

Dampness in dwellings and sick building symptoms among adults: a cross-sectional study on 8918 Swedish homes

C.G. Bornehag^{a,b,c,*}, J. Sundell^b, L. Hägerhed^a, The DBH Study Group

^a*SP Swedish National Testing and Research Institute, Sweden;* ^b*International Centre for Indoor Environment and Energy, Technical University of Denmark;* ^c*Karlstad University*

EXTENDED ABSTRACT

Moisture-related indicators indoors are, e.g. visible mould and damp spots, condensation on the inside of window panes, detached floor covering materials, flooding and bad odours. Such indicators are frequently found and are reported to appear in 25–80% of the buildings worldwide (Bornehag *et al.*, 2001). ‘Dampness’ has also been identified as a major risk factor for, e.g. respiratory symptoms such as asthma, cough and wheezing among both children and adults (Bornehag *et al.*, 2001). However, only a few studies have investigated the association between dampness at home and sick building syndrome (SBS) symptoms. The purpose of this study is to investigate the association between self-reported dampness at home and SBS symptoms among parents of pre-school children.

An interdisciplinary epidemiological study on indoor environmental factors and health in children and their parents, ‘Dampness in Buildings and Health’ (DBH), started in Sweden in 2000. The first step of the study (carried out during spring 2000) included a cross-sectional questionnaire study on 14 077 children (1–6 years) and their parents with focus on their health and their home environment, e.g. dampness indications. The questionnaire included questions on SBS symptoms and perceived indoor air quality among the parents of the children. Data on 10 851 children, corresponding to a response rate of 79%, were collected in the questionnaire study. The children came from 8918 families (homes), from which one randomly selected parent was included in this study. Adjusted odds ratios (AORs) for symptoms among parents were calculated with multivariate logistic regression.

Most of the responding parents were female (83.1%), 17% were active smokers and 30.9% had allergic symptoms. Of SBS symptoms, general symptoms were most frequently reported (29.4%), followed by skin (11.1%) and mucous membrane symptoms (5.6%). Dampness problems such as condensation on the inside of window panes (COND), floor moisture problems (FLOOR) and visible mould and/or damp spots in the dwelling (DAMP) were significantly associated with symptoms. COND was a risk factor for general symptoms [AOR 1.63 (1.38–1.92)] and mucous membrane [AOR 1.64 (1.26–2.14)] and skin [AOR 1.59 (1.30–1.96)] symptoms. FLOOR was a risk factor for general symptoms [AOR 2.03 (1.64–2.52)] and mucous membrane [AOR 1.50 (1.08–2.09)] and skin [AOR 1.49 (1.14–1.93)] symptoms. DAMP was significantly associated with general symptoms [AOR 2.04 (1.12–3.70)]. These symptoms were also significantly associated with female gender (AOR 1.07–1.99), tobacco smoking (AOR 1.28–1.32), allergic symptoms (AOR 1.70–3.11) and living in multifamily houses (AOR 1.35–1.66). A perception of bad odour indoors was strongly associated with dampness problems (AOR 3.2–4.6) and with multifamily houses (AOR 9.72). Finally, a perception of dry air indoors was associated with dampness problems (AOR 2.5–2.7), tobacco smoking (AOR 1.68), living in multifamily houses (AOR 5.64), living in a home built after 1960 (AOR 1.93–1.77) and a mechanical exhaust and supply ventilation system (AOR 1.99).

*Corresponding author. E-mail: carl-gustaf.bornehag@kau.se