The Epidemiology and Socio-Contextual Determinants of Child and Youth Mental Health

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Offord CENTRE FOR CHILD STUDIES

6th Conference on Recent Advances in the Prevention and Treatment of Childhood and Adolescent Obesity

Presentation Outline

1. Prevalence, Distribution & Impact

2. Service Use & Unmet Need

3. Social Contexts as Determinants & Targets for Intervention

4. Evidence Gaps, Ongoing & Future Directions

Definitions of Mental Health & Mental Disorder

MENTAL HEALTH: state of well-being in which the 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 own community (MHCC, 2012)

MENTAL DISORDER: patterns of behaviour, thinking or emotions that cause **distress, suffering or impairment** in core areas of functioning, such as school, work, social and family interactions or the ability to live independently (MHCC, 2012).

Mental Health Commission of Canada (MHCC, 2012). *CHANGING DIRECTIONS CHANGING LIVES: The Mental Health Strategy for Canada*

Classes of Mental Disorders

THREE MAIN CLASSES OF DISORDER:

1. **EMOTIONAL DISORDERS:** Any Mood or Anxiety Disorder

2. **BEHAVIORAL DISORDERS:** Oppositional Defiant Disorder, Conduct Disorder

3. **NEURODEVELOPMENTAL DISORDERS**: Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, Learning Disorders, Intellectual Disabilities

Challenges to Classification of Mental Disorders

1. **Categorical versus Dimensional Conceptualizations**
   - categorical approach assumes disorders are distinct entities; specific constellation of symptoms; distress or impairment

   - dimensional approach assumes that most symptoms exist along a continuum to varying degrees in <u>all</u> children

2. **Lack of Consensus on Measurement Approaches and Tools**

3. **High Co-morbidity**
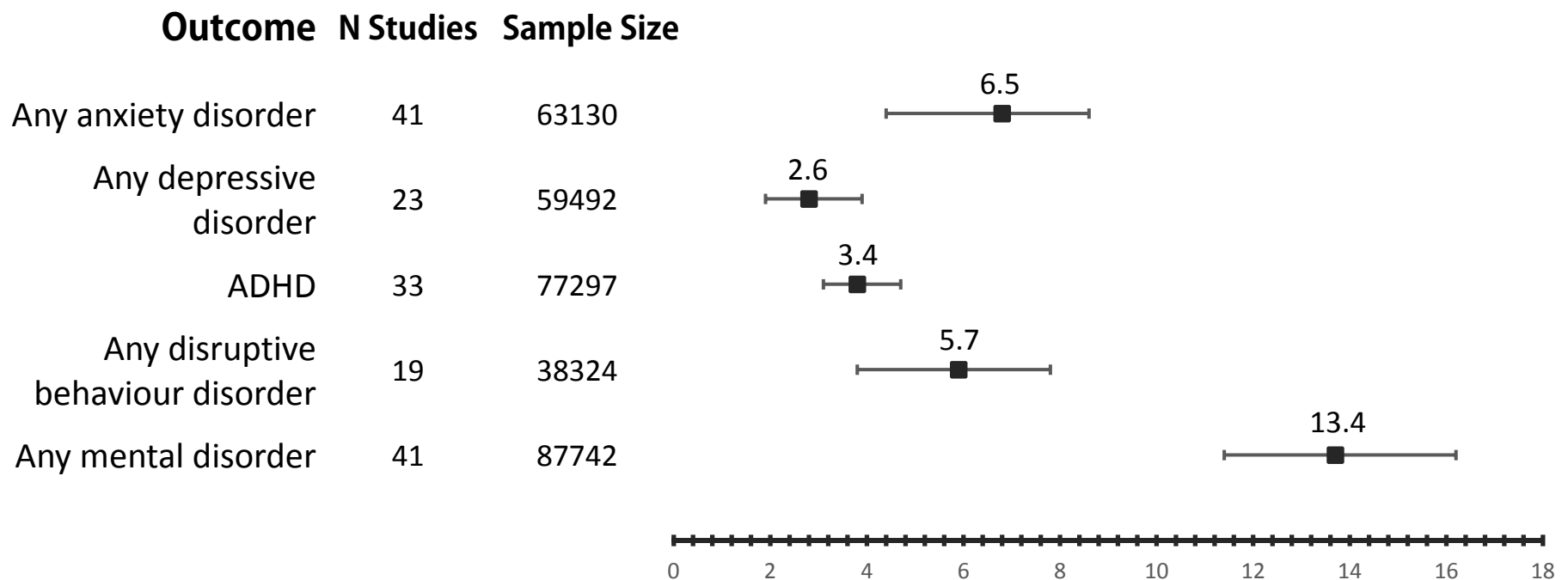
PART 1: PREVALENCE, DISTRIBUTION & IMPACT

Worldwide Pooled Prevalence of Mental Disorders in Children and Adolescents

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

Outcome	N Studies	Sample Size
Any anxiety disorder	41	63130
Any depressive disorder	23	59492
ADHD	33	77297
Any disruptive behaviour disorder	19	38324
Any mental disorder	41	87742

Polanczyk, G., Salum, G., Sugaya, L., Caye, A., & Rohde, L. (2015). Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal Of Child Psychology And Psychiatry*, *56*(3), 345-365.
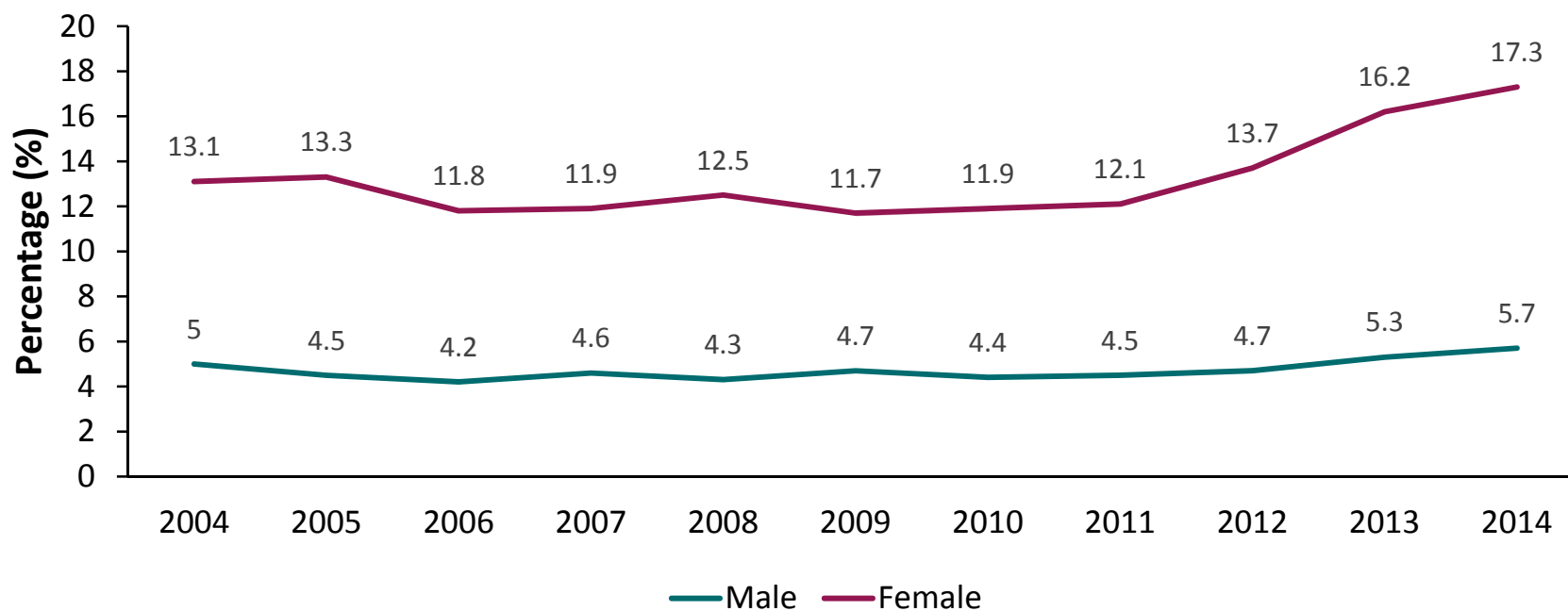
Temporal Trends in Prevalence (USA)

Past Year Major Depressive Episode by Gender (youth 12 -17 years)

Female: 13.1 (2004), 13.3 (2005), 11.8 (2006), 11.9 (2007), 12.5 (2008), 11.7 (2009), 11.9 (2010), 12.1 (2011), 13.7 (2012), 16.2 (2013), 17.3 (2014)

Male: 5 (2004), 4.5 (2005), 4.2 (2006), 4.6 (2007), 4.3 (2008), 4.7 (2009), 4.4 (2010), 4.5 (2011), 4.7 (2012), 5.3 (2013), 5.7 (2014)

Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health.
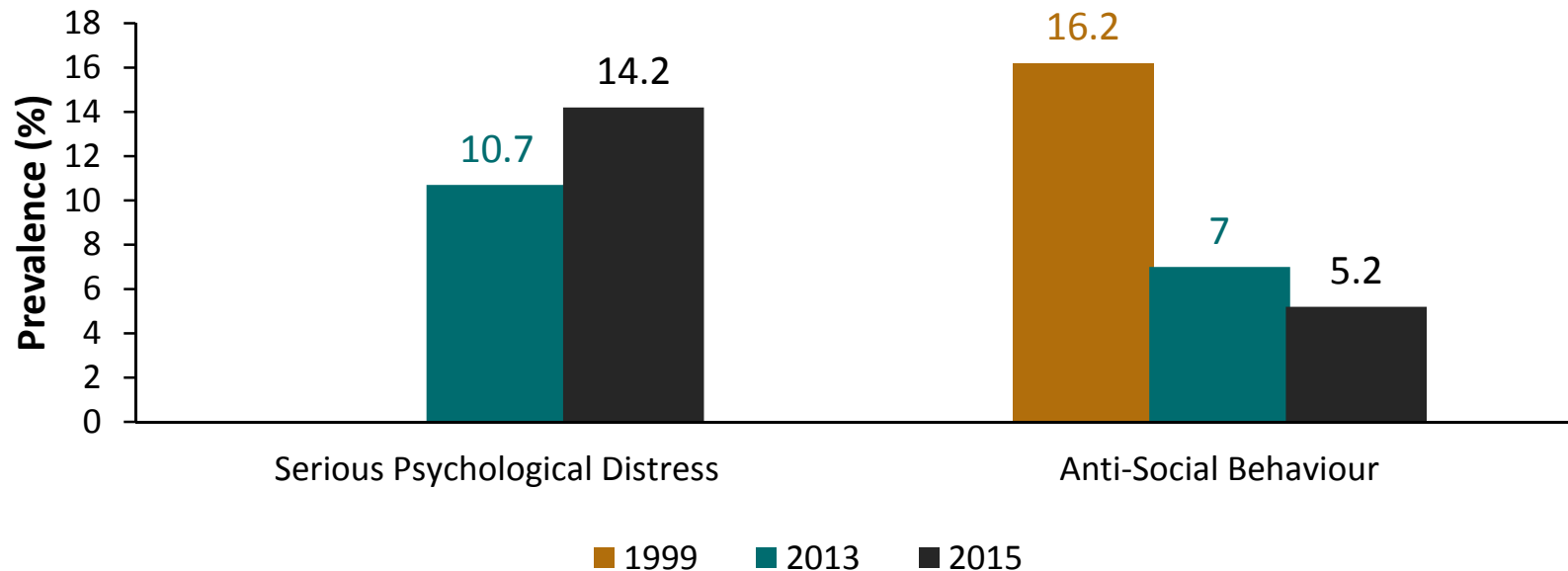
Temporal Trends in Prevalence (Ontario)

Ontario Student Drug Use & Health Survey

Boak, A., Hamilton, H. A., Adlaf, E. M., Henderson, J. L., & Mann, R. E. (2016). The mental health and well-being of Ontario students, 1991– 2015: Detailed OSDUHS findings (CAMH Research Document Series No. 43). Toronto, ON: Centre for Addiction and Mental Health.

Age of Onset for Mental Disorders

- **Anxiety disorders**
  - Median age of onset: **6 years old**

- **Behaviour disorders**
  - Median age of onset: **11 years old**

- **Mood disorders**
  - Median age of onset: **13 years old**

- **Substance use disorders**
  - Median age of onset: **15 years old**

Merikangas, K., He, J., Burstein, M., Swanson, S., Avenevoli, S., & Cui, L. et al. (2010). Lifetime Prevalence of Mental Disorders in U.S. Adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal Of The American Academy Of Child & Adolescent Psychiatry*, *49*(10), 980-989.

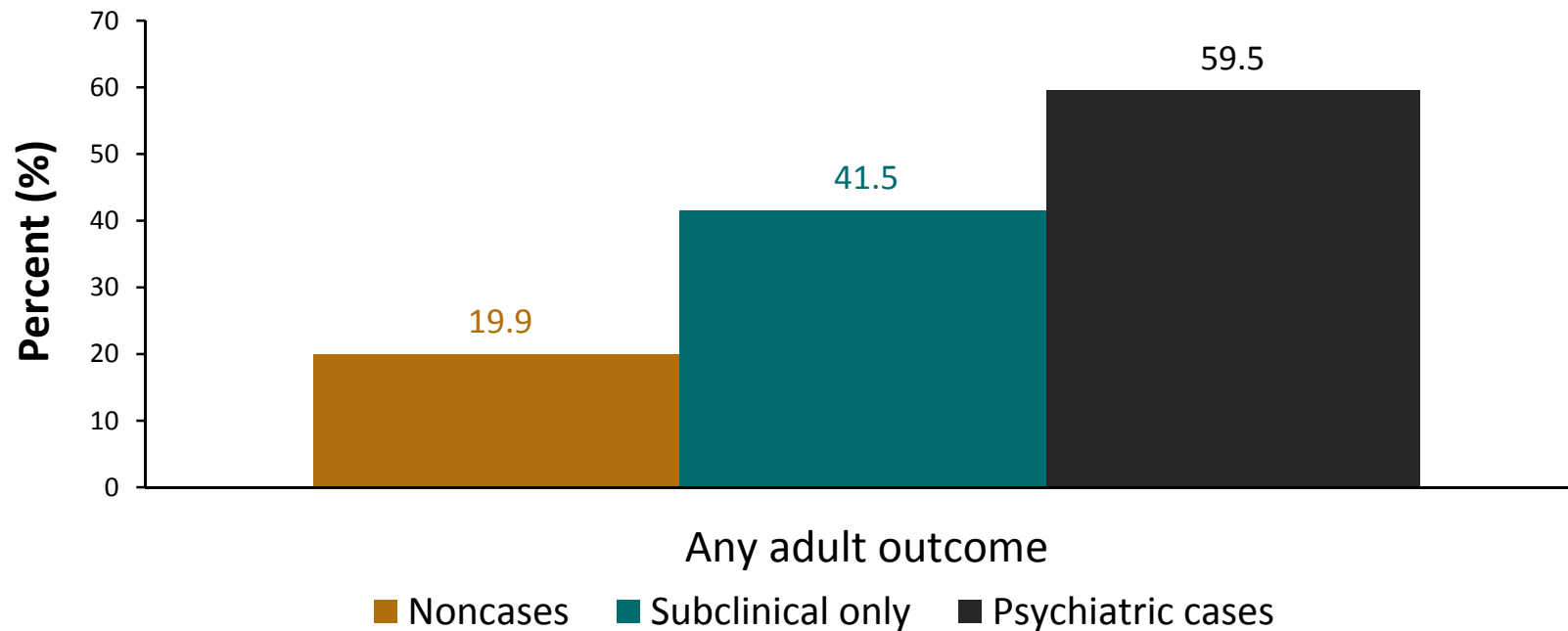# Long-term Impact of Childhood Mental Disorders

Adverse Outcomes in Adulthood Based On Childhood Psychiatric Status

- Noncases
- Subclinical only
- Psychiatric cases

Any adult outcome

Values: Noncases 19.9, Subclinical only 41.5, Psychiatric cases 59.5

Copeland, W., Wolke, D., Shanahan, L., & Costello, E. (2015). Adult Functional Outcomes of Common Childhood Psychiatric Problems. *JAMA Psychiatry*, *72*(9), 892.

Proportion of Total Disease Burden Globally

Diseases	Proportion of total DALYs	Proportion of total YLDs
Cardiovascular and circulatory diseases	11.9%	2.8%
Other common infectious diseases	11.4%	2.6%
Neonatal disorders	8.2%	1.2%
Cancer	7.6%	0.6%
Mental and substance use disorder	**7.4%**	**22.9%**
Musculoskeletal disorders	6.8%	21.3%
HIV/AIDS and tuberculosis	5.3%	1.4%
Other non-communicable diseases	5.1%	11.1%
Diabetes, urogenital, blood, and endocrine diseases	4.9%	7.3%
Unintentional injuries	4.8%	3.4%

Whiteford, H., Degenhardt, L., Rehm, J., Baxter, A., Ferrari, A., & Erskine, H. et al. (2013). Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet*, *382*(9904), 1575-1586.

Summary

1. Childhood mental disorders are **common**: 11-16%

2. Temporal trends suggest a **increase in depression and anxiety,** especially for **females**

3. Mental disorders **begin early** in the lifecourse

4. Childhood mental disorders have **long-term, pervasive impacts** on adult functioning

5. Mental and substance use disorders, particularly depression and anxiety, **leading cause of disability worldwide**

PART 2: SERVICE USE AND UNMET NEED

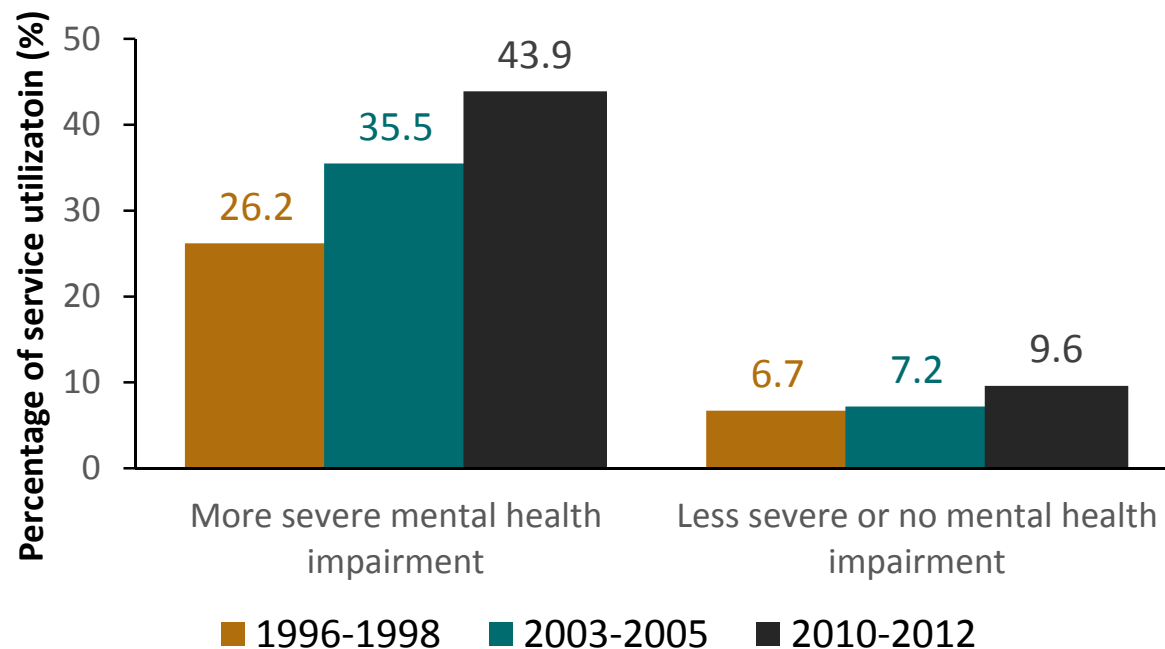# Temporal Trends in Outpatient Mental Health Service Use (USA)

All Youth 6-17 years of age

Service Use Utilization from 1996-1998 to 2010-2012

More severe
↑ **120%** MORE

Less severe
↑ **51%** MORE

Data are from the **Medical Expenditure Panel Surveys (MEPS)** and are presented as annualized percentages

Chart values:
- More severe mental health impairment: 1996-1998 = 26.2, 2003-2005 = 35.5, 2010-2012 = 43.9
- Less severe or no mental health impairment: 1996-1998 = 6.7, 2003-2005 = 7.2, 2010-2012 = 9.6

Legend: ■ 1996-1998 ■ 2003-2005 ■ 2010-2012

Y-axis: Percentage of service utilizatoin (%)

Olfson, M., Druss, B., & Marcus, S. (2015). Trends in Mental Health Care among Children and Adolescents. New England Journal Of Medicine, 372(21), 2029-2038.

Demographic Differences in Outpatient Mental Health Service Use

Youth With Severe Impairment in 2010-2012 (6-17 years)
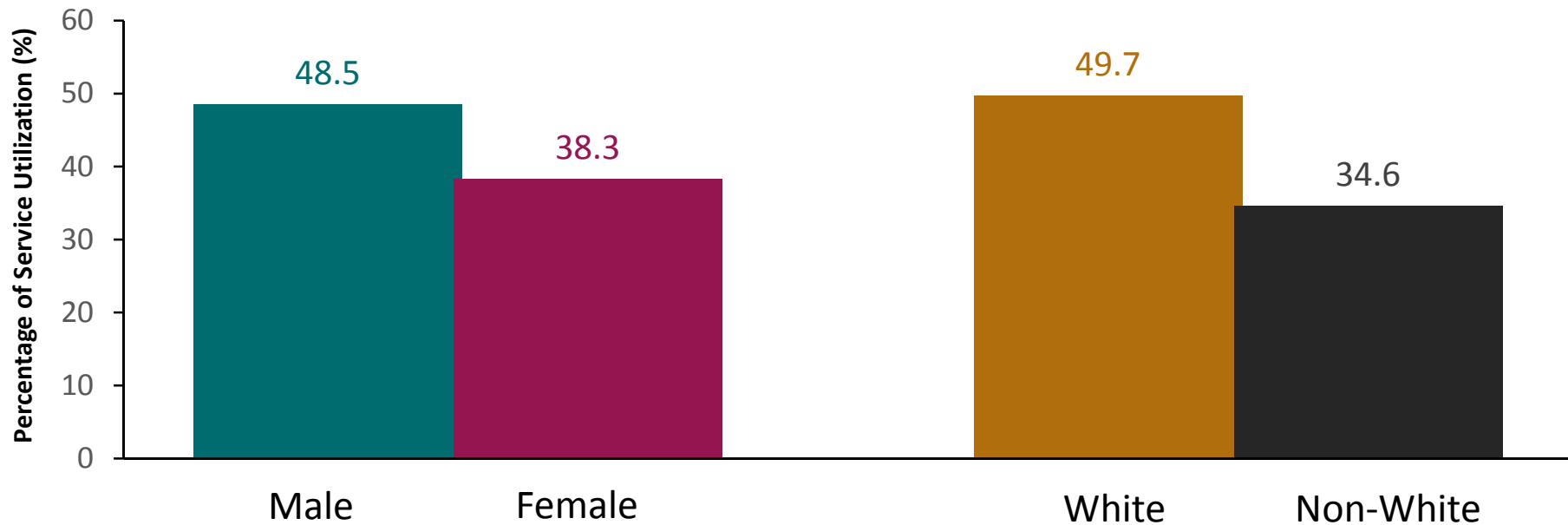
Bar chart. Y-axis: Percentage of Service Utilization (%), ranging 0 to 60.

- Male: 48.5
- Female: 38.3
- White: 49.7
- Non-White: 34.6

Data are from the **Medical Expenditure Panel Surveys (MEPS)** and are presented as annualized percentages

Olfson, M., Druss, B., & Marcus, S. (2015). Trends in Mental Health Care among Children and Adolescents. New England Journal Of Medicine, 372(21), 2029-2038.

Change in the Rate of Service Use for Mental Disorders (Ontario)

Population-Based Study of Ontario Youth (10-24 years)

+53.7%
+32.5%
+15.8%

Percentage Change Relative to 2006

Emergency Department Visits — Inpatient Hospitalizations — Outpatient Physician Visits
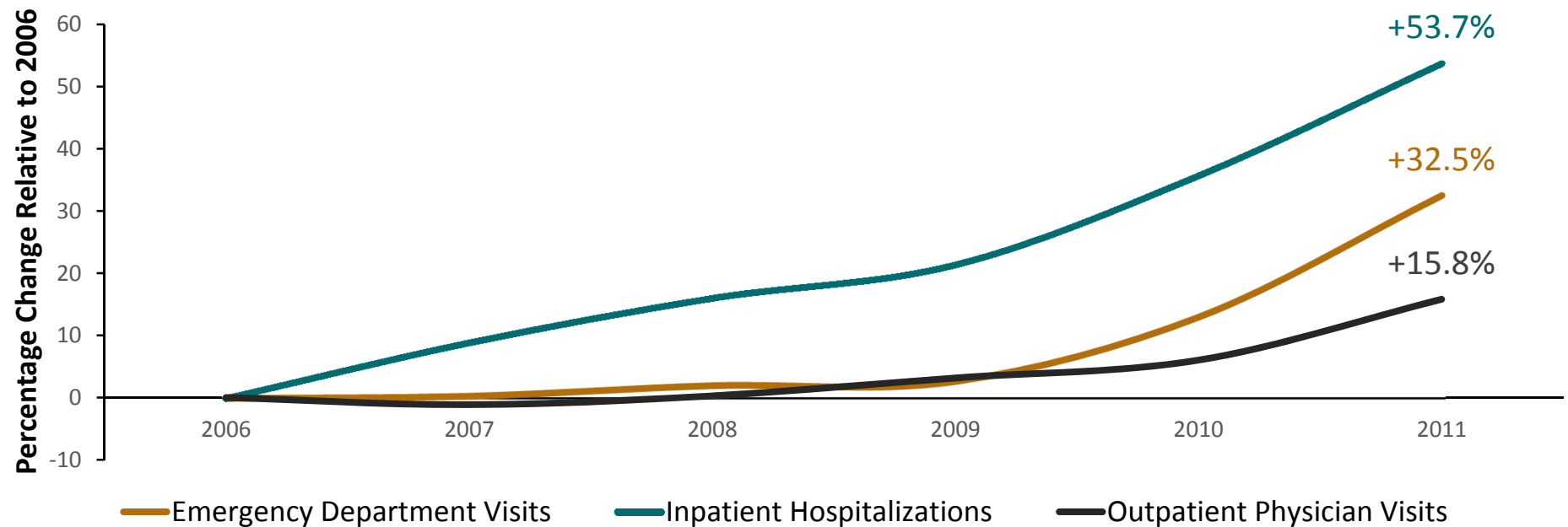
Gandhi, S., Chiu, M., Lam, K., Cairney, J., Guttmann, A., & Kurdyak, P. (2016). Mental Health Service Use Among Children and Youth in Ontario: Population-Based Trends Over Time. The Canadian Journal Of Psychiatry, 61(2), 119-124.

Unmet Need for Mental Health Care (Ontario)

Among students with a mental health need, 54% report receiving services while 46% do not

54% receive services

46% not receiving services
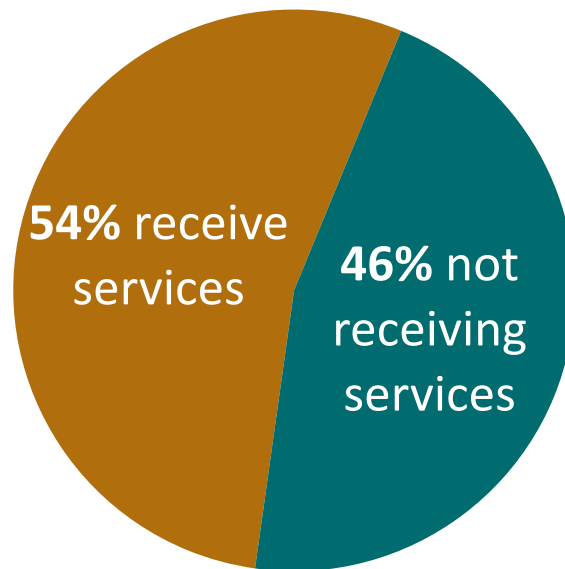
→ **Unmet Need for Mental Health Care**

Data are from our recent CIHR-funded **School Mental Health Surveys (SMHS)**
N=31,148 students in grades 6-12
N=248 schools across Ontario

Refer to http://ontariochildhealthstudy.ca/smhs/

Summary

1. Temporal trends suggest an **increase in mental health treatment**, especially for **youth with more severe impairment** (US) and in **acute care** sectors (Ontario)

2. More than **50% of children and youth with a mental health need are NOT receiving care**

3. **Unmet need** is disproportionately higher among **females, ethnic minority children/youth, and for depression and anxiety**

Risk and Protective Factors

Neighbourhood

School

Family

Individual Child

Socio-Contextual Risk Factors/Correlates
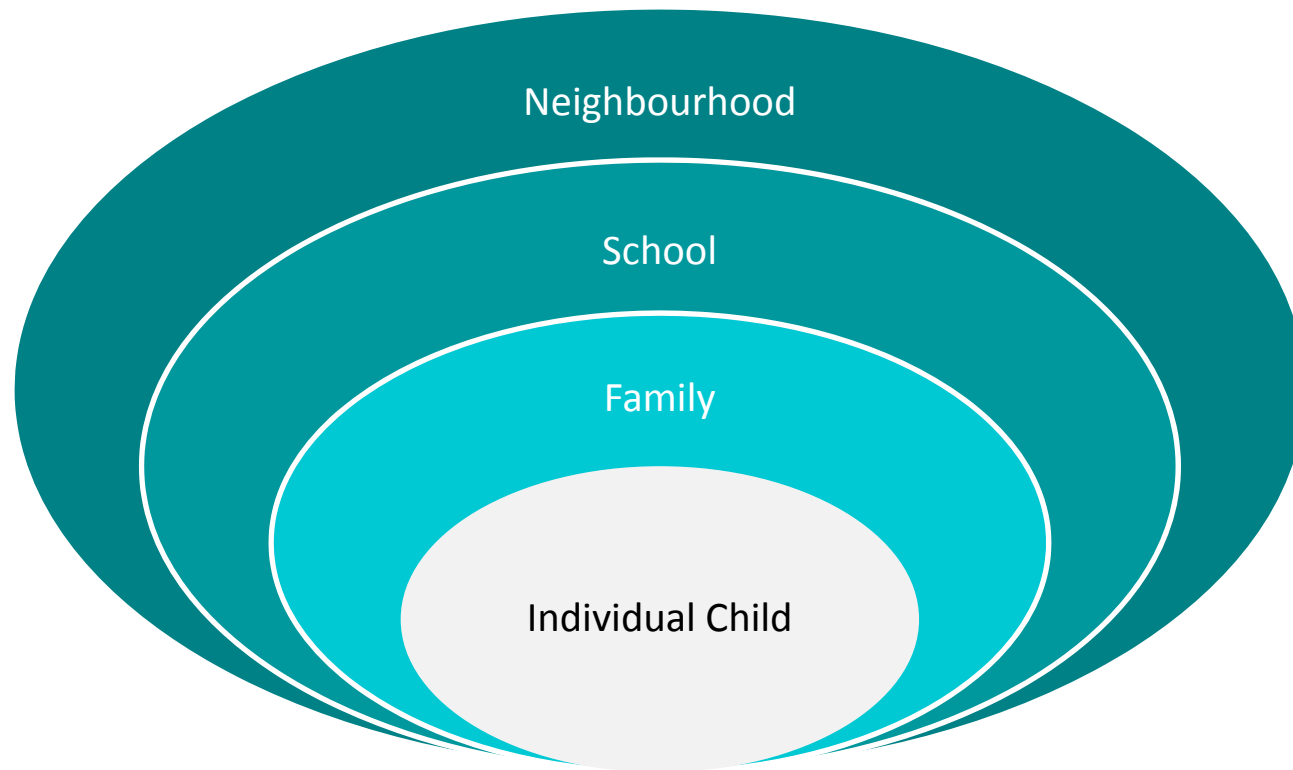
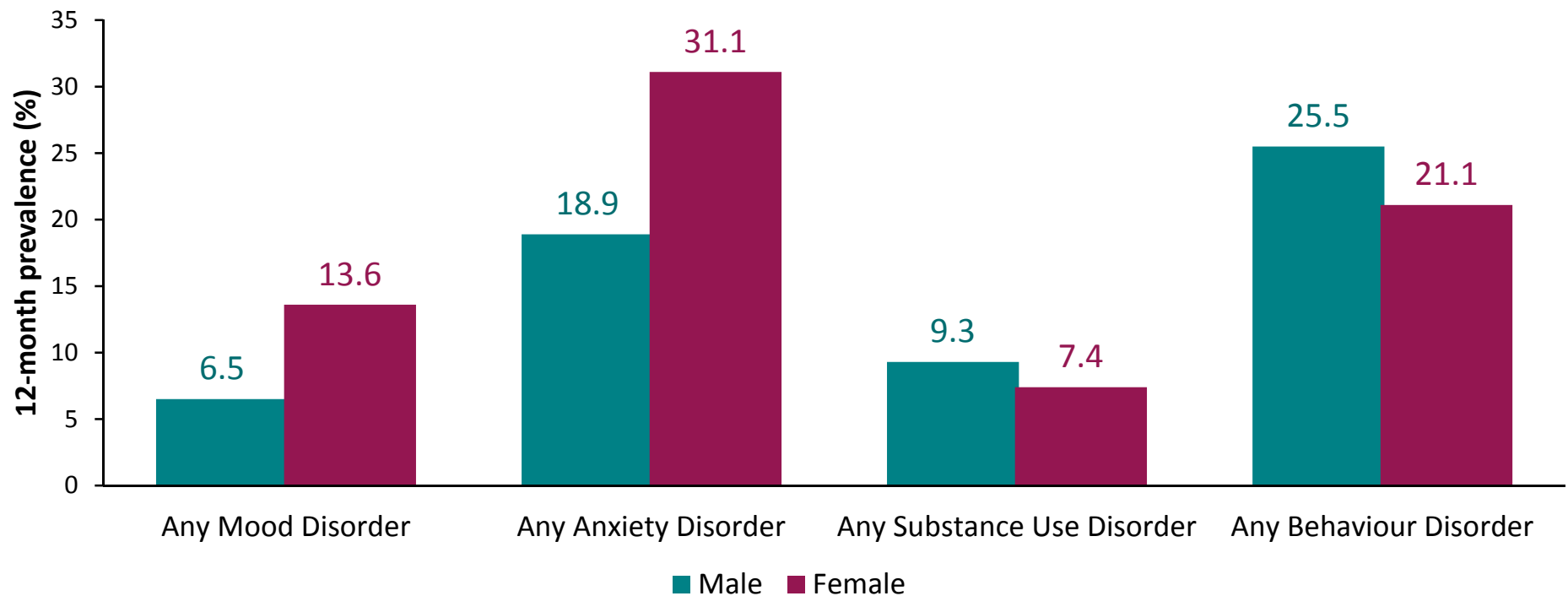| Prevalence & Distribution	Service Use & Unmet Needs	Social Contexts & Targets for Intervention	Evidence Gaps, Ongoing & Future Directions
Child	**Family**	**School**	**Neighbourhood**
Demographic • **Sex*** • Age • **Migrant/Ethnic Minority Background*** **Social Process & Stressors** • Social Isolation • Peer rejection • Deviant peer networks • Discrimination • Bullying victimization • **Neglect/Maltreatment*** • **Physical Illness*** • **School difficulties***	**Demographic & SES** • **Family Structure*** • **Low SES*** • **Housing insecurity*** **Social Process & Stressors** • **Parental MH: depression, substance use, criminality*** • Marital discord/conflict • Family social support • **Family dysfunction*** • **Poor parenting***	**SES & Infrastructure** • % low SES • % learning/behavioral • Mental health resources & programs **Social Process & Stressors** • School Climate • Sense of Belonging • Behavioral management • SEL strategies • Safety • Violence	**SES & Infrastructure** • SES Disadvantage • Availability of services and programs support healthy child development **Social Process & Stressors** • Social cohesion & trust • Collective efficacy • Safety • Violence • Crime

Gender Differences in 12-Month Prevalence (USA)

Kessler, R. et al. (2012). Prevalence, Persistence, and Sociodemographic Correlates of DSM-IV Disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Archives Of General Psychiatry*, *69*(4), 372.
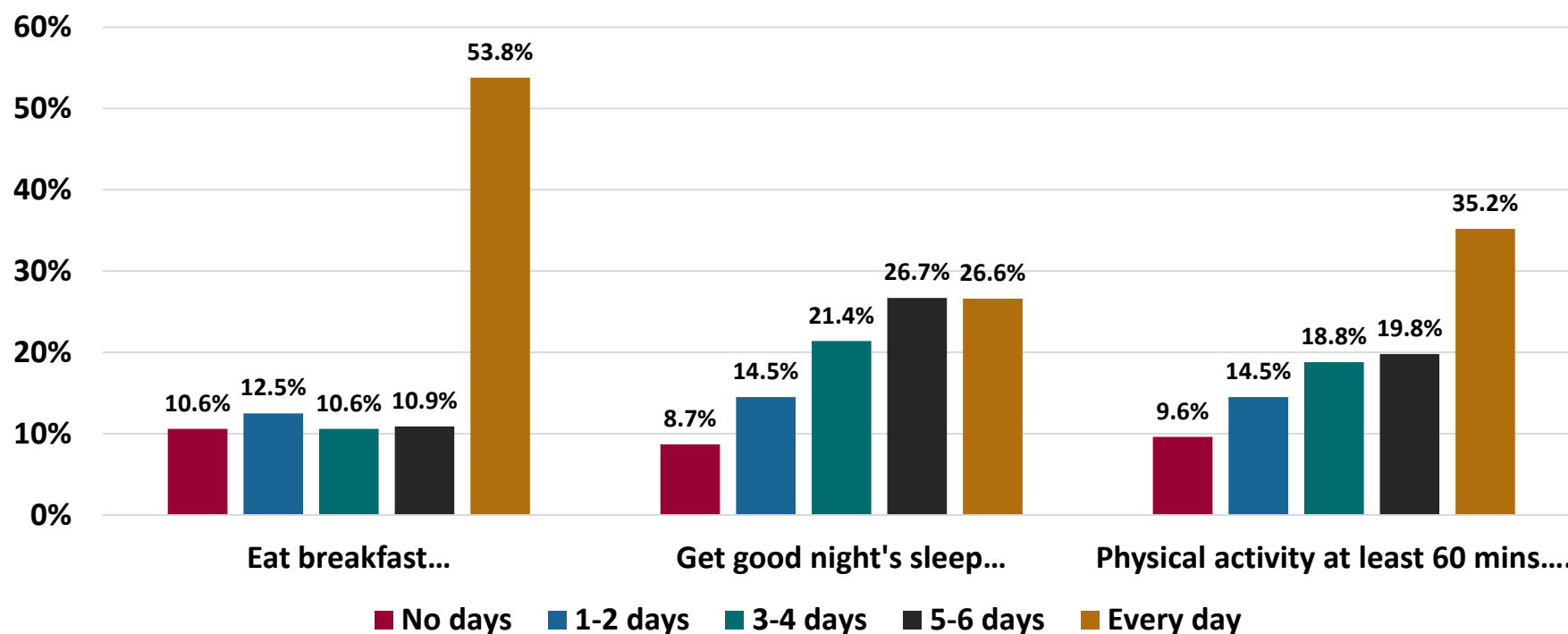
School Mental Healthy Surveys

How often students engage in health behaviours...

Legend: No days | 1-2 days | 3-4 days | 5-6 days | Every day

Eat breakfast...
- No days: 10.6%
- 1-2 days: 12.5%
- 3-4 days: 10.6%
- 5-6 days: 10.9%
- Every day: 53.8%

Get good night's sleep...
- No days: 8.7%
- 1-2 days: 14.5%
- 3-4 days: 21.4%
- 5-6 days: 26.7%
- Every day: 26.6%

Physical activity at least 60 mins....
- No days: 9.6%
- 1-2 days: 14.5%
- 3-4 days: 18.8%
- 5-6 days: 19.8%
- Every day: 35.2%

School Mental Health Surveys

% Students endorsing need for professional help for mental health concerns by their level of engagement in health behaviors…

Y-axis: % endorsing need for professional help (0% to 35%)

Eat breakfast….
- No days: 21.8%
- 1-2 days: 18.1%
- 3-4 days: 13.7%
- 5-6 days: 9.9%
- Every day: 6.9%

Get good night's sleep…
- No days: 30.7%
- 1-2 days: 19.9%
- 3-4 days: 11.9%
- 5-6 days: 5.7%
- Every day: 4.2%

Physical activity at least 60 mins….
- No days: 21.2%
- 1-2 days: 16.0%
- 3-4 days: 11.7%
- 5-6 days: 8.3%
- Every day: 7.2%

Legend: ■ No days ■ 1-2 days ■ 3-4 days ■ 5-6 days ■ Every day
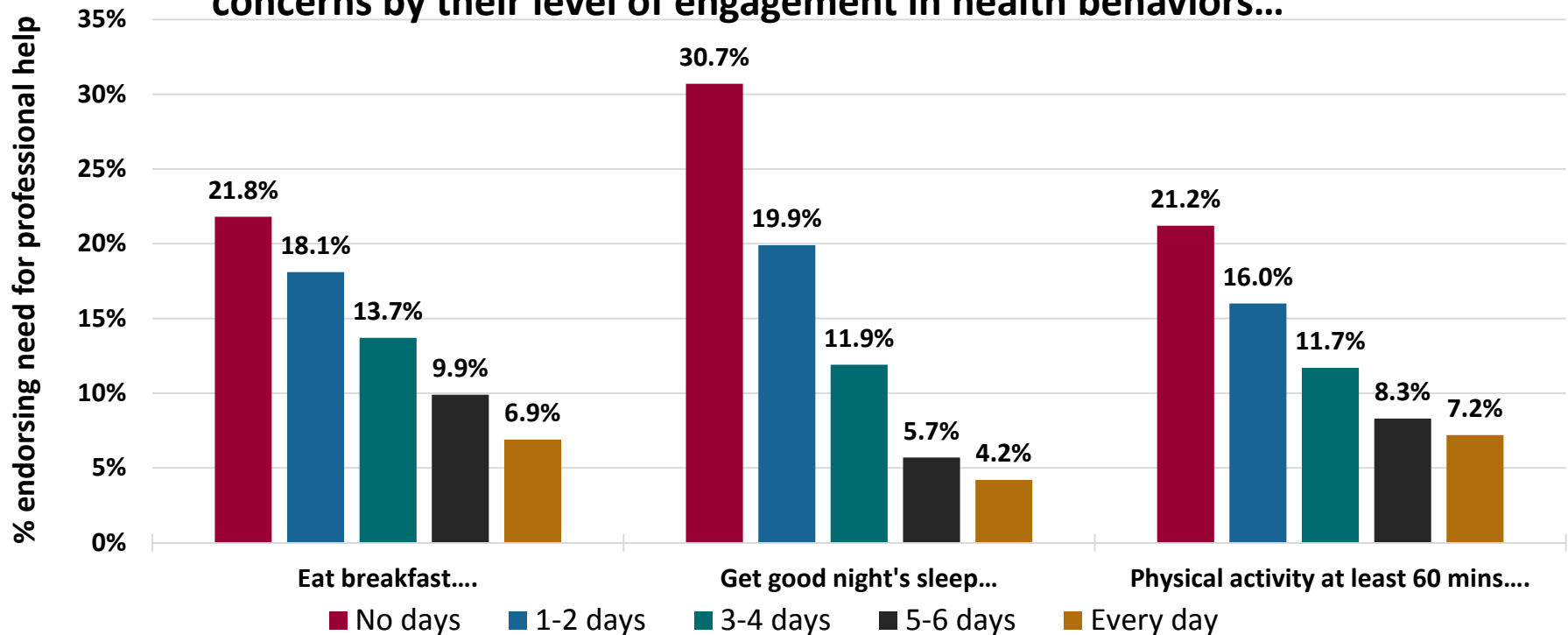
Schools as Contexts for Intervention

- **Access**: programs embedded in schools can address barriers to access

- **Wide reach**: majority of school-aged children attend school → extended exposure to mental health programs

- **Highly structured**: embed mental health promotion and prevention strategies directly into the curricula that support academic learning and student success

- **Link between achievement & mental health**

- **Wide range of providers**: can deliver evidence-based programs

School Mental Health Surveys (2014-2015)

The School Mental Health Surveys Study was designed to help us better understand the association between the school setting and student mental health and well-being.

Students' perceptions of barriers

Students' Mental Health Concerns

If you felt you needed help for concerns regarding your mental health, would you speak to a school social worker, child or youth worker, counsellor, psychologist … at school about these concerns?

Yes, 44%

No, 56%
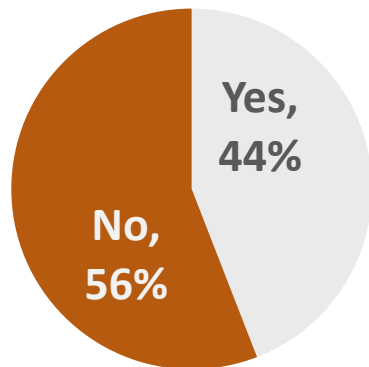
Student Reported Barriers

Prefer to handle the problem myself.
77%

Don't think these people would be able to help.
54%

Wouldn't know who to approach.
51%

Lack of trust in these people- word would get out.
42%

Worried about what others would think of me.
35%

Teachers' perceptions of barriers to addressing student mental health in school

Lack of adequate staff training to address student mental health in the school.

77%

Low priority given to student mental health versus other initiatives in the school.

54%

Stigma (negative attitudes or unfair treatment) associated with mental health problems.

51%

Language and cultural barriers arising from an ethnically and racially diverse student population.

42%

Lack of contact between the school and parents.

35%

Identified barriers to mental health services and integrated responses

Barriers to mental health care at school	Strategies to address barriers
"Prefer to handle the problem myself" (Student)	MH literacy, engagement and skill building
Lack of adequate staff training (Teachers)	Capacity building for educators (knowledge & skills)
Distrust & not knowing who to approach	Collaboration and community engagement in schools
Stigma	Embedding services in non-stigmatizing settings
Linguistic & cultural barriers	Partnerships with cultural brokers and interpreters
Primacy of social stressors	Integration and cross-sector collaboration in schools

SCHOOL MENTAL HEALTH-ASSIST
ÉQUIPE D'APPUI POUR LA SANTÉ
MENTALE DANS LES ÉCOLES

Offord CENTRE FOR CHILD STUDIES

PART 4: EVIDENCE GAPS, CURRENT & FUTURE DIRECTIONS

Evidence Gaps & Current Directions

GAP: Current Canadian evidence on the epidemiology of child and adolescent psychiatric disorder is lacking

RESPONSE: Development and implementation of the 2014 Ontario Child Health Study (data collection is now completed)

2014 Ontario Child Health Study (OCHS)

The 2014 OCHS is a large scale epidemiological study of mental and physical health of children 4-17 years in Ontario.

Primary Objectives:

1. Estimate prevalence of child & adolescent mental disorder in 2014
2. Changes in prevalence and SES gradients from 1983 to 2014
3. Evaluate the responsiveness of the health care system to child/youth mental health needs
4. Burden of childhood mental disorder and chronic physical illness
5. Contextual influences→ neighbourhoods schools & families → child/youth mental health and disorder

McMaster University

CIHR IRSC
Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Statistics Canada   Statistique Canada

Ontario

2014 Ontario Child Health Study – Sampling

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

Sample: 13,500 families with 4-17 year olds across Ontario

180 Census Tracts
(Neighbourhoods)

40 Families per CT

1-4 Children per family
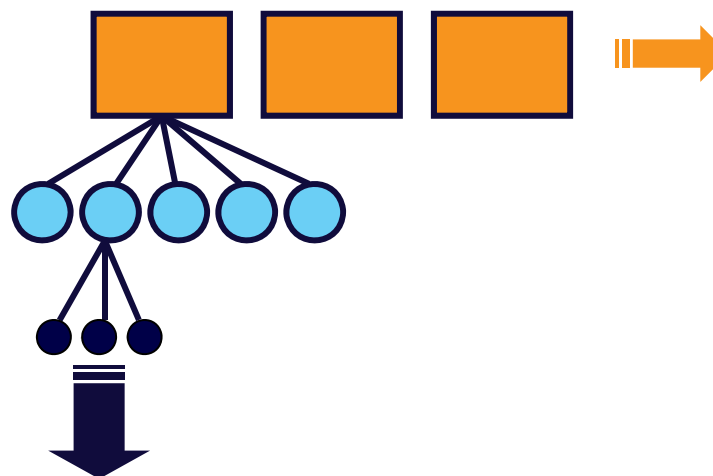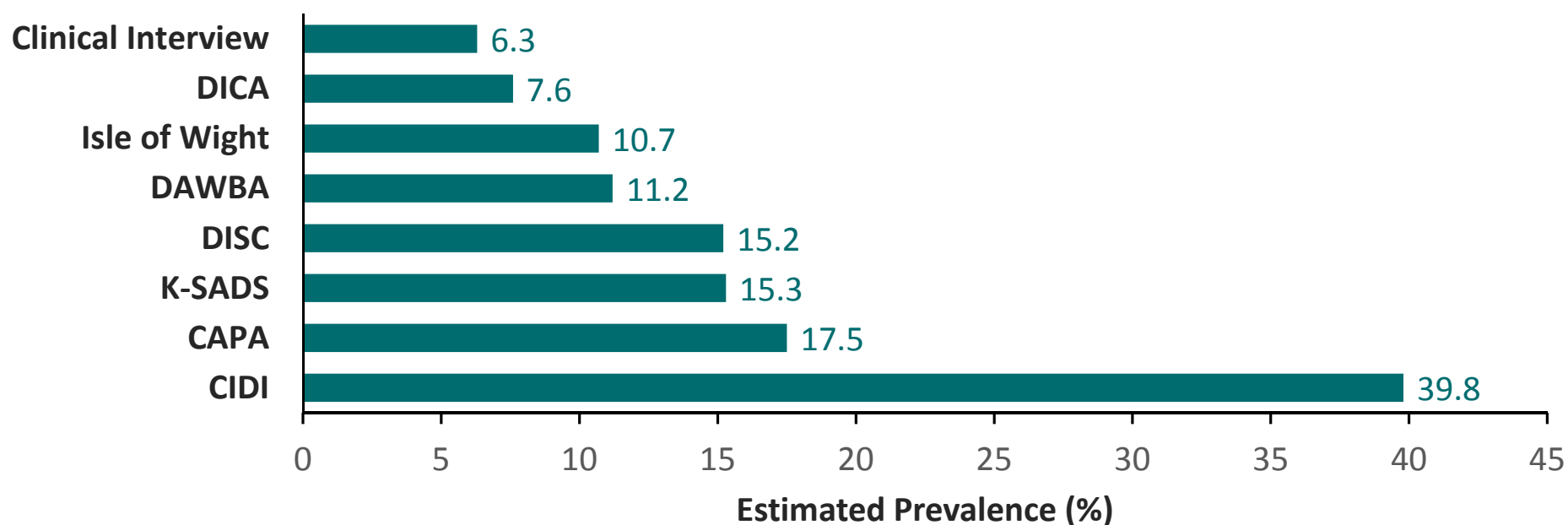
~240 Schools

2014 Ontario Child Health Study – Impact

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

- **Document child mental health need & assess health system response**
  - Resource allocation issues

- **Influence of SES Inequality**
  - Social justice allocation issues

- **Identify Contextual Influences**
  - Program priority questions

Future Directions

1. To improve population health, we must make prevention and treatment of childhood mental disorders a public health priority (prevalence, inequities in their distribution, associated burden & high levels of unmet need)

2. Develop, implement and evaluate sustainable interventions embedded within settings that are accessible to all

3. Global increases in mood and anxiety disorders and associated burden speak to the importance of prevention and early intervention

4. Given substantial co-morbidity with other diseases (cardiovascular disease and diabetes), interventions that screen for and target multiple aspects of health functioning simultaneously may be warranted

5. Develop research strategies for monitoring secular changes in children's mental health at the population level

Research Team

Research Partners

Thank-you

georgik@mcmaster.ca
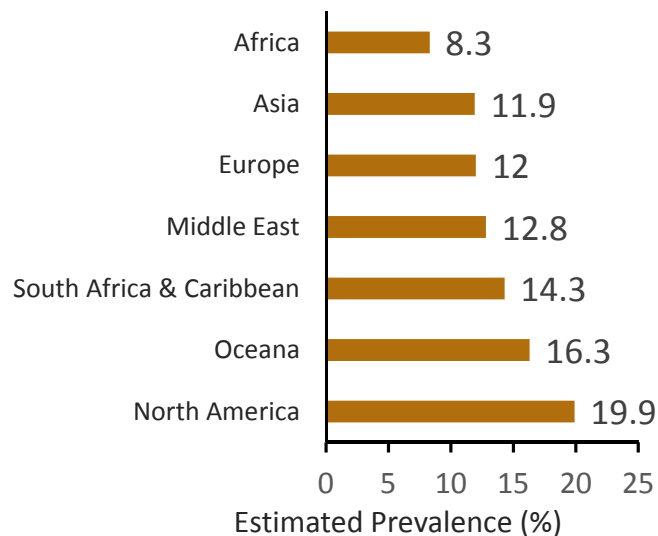
Extra Slides

Moderators of Prevalence Variability

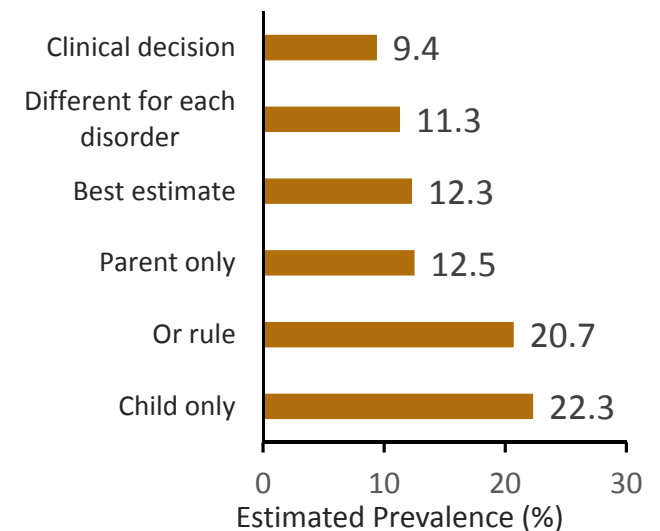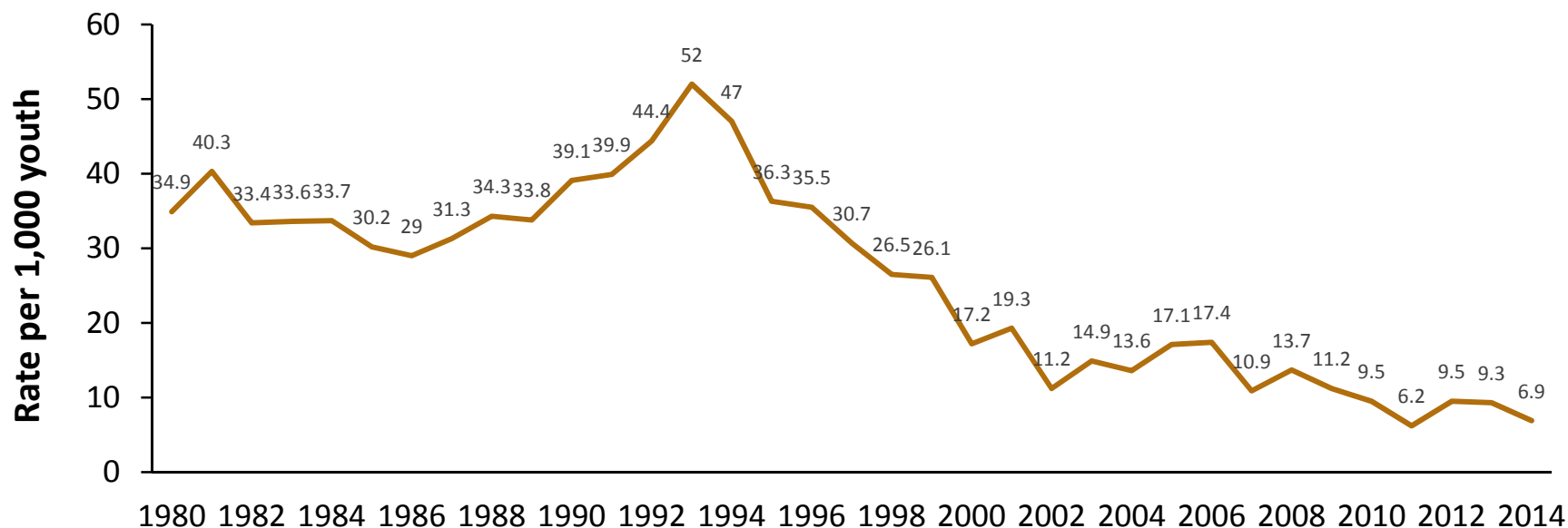| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

Instrument Variability

Instrument	Estimated Prevalence (%)
Clinical Interview	6.3
DICA	7.6
Isle of Wight	10.7
DAWBA	11.2
DISC	15.2
K-SADS	15.3
CAPA	17.5
CIDI	39.8

Estimated Prevalence (%)

Polanczyk, G., Salum, G., Sugaya, L., Caye, A., & Rohde, L. (2015). Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal Of Child Psychology And Psychiatry*, *56*(3), 345-365.

Moderators of Prevalence Variability

Geographic Location Variability

Location	Estimated Prevalence (%)
Africa	8.3
Asia	11.9
Europe	12
Middle East	12.8
South Africa & Caribbean	14.3
Oceana	16.3
North America	19.9

Diagnostic Criteria Variability

Criteria	Estimated Prevalence (%)
ICD-10	10.2
ICD-9	12.4
DSM-III-R	14.9
DSM-IV	15.7
DSM-III	18

Diagnostic Algorithm Variability

Algorithm	Estimated Prevalence (%)
Clinical decision	9.4
Different for each disorder	11.3
Best estimate	12.3
Parent only	12.5
Or rule	20.7
Child only	22.3

Polanczyk, G., Salum, G., Sugaya, L., Caye, A., & Rohde, L. (2015). Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal Of Child Psychology And Psychiatry*, *56*(3), 345-365.

Serious Violent Crimes by Youth Ages 12-17

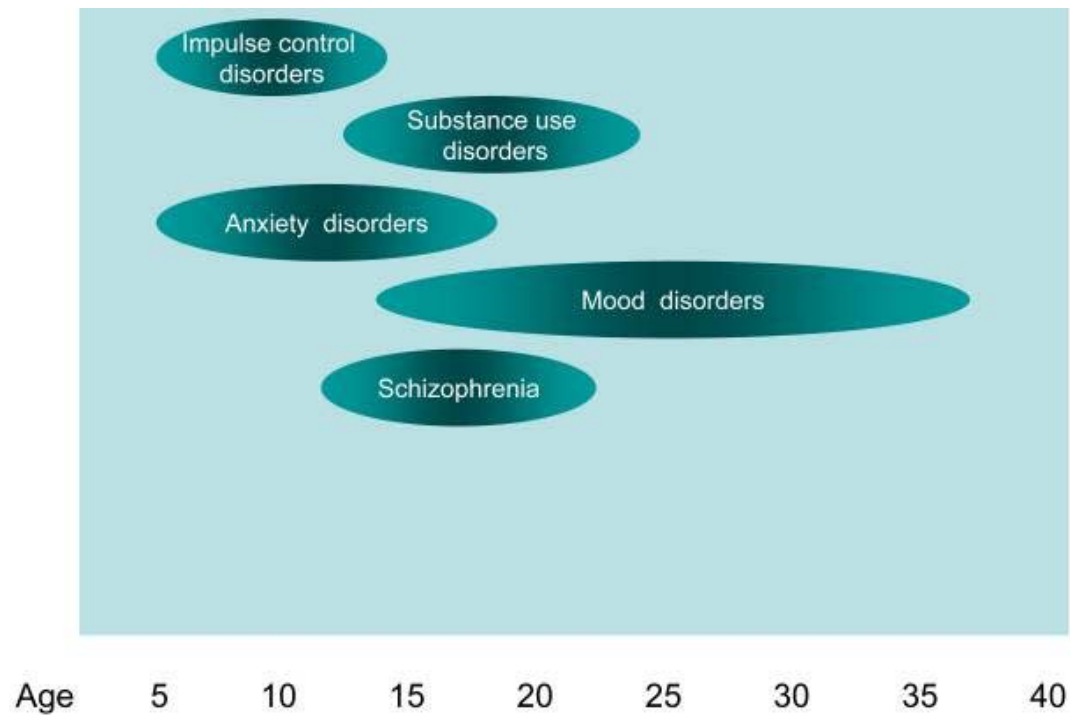# Age of Onset for Mental Disorders

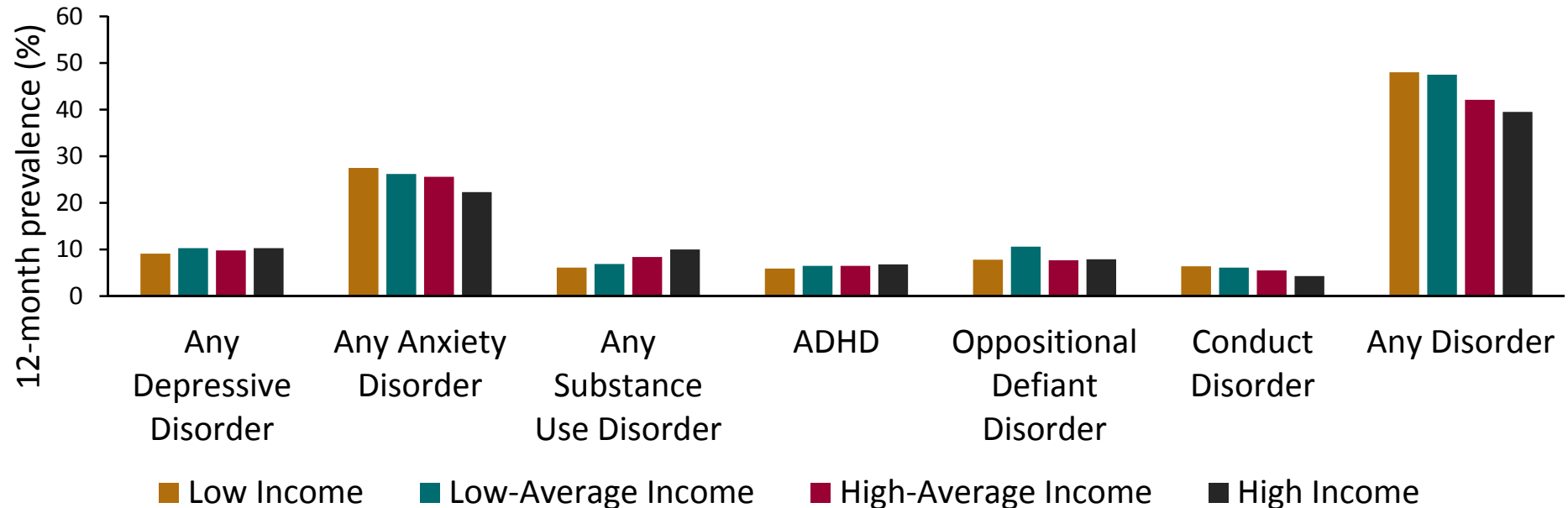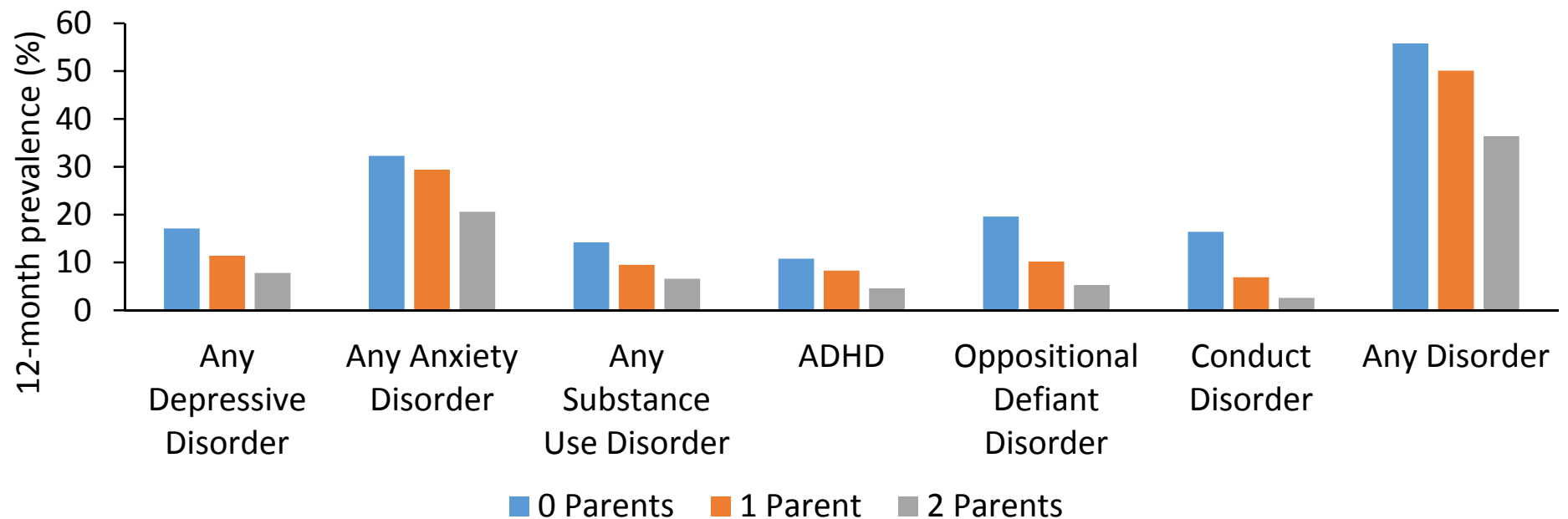Reference

Demographic Correlates of Lifetime Prevalence

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

Number of Biological Parents

Kessler, R. et al. (2012). Prevalence, Persistence, and Sociodemographic Correlates of DSM-IV Disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Archives Of General Psychiatry*, *69*(4), 372.

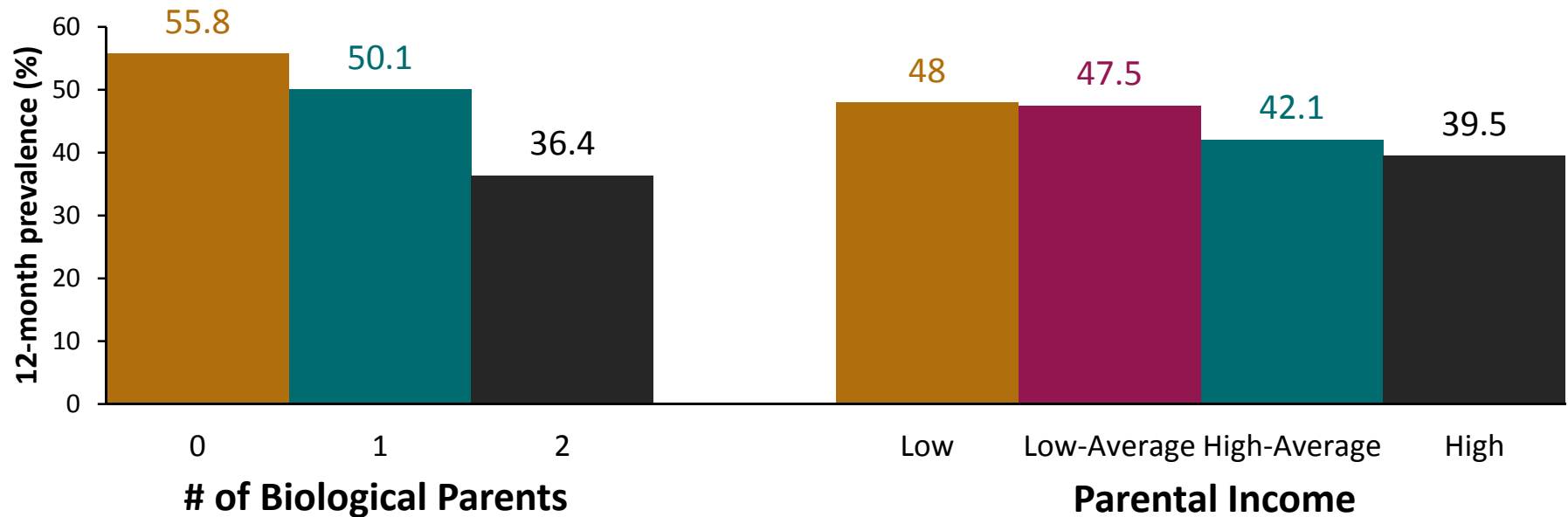# SES Differences in 12-Month Prevalence Any Disorder (USA)

Economic & Demographic Correlates for 12-Month Prevalence

Kessler, R. et al. (2012). Prevalence, Persistence, and Sociodemographic Correlates of DSM-IV Disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Archives Of General Psychiatry*, *69*(4), 372.

Estimated Burden in Canada

The economic burden for mental health disorders in Canada is estimated at $51 billion per year, including health care costs, lost productivity, and reductions in health-related quality of life.

Smetanin et al (2011). The life and economic impact of major mental illnesses in Canada: 2011-2041. *Mental Health Commission of Canada*.

Unmet Need for Mental Health Care

	Children With Unmet Need (N=3771)		Adjusted Bivariate and Multivariate Regression Analyses of Unmet Need	
Characteristic of Children	N	%	Odds Ratio	95% CI
Race				
White	2325	76.1	1.00	
Black	698	76.5	1.28	0.9 - 1.83
Hispanic	594	88.4	2.66	1.45 - 4.91
Other	154	89.7	2.69	0.96 - 7.54
Income				
Not poor	2784	78.6	1.00	
Poor	987	78.9	1.26	0.83 - 1.91

Kataoka, S., Zhang, L., & Wells, K. (2002). Unmet Need for Mental Health Care Among U.S. Children: Variation by Ethnicity and Insurance Status. American Journal Of Psychiatry, 159(9), 1548-1555.
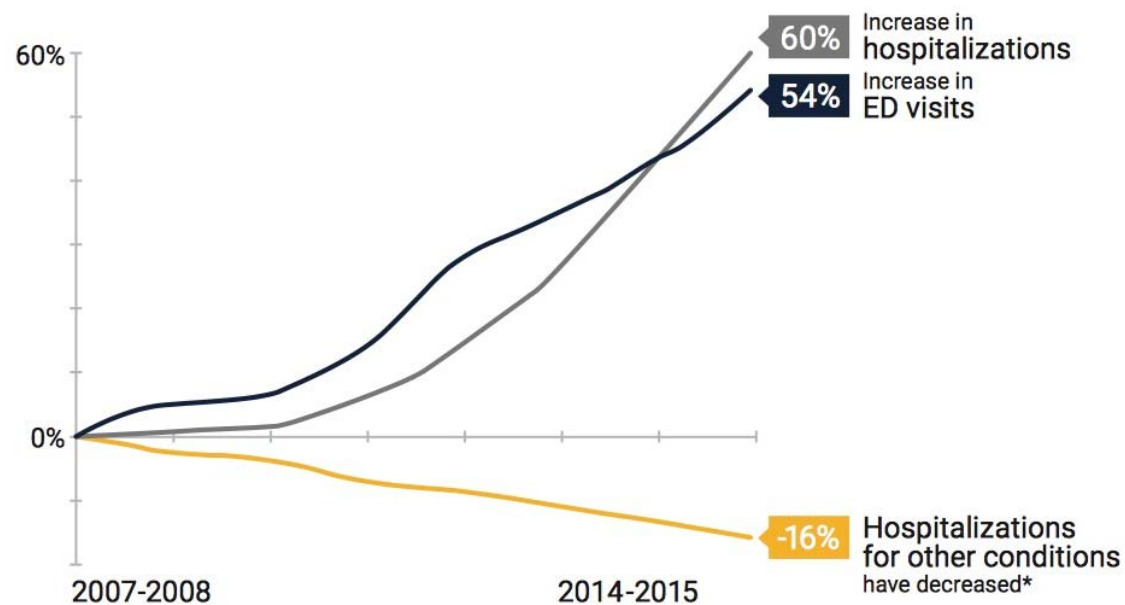
Rate of Service Use for Mental Disorders

60% — Increase in hospitalizations

54% — Increase in ED visits

-16% — Hospitalizations for other conditions have decreased*

2007-2008   2014-2015

Percentage change relative to 2006-07 baseline
*Based on National Data

Adapted from: Report Card on Child and Youth Mental Health. (2016). Retrieved from http://www.kidsmentalhealth.ca/about_us/cmho-report-card-2016.php
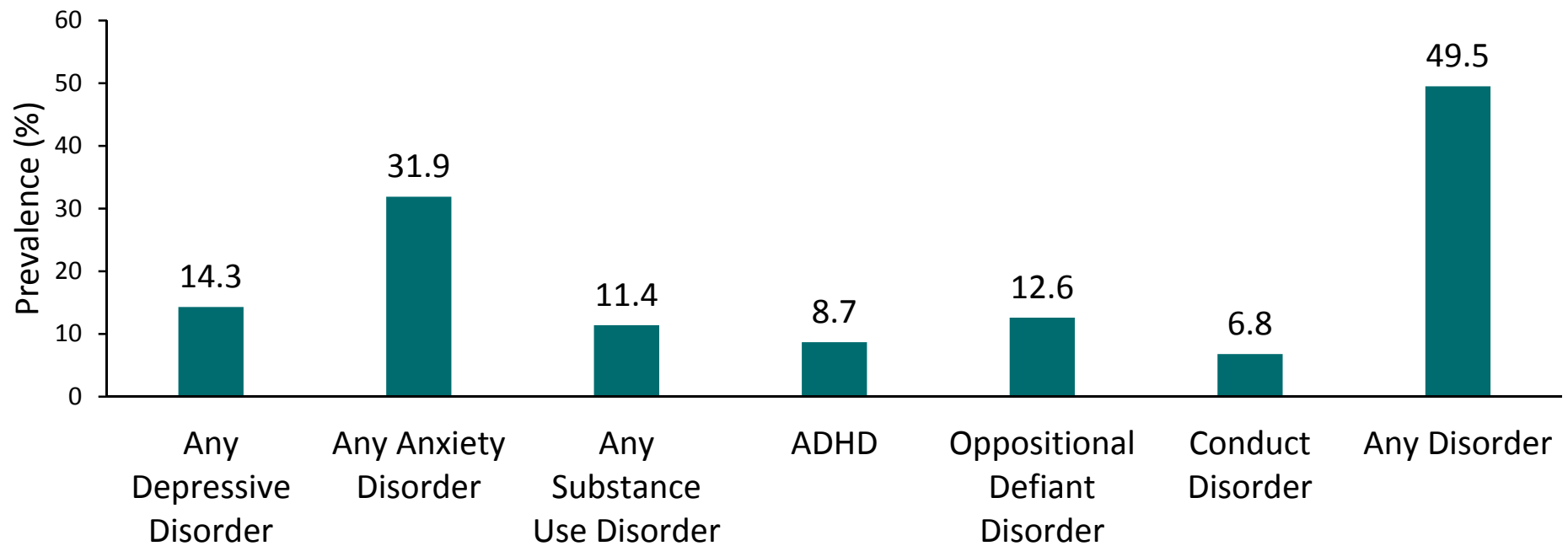
Prevalence of Mental Disorders

Lifetime Prevalence Estimates

Bar chart — Prevalence (%) on y-axis (0 to 60):
- Any Depressive Disorder: 14.3
- Any Anxiety Disorder: 31.9
- Any Substance Use Disorder: 11.4
- ADHD: 8.7
- Oppositional Defiant Disorder: 12.6
- Conduct Disorder: 6.8
- Any Disorder: 49.5

Merikangas, K., He, J., Burstein, M., Swanson, S., Avenevoli, S., & Cui, L. et al. (2010). Lifetime Prevalence of Mental Disorders in U.S. Adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal Of The American Academy Of Child & Adolescent Psychiatry*, *49*(10), 980-989.
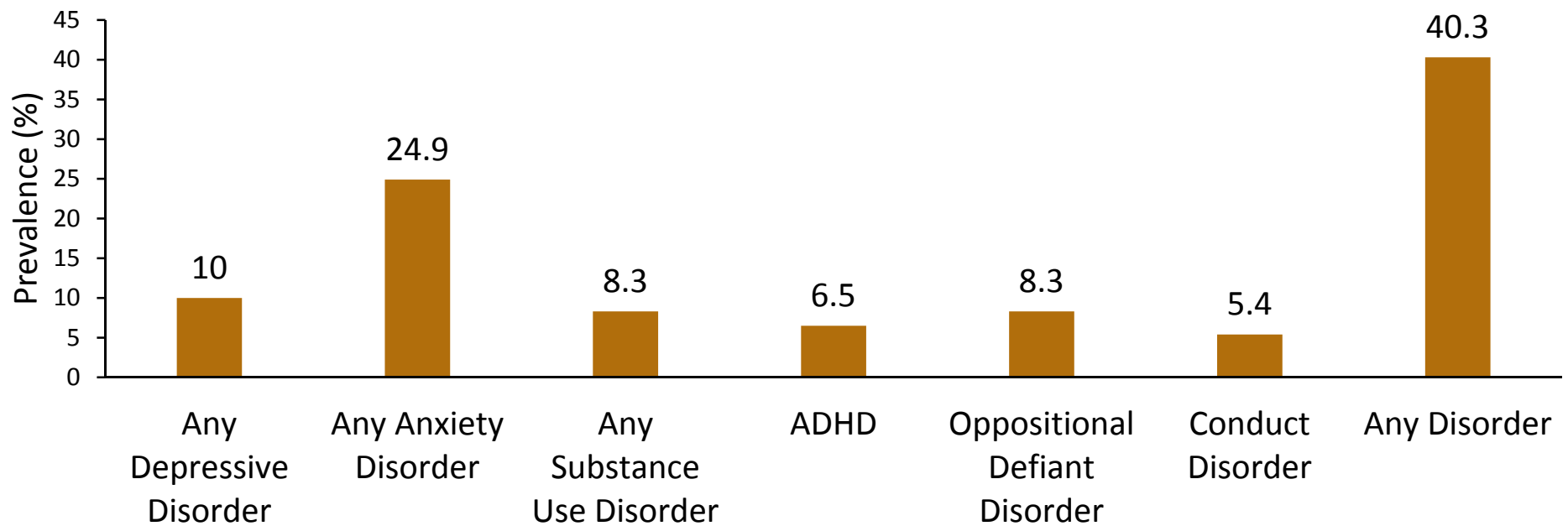
Prevalence of Mental Disorders

12-Month Prevalence Estimates

Bar chart showing Prevalence (%) on the y-axis (0 to 45):
- Any Depressive Disorder: 10
- Any Anxiety Disorder: 24.9
- Any Substance Use Disorder: 8.3
- ADHD: 6.5
- Oppositional Defiant Disorder: 8.3
- Conduct Disorder: 5.4
- Any Disorder: 40.3

Merikangas, K., He, J., Burstein, M., Swanson, S., Avenevoli, S., & Cui, L. et al. (2010). Lifetime Prevalence of Mental Disorders in U.S. Adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal Of The American Academy Of Child & Adolescent Psychiatry*, *49*(10), 980-989.
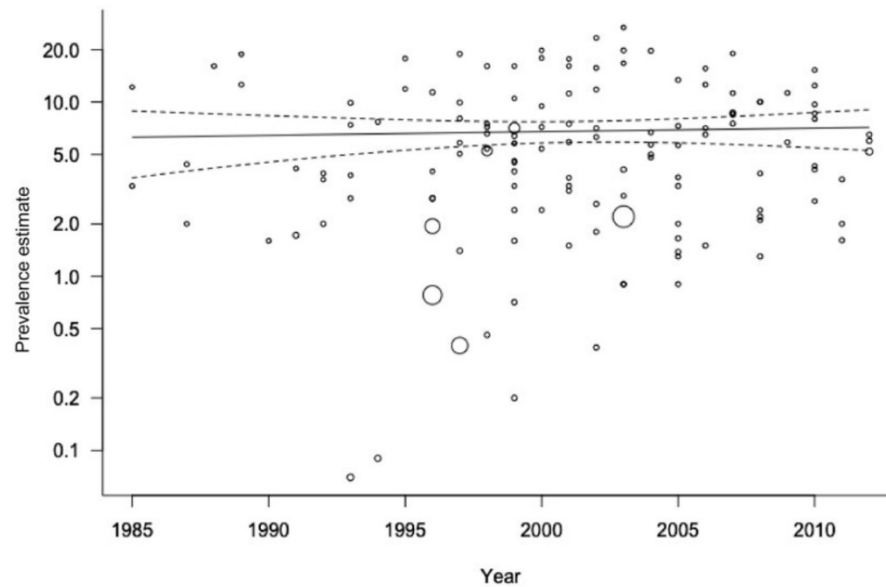
Trends in Prevalence

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

ADHD prevalence estimates as a function of year of study publication

Polanczyk, G., Willcutt, E., Salum, G., Kieling, C., & Rohde, L. (2014). ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis. *International Journal Of Epidemiology*, *43*(2), 434-442

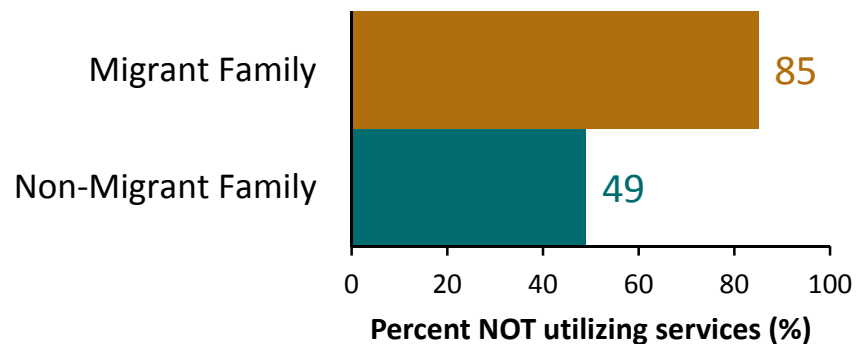# Variation in Unmet Need for Mental Health Care

Unmet Need for Youth Emotional Difficulties

Migrant Family — 85

Non-Migrant Family — 49

Percent NOT utilizing services (%)

Unmet Need for Youth Behavioural Difficulties

Migrant Family — 67

Non-Migrant Family — 42

Percent NOT utilizing services (%)

Refer to https://offordcentre.com/studies/hamilton-youth-study/
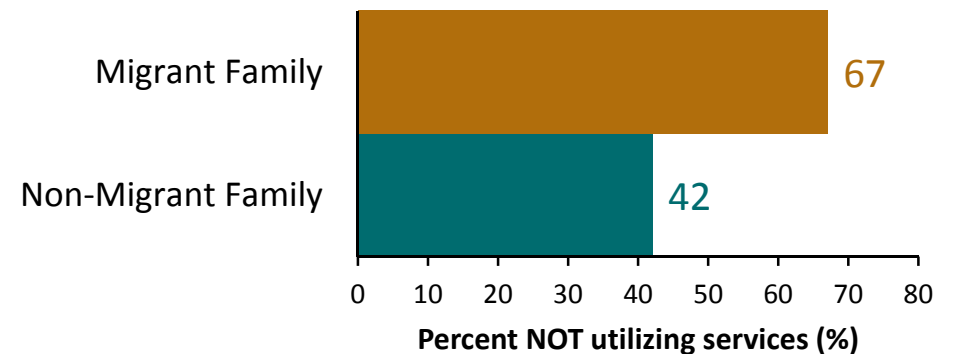
Data are from our CIHR-funded **Hamilton Youth Study (HYS)**
N=1,149 students in grades 5-8 in 36 schools in Hamilton

School Mental Health Surveys

| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

Primary Objectives:

1. Estimate between school differences in levels of student mental health

2. Identify school level variables that account for between school differences

3. Quantify the extent to which schools can reduce mental health inequalities

School Mental Healthy Surveys

Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions

SAMPLE:

- N=249 schools (180 elementary & 69 SS) (70% response)

- N=31,148 students grades 6-12 (60% response)

- N=3,374 teachers (66% response)

- N=206 principals (83% response)

School Mental Health Surveys

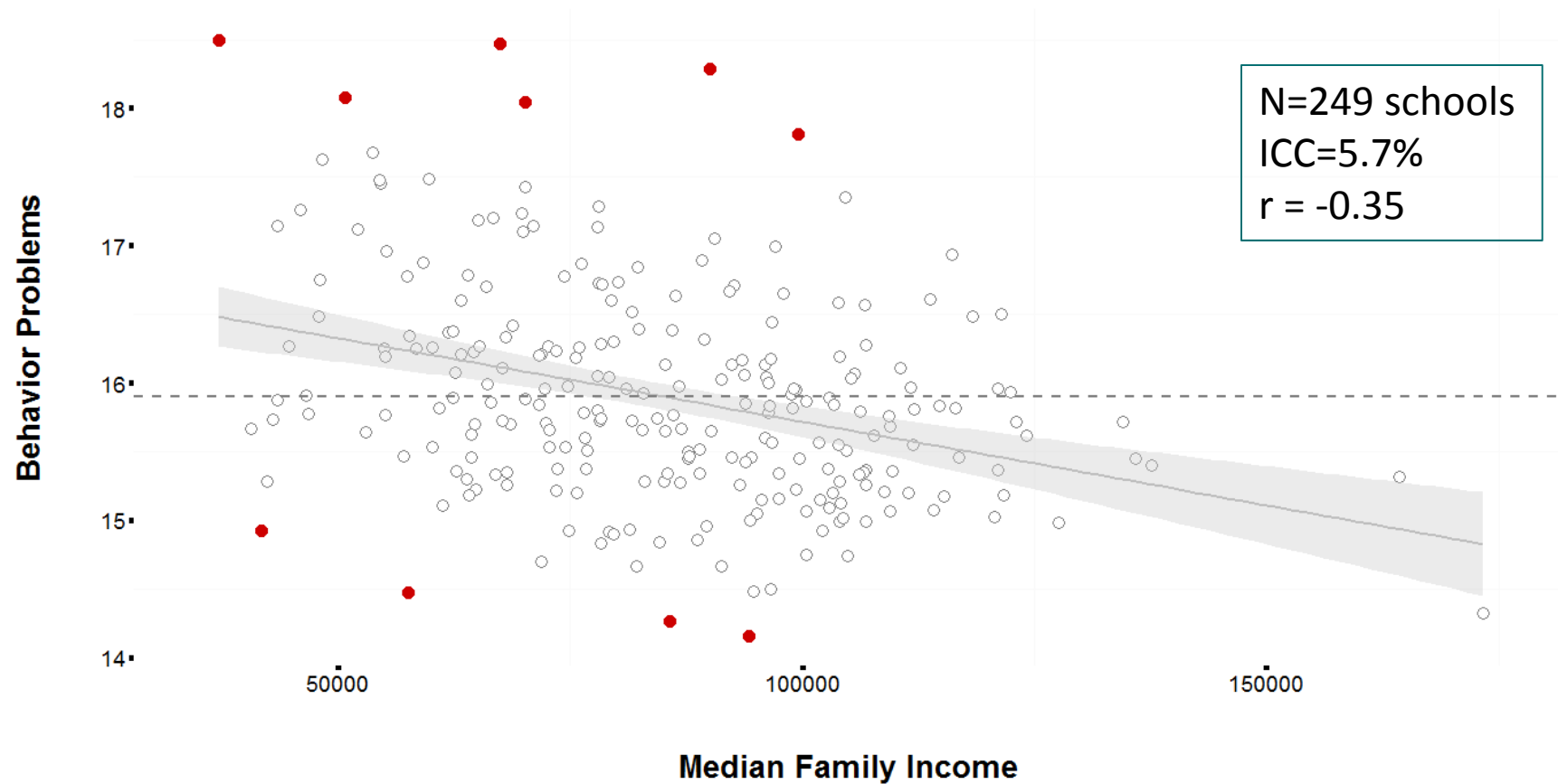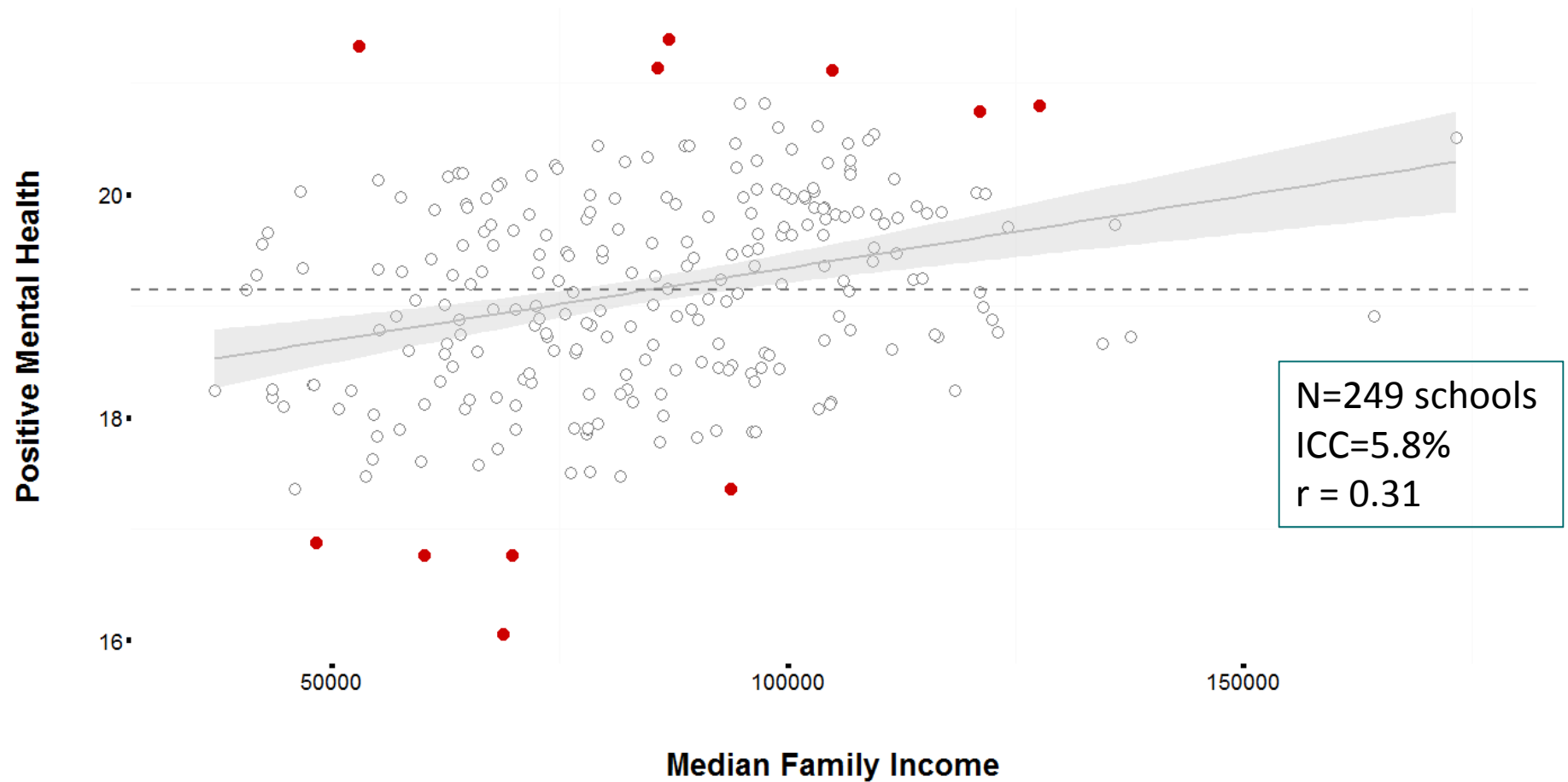| Prevalence & Distribution | Service Use & Unmet Needs | Social Contexts & Targets for Intervention | Evidence Gaps, Ongoing & Future Directions |

PRELIMNARY EVIDENCE

1. Between school differences in SES inequalities in mental health

2. Healthy lifestyle factors & need for professional help

3. Barriers to accessing and providing help in schools

School Level Positive Mental Health and Median Family Income

N=249 schools
ICC=5.8%
r = 0.31

School Mental Health Surveys

IMPLICATIONS:

- Provide evidence quantifies the potential impact of schools on student mental -- build the case for intervening in schools and classrooms to improve mental health population level

- Targets for intervention (School and Classroom Climate, Sense of belonging, SEL programs, behavior management strategies)

- Identify mechanisms in schools/classrooms that mute adverse effects linked to MH inequalities