

A Systematic Review: Mold and Moisture Exposure and Respiratory Symptoms in Schoolchildren

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Introduction

- Moisture and dampness in school buildings can lead to mold and indoor air pollutants.
- Children are at an increased risk for respiratory symptoms due to their bodies still developing.
- Consistent associations have been found between moisture and mold exposure and respiratory symptoms in schoolchildren.
- Many studies have been conducted to explore exposure to moisture and mold in homes, but few have looked in schools.

Methods

- The Navigation Guide methodology was used to evaluate the impact of moisture and mold exposure on respiratory symptoms.
- Seven studies were included in the review, studies were found by searching PubMed, Scopus, and Proquest Environmental Science Collection.
- The "Population", "Exposure", "Comparator", and "Outcome" (PECO) statement outlined here:

Population: Schoolchildren

Exposure: Mold & Moisture Damage in Schools

Comparator: Schools without Moisture Damage

Outcome: Respiratory Symptoms

Results



Figure 1: Summary of literature search

	Recruitment Strategy	Blinding	Confounding	Exposure Assessment	Incomplete outcome data	Selective outcome reporting	Conflict of Interest	Other Sources of Bias
Borras-Santos et al. 2013	Low risk	Probably low risk	Probably low risk	Probably high risk	High Risk	Probably low risk	Probably low risk	Low risk
Hyvarinen et al. 2003	High Risk	Probably low risk	Probably high risk	Low risk	Probably low risk	Probably low risk	Probably low risk	Probably high risk
Meyer et al. 2004	Probably low risk	Probably low risk	Low risk	Probably low risk	Probably low risk	High Risk	Low risk	Low risk
Taskinen et al. 1999	Probably high risk	Probably high risk	Low risk	Probably low risk	Probably high risk	High Risk	Probably low risk	Probably low risk
Jacobs et al. 2014	High Risk	Probably low risk	Low risk	Probably low risk	High Risk	High Risk	Probably low risk	Probably low risk
Taskinen et al. 1997	High Risk	Probably low risk	High Risk	Low risk	Probably high risk	Probably low risk	Probably low risk	Probably high risk
Taskinen et al. 2002	Probably high risk	Probably high risk	Low risk	Probably low risk	High Risk	Probably low risk	Probably low risk	Probably low risk

Figure 2: Summary of risk of bias table

Quality Factor	Rating	Basis
<i>Downgrade</i>		
Risk of Bias	0	Subjective exposure assessment in some studies
Indirectness	0	Evidence was directly comparable to question of interest (PECO)
Inconsistency	-1	Inconsistent significant associations
Imprecision	-1	Precision of studies was mixed with variable case numbers and CIs
Publication Bias	0	No evidence of publication bias, conflict of interest
<i>Upgrade</i>		
Large Magnitude	0	Significant odds/hazard ratios have large magnitudes of effect
Dose Response	0	No studies showed a dose-response effect for longer exposure in moisture school
Confounding minimizes effect	+1	Confounding was adjusted for consistently across studies

Table 1: Quality of body of evidence table

- The overall quality of evidence across the studies was rated as low.
- The overall strength of evidence across all studies was rated as limited.

Conclusion

- Exposure to moisture and mold damage in schools seems to be associated with respiratory symptoms.
- The respiratory symptoms that were reported most frequently were wheeze, prolonged cough, and nasal symptoms.
- Cultural and geographical associations also played a role in differences in the severity of moisture damage of schools.
- Moisture and dampness need to be regarded as a serious public health issue where avoidance or remediation in schools will greatly benefit the health of children.

References

- Borras-Santos et al. (2013). PMID: 23775866
- Hyvarinen et al. (2003). PMID: 14738273
- Jacobs et al. (2014). PMID: 25035116
- Meyer et al. (2004). PMID: 1456847
- Taskinen et al. (1997). PMID: 9401510
- Taskinen et al. (1999). 10626525
- Taskinen et al. (2002) PMID: 11991303