16,000	17,000	23,000	20,000	15,500	13,000	9,000	15,000	17,000	12,500	31,000	16,000
<b>Q5</b>	No of House holds	169	216	183	116	146	155	148	177	127	132	185	157	1,911
	Min	21,000	20,500	25,000	31,500	25,250	20,000	15,350	12,000	21,000	23,500	18,000	41,000	12,000
	Max	500,000	230,000	285,000	169,000	752,000	230,000	266,000	150,000	212,500	206,000	120,000	940,000	2,125,000
	Median	30,000	30,000	35,000	56,000	40,000	30,000	21,000	18,500	32,000	35,000	25,500	55,000	32,000

Table 7: Household Income State wise (Quintiles)

Quintiles	Income	Rural	Urban	Metro	Total
Q1	No of Households	1,493	280	113	1,886
	Min	0	0	0	0
	Max	9,700	,000	6,500	9,700
	Median	3,000	4,000	3,000	3,000
Q2	No of Households	1,405	332	154	1,891
	Min	2,600	2,700	4,000	2,600
	Max	15,500	15,500	10,000	15,500
	Median	6,000	7,000	6,800	6,000
Q3	No of Households	1,409	406	227	2,042
	Min	4,100	4,400	4,500	4,100
	Max	24,500	24,000	15,600	24,500
	Median	10,000	10,000	10,000	10,000
Q4	No of Households	1,207	401	328	1,936
	Min	7,000	7,000	7,000	7,000
	Max	40,000	40,000	31,000	40,000
	Median	15,000	17,000	16,000	16,000
Q5	No of Households	996	481	434	1,911
	Min	12,000	12,000	12,000	12,000
	Max	940,000	752,000	2,125,000	2,125,000
	Median	30,000	37,000	34,000	32,000

Table 8: Prevalence of substance use disorders across NMHS states

		Any substance use disorder -% (95% CI)	Alcohol use disorder -% (95% CI)	Other substance disorder-% (95% CI)	Tobacco use disorder-% (95% CI)
<b>Total</b>	<b>N=34802</b>	<b>22.4 (22.37-22.52)</b>	<b>4.6 (4.61-4.69)</b>	<b>0.6 (0.56-0.59)</b>	<b>20.9 (20.82-20.96)</b>
Assam	2603	27.3 (27.05-27.60)	3.0 (2.93-3.14)	0.7 (0.63-0.74)	25.8 (25.50-26.05)
Chhattisgarh	2841	32.4 (32.10-32.71)	7.1 (6.96-7.30)	1.3 (1.22-1.37)	29.9 (29.56-30.16)
Gujarat	3168	18.8 (18.56-19.09)	4.5 (4.32-4.60)	0.1 (0.05-0.09)	17.4 (17.17-17.68)
Jharkhand	3022	12.8 (12.68-13.00)	2.4 (2.36-2.51)	0.3(0.24-0.29)	11.9 (11.79-12.10)
Kerala	2479	10.2 (9.85-10.45)	4.8 (4.60-5.02)	0.1(0.05-0.10)	7.3 (7.00-7.51)
Madhya Pradesh	2621	36.6 (36.35-36.78)	10.3 (10.19-10.46)	0.6(0.54-0.60)	34.9 (34.67-35.09)
Manipur	2852	23.8 (23.18-24.38)	5.1 (4.77-5.39)	0.8(0.69-0.95)	20.7 (20.09-21.23)
Punjab	2895	11.3 (11.01-11.67)	7.9 (7.62-8.19)	2.5(2.32-2.65)	5.5 (5.26-5.74)
Rajasthan	3108	38.9 (38.57-39.15)	2.6 (2.47-2.66)	0.5(0.42-0.50)	38.3 (38.05-38.62)
Tamil Nadu	3059	11.3 (11.06-11.46)	5.9 (5.79-6.09)	0.3(0.25-0.32)	8.2 (8.00-8.34)
Uttar Pradesh	3508	16.4 (16.22-16.55)	1.5 (1.46-1.57)	0.5(0.44-0.51)	16.1 (15.92-16.25)
West Bengal	2646	15.7 (15.52-15.88)	3.0 (2.96-3.13)	0.8(0.71-0.79)	14.3 (14.15-14.51)

Table 9: Prevalence of risk for suicide across NMHS states

	<b>N</b>	<b>Moderate (%) (95% CI)</b>	<b>High (%) (95% CI)</b>
<b>Total</b>	<b>34802</b>	<b>0.7(0.71-0.74)</b>	<b>0.9(0.89-0.92)</b>
Assam	2603	0.6(0.56-0.66)	0.7(0.69-0.80)
Chhattisgarh	2841	0.4(0.39-0.48)	0.3(0.25-0.32)
Gujarat	3168	0.4(0.37-0.45)	0.4(0.31-0.39)
Jharkhand	3022	0.6(0.57-0.64)	0.8(0.73-0.81)
Kerala	2479	1.0(0.86-1.05)	2.2(2.08-2.38)
Madhya Pradesh	2621	1.0(0.92-1.0)	0.8(0.77-0.85)
Manipur	2852	0.9(0.74-1.0)	1.4(1.21-1.54)
Punjab	2895	0.3(.024-0.36)	0.5(0.46-0.61)
Rajasthan	3108	0.7(0.62-0.72)	1.0(0.97-1.09)
Tamil Nadu	3059	0.3(0.30-0.38)	0.6(0.52-0.62)
Uttar Pradesh	3508	0.9(0.89-0.98)	0.9(0.87-0.96)
West Bengal	2646	1.0(0.96-1.06)	1.7(1.68-1.81)

Table 10: Prevalence of Screener positive epilepsy (generalized tonic clonic seizure) across NMHS states

	<b>N</b>	<b>Screener positive-% (95% CI)</b>
<b>Total</b>	<b>34802</b>	<b>0.3 (0.27-0.29)</b>
Assam	2603	0.3 (0.24-0.30)
Chhattisgarh	2841	0.2 (0.16-0.22)
Gujarat	3168	0.2 (0.17-0.23)
Jharkhand	3022	0.5 (0.44-0.51)
Kerala	2479	0.4 (0.32-0.44)
Madhya Pradesh	2621	0.2 (0.16-0.20)
Manipur	2852	0.4 (0.27-0.44)
Punjab	2895	0.7 (0.57-0.74)
Rajasthan	3108	0.1 (0.09-0.12)
Tamil Nadu	3059	0.3 (0.25-0.32)
Uttar Pradesh	3508	0.5 (0.45-0.51)
West Bengal	2646	0.03 (0.02-0.04)

Table 11: Prevalence of screener positive Intellectual Disability across NMHS states

	<b>N</b>	<b>ID screener positive-% (95% CI)</b>
<b>Total</b>	<b>N=34802</b>	<b>0.6 (0.62-0.65)</b>
Assam	2603	0.6 (0.56-0.66)
Chhattisgarh	2841	0.7 (0.64-0.75)
Gujarat	3168	0.3 (0.29-0.37)
Jharkhand	3022	1.3 (1.20-1.31)
Kerala	2479	0.4 (0.33-0.45)
Madhya Pradesh	2621	0.8 (0.76-0.84)
Manipur	2852	1.1 (0.93-1.23)
Punjab	2895	0.5 (0.47-0.62)
Rajasthan	3108	0.4 (0.36-0.44)
Tamil Nadu	3059	0.4 (0.39-0.48)
Uttar Pradesh	3508	0.4 (0.38-0.43)
West Bengal	2646	0.5 (0.44-0.51)

## ANNEXURE B

Table 1A: Indian Psychiatric epidemiological studies.

Investigator	Age (yrs)	Population covered	Prevalence*	Remarks
Reddy, 1998	18+	33,572	58	Meta-analysis of 13 community based studies undertaken till 1997
Ganguli, 2001	NM	NM	73	Analysis of 15 epidemiological studies; method of analysis not reported
Math, 2010	NM	NM	195	Modest estimates from review of 16 studies undertaken till 2009
Rao, 2014	All ages	3,033	244	Mysore Rural
Kaur, 2004**	18+	32,624	55	All centres of World Mental Health Survey, India
		3,005	5	Dibrugarh
		3,010	12	Imphal
		3,012	30	Lucknow
		2,645	46	Bhavnagar
		3,366	48	Tirupati
		3,105	66	Faridabad
		2,995	158	Puducherry
Deswal, 2012		3,023	32	Pune

\* Prevalence / 1000 populatin

\*\* = World Mental Health Survey was undertaken in 11 centres across India (Bangalore, Bhavnagar, Chandigarh, Dibrugarh, Faridabad, Imphal, Lucknow, Puducherry, Pune, Ranchi, Tirupati) on a sample of 32,624 persons; Results from 8 centres have been reported and same has been included above; Pune centre have published the results independently

### Box 4: Kashmir Mental Health Survey – 2015

Kashmir Mental Health Survey was undertaken in 10 district of Kashmir valley (total 22 Districts in Jammu and Kashmir) in 2015 to estimate prevalence of mental health – related conditions (Depression, Anxiety, Post Traumatic Stress Disorder) and determine access to mental health services. The sample included 5600 adults >18 years drawn from equal number of households randomly selected from amongst 400 villages; children and adolescent were specifically excluded. Focus Group Discussions supplemented the survey results.

Two screening tools (Hopkins Symptoms Checklist and Harvard Trauma Questionnaire) was used to identify probable depression (41%), probable anxiety (26%) and probable PTSD (19%). Being female, over 55 years of age, being widowed, divorced or separated and exposure to multiple traumatic events were significant predictors of mental health problems, while education was found to have a protective effect. Average Life time traumatic events experienced by those in the Kashmir division was 7.7 and directly co-related with the occurrence of mental health problems.

Help seeking was mainly from ‘peers’ and ‘doctors’. Barriers to seeking included lack of awareness, travel time and cost for the services.

Detailed report of the survey can be accessed from:

[http://www.msfindia.in/sites/india/files/kashmir\\_mental\\_health\\_survey\\_report\\_2015\\_for\\_web.pdf](http://www.msfindia.in/sites/india/files/kashmir_mental_health_survey_report_2015_for_web.pdf)

## ANNEXURE B

**Table 1B: Select International Psychiatric Epidemiological surveys (12 month prevalence)\***

Study area / Study	Year	Sample size	Tool	Age (yrs)	CMD		SMD	Alcohol Dependence	Any morbidity
					MDD	Anxiety disorders			
ECA, USA (1)	1980-85	20,861	DIS Version III	18+	3.5%	10.1%	Schizophrenia: 1.0%	5.9%	21.7%
NCS, USA (2)	1994	8,098	CIDI	15 – 54	10.3%	17.2%	Not reported	7.2%	29.5%
Germany (3)	2004	7,124	CID-S and DIA-X / M-CIDI	18 – 65	5.6% (4-week):	9.0% (4-week)	Psychosis screen (4-week) 1.5%	2.5%;	19.8%
NCS – R, USA (4)	2005	9,282	WMH CIDI	18+	6.7%	18.1%;	Not reported	Not reported	26.2%
Lebanon (5)	2006	2,857	CIDI 3.0	18+	4.9%;	11.2%	Not reported	1.2% (Abuse)	17.0%
New Zealand (6)	2006	12,992	WHO CIDI	16+	5.7%	14.8%;	Bipolar disorder: 2.2%	1.3%	20.7%
Nigeria (7)	2006	4,984	WMH CIDI	18+	1.0%	4.1%;	Not reported	0.1%	5.8%
England (8)	2007	7,461	CIS R SCAN SADQ – C	16+	2.3%	4.4%	Psychoses: 0.4%	5.9%	Not reported
Iraq (9)	2006/7	9,256	SRQ 20 and CIDI	18+	1.41%	6.02%	Not reported	Not reported	Not reported
Australia (10)	2009	8,841	WMH – CIDI 3.0	16 – 85	4.1%	14.4%	Not reported	1.4%	20%
China (11)	2009	63,004	GHQ SCID Chinese version	18+	6.1%	5.6%	Psychotic disorders 1.0%	Not reported	17.5%
Japan (12)	2016	4,130	WMH CIDI	20+	2.2%	4.9%	Not reported	0.9%	7.6%

\* 12 month Prevalence (%) unless indicated otherwise.

**Source:**

- 1) U.S. Dept. of Health and Human Services, National Institute of Mental Health. EPIDEMIOLOGIC CATCHMENT AREA (ECA) SURVEY OF MENTAL DISORDERS, WAVE I (HOUSEHOLD), 1980-1985: [UNITED STATES]. Rockville, MD: U.S. Dept. of Health and Human Services, National Institute of Mental Health [producer], 1985. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1991. <http://doi.org/10.3886/ICPSR08993.v1>
- 2) Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994 Jan;51(1):8-19.
- 3) Jacobi F, Wittchen H-U, Holting C, Höfler M, Pfister H, Müller N, Lieb R. Prevalence, co-morbidity and correlates of mental disorders in the general population: results from the German Health Interview and Examination Survey (GHS). *Psychol Med*. 2004 May;34(4):597-611.
- 4) Kessler RC, Chiu WT, Demler O, Merikangas KR, Walters EE. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005 Jun;62(6):617-27.
- 5) Karam EG, Mneimneh ZN, Karam AN, Fayyad JA, Nasser SC, Chatterji S, Kessler RC. Prevalence and treatment of mental disorders in Lebanon: a national epidemiological survey. *Lancet*. 2006 Mar 25;367(9515):1000-6.

- 6) Wells JE, Browne MA, Scott KM, McGee MA, Baxter J, Kokaua J; New Zealand Mental Health Survey Research Team. Prevalence, interference with life and severity of 12 month DSM-IV disorders in Te Rau Hinengaro: the New Zealand Mental Health Survey. *Aust N Z J Psychiatry*. 2006 Oct;40(10):845-54.
- 7) Gureje O, Lasebikan VO, Kola L, Makanjuola VA. Lifetime and 12-month prevalence of mental disorders in the Nigerian Survey of Mental Health and Well-Being. *Br J Psychiatry*. 2006 May;188:465-71.
- 8) NHS Digital. Adult psychiatric morbidity in England, 2007: Results of a household survey, 2009. [internet]. Accessed on 24<sup>th</sup> Aug 2016. Available from <http://content.digital.nhs.uk/pubs/psychiatricmorbidity07>
- 9) World health Organisation. Iraq Mental Health Survey 2006/7 Report, 2009, Regional office of the eastern Mediterranean, World Health Organisation. [internet]. Accessed on 24<sup>th</sup> Aug 2016. <https://mhps.net/?get=250/3.-WHO-Iraq-MH-survey.pdf>
- 10) Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing : Summary of Results, 2007. [internet]. Australian Bureau of Statistics, 2009. Accessed on 24<sup>th</sup> Aug 2016. Available from: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4326.02007?OpenDocument>
- 11) Phillips MR, Zhang J, Shi Q, Song Z, Ding Z, Pang S, Li X, Zhang Y, Wang Z. Prevalence, treatment, and associated disability of mental disorders in four provinces in China during 2001-05: an epidemiological survey. *Lancet*. 2009 Jun 13;373(9680):2041-53. doi: 10.1016/S0140-6736(09)60660-7.
- 12) Ishikawa H, Kawakami N1, Kessler RC1; World Mental Health Japan Survey Collaborators. Lifetime and 12-month prevalence, severity and unmet need for treatment of common mental disorders in Japan: results from the final dataset of World Mental Health Japan Survey. *Epidemiol Psychiatr Sci*. 2016 Jun;25(3):217-29. doi: 10.1017/S2045796015000566. Epub 2015 Jul 7.

**Table 1C: Prevalence of major depressive episodes in the ICPE surveys**

Country	12 month prevalence (%)
Brazil	5.8
Canada	4.3
Chile	5.6
Czech Republic	2.0
Germany	5.2
Japan	1.2
Mexico	4.5
Netherlands	5.9
Turkey	3.5
USA	10.0

Source: Andrade L, Caraveo-Anduaga JJ, Berglund P, Bijl RV, De Graaf R, Vollebergh W, Dragomirecka E, Kohn R, Keller M, Kessler RC, Kawakami N, Kiliç C, Offord D, Ustun TB, Wittchen HU. The epidemiology of major depressive episodes: results from the International Consortium of Psychiatric Epidemiology (ICPE) Surveys. *Int J Methods Psychiatr Res*. 2003;12(1):3-21.







*Person(s) with mental disorder(s) can be creative and productive with good care, caring society and availability of opportunities*

*Flower made from pencil wood waste*

Reproduced from work done by persons on treatment at the Department of Psychiatric Rehabilitation services, NIMHANS, Bengaluru