
Title

The association of changes in leisure-time physical activity on depressive symptoms during Covid-19 in German adults: A longitudinal study

Abstract

This longitudinal survey assessed preventive and curative antidepressant effects of at least 75 min/week of leisure-time physical activity (LTPA) at different timepoints of the Covid-19 pandemic. We further investigated if high self-regulation skills were associated with higher odds of initiating or maintaining LTPA during the pandemic. Data was collected online from 4253 participants (age: $m = 33.65$ years, $SD = 0.79$; 79 % female) during the first quarantine measures in Germany (T1), as well as 4 weeks (T2), and 8 months (T3) later. We performed linear mixed models with changes (T2-T1, T3-T1) in LTPA and baseline major depressive disorder (MDD) as predictors (main effects and interaction effect) and depressive symptoms (at T2, T3) as the primary outcome. We found significant interaction effects of baseline depression and change in LTPA on depressive symptoms at T2 and T3 ($p < 0.001$). For probable cases of MDD an increasing LTPA to ≥ 75 min/week (vs. no change, < 75 min/week) was associated with less depressive symptoms at T2 and T3 ($p = 0.003$, $d = 0.28$). For absence of depression at baseline, remaining at ≥ 75 min/week of LTPA was associated with less depressive symptoms at T2 and T3 compared to remaining at < 75 min/week ($p = 0.006$, $d = 0.11$) or decreasing LTPA to < 75 min/week ($p = 0.018$, $d = 0.11$). Reporting high self-regulation at T1 was associated with higher odds of performing ≥ 75 min/week of LTPA at T2/T3 ($OR = 1.74$, $p < 0.001$). In general, studies report reduced LTPA during Covid-19. To benefit from the reported preventive and interventional effects, further interventions should focus on improving physical activity related self-regulation to identify and overcome barriers for LTPA. © 2023 Elsevier Ltd

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