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Biological correlates of mental health: can oxytocin, cortisol and omega-3 fatty acids improve our understanding of treatment avoidance, behavioural withdrawal and cognitive changes accompanying depressive symptoms?

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Biological correlates of mental health: Can oxytocin, cortisol and omega-3 fatty acids improve our understanding of treatment avoidance, behavioural withdrawal and cognitive changes accompanying depressive symptoms?

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Abstract

Background: Mood disorders and suicidal behaviour are growing global health burdens. While effective treatments exist, most individuals refuse or avoid them, a process known as *help-negation*, which paradoxically increases as psychopathology worsens. Psychosocial factors such as stigma do not adequately explain help-negation. While biological processes are clearly involved in depression and withdrawal behaviours, their role in help-negation is unexamined. Oxytocin (OXT), a neuropeptide, regulates neuroendocrine responses to stress, and complex social behaviours. Blunted OXT function, implicated in psychopathology involving social withdrawal, may mediate help-negation. Additionally, the stress hormone cortisol is linked to cognitive and mood changes, withdrawal and suicide. Omega-3 fatty acids are linked to improved mood, stress buffering effects and improved cognition. Understanding the interplay between these biological variables, cognition and behaviour may lead to improved biomarkers of suicide risk.

Method: We quantified plasma OXT, cortisol and omega-3 levels in a sub-clinical, university sample (n=60), and related these to psychopathology symptoms, psychosocial functioning, cognitive impairments, and help-seeking intentions, determined by validated psychometric measures. We then statistically modelled relationships between the variables and the contribution of these variables to help-negation.

Results: As predicted, we found complex relationships between biological measures and psychosocial functioning including attitudes to treatment. We present a model of the strength and direction of relationships between the variables and their contribution to help-negation.
Conclusions: Our study addressed important gaps in knowledge of the biological trajectory towards withdrawal and suicide. Its results may guide further studies of clinical conditions and potentially lead to improved early interventions, and novel interventions aimed at manipulating these biological variables.