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**O.4.3-4 Associations between screen-time media use, physical activity, and positive and negative mental health outcomes among adolescents in Ireland: a cross-sectional study**

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**Purpose**

Understanding the individual and joint associations of positive

and negative mental health with screen-time and physical activity (PA) among adolescents is essential to develop enhanced guidance for prevention strategies and appropriate interventions.

### Methods

Participants ( $n=879$ ,  $n=463$  female, mean age 14.71 (SD = 1.51) years) from second-level schools in Ireland completed a battery of well-validated questionnaires assessing hours of daily screen-time use (TV, computer, and phone), PA levels (PACE+) (low (0–2 day/week), moderate (3–4 day/week), or high (5+day/week), and mental health outcomes (anxiety (STAI-Y2) and depressive symptoms (QIDS) and positive mental health (MHC-SF)). Multiple linear regressions examined associations between screen-time, PA and mental health and one-way ANOVA's examined differences in mental health outcomes between screen-time mode and use categories (none (0 hours), low (0.5-1.5 hours), moderate (2-4.5 hours), and high (5+ hours)). Cohen's  $d$  effect size and 95% confidence intervals quantified the magnitude of the difference.

### Results

Higher computer ( $\beta=0.112$ ,  $p\leq 0.001$ ) and phone use ( $\beta=0.138$ ,  $p\leq 0.001$ ) were associated with higher depressive symptoms. Higher TV use ( $\beta=-0.111$ ,  $p\leq 0.002$ ) and PA levels ( $\beta=-0.123$ ,  $p\leq 0.001$ ) were associated with lower anxiety symptoms. Higher phone use ( $\beta=0.113$ ,  $p\leq 0.002$ ) and PA levels ( $\beta=0.116$ ,  $p\leq 0.001$ ) were associated with higher positive mental health. The magnitude of differences in depressive and anxiety symptoms across screen-time use categories were largely small-to-moderate ( $d=0.02$  to  $0.67$ ) and in positive mental health, ranged from small to large ( $d=0.03$  to  $0.88$ ). The sample was then stratified by PA level to assess the potential moderating influence of PA on the screen-time-mental health association, with mixed results.

### Conclusions

Results are among the first findings regarding the relationship between screen-time mode and PA levels with mental health, particularly positive mental health among adolescents in Ireland. Associations of screen-time and PA with mental health outcomes varied according to PA level and screen-time mode. The variation in these findings suggest the need to investigate the context of screen-time use and the screen-time activity engaged with. These results suggest that not all screen-time is detrimental and some, in moderation, may be beneficial for mental health. Future research should investigate longitudinal associations between screen-time, PA, and mental health.

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