

Handwashing among public restroom users at the Minnesota State Fair

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Abstract

Objectives: An observational study was carried out to collect baseline data and to assess the impact of signs on handwashing among public restroom users. The study was carried out between June 2003 and September 2004 at three large events held on the Minnesota state fairgrounds.

Methods: Discrete observations of individuals were carried out in two male and two female restrooms during the Back-to-the Fifties car show (event 1), the 2003 Minnesota State Fair (event 2), and the 2004 Minnesota State Fair (event 3). The restrooms were similar size, layout, and basic infrastructure. For purposes of the study, the use of soap was considered to be indicative of a “handwash” and use of water without soap was defined as hand rinsing. Average handwashing percentages were calculated for each sex and for youths and adults. Small children accompanied by adults were not observed at any of the three events, and older children (youth) were not observed during the first two events. Hand rinsing was also not tracked during the first two events.

Results: Totals of 400, 378, and 397 individuals entered the study restrooms at events 1, 2, and 3 respectively. Average observed handwashing was 64%, 65%, and 75% among females and 30%, 39%, and 51% among males at events 1, 2, and 3 respectively (Figure 1). Observed handwashing rates among both male and female adults showed an increasing trend during the study; however, the increase was more significant among males (Figure 1).

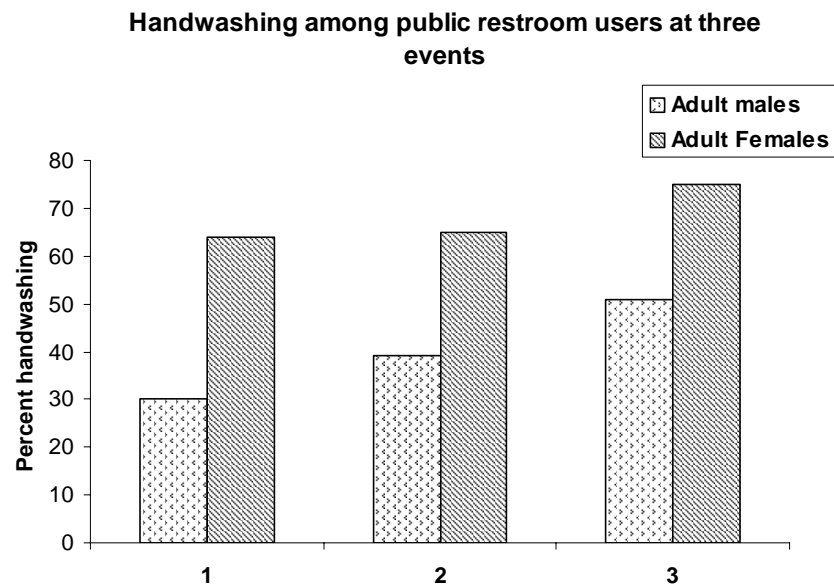


Figure 1. Average observed handwashing percentages among adult males and females at the Back-to-the fifties car show (1), the 2003 Minnesota state fair (2), and the 2004 Minnesota state fair (3). All observations were carried out in the same two male and two female restrooms.

Overall, average observed handwashing rates at the 2004 Minnesota State fair were higher for adults than for youths (Figure 2). However, female youths had the highest average observed handwashing rate of the four groups observed (66%), followed by adults males (53%), adult females (50%), and male youths (18%). Hand rinsing was observed at about a three times higher rate in males than in females, while females were more often observed leaving without either handwashing or hand rinsing. Thirty-eight per cent (38%) of observed adult females did not perform handwashing or hand rinsing compared to 22% of female youths, 18% of male youths, and 6% of adult males.

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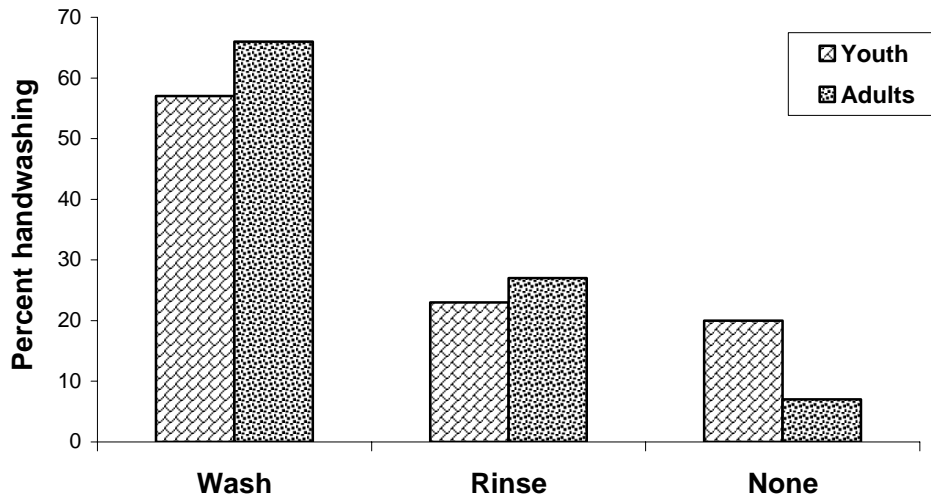


Figure 2. Comparative handwashing rates among adults and youths at the 2004 Minnesota State Fair. Handwashing involved the use of soap, while hand rinsing involved use of water without soap.

Conclusions: Gender and age appear to be associated with handwashing among public restroom users. Females were observed washing their hands after restroom use more often than males. In contrast, females were also observed leaving restrooms without even rinsing their hands more often than males. Anatomical differences in male and female genitalia may lead to differences in perception of likely hand contamination after restroom use by males and females. This perhaps explains why more handwashing was observed among females and more hand rinsing among males. Follow-up studies are necessary to assess handwashing after specific restroom activities such as grooming, urination, and defecation. Studies should also be conducted to identify the barriers to proper handwashing among the public. Finally, the increase handwashing after placing handwashing signs in the study restrooms suggests that targeted health education may have a positive effect on handwashing. However, this finding should be confirmed by follow-up studies.

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