

ANOTHER LOOK AT HAND-WASHING BEHAVIOR

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Hand-washing behavior among individuals at a large regional university was observed. The authors noted how hand-washing behavior varied by race, gender, and having an observer present. Of the 410 students observed, most (221) were men and 232 were white. The authors expected that more women than men would wash their hands and that few participants would wash their hands for the time (15 seconds or more) recommended by the American Society for Microbiology (ASM) and the Centers for Disease Control and Prevention (CDC). The data support both of these propositions.

Keywords: hand-washing behavior, race, gender, presence of observer, students.

Doctors, parents, and schools stress the importance of correct hand-washing behavior. It is assumed one washes one's hands. This is, as Munger and Harris (1989) and Edwards et al. (2002) argue, a social norm. People know they are supposed to wash their hands to ensure good hygiene. We use our hands more than any other part of the body, from handshaking, to doorknob use, and coughing (Curtis & Cairncross, 2003). Thorough hand-washing is the single most effective behavior one can perform to reduce the spread of infectious diseases (The American Society for Microbiology [ASM] & the Centers for Disease Control and Prevention 2000). Given that antibiotics lose their effectiveness over time, doing what one can to limit their use is an economic and public health good. Infectious diseases are the leading cause of death in the United States (ASM 2000; see too Ryan, Christian, & Wahrlabe, 2001).

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Generally, when surveyed, the vast majority (95%) of respondents say they wash their hands after using the bathroom (ASM, 2000). Past observational research shows that fewer actually wash (Gastelaars, 1996; Jay, Comar, & Goverlock, 1999). Few researchers have examined whether or not people who wash their hands used soap or how long they washed. The Centers for Disease Control and Prevention (CDC) recommends that people should wet their hands, lather with soap past the wrists and wash for at least 15-20 seconds, then rinse and dry.

In 2003, Wirthlin Worldwide conducted 1,000 telephone interviews to better understand hand-washing behavior. Most (95%) adults surveyed said they always washed their hands after using public restrooms. The vast majority (87%) of respondents said they washed their hands after using their home bathrooms, 75% after changing a diaper, and only 31% after coughing or sneezing (ASM, 2003). Wirthlin Worldwide also conducted an observational study of people in the washrooms of airports in six major cities (New York, Chicago, San Francisco, Dallas/Fort Worth, Miami, and Toronto). Of those observed, 78% washed their hands. Across all cities, women were more likely to wash their hands (83%) than were men (74%; ASM 2003).

In this study we replicated two earlier studies by Wirthlin Worldwide (one in 1996 and another in 2000). In the 2000 study of 1,021 adults, the vast majority (95%) said they washed their hands. In addition to interviews, 7,836 adults were observed in five major cities (New York, Atlanta, New Orleans, Chicago, and San Francisco). Of adults observed, 67% washed their hands (ASM, 2003). More women (75%) than men (58%) washed their hands. In 1996, 94% of Americans said they washed their hands after using a public bathroom. In the observational study in 1996, Wirthlin Worldwide found that more women (74%) than men (61%) actually washed their hands. Only one difference was noted in hand-washing behavior between 1996 and 2000. Men were less likely (58%) to wash their hands in 2000 than in 1996 (ASM, 2000). Across all three surveys, the vast majority of respondents said they washed their hands after using a public bathroom. In 2003, there was a sharp rise in the number of adults observed in public bathrooms who actually washed (67% in 2000 vs. 78% in 2003). More women and men were washing their hands in 2003 than in either 1996 or 2000. Earlier studies did not include Toronto, which had a SARS outbreak during this period, where almost all of the observed individuals (95% of males and 97% of females) washed their hands (ASM, 2003).

Munger and Harris (1989) observed female hand-washing behavior among 59 participants both with, and without, an observer present. Significantly more women washed their hands when there was an observer present (see too Edwards et al., 2002). A survey by America Online (HyGenius, 2001) of over 35,000 people, most (56.5%) said they washed their hands with soap and dried them. About one

quarter of the respondents (25.2%) said they only quickly rinsed their hands and did not use soap (see HyGenius, 2001). Hateley and Jurnaa (1999) observed the hand-washing behavior of 200 healthcare workers after using the toilet in a medical facility. Of the 100 male and 100 female workers (including doctors, nurses, and students), women washed their hands more than did men (83% vs. 59%). Hateley and Jurnaa also observed public hand-washing behavior among 100 males and 100 females at a railway station. Of those observed, only 34% of men and 56% of women washed their hands (Hateley & Jurnaa). Lankford et al. (2003) also observed hand-washing behavior in a hospital setting. Hospital workers were ranked, from attending physicians to staff, to determine the influence of hospital staff role models in shaping hand-washing behavior. Lankford et al. found that when a higher-ranking person did not wash his/her hands then others using the bathroom were significantly less likely to wash their own hands.

From past empirical research, we know that people are much more likely to say they wash their hands after using the bathroom than they are to actually wash. Our real behavior differs from ideal behavior. We know the norm, the appropriate behavior is to wash our hands; however, our behavior lags (see Curtis, Kanki, Mertens, & Traore, 1995; Duval & Wicklund, 1972). As children, we are taught this behavior “wash your hands!” Given that women remain primary child-rearers, it is not surprising that observers generally find that women wash their hands more than do men. Many have found that people are more likely to wash if another is present in the bathroom, especially if this person is either a “higher-ranking” person in status or makes eye contact. Wicklund (1975) suggests that not washing one’s hands is a form of deviant behavior and having another person present reminds one of a particular norm. Further, from Wirthlin Worldwide’s 2003 study, it is clear that if one perceives a public health risk, this changes hand-washing behavior.

In the light of past research, we hypothesized that: (1) since women are socialized to maintain cultural norms, and washing one’s hands after using the bathroom is a basic norm of appropriate behavior, we expected women to wash their hands significantly more often and to do a “better” job of it than men. Further, we expected that both women and men would wash more frequently when there was an observer present in the bathroom. We did not expect to observe differences in hand-washing behavior by race.

METHOD

During three weeks in October 2004, we observed the hand-washing behavior of 410 people in the public restrooms of a large regional university. We observed students in three different locations (the library, student center, and a large

classroom building). If someone entered the bathroom and flushed the toilet, we recorded his/her race, gender, whether or not s/he washed their hands, and, if s/he washed, the length of time taken. Race was recorded as white, African American, Asian, or other. Because few of our participants were Asian (40 or 10%), we also recorded race as white compared to all others.

A participant was considered a hand-washer if the sink was used. Once people were considered washers, we recorded whether or not they used soap and for how long they washed. Soap use was defined as touching the soap dispenser with the hand in such a way that the researcher could either hear or see the action. Length of time spent washing was recorded as short (<3 seconds), medium (4-6 seconds), long (7-14 seconds), and extra-long (15 seconds or longer [CDC recommendation]).

An observed participant was defined as being in full view of another participant, or the researcher, after s/he flushed the toilet. An unobserved participant was observed from behind a toilet stall. With the door slightly ajar, researchers noted handwashing behavior. Because neither the researcher nor the participants were in full view of each other, the participant was recorded as unobserved.

We attempted to observe every participant who entered the restroom. However, when the bathroom was busy, the researcher would finish coding the participant being observed and then observe the next person who came through the door. Some entered the restroom solely to wash their hands. They were not included in this analysis. Throughout the entire study, there was no verbal communication between participants and researchers.

RESULTS

We observed a total of 410 people. Of our 410 participants, 232 were white; 111 were African American/black; 40 were Asian; and 27 fell into our "other" category. The majority of our sample were male (221). Participants were observed in 210 of our 410 cases.

We expected women to wash their hands more frequently than men did. Of the 189 females in our sample, 85% washed their hands. Fewer men (69%) washed ($\chi^2 = 15.18$; $p < .0001$). We hypothesized that women would be "better" hand-washers than men. Of the 313 participants who washed their hands, the majority (201 or 64%) used soap. Women used soap more often than did men (120 vs. 81). Few of those who washed their hands did so for 15 seconds or longer (32 people or 10% of all washers). Only 20% of the sample washed their hands for 7-14 seconds (our long time). The most likely length of hand-washing behavior was either for a short (< 3 seconds; 34% of sample) or medium (4-6 seconds; 35% of sample) duration. Of the few participants who did wash their hands for the CDC recommended time (a minimum of 15 seconds), more were men than women

(22 vs. 10). We also used logistic regression to examine whether significant differences existed between those who washed for 15 seconds or longer (with background variables gender, race, and observed status in the model) compared to those who washed for a shorter time period. We did not find any significant differences between participants shaping the likelihood of washing their hands for as long as the CDC recommends.

We expected that observed participants would be more likely to wash their hands than others would be. Our data do not support this hypothesis. Of the 210 participants who were observed, 79% washed their hands while 73% of nonobserved participants washed ($\chi^2 = 1.74$, *ns*). We did not expect to observe a difference in hand-washing behavior by race and our data support this proposition.

DISCUSSION

Our data support earlier work which finds that women are more likely to wash their hands compared to men. Women in our sample washed their hands approximately the same (percentage wise) as Wirthlin Worldwide found in 2003. Approximately 69% of the men in our sample washed their hands, which is fewer than found by Wirthlin Worldwide (74% of men in their sample washed). None of our other variables significantly shaped hand-washing behavior (race or observational status). Among those who washed their hands, we found that the majority used soap (210 out of 313 hand-washers used soap). More women (120) than men (81) used soap when washing their hands. Few (32 or 10% of our sample) washed their hands for the CDC's recommended minimum of 15 seconds. Of those who washed their hands for this long, more were men (17) than women (9). We utilized logistic regression to see if race, gender, or observational status shaped the likelihood of washing one's hands for the minimum CDC period (vs. washing one's hands for a shorter period); however, none of our variables were significant in the model.

Given that hand-washing behavior is considered by most health professionals to be a simple step one can take to help prevent the spread of infectious diseases, it is curious that researchers continue to find that more Americans say they wash their hands than actually wash. Clearly, people recognize that they should wash their hands after using a public toilet, and/or at least that this is the accepted behavioral norm, and in cases of a health crisis (SARS) individual behavior is in line with ideal behavior (for both men and women). In our work, like most past research, we utilize convenience (nonprobability) sampling. This might explain why we observed no significant difference in hand-washing by observer status. Also, we did not engage our "observed" participants in conversation or maintain eye contact, thus the reminder (having another present) to wash one's hands was a gentle one. Health professionals might be encouraged that most of those who did

wash their hands used soap. However, the CDC might find our data troubling as only 32 of our 313 participants who washed their hands, did so for at least 15 seconds. It will be interesting to track hand-washing behavior over time to see the effectiveness of current public hygiene campaigns.

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