

Summary

Introduction: Previous school-based hand hygiene interventions have reported a successful reduction in infectious illness among schoolchildren. But few studies have tested the effect in large populations with adequate statistical power and analyses. The Hi Five Study is a randomized controlled trial with a school-based multi-component intervention to improve hand hygiene among schoolchildren. The aim of the study is to develop, implement, and evaluate a sustainable and easily applicable intervention to reduce infectious illness and to increase school well-being among schoolchildren.

Objective: The overall aim of this thesis is to examine the effect of the Hi Five Study in relation to reducing infectious illness and illness-related absenteeism. The aim is translated into the following objectives: 1) examine the quality of child self-reported measures of illness-related absenteeism by investigating the agreement between measures reported by children and by parents (paper I), 2) evaluate whether the Hi Five Intervention succeeds in reducing infectious illness among schoolchildren measured by: a) illness days and illness episodes due to infectious illnesses reported by parents, and b) illness-related absenteeism reported by children (paper II), and 3) to gain more insight into the level of implementation of the Hi Five Intervention, measured as dose received, and examine the association between level of implementation and illness days and illness episodes and illness-related absenteeism (paper III).

Material and methods: The Hi Five Study was a three-armed cluster-randomized controlled trial involving 43 randomly selected Danish schools; two intervention groups involving 14 schools each, and 15 control group schools. Data for papers I, II, and III were based on baseline and follow-up data collected as part of the Hi Five Study. Text message-data on illness days and illness episodes was collected among parents for 22 consecutive weeks from the beginning of December to the end of April in the school year 2011/12 at baseline, and during the same period in the school year 2012/13 for follow-up. Schoolchildren answered an internet-based questionnaire at school on illness-related absenteeism, hand hygiene behavior, family characteristics, sex, grade level, and parents' occupation.

Results: The agreement between children's and parents' reporting of illness-related absenteeism was good, with high absolute agreement and slight to moderate Kappa-values. Results from the effect evaluation of the Hi Five Intervention showed no effect on the number of illness days and illness episodes or in reporting illness-related absenteeism. The level of implementation was significantly associated with hand hygiene, which indicates that the Hi Five Intervention worked according to theory- and evidence-based process. Results of analyses examining the association between implementation of the Hi Five Intervention and illness-related outcomes, showed a dose-response association between the level of implementation of the

Hi Five Intervention and illness days and illness episodes. This association was not found for illness-related absenteeism.

Conclusions: Illness-related absenteeism can validly be reported by children, and was therefore used in the effect evaluation of the Hi Five Study. The multi-component Hi Five Intervention achieved no significant difference in the number of infectious illness days and infectious illness episodes or illness-related absenteeism among children in intervention schools compared to control schools. Classes that succeeded in achieving a high level of implementation of the Hi Five Intervention had fewer illness days and illness episodes, suggesting that the Hi Five Intervention, if implemented adequately, may be relevant in decreasing infectious illness in Denmark.