Examining childhood multimorbidity: How crucial is studying early life multimorbidity?

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Understanding multimorbidity in childhood, where physical and mental health conditions coexist, is crucial. This interview with Dr. Mark Ferro, Canada Research Chair in Youth Mental Health at the University of Waterloo explores its unique challenges compared to adult research, the need for integrated care, key predictors, and vital research directions

<u>Addressing multimorbidity early, especially in children, is essential for better health</u> outcomes and reduced long-term burdens on individuals and healthcare systems.

Can you explain the significance of studying multimorbidity early in life and how it differs from research traditionally focused on adult populations?

Studying early life multimorbidity is critical as it signifies a departure from adult-centric research by highlighting unique challenges in childhood and adolescence. The cooccurrence of multiple conditions early on is likely to accelerate medical complexity and health inequalities, demanding adaptive health systems. Furthermore, it introduces significant challenges to healthy socioemotional development in young people and profoundly affects the entire family unit.

Crucially, early onset multimorbidity allows for more time for the accumulation of compounding disadvantage over the life course. Understanding these early trajectories is vital for identifying timely interventions to mitigate long-term negative impacts, a perspective distinct from addressing multimorbidity in older adults.

Given that physical and mental health care are often siloed in pediatric settings, what structural changes do you believe are necessary to better support children with physical- mental multimorbidity?

Firstly, we must start with changes to the education of health professionals, emphasizing holistic care and understanding that children's health issues are pervasive, affecting all aspects of life and development, rather than simply compartmentalized as 'physical' or 'mental'. Secondly, interdisciplinary health teams that integrate physical and mental health services must become the norm.

This will facilitate effective, low-cost prevention and early intervention through tiered services that meet individual needs. Furthermore, care should be localized to promote access and reduce barriers, creating a 'one-stop shop' model. Above all, any structural

changes must be family- centred, recognizing that children do not experience illness in isolation.

Your research highlights a strong association between chronic physical illness and mental disorders in children. What are the key predictors of mental comorbidity in these children?

Research indicates that children with chronic physical illness face an increased risk of mental illness, with the magnitude of this risk being largely consistent across different chronic physical illnesses. This suggests that experiences common to having a chronic physical illness in childhood appear to be the primary drivers of multimorbidity. Notably, child functioning and parent mental health consistently show robust associations with this comorbidity in both clinical and general population samples. Reduced functioning, encompassing difficulties with cognitive, physical, social, participation, and emotional tasks, can increase the risk for mental illness among children with chronic physical illness, with this effect potentially being more pronounced for adolescents navigating social development. Furthermore, compromised parental mental health can impact their ability to provide the necessary, often complex, care for their children with chronic physical illness, thereby contributing to the child's risk of mental health issues.

Parental education can influence the persistence or development of mental disorders in children with chronic physical illness, potentially acting as a proxy for broader factors like mental health literacy. Higher parental education may increase awareness of the need for a nurturing family environment, which could, in turn, reduce the likelihood of multimorbidity.

Can you elaborate on the concept of homotypic and heterotypic continuity of mental disorders in children with chronic physical illness, and what the implications of these findings are for early intervention?

The concepts of homotypic and heterotypic continuity are crucial for understanding the chronic nature and natural progression of mental illness over time. Homotypic continuity refers to a mental disorder predicting its own persistence. In children with chronic physical illness, strong homotypic effects have been observed, mirroring findings in the general child population. Heterotypic continuity, on the other hand, describes a disorder predicting the onset of other, different disorders over time. For instance, early behavior problems like oppositional defiant disorder are strong predictors of future depression, anxiety, and ADHD. Furthermore, the comorbidity of depression and anxiety disorders tends to strengthen over time, particularly during adolescence.

Given that comorbidity is more the rule than the exception in child psychiatry, including for those with chronic physical illness, these continuity patterns underscore the critical importance of early intervention. Timely support can (1) promote good mental health and maximize functioning in children with chronic physical illness and (2) potentially prevent the onset of new, compounding mental health disorders in the future, which could otherwise complicate their care management in the context of multimorbidity.

Your research aims to explore biological markers such as inflammatory and stress biomarkers. How do these biological mechanisms interact with psychosocial factors in predicting multimorbidity in youth?

Research into the role of biomarkers in the onset of childhood multimorbidity is still in its early stages. However, emerging findings from our team suggest a crucial interaction with psychosocial factors. Supportive environments, such as those at home, school, and with peers, may play a buffering role, potentially mitigating the negative impacts of chronic or dysregulated inflammatory and stress responses on the development of multimorbidity.

Importantly, our research is also revealing that inflammatory markers demonstrate significant predictive power for symptoms of psychopathology over relatively long follow-up periods, such as four years. This highlights the complex interplay between biological predispositions and environmental influences in shaping the trajectory of health and well-being in young people.

Given that multimorbidity in children and youth can lead to significant healthcare costs, what policy recommendations would you propose to mitigate these financial and health burdens?

Addressing the substantial healthcare costs associated with childhood multimorbidity necessitates strategic policy investments. Drawing upon the earlier discussion of structural changes, it's clear that upfront investments in integrated, interdisciplinary care models will yield long-term dividends. By prioritizing prevention and early intervention through collaborative teams that bridge physical and mental health services, we can reduce the future reliance on expensive acute care, such as emergency department visits and hospitalizations for individuals in crisis.

Given that over 90% of children with chronic physical illness will become adults with chronic physical illness, the long-term benefit to the health system and society is considerable. We strongly encourage institutions to adopt comprehensive strategies that promote positive child mental health and foster interdisciplinary collaboration among health professionals and researchers. The mental health strategy implemented at <u>The Hospital for Sick Children</u>, which recognizes that mental health is not solely the domain of psychiatry, offers a valuable model in this regard.

Based on your findings, what are the most urgent areas of research needed to better understand and address multimorbidity in children and adolescents?

Two critical areas of research warrant immediate attention.

Firstly, there is a pressing need for mechanistic studies to elucidate why and how chronic physical illness increases the risk of mental illness in young people. Understanding these underlying pathways is crucial for developing targeted interventions. Secondly, research is urgently required to determine whether standard treatments for child mental illness,

such as Cognitive Behavioral Therapy (CBT), are as effective for children with cooccurring chronic physical illness, given their potentially complex and overlapping care needs.

Tailoring mental health interventions to this specific population is essential for optimizing outcomes.

To conclude

Addressing childhood multimorbidity demands integrated care, informed policy, and targeted research into its complex interplay of factors. By investing in early intervention, unraveling the complex interplay of biological and psychosocial factors, and fostering collaboration across sectors, we can strive to mitigate the compounding disadvantages associated with early life multimorbidity and pave the way for healthier and more equitable futures for all young people.

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