Project Title

Latent Class Analysis to Determine High-Risk Profiles of Adverse Childhood Experiences and their Interactions with Psychological Resources, High-Risk Behaviours, and Physical and Mental Disorders

Project Lead and Members

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Organisation(s) Involved

[1]Research Division, Institute of Mental Health, Singapore

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Healthcare Family Group Involved in this Project

Medical, Allied Health

Specialty or Discipline (if applicable)

Psychiatry, Clinical Psychology

Project Period

Start date: January 2016

Completed date: August 2021

Aims

To identify subgroups (i.e. latent classes) of individuals with adverse childhood experiences, examine socio-demographic variations between identified classes, and determine the interactions between class membership and psychological resources on high-risk behaviours, chronic physical disorders, and mental disorders.

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Lessons Learnt

A person-centred approach via latent class analysis is recommended to identify hidden subgroups of individuals with adverse childhood experiences and patient-tailored treatment may target these risk profiles accordingly.

Conclusion

See poster appended / below

Additional Information

Dr. Liu Jianlin was awarded the 2021 Singapore Allied Health Award (Gold) for this study and the study findings have been published in the Journal of Affective Disorders. Liu, J., Abdin, E., Vaingankar, J.A., Verma, S., Tang, C., & Subramaniam, M. (2022). Profiles of adverse childhood experiences and protective resources on high-risk behaviors and physical and mental disorders: Findings from a national survey. Journal of Affective Disorders, 303, 24-30. IF: 4.839

Note: This project attained Gold (Category: Singapore Allied Health Award) at the Singapore Health & Biomedical Congress (SHBC) 2021

Project Category

Applied Research, Quantitative Research, Care Continuum, Population Health

Keywords

Adverse Childhood Experiences, Trauma, Psychopathology, Suicide

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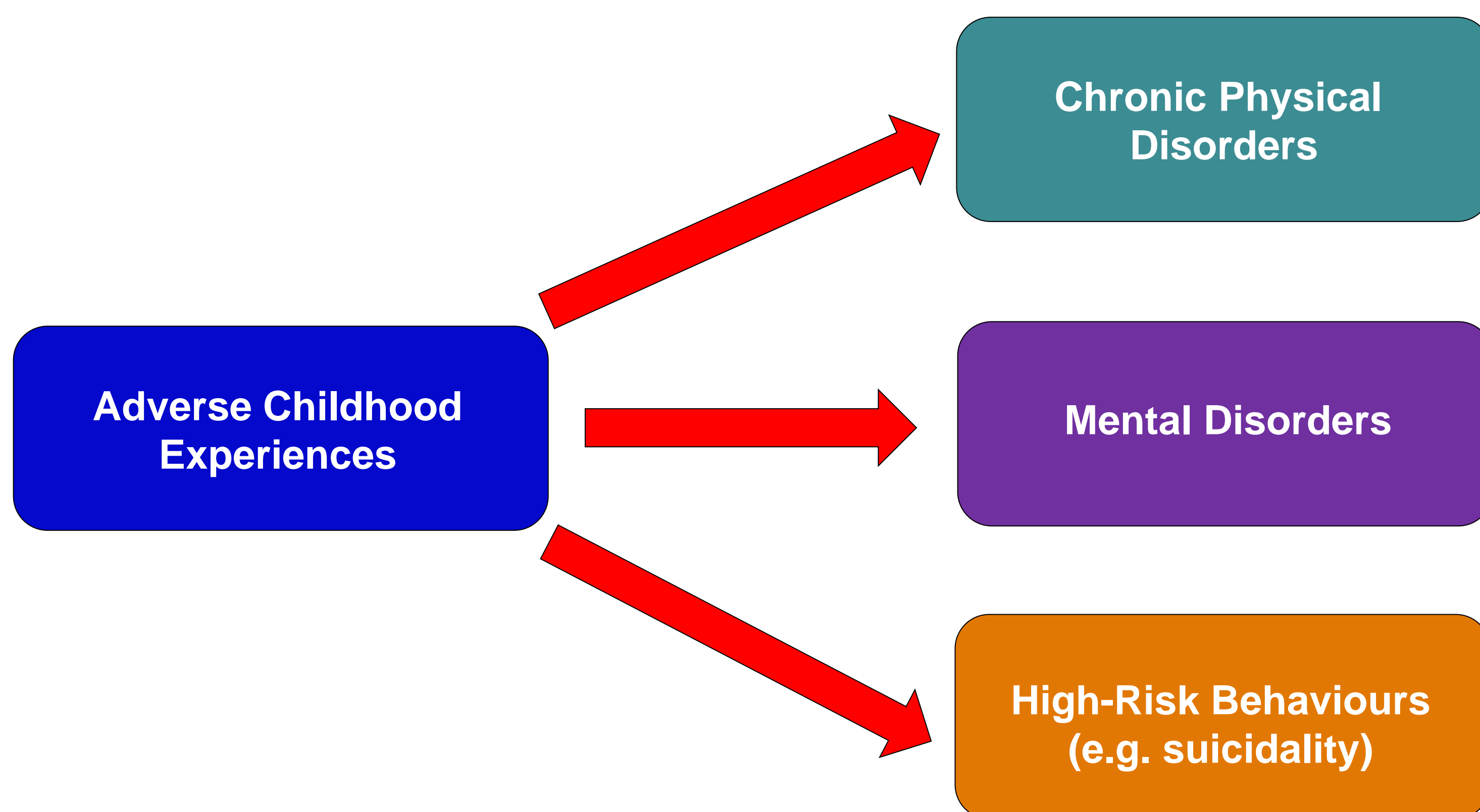
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Introduction

Adverse childhood experiences (ACE) vary across culture and their heterogenous impact on health is understudied. The present study determined latent classes of ACE, examined socio-demographic variations between identified classes, and elucidated the interactions between class membership and psychological resources (i.e., positive mental health and perceived social support) on high-risk behaviours (i.e., smoking, binge drinking, and suicidality), chronic physical disorders, and mental disorders.

Chronic Physical Disorders

Adverse Childhood Experiences

Mental Disorders

High-Risk Behaviours (e.g. suicidality)

Methods

Participants: 4441 adult Singapore residents participated in this nationwide epidemiological study.

Measures: Lifetime mental disorders and suicidality were assessed on World Health Organization Composite International Diagnostic Interview Version 3.0. ACE (ACE International Questionnaire), social support (Multidimensional Scale of Perceived Social Support), positive mental health (PMH Instrument), chronic physical disorders, smoking, binge drinking were self-reported.

Statistical analyses: Latent class analysis (LCA) was performed using the poLCA package in R (ver. 3.6.3) and Mplus (ver. 8.3) to identify underlying profiles of ACE. Model selection was based on overall fit indices, parsimony, and interpretability of the latent class solutions.

Table 1. Demographic information (N = 4441)

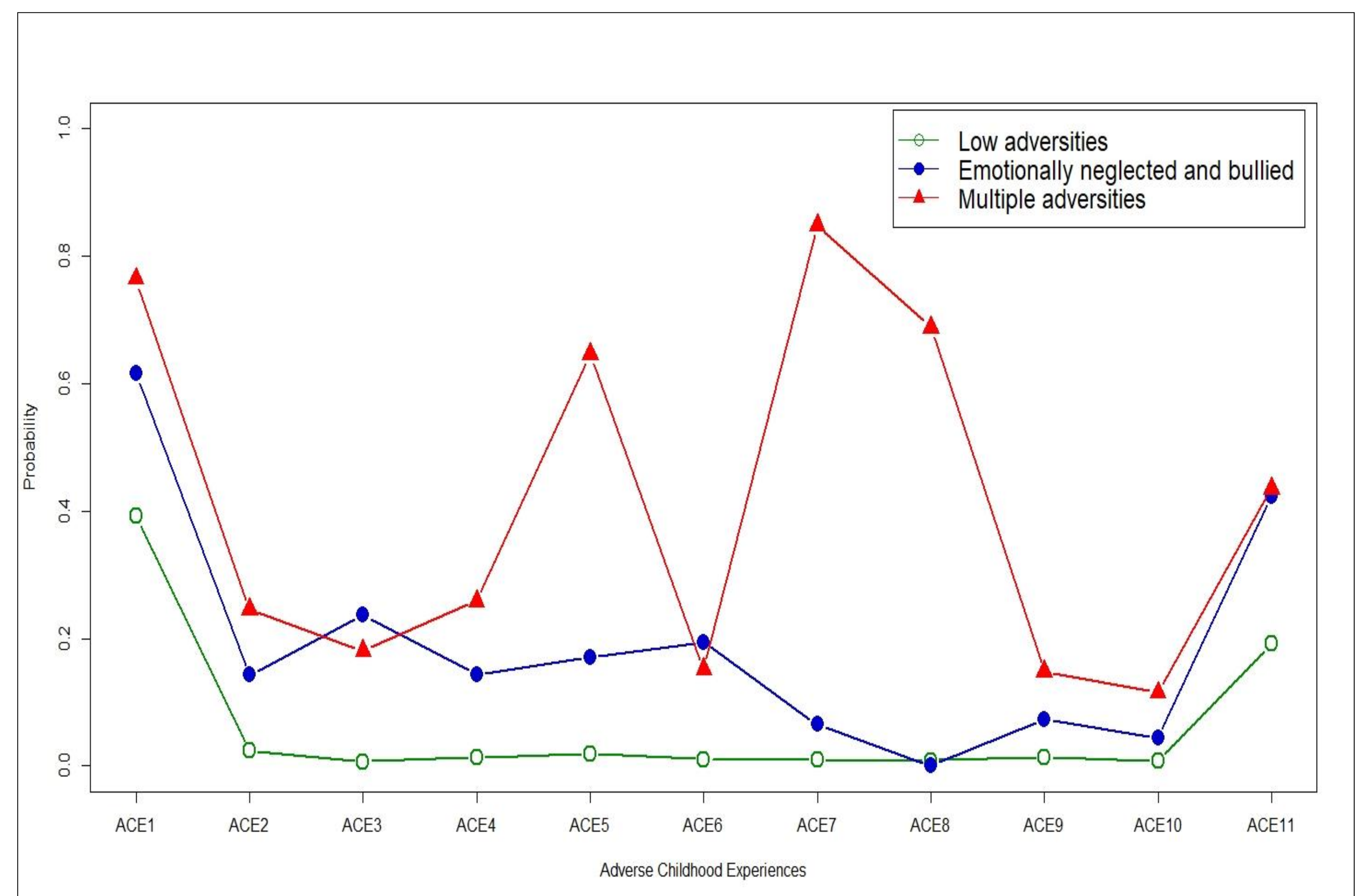|		(M ± SD) / N (%)
Age		44.4 ± 16.64
Gender	Male	2252 (50.7)
	Female	2189 (49.3)
Adverse Childhood Experiences	At least 1 ACE	2842 (64.0)
	Cumulative ACE (range: 0 to 10 events)	1.18 ± 1.38;
Suicidality		340 (7.7)
Binge Drinking		552 (12.4)
Smoking		821 (18.5)
Any Chronic Physical Disorder		2456 (55.3)
Any Mental Disorder		670 (15.1)

Note: Mental disorders include lifetime mood disorders, anxiety disorders, alcohol use disorder, and schizophrenia spectrum disorders. Chronic physical disorders include 18 common conditions in Singapore (e.g. diabetes and cancer).
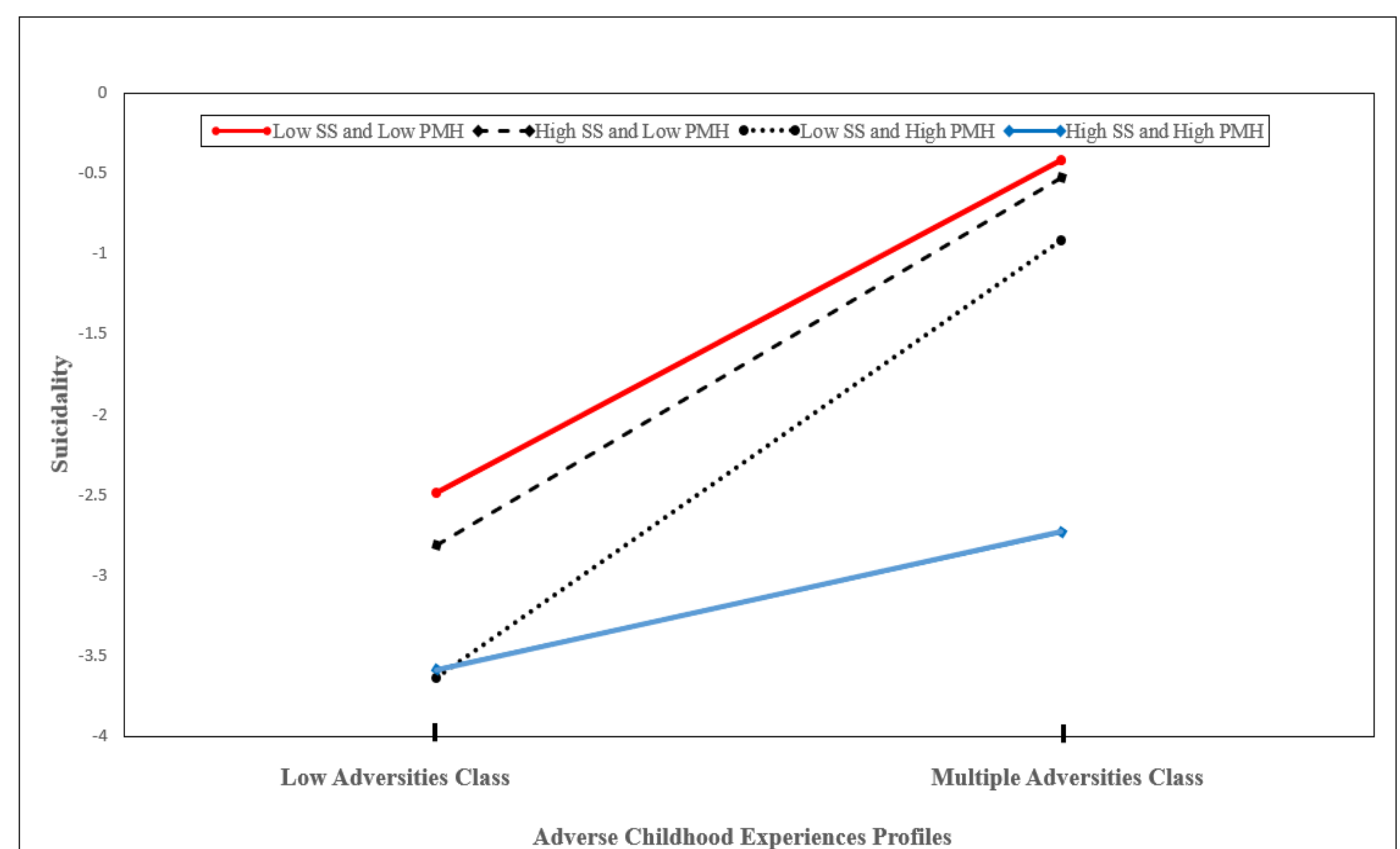
Results

- 3 distinct classes of ACE: Multiple adversities class (6.1%), emotionally neglected and bullied class (7.6%), and low adversities class (86.2%).

ACE1 = emotional neglect; ACE2 = physical neglect; ACE3 = living with household members who were substance abusers; ACE4 = living with household members who were mentally ill or suicidal; ACE5 = battered mother; ACE6 = living with family members who were imprisoned; ACE7 = parental separation, divorce or death of parent; ACE8 = emotional abuse; ACE9 = physical abuse; ACE10 = sexual abuse; ACE11 = bullying

- No significant difference in suicide risk between low and multiple adversities class when PMH and social support were high (+1 SD).

Discussion

Our results suggest that both positive mental health and social support are points of intervention to reduce suicidality in the aftermath of ACE. A person-centred approach via latent class analysis supports the early identification of high-risk profiles of adverse childhood experiences, which may guide the dosage of trauma-focused interventions.

Selected References

Sahle BW, Reavley NJ, Li W, et al. The association between adverse childhood experiences and common mental disorders and suicidality: An umbrella review of systematic reviews and meta-analysis. *European Child & Adolescent Psychiatry*. 2021. Online ahead of print.

Wan Y, Chen R, Ma S, et al. Associations of adverse childhood experiences and social support with self-injurious behavior and suicidality in adolescents. *British Journal of Psychiatry*. 2019;214:146-152.