Longitudinal trajectories of child and adolescent depressive symptoms and their predictors
– A systematic review and meta-analysis

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Are there sub-groups of children characterized by similarities in the development of depressive symptoms? And, if there are, could this be a basis for early intervention and prevention of depressive disorder? Through a systematic review the researchers (Shore et al., 2017) identified five subgroups of children and adolescents that can be reliably identified in longitudinal studies based on commonalities in their depressive symptom development. After adjusting the studies to characterize child depressive symptoms into a similar metric, the researchers identified: 56% of children followed a 'No or low' depressive symptom trajectory, 26% a 'Moderate' trajectory, while 'High', 'Increasing', and 'Decreasing' depressive symptom subgroups were evident for 12% of the sampled population. Those in the moderate symptom subgroups were associated with poorer adjustment and outcomes relative to those in low symptom subgroups. This held true even for children as young as four years of age.

This review also confirmed findings from previous longitudinal studies that identified female gender, low socio economic status, stressful life events, conduct issues, and substance use as early risk factors for the increasing child depressive symptom trajectories. In addition, supportive parents and peers were found to be strong protective factors against the development of depressive symptoms in middle to late childhood. These findings imply that interventions carried out in early childhood, aimed at reducing risk factors and ensuring sensitive and supportive family environments, may be one effective approach to increase the population of children in no or low depression trajectories. Equally, providing parental and peer psycho-education may increase the protective factors available to an adolescent.
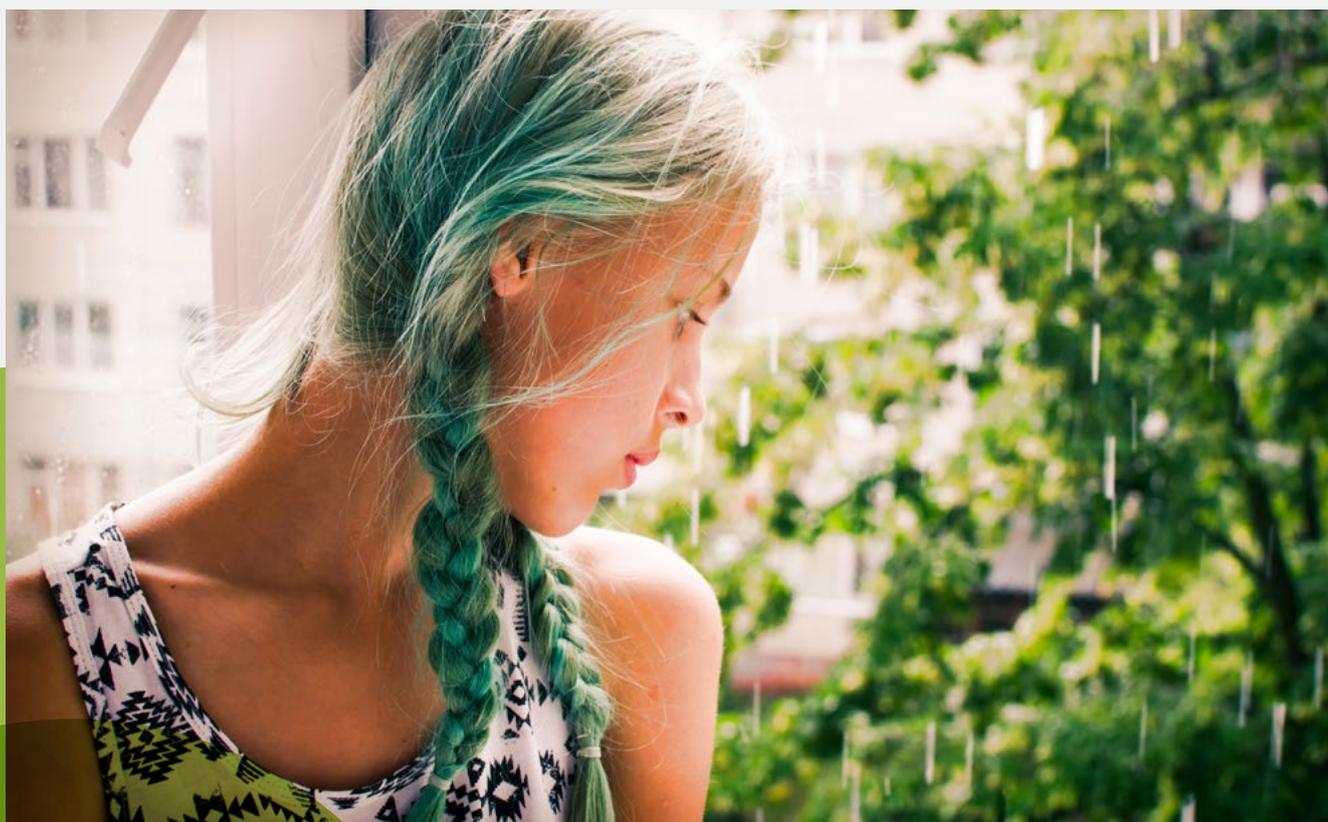
Through a systematic review the researchers identified studies that adopted trajectory modeling to examine depressive symptoms in children and adolescents, and the predictors. Unlike other types of longitudinal or cross-sectional analysis, trajectory modeling is a unique statistical methodology that groups individuals based on common symptom patterns over time. Individual and group differences are then explained by theory, sociodemographics, genotype, other biomarkers, and psychosocial predictors. Twenty English language longitudinal studies in nonclinical populations conducted between 2002 and 2015 were included. The combined study population was 41,236 with a baseline age of <19 years. The potential influence of puberty on the development of depression in the studies was examined. The studies were divided into those with a baseline assessment either prior to secondary school (ages 6–11 years) or post primary school (ages 12–16 years).

The initial analysis revealed between three and 11 depressive symptom trajectories in the published studies we included. However, these were not comparable because of the inconsistency in measures of depressive systems. At least 10 measures of depressive symptoms, with varying cutoff scores, were evident across studies. Therefore, depressive symptom scores were recalibrated across studies to equate to the most commonly used measure – the Centre for Epidemiological Studies Depression scale (CES-D). A random-effects meta-analysis then identified five common depressive symptom trajectories across the studies. Across the studies moderate symptoms were associated with poorer adjustment and outcomes relative to low symptom groups, even though the studies varied in sample, methods, and measures. This suggested that differences in child and adolescent depressive symptom patterns over time are robust. This has implications for the diagnosis of depression in children and adolescents, particularly in relation to the classification of adult clinical mental health disorders.

Identifying depressive symptom trajectories may provide early indicators to pathways of different subtypes of depression. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) distinguishes several categories of depressive disorder in terms of treatment approach and outcome. A key differentiating feature diagnostically is the course of the disorder. These diagnostic distinctions are largely based on adults, rather than children and adolescents. Formally classifying child depressive symptom trajectories will be an important initial step in addressing the increased disease burden of depression that is expected in the coming decades. It will encourage further exploration of the origins of depression and promote the reliable assessment of depressive symptoms across the whole lifespan. It would also stimulate investment in prevention strategies aimed at reducing the number of children in high-risk trajectories.

A major limitation of current research in this area is the age range studied. Our team found few studies starting in childhood. To more clearly resolve the origins of the depressive symptom pathways, further trajectory studies commencing in the pre-pubertal ages is recommended. Again, the issue of non-standardization of measures and their interpretation, and methodologies across studies posed challenges for this research. A consistent approach to measures and methodologies will enhance future studies in this area and will assist to understand differences in the sizes of trajectories.

In summary, differing developmental trajectories of depressive symptoms may be underpinned by several distinct psychosocial and neurodevelopmental factors. This means that the interaction of social, psychological, and biological factors over time sets some children on divergent developmental trajectories. Understanding those predictors and providing early intervention strategies to children may support increased membership of the low or no depressive childhood symptom trajectories. In doing so this will go some way to reduce the risk of chronic depression and other adverse outcomes.

Author statement:
Dr. Lori Shore is a Clinical, Counselling and Organisational Psychologist who has worked extensively in private and public settings as well as within the higher education sector. She holds a PhD, a Master of Clinical Psychology and a Master of Commerce and has published and presented research both locally and internationally. Dr Shore has a close affiliation with the School of Psychology at Deakin University, Victoria Australia.