BEYOND TRADITIONAL EPIDEMIOLOGY :
A PARADIGM SHIFT FOR BETTER HEALTHCARE POLICIES

Mythily Subramaniam
ACMB Research
Institute of Mental Health
Associate Professor SSHSPH, NUS

INSTITUTE
of MENTAL
HEALTH
National Healthcare Group

WHAT IS EPIDEMIOLOGY

Epidemiology is the study *(scientific, systematic, and data-driven)* of the distribution *(frequency, pattern)* and determinants *(causes, risk factors)* of health-related states and events *(not just diseases)* in specified populations *(neighborhood, school, city, state, country, global)*. It is also the application of this study to the control of health problems

(Principles of Epidemiology, 3rd Edition).

INSTITUTE
of MENTAL
HEALTH
National Healthcare Group

WHAT IS POLICY

○ A course of action that will create a desired objective in the interest of the masses or the people in a given country.

○ Public policy is anything that a government chooses to do or not to do (Thomas Dye).

○ **A system of laws, regulations, government actions and funding priorities promulgated by a government to address social or economic issues.**

INSTITUTE *of* **MENTAL HEALTH**
National Healthcare Group

THE GAP BETWEEN RESEARCH AND POLICY

01 There tends to be a lack of communication between researchers and policy makers.

02 Policy makers are not informed about ongoing research

03 Researchers lack knowledge of the most pressing policy questions in order to make their research more relevant.

04 Ineffective communication of research findings

05 Researchers often feel that research is deemed unimportant, censored or controlled by policy makers

INSTITUTE *of* **MENTAL HEALTH**

National Healthcare Group

WHY SHOULD RESEARCHERS BRIDGE THE GAP?
….. Because we care

1 CREATING AWARENESS OF A PROBLEM – SUGGEST SOLUTIONS

2 EXAMINE EFFECTIVENESS OF POLICY SOLUTIONS

3 ESTIMATE COSTS AND CONSEQUENCES OF POLICY SOLUTIONS

4 ADVOCACY

INSTITUTE *of* MENTAL HEALTH
National Healthcare Group

CAN EPIDEMIOLOGICAL STUDIES SHIFT POLICIES?

CASE STUDY: SINGAPORE MENTAL HEALTH STUDY 2010

PERCEIVED GAP IN MENTAL HEALTH KNOWLEDGE IN SINGAPORE
- by Clinicians and Researchers

Lack of nation-wide data on prevalence, associated factors and treatment gap of mental illnesses.

- Few studies done

- Small sample size of studies

- Focus only on prevalence of Major Depressive Disorder and Generalised Anxiety Disorder

INSTITUTE
of MENTAL
HEALTH
National Healthcare Group
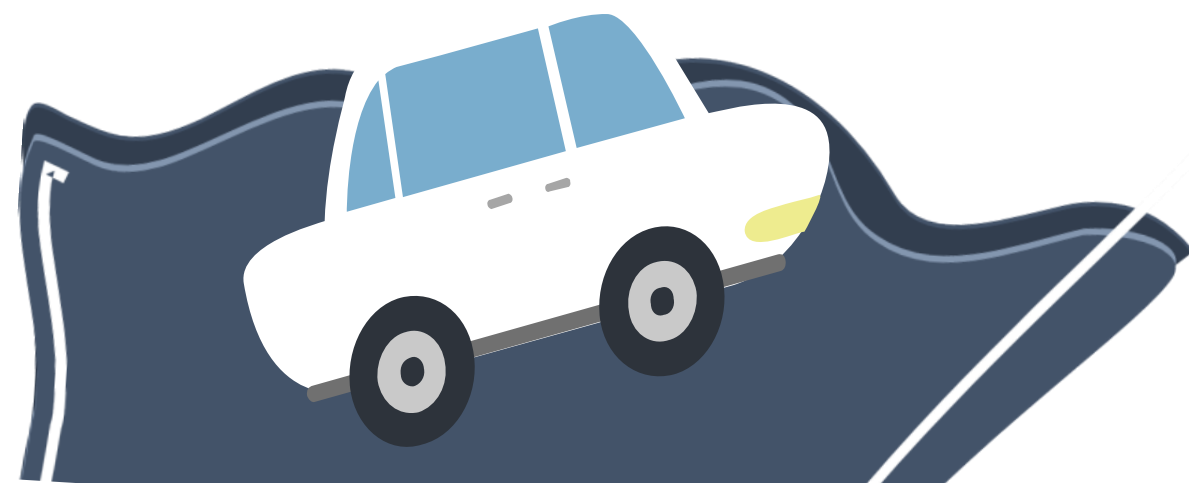
THE SINGAPORE MENTAL HEALTH STUDY

Developed as an integral part of the
National Mental Health Blueprint and Policy (2007)

01	Mental health promotion
02	Integrated mental healthcare
03	Strengthening mental health manpower capacity
04	**Developing Mental Health Research**

Established the need for population wide epidemiological survey

- **To inform care**
- **To inform manpower needs**

INVOLVING POLICY MAKERS IN RESEARCH

Policy-makers who are consulted at the initial stages of a research project tend to be more open since they can actively participate and hence have a stake in shaping the research questions, and thereby take "ownership" of the research as well.

INSTITUTE of MENTAL HEALTH
National Healthcare Group

THE SINGAPORE MENTAL HEALTH STUDY:
Involvement In Study Conception

Formation of Stakeholders Committee

ROLE OF STAKEHOLDER COMMITTEE

01 To advice the researchers on relevance of identified aims and help them identify community needs that should be investigated

02 Monitor progress of the study

03 Critically evaluate study results at various stages of the study

04 Trouble shoot problems identified by researchers

05 Advice on dissemination of study results

This ensured involvement of policy makers throughout the study and a multi-disciplinary dialogue with various stakeholders that informed the researchers

INSTITUTE *of* **MENTAL HEALTH**
National Healthcare Group

Singapore Mental Health Study (2010)

The study aimed to obtain accurate national information about the prevalence and correlates of mental, substance, and behavioral disorders in Singapore

Duration   :   3 years (April 2008 – March 2011)

Funding   :   Ministry of Health
Singapore Millennium Foundation

Collaborating Centres:

Results of the SMHS 2010

Interview response rate : 75.9 %

Completed Interviews   : 6616

Respondent Profile

	N	UNWEIGHTED %	WEIGHTED %
Gender			
Male	3299	49.9	(48.5)
Female	3317	50.1	(51.5)
Ethnicity			
Chinese	2006	30.3	(76.9)
Malay	2373	35.9	(12.3)
Indian	1969	29.8	(8.3)
Others	268	4.0	(2.4)
Age Mean (SD)		42.0 (14.5)	43.9

Epidemiology of Mental Disorders

INSTITUTE
of MENTAL
HEALTH

National Healthcare Group

RESULTS

Prevalence of Mental Disorders

1 in 8 Singaporean has a mental health condition

Lifetime | 12-month

5.8
2.2
1.2
0.6
3.0
1.1
3.6
0.8

Major Depressive Disorder | **Bipolar Disorder** | **Obsessive Compulsive Disorder** | **Alcohol Use Disorder**
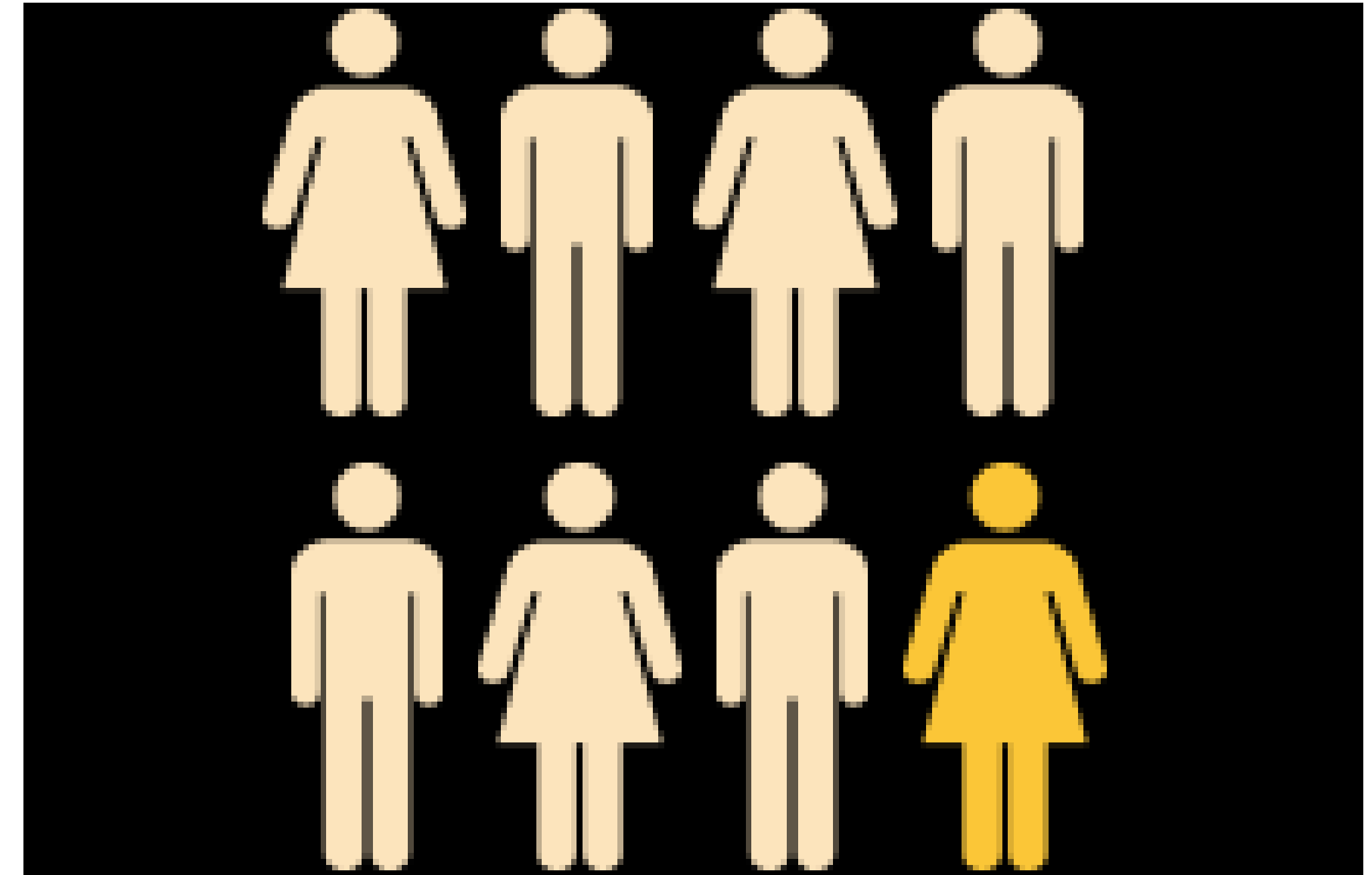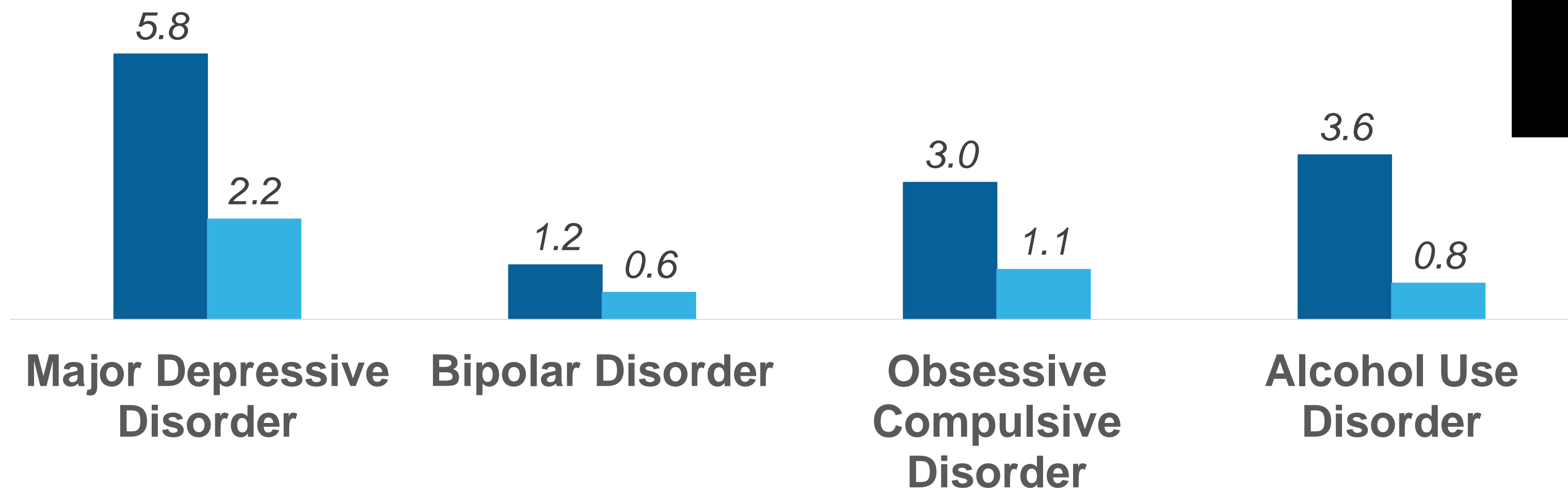
Chong et al. (2012) A population-based survey of mental disorders in Singapore.

RESULTS

Cross national comparison of median Age of Onset (AOO) Of Mental Disorders

Vaingankar et al. (2013) Age of onset of life-time mental disorders and treatment contact.
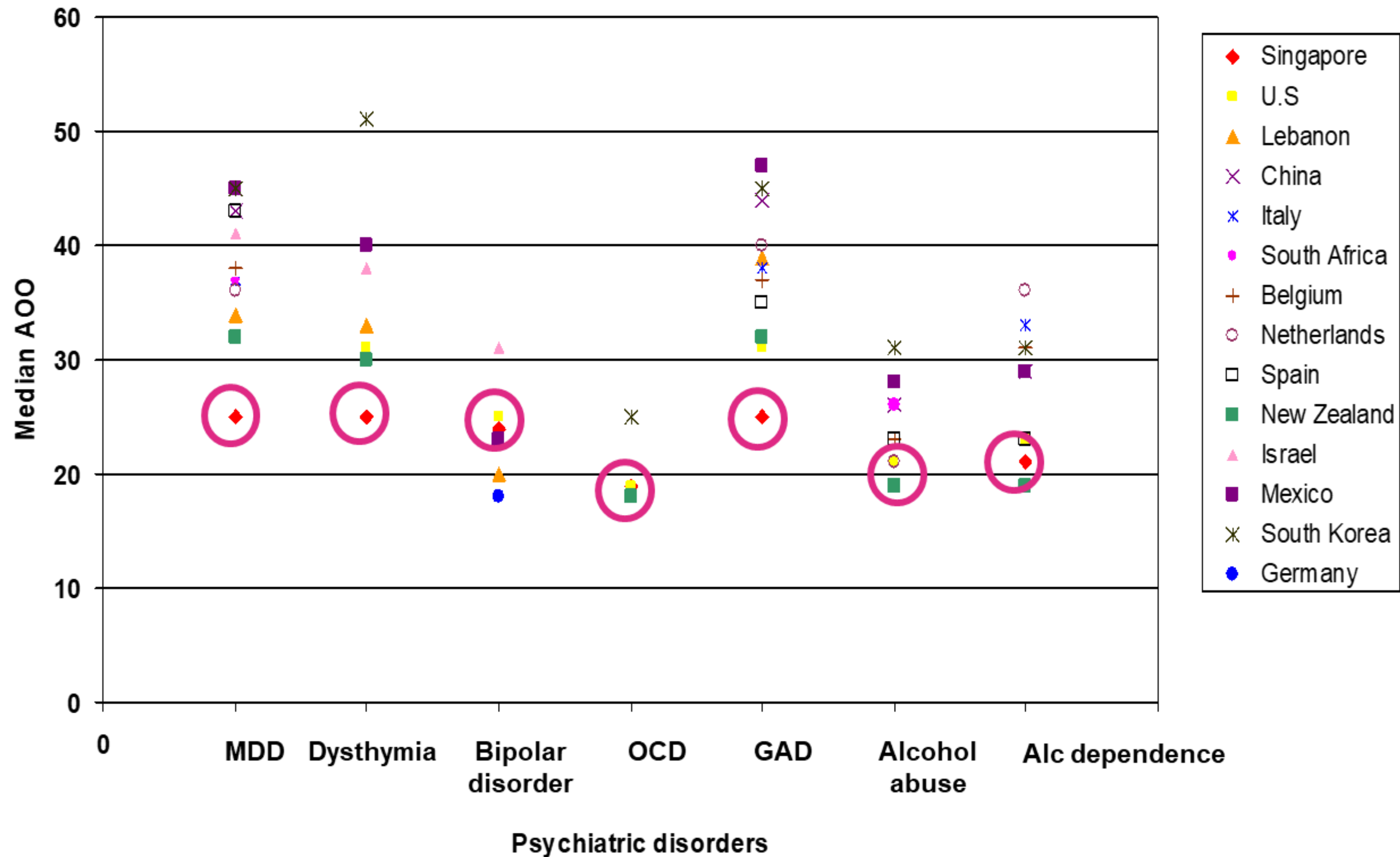
Co-Morbidity with Physical Disorders

Mental Disorder (12%)

Chronic Physical Condition (42.6)
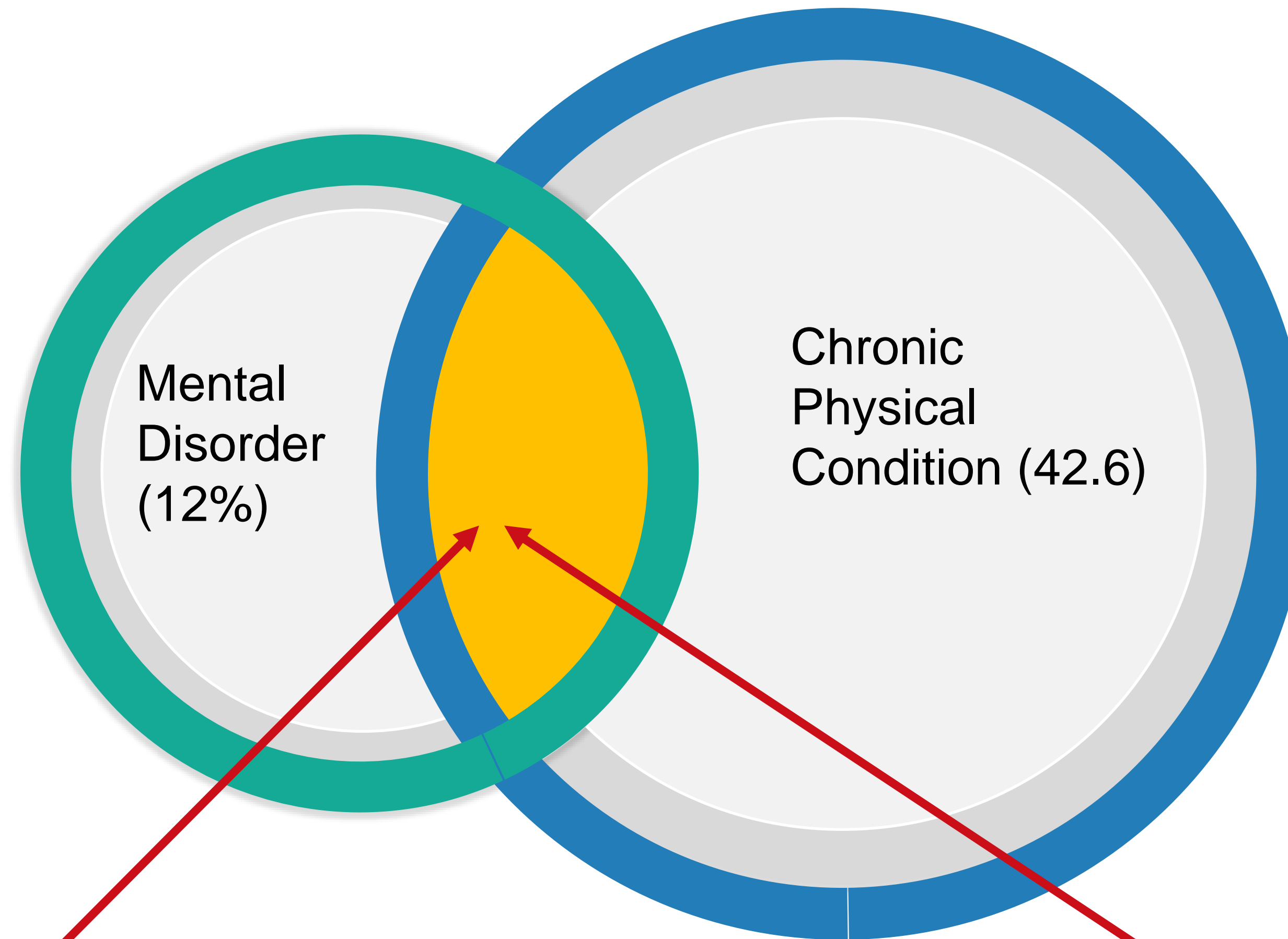
50.6% of those with mental disorder have at least 1 Chronic physical condition

14.3% of those with any physical condition had a mental disorder

INSTITUTE
of MENTAL
HEALTH
National Healthcare Group

Treatment of
Mental Disorders

RESULTS

Treatment Gap among those with Mental Disorders

Disorder	Treatment Gap %
Alcohol Abuse	96.2
Obsessive Compulsive Disorder	89.8
Alcohol Dependence	88.2
Major Depressive Disorder	59.6
Generalised Anxiety Disorder	56.5

Chong et al. (2012) Treatment gap in common mental disorders: the Singapore perspective.

INSTITUTE *of* **MENTAL HEALTH**
National Healthcare Group

DISSEMINATION PLAN

STRATEGY

Research institutions should develop a dissemination strategy, which could involve having press briefings, conference presentations, sending regular policy briefs to relevant ministries, and establishing personal contacts with policy-makers.

STAKEHOLDERS

Think about stakeholders and interested parties beyond the ministries you are currently involved with.

INSTITUTE of **MENTAL HEALTH**
National Healthcare Group

ENSURE THAT POLICY-MAKERS UNDERSTAND YOUR RESEARCH

01 Make your findings readable and understandable : use simpler language, and focus on the application rather than the theoretical background

02 Provide targeted research, which provides suggestions that can be implemented by policy makers

03 Be willing to present to multiple stakeholders

04 Talk to whoever wants to talk to you and engage them to both create awareness of your work and to get them to act on it

INSTITUTE of MENTAL HEALTH
National Healthcare Group

DISSEMINATION

We presented the research to:

Ministries

MINISTRY OF HEALTH
SINGAPORE

MSF | MINISTRY OF SOCIAL AND FAMILY DEVELOPMENT

Stat Boards

Health Promotion Board

aic agency for integrated care

NHG Board

National Healthcare Group

Psychological medicine departments of hospitals

NUHS National University Health System

Changi General Hospital SingHealth

Singapore General Hospital SingHealth

Voluntary Welfare Organisations

General Public

INSTITUTE of MENTAL HEALTH
National Healthcare Group

DISSEMINATION OF RESEARCH
Publications

ORIGINAL PAPER

Obsessive–compulsive disorder: prevalence, correlates, help-seeking and quality of life in a multiracial Asian population

Mythily Subramaniam · Edimansyah Abdin · Janhavi Ajit Vaingankar · Siow Ann Chong

Abstract

Purpose Obsessive–compulsive disorder (OCD) i
particularly debilitating disorder characterized by c
onset, chronic course, and significant comorbidity. Pe
with OCD often delay or are unwilling to seek treatm
The aim of the study was to establish the prevalence
correlates of obsessive compulsive disorder in the Si
pore population, to determine types of obsessive com
sive (O/C) symptoms, the comorbidity of the disorder
to examine the quality of life among those with OCD
Methods The Singapore Mental Health Study wa
cross-sectional epidemiological survey of the adult,
dent Singapore population. Face-to-face interviews v
completed with 6,616 respondents between Decem
2009 and December 2010 giving a survey response rat
75.9 %. The diagnoses of lifetime and 12-month me
disorders were established using Version 3.0 of the C
posite International Diagnostic Interview (CIDI-3.0);
ical severity of cases in past 12-months was assessed u
a fully structured version of the Yale-Brown Obsess
Compulsive Scale and functional impairment was asse
by using the disease specific Sheehan Disability S
which are incorporated in the CIDI. Health-related qu
of life was measured using the Euro-Quality of Life S
Results The lifetime and 12-month prevalence of C
was 3.0 and 1.1 %, respectively. Younger age and ma
status (divorced or separated) were significantly associ
with OCD. About 40 % of respondents with lifetime C

M. Subramaniam (✉) · E. Abdin · J. A. Vaingankar ·
S. A. Chong
Research Division, Institute of Mental Health,
Buangkok Green Medical Park, 10 Buangkok View,
Singapore 539747, Singapore
e-mail: Mythily@imh.com.sg

The Singapore Mental Health Study: an overview of the methodology

MYTHILY SUBRAMANIAM,[1] JANHAVI VAINGANKAR,[1] DERRICK HENG,[2] KIAN WOON KWOK,[3]
ANN CHONG[1]

...ealth, Singapore

...gapore

..stract

.. Singapore Mental Health Stud
..onal, epidemiological study on th
.. article provides an overview of t
.. into consideration the unique c
..ic population. A face-to-face ho
..ears and above was undertaken fr
..probability sample was derived
..od. In order to increase precisi
..ified with over-sampling of Ma
..e. Respondents were assessed t
.. Malay (paper and pencil based
..nostic Interview (CIDI) 3.0 to
..ental disorders, the current use
..ional services), the treatment ga
..? John Wiley & Sons, Ltd.

there are 8.4%
of mental disor
Singapore is
..alth concern   with a reside
..fecting indi-   Singapore, 200
.. The World   Malays and 8.7
..pproximately   product (GNP)
..n some form   standard of li
..ne; commu-   countries. Cha
..imated rates   with those in n
..mong adults   diseases and n
..year period,

HEALTH AND QUALITY OF LIFE OUTCOMES

RESEARCH   Open Access

The positive mental health instrument: development and validation of a culturally relevant scale in a multi-ethnic asian population

Janhavi Ajit Vaingankar[1*†], Mythily Subramaniam[1†], Siow Ann Chong[1], Edimansyah Abdin[1], Maria Orlando Edelen[2],
Louisa Picco[1], Yee Wei Lim[2], Mei Yen Phua[1], Boon Yiang Chua[1], Joseph YS Tee[1] and Cathy Sherbourne[2]

Abstract

Background: Instruments to measure mental health and well-being are largely developed and often used within Western populations and this compromises their validity in other cultures. A previous qualitative study in Singapore demonstrated the relevance of spiritual and religious practices to mental health, a dimension currently not included in exiting multi-dimensional measures. The objective of this study was to develop a self-administered measure that covers all key and culturally appropriate domains of mental health, which can be applied to compare levels of mental health across different age, gender and ethnic groups. We present the item reduction and validation of the Positive Mental Health (PMH) instrument in a community-based adult sample in Singapore.

Methods: Surveys were conducted among adult (21-65 years) residents belonging to Chinese, Malay and Indian ethnicities. Exploratory and confirmatory factor analysis (EFA, CFA) were conducted and items were reduced using item response theory tests (IRT). The final version of the PMH instrument was tested for internal consistency and criterion validity. Items were tested for differential item functioning (DIF) to check if items functioned in the same way across all subgroups. **Results:** EFA and CFA identified six first-order factor structure (General coping, Personal growth and autonomy, Spirituality, Interpersonal skills, Emotional support, and Global affect) under one higher-order dimension of Positive Mental Health (RMSEA = 0.05, CFI = 0.96, TLI = 0.96). A 47-item self-administered multi-dimensional instrument with a six-point Likert response scale was constructed. The slope estimates and strength of the relation to the theta for all items in each six PMH subscales were high (range:1.39 to 5.69), suggesting good discrimination properties. The threshold estimates for the instrument ranged from -3.45 to 1.61 indicating that the instrument covers entire spectrums for the six dimensions. The instrument demonstrated high internal consistency and had significant and expected correlations with other well-being measures. Results confirmed absence of DIF.

Conclusions: The PMH instrument is a reliable and valid instrument that can be used to measure and compare level of mental health across different age, gender and ethnic groups in Singapore.

Keywords: Positive mental health, multi-dimensional, instrument development, item reduction, factor analysis, item response theory.

Background

Traditionally epidemiological studies have provided a wealth of research relating to the incidence, prevalence, determinants and consequences of mental illnesses, with little focus on mental health. The World Health Organisation states that health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity and mental health is 'a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community' [1]. Mental health and well-being contribute to a wide range of outcomes for individuals and communities.

* Correspondence: janhavi_vaingankar@imh.com.sg
† Contributed equally
[1]Research Division, Institute of Mental Health/Woodbridge Hospital, 10,
Buangkok View, 539747, Singapore
Full list of author information is available at the end of the article

Addiction

RESEARCH REPORT   doi:10.1111/j.1360-0443.2012.03830.x

Prevalence and correlates of alcohol use disorders in the Singapore Mental Health Survey

Mythily Subramaniam, Edimansyah Abdin, Janhavi Vaingankar, Amy M. Y. Phua, Joseph Tee & Siow Ann Chong

Research Division, Institute of Mental Health, Singapore

ABSTRACT

Aims To establish the prevalence, correlates, comorbidity and treatment gap of alcohol use disorders in the Singapore resident population. **Design** The Singapore Mental Health Study is a cross-sectional epidemiological survey. **Setting** A nationally representative survey of the resident (citizens and permanent residents) population in Singapore. **Participants** A total of 6616 Singaporean adults aged 18 years and older. **Measurements** The diagnoses were established using the World Mental Health Composite International Diagnostic Interview (WMH-CIDI) diagnostic modules for life-time and 12-month prevalence of selected mental illnesses including alcohol use disorders. **Findings** The life-time prevalence of alcohol abuse and alcohol dependence was 3.1% and 0.5%, while the 12-month prevalence of alcohol abuse and alcohol dependence was 0.5% and 0.3%, respectively. The life-time and 12-month prevalence of alcohol use disorders was 3.6% and 0.8%, respectively. Those with alcohol use disorder had significantly higher odds of having major depressive disorder [odds ratio (OR) 3.1] and nicotine dependence (OR 4.5). Compared to the rest of the population, those with an alcohol use disorder had significantly higher odds of having gastric ulcers (OR 3.0), respiratory conditions (OR 2.1) and chronic pain (OR 2.1). Only one in five of those with alcohol use disorder had ever sought treatment. **Conclusions** The prevalence of alcohol use disorders is relatively low in the Singapore adult population. Comorbidity with mental and physical disorders is significant, emphasizing the need to screen people with alcohol use disorders for these comorbidities.

Keywords Alcohol abuse, alcohol dependence, comorbidity, Singapore.

Correspondence to: Mythily Subramaniam, Research Division, Institute of Mental Health, Buangkok Green Medical Park, 10 Buangkok View, 539747, Singapore. E-mail: mythily@imh.com.sg

COMMUNICATION OF RESEARCH

Media

'1 in 10 will suffer from mental illness'

By CHANG AI-LIEN
SENIOR CORRESPONDENT

MORE than one in 10 people in Singapore will be stricken by mental illness in their lifetime, according to a large, new study here.

Many are likely to face depression, the commonest mental illness here. It is projected to affect 170,000 adults, with more women affected than men.

Common disorders include depression and alcohol abuse: Study

Others may be affected by alcohol abuse or obsessive-compulsive disorder (OCD), an anxiety affliction characterised by obsessions, compulsive rituals, as well as intrusive thoughts and impulses.

These were the top three mental disorders to surface in the $0.9 million Singapore Mental Health Study, in which 6,616 people were interviewed extensively last year.

The problem is a serious one, said Institute of Mental Health (IMH) experts who released the results yesterday. Mental illness can strike at a young age, and most people do not seek help.

'Profound impact' on well-being

Top 10 health news in 2011

As the new year approaches, JOAN CHEW looks back at the health news this year

6 STATE OF MENTAL HEALTH HERE MAPPED

In a nutshell: The findings from the Singapore Mental Health Study were released on Nov 18.

The three-year, $6.9 million nationwide study polled 6,616 Singaporeans and permanent residents aged 18 and above.

The study found that more than one in 10 people will be stricken by mental illness in their lifetime.

The top three mental disorders which they are likely to face are depression, alcohol abuse and obsessive-compulsive disorder – an anxiety affliction characterised by obsessions, compulsive rituals, and intrusive thoughts and impulses.

Alcohol abuse is one of the top three mental disorders here.

Significance: The study is part of the National Mental Health Blueprint launched in 2007 and the results will probably be used to design programmes to improve mental health in the population.

SATURDAY.

WATER EVERYWHERE, EVEN WHEN YOU CAN'T SEE IT
It takes 2,400 litres of water to produce a hamburger and 70 litres for an apple. D11

SPECIALREPORT

ocd

Singapore is the OCD capital of the world, with around one in 30 people suffering from obsessive-compulsive disorder at some point in their lifetimes. Chang Ai-Lien and Judith Tan find out why.

nation

重郁症、酒精滥用及强迫症最常见

精神病患者过半不

本地精神病患		没有接受治疗的病患（%）	
重郁症	**6.3%**	重郁症	59.6
		躁郁症	73.1
		广泛性焦虑症	56.5
强迫症	**3%**	强迫症	89.8
		酒精滥用	96.2
酒精滥用	**3.5%**	酒精依赖	88.3

病患求助对象（%）	
心理医生	22.1
家庭医生	18.0
心理学家	10.1
社工	7.9
辅导员	21.6
宗教或心灵治疗师	12.0
其他（包括其他心理疗师、医生、健康专家）	8.2

HITTING THE BOTTLE YOUNG

Those aged 18 to 34 twice as likely to drink excessively and binge drink, according to study

Policy Shift

Significant Treatment Gap

TRANSLATING RESEARCH INTO POLICY

Community Mental Health Master Plan 2012

01 Early detection systems implemented in community and general hospitals

03 Extending coverage of both Medisave and MediShield to include mental illness

02 Training care providers in various social sectors and grass roots organizations

04 Public awareness campaigns

INSTITUTE of **MENTAL HEALTH**
National Healthcare Group

TRANSLATING RESEARCH INTO POLICY
Campaigns and Community Interventions

MEDICAL SERVICES IN IMH

- ✓ Service to serve patients who are not keen to be referred for their physical health conditions to primary care providers

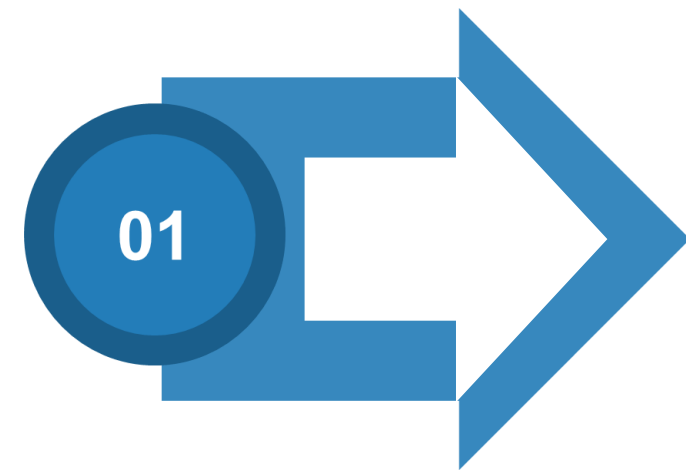- ✓ Provided by a fulltime family physician (GP) who heads the programme with locum doctors

- ✓ Clinical guidelines for care of medical conditions followed

- ✓ Regular monitoring of physical health parameters

INSTITUTE *of* **MENTAL HEALTH**
National Healthcare Group

DON'T STOP...
Request for serial epidemiological surveys

01 We put up a proposal and justified the need for a second SMHS in 8-10 years
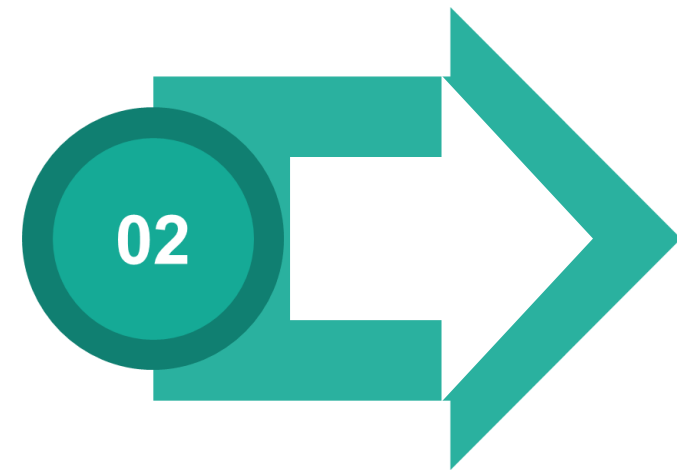
02 Ministry of Health asked us to repeat the survey in 6 years time!
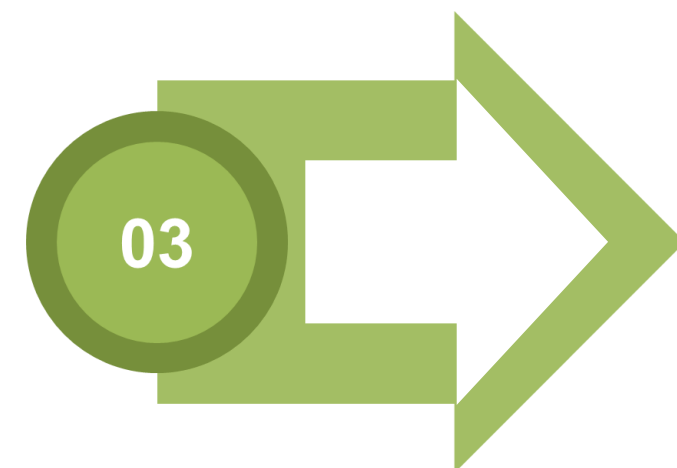
03 We embarked on the second SMHS in 2015

INSTITUTE
of MENTAL
HEALTH
National Healthcare Group

RELEVANCE OF SERIAL EPIDEMIOLOGICAL SURVEYS

Identify emerging disorders in the population

Examine changes if any in prevalence/ treatment gap

A Perfect Storm... Acknowledgements

01 Policy makers who were interested!

02 Senior policy makers with good understanding of psychiatric epidemiology

03 A clinician researcher who is a respected opinion leader and pushed the agenda relentlessly

04 A team that worked above and beyond what was expected of them!

INSTITUTE of MENTAL HEALTH
National Healthcare Group

ACKNOWLEDGMENT

Chong Siow Ann

Janhavi Vaingankar

Edimansyah Abdin

Boon Yiang Chua

Research Division, Institute of Mental Health

Derrick Heng

Mabel Yap

Wong Hwee Bee

Wei Ling Chow

Bernard Lee

Stefan Ma

Ministry of Health of Singapore

Lim Yee Wei
Cathy Sherbourne
Bonnie Ghosh Dastidhar

RAND Health

Kwok Kian Woon

Nanyang Technological University

For the first time, we now know that six types of mental disorders cost Singapore $1.7b a year. The figure looks huge but then it's not even the total cost. This figure covers only direct medical care and productivity loss. As the IMH study pointed out, it excludes other costs such as caregiver burden, medications and loss of earnings associated with unemployment.

Caregiver burden is usually difficult to quantify but is the most painful consequence of mental illness. Often, families suffer too when they have to take care of a family member who's suffering from mental illness. They experience economic loss too because they have to forgo job opportunities or cannot pursue their career as aggressively as others without such caregiving responsibilities. In severe cases, where the mentally ill cannot work, the financial burden of caregiving increases.

But the biggest challenge for them is the ignorance and lack of compassion that they encounter from some members of society. Some think that mental illness is the result of a feeble mind or a weakness of character. Mental illness is an illness of the brain, just like an affliction to the heart or liver or kidney. And it can affect the most brilliant as well as the most upright people. Illnesses of all kinds have no boundaries. Rich or poor, clever or average no one is insulated.

What can we do as a society? So much more. The first step is to tap our deep well of humanity. Let's consider a person as a human being first over his economic worth or social standing. Second, we do need effective early intervention programmes, particularly important in helping the young before the illness takes root. Third, provide a supportive, and understanding environment so that people will seek help early.

It can happen to anyone. In being kind to others, we are being kind to ourselves too.

👍❤️🥰 1.5K   80 Comments 306 Shares

👍 Like   💬 Comment   ↪ Share

INSTITUTE *of* **MENTAL HEALTH**
National Healthcare Group