Table A.1.f. Mental health and physical activity, children and adolescents

Questions: What is the association between **physical activity** and health-related outcomes? Is there a dose response association (volume, duration, frequency, intensity)? Does the association vary by type or domain of PA?
Population: Children aged 5-under 18 years of age
Exposure: Greater volume, duration, frequency, or intensity of physical activity
Comparison: No physical activity or lesser volume, duration, frequency, or intensity of physical activity
Outcome: Mental health (e.g., depressive symptoms, self-esteem, anxiety symptoms, ADHD)
***Importance**: CRITCAL

Black font is from original GRADE Evidence Profiles from Australian 24-Hour Movement Guidelines for Children (5-12 years) and Young People (12-17 years).*(26)* Red font denotes additions based on WHO update using review of existing systematic reviews.

	Quality Assessment							
No. of studies/ Study design **No. of participants**	**Risk of bias**	**Inconsistency**	**Indirect-ness**	**Imprecision**	**Other**	**Summary of findings**	**Certainty**	**US PAGAC evidence *(27)***
The range of mean ages was 12.0 to 16.9 years. Data were collected cross-sectionally and with 3-year follow-up. Psychological distress was assessed as depressed mood by self-reported MFQ, depressive symptoms by self-reported short-MFQ and CES-D and MDD by face-to-face interview using sections of the Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version.								
1 Longitudinal [a] n=736 **No eligible reviews identified.**	No serious risk of bias	Unable to assess	No serious indirect-ness	No serious imprecision	None	No association between baseline **MVPA** or **PAEE** and **depressed mood** or **Major Depressive Disorder** at follow-up (Toseeb et al. 2014).	LOW[b]	5 ESRs Insufficient evidence is available to determine the relationship between physical activity and anxiety among youth. **PAGAC Grade: Not assignable**. 4 ESRs, 1 review of reviews Strong evidence demonstrates that physical activity reduces the risk of experiencing depression. **PAGAC Grade: Strong.** Strong evidence demonstrates that physical activity interventions reduce
4 Cross-sectional[c] n=10,641 **No eligible reviews identified.**	No serious risk of bias	Serious inconsistency[d]	No serious indirect-ness	No serious imprecision	None	***Total PA:*** associations were null (**2/3 studies;** Johnson et al. 2008; Toseeb et al. 2014), or mixed (null and favourable) depending on if assignment to tertiles adjusted for total PA or adjusted for %time in MVPA (**1/3 studies;** Wiles et al. 2012). ***VPA:*** null associations (**1/1 studies;** Johnson et al. 2008). ***MVPA:*** associations were favourable (**1/4 studies;** Wiles et al. 2012), null (**2/4 studies;** Johnson et al. 2008; Toseeb et al. 2014), or mixed (null and unfavourable; **1/4 studies;** Young et al. 2014). ***LPA:*** null associations (**1/1 studies;** Johnson et al. 2008).	VERY LOW[e]	

								depressive symptoms in individuals with and without major depression across the lifespan. **PAGAG Grade: Strong**.

Abbreviations: CES-D = Center for Epidemiological Studies-Depression Scale; MDD = Major Depressive Disorder; MFQ = Mood and Feelings Questionnaire; MVPA = moderate to vigorous physical activity; PA = physical activity; PAEE = physical activity energy expenditure.

*As determined by WHO

[a] Includes **1 longitudinal study** (Toseeb et al. 2014).

[b] The overall quality of evidence from longitudinal studies was upgraded from "low" to "moderate" due to no serious risk of bias but downgraded to "low" due to inability to assess consistency (1 study).

[c] Includes **4 cross-sectional studies** (Johnson et al. 2008; Wiles et al. 2012; Toseeb et al. 2014; Young et al. 2014) from **3 unique samples**. **Two studies** (Johnson et al. 2008; Young et al. 2014) report data from the TAAG study. Results are reported separately and participants are only counted once.

[d] Serious inconsistency. Inconsistency is related to the associations between MVPA and depressive symptoms/depressed mood; favourable, null and unfavourable associations were reported in four studies, with no clear reason for differences (Johnson et al. 2008; Wiles et al. 2012; Toseeb et al. 2014; Young et al. 2014).

[e] The quality of evidence from cross-sectional studies was downgraded from "low" to "very low" due to unexplained inconsistency among the findings.