Triple Network Dysconnectivity and Sleep Disturbance in Young People With Suicidal Ideation:

Reply to Ferruzzi et al

To the Editor: Taiwan's suicide mortality among 15- to 24-year-olds has approximately doubled over the past decade (5.1 per 100,000 in 2014 vs 10.9 in 2023),[1] coinciding with an earlier upswing (2013–2016) in youth-reported insomnia and in suicidal ideation, plans, and attempts.[2] In our recently published study,[3] youth suicidality was related to aberrant functional connectivity (FC) across the canonical triple network, namely, default mode (DMN), salience (SN), and frontoparietal (FPN), indicating network-level dysconnectivity as a key correlate. Ferruzzi et al advanced a synthesis that integrates suicidality-related triple-network dysconnectivity with insomnia and circadian dysregulation, in line with evidence that sleep and circadian disturbances increase suicide risk.[4] Following this concept that sleep disturbance disrupts triple network integrity,[5] we examined associations between our study-identified FC features and the Montgomery-Asberg Depression Rating Scale (MADRS) sleep item (Item 4: reduced sleep). Sleep disturbance severity (MADRS Item 4) was positively associated with left posterior parietal cortex (PPC, a hub of FPN)–right gyrus rectus (DMN) connectivity ($r = 0.195$, $P = .005$) but inversely associated with left amygdala (SN)–right cerebellar Crus II connectivity ($r = -0.174$, $P = .013$). In our published paper, relative to youth without current suicidal ideation, those with current ideation showed increased PPC–gyrus rectus FC and diminished amygdala–cerebellar Crus II FC.[3] The additional analyses corroborate the integrative model advanced by Ferruzzi et al, linking triple-network dysconnectivity (DMN, SN, FPN) to sleep–circadian disturbance in youth suicidality. Because our data were cross-sectional, causal relationships between sleep–circadian disturbance and suicidality cannot be inferred. Determining whether youth suicide risk can be reduced by targeting triple-network dysfunction (eg, repetitive transcranial magnetic stimulation, low-dose ketamine infusion)[6,7] or by treating insomnia and circadian dysregulation[8] will require longitudinal cohorts and randomized trials that assess suicidal outcomes.

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