

Depression and Academic Achievement: A Meta-Analysis

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Background

- Depression among children, adolescents, and young adults is an issue of concern.
- Performing well in school has an influence on people's ability to compete in today's knowledge-based economy.
- It is important to investigate the influence of depression on academic achievement.

Objective

- To present a meta-analysis synthesizing the magnitude of the association between depression and academic achievement.

Methods

Searching:

- Studies published in peer-reviewed journals between 1995 and August 2008 located in MedLINE, PsycINFO, and ERIC.
- Search terms included "depression", "academic achievement", "academic performance", "school achievement", and "school performance".

Inclusion Criteria:

- Sufficient empirical data reported for effect size extraction or calculation.
- Depression measured using validated instruments.
- Academic achievement measured using school grades or standardized achievement tests.
- English-language publications.

Number of Publications Meeting Criteria:

- A total of 27 publications are included in this study. See Figure 3 for detailed explanation of the process.

Figure 1. Percentage of studies with students of various educational level.

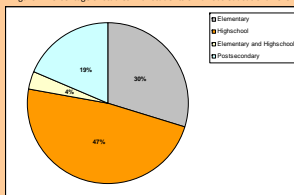
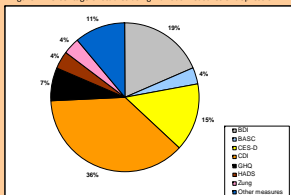


Figure 2. Percentage of studies using various measures of depression.



Data Extraction and Analysis:

- Data were analyzed using Comprehensive Meta-Analysis (version 2).
- Correlation (r) was extracted or calculated as the effect size measure for continuous IV.
- Hedges' g was computed as the effect size measure for dichotomous IV (i.e., depression vs. no depression).
- A random effects model was used.
- We conducted the Cochran Q test and I -squared Index to analyze effect size heterogeneity.
- The fail-safe N "file drawer" analysis was performed to evaluate publication bias.

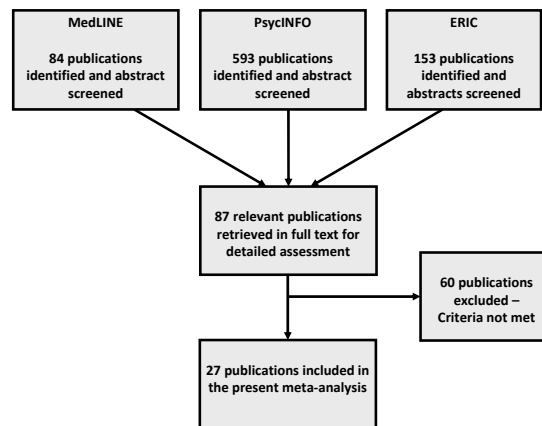


Figure 3. Flowchart of search results.

Table 1. Effect sizes, Q , I -squared, and Fail-Safe N results.

	N	No. of Effect Sizes	Correlation	Hedges' g	Q	I-squared	Fail-Safe N
Overall	27	32	-0.21 (-0.24 to -0.17)*	-----	211.21*	85.32	5005
Cross-sectional	19	23	-0.20 (-0.25 to -0.15)*	-----	166.78*	86.81	2076
Longitudinal	8	9	-0.25 (-0.33 to -0.18)*	-----	31.96*	74.97	624
Depression vs. No Depression	4	4	-0.28 (-0.44 to -0.1)**	-0.61 (-0.96 to -0.25)*	8.42***	64.36	30
1995 to 2001	7	10	-0.22 (-0.3 to -0.15)*	-----	47.102*	80.89	287
2002 to Aug 2008	20	22	-0.21 (-0.26 to -0.16)*	-----	162.93*	87.11	2867

* $P < .001$; ** $P < .005$; *** $P < .05$

Results

Overall:

- Total of 27 studies (32 effect sizes) included, involving 18,148 students.
- A significant inverse correlation ($r = -.21$) between depression and academic performance, a "medium" effect according to Cohen's (1988) criteria.

Cross-sectional vs. Longitudinal:

- Cross-sectional - a significant inverse correlation ($r = -.20$), "medium" effect.
- Longitudinal - a significant inverse correlation, ($r = -.25$), "medium" effect.
- No difference between the two types of design, $Q = 1.48$, $df = 1$, $P = .22$, $n.s.$

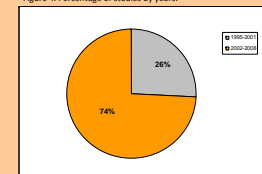
Depression vs. No Depression:

- A Hedges' g of $-.61$, a "medium" effect.

1995 to 2001 vs. 2002 to 2008:

- No difference between the two groups of studies, $Q = 0.1$, $df = 1$, $P = .75$, $n.s.$

Figure 4. Percentage of studies by years.



Conclusion

- Depression has a concurrent and longitudinal influence on academic achievement - higher levels of depression are associated with lower scores on measures of academic achievement.

- Students with depression score lower on measures of academic achievement than those without depression. Our obtained Hedges' g of $-.61$ suggests that students with depression scored on average approximately 6/10 of a standard deviation below the mean of the students without depression. Meaning, if a group of non-depressed students scored on the 50th percentile on an exam, their depressed counterparts would have only scored on the 27th percentile.

- The effect over time may be large. Students with trouble mastering the skills or knowledge in lower grades (i.e., decreased *school presenteeism*) will have a much more difficult time when they enter higher grades.

- Our findings suggest the importance of recognizing depression as a risk factor for poor academic achievement. Prevention and treatment programs are needed.

- Poor performance at school may indicate the presence of depression.

- Clinical trials should include academic achievement as an outcome measure to determine the effectiveness of depression prevention and treatment programs on academic achievement.

- The effect sizes of recently published studies appear very similar to those published earlier; suggesting, it may be possible to focus only on more recent publications when conducting systematic reviews and meta-analyses for the purpose of informing evidence-based decision making.