Nudging a Habit

Evidence from a handwashing experiment in Vietnamese primary schools

Background

Washing hands with soap helps prevent diarrhea, respiratory diseases and soil-transmitted helminth infections. In Vietnam, handwashing with soap (HWWS) is taught to all first-grade students as part of national curriculum through 1-hour sessions, titled "Body hygiene". Still, most children—like most adults[1]—don't wash their hands after defecating. However, a recent study found that simple "nudges" significantly increased handwashing after latrine visits at two schools in Bangladesh (Dreibelbis et al, 2016). While Chase and Do (2012) found that a large scale handwashing campaign in Vietnam had virtually no impact on the frequency of handwashing among "caregivers" (i.e. mothers with small children), the Bangladeshi study reported that the percentage of children practicing HWWS after a visit to the school latrine increased from 4% to 74%.

Research Questions

Given the results of the Bangladeshi study, we sought to answer five questions:

1. Do nudges work only in a specific social/cultural setting or are the results more universal?
2. Is there a novelty effect of the nudge, i.e. does the effect decline over time
3. After a long time with nudges, will behavior last if we remove the nudges, i.e. have we created a habit?
4. Are we sure that we don't just observe a Hawthorne effect, i.e. do the children wash their hands only because they are observed?
5. Do children fail to wash their hands with soap after latrine visits because there is no convenient place to wash the hands and there is no soap?

Research Method

The research took place at 14 randomly selected primary schools in Nghe An between December 2016 and May 2017. The schools had 4,092 students including 1,855 girls (45.3%) and 2,237 boys (54.7%). The schools were randomly assigned to five groups:

- Control A: 6 schools without Nudges- surveyed at baseline only
- Control B: 2 schools without Nudges- surveyed at baseline and 5 months observation
- Treatment 1: 2 schools with Nudges- surveyed at baseline, nudges removed after 6 weeks, final observation 1 month after nudges removed
- Treatment 2: 2 schools with Nudges- surveyed at baseline, nudges removed after 4 months, final observation 1 month after nudges removed
- Treatment 3: 2 schools with Nudges- surveyed at baseline, nudges in place 5 months

At the treatment schools, two types of nudges were introduced: (i) the path from the latrines to the handwashing place were painted in a bright green color with yellow footprints, and (ii) a colorful picture was painted above the handwashing place. The design of the latter nudges varied from school to school, but were all aimed at give a positive feeling about handwashing with soap (see picture).

[1] Freeman et al (2014) estimated that only 19% of the world population washes hands with soap after contact with excreta.

Visual observations of HWWS were undertaken at baseline (typically 2 weeks prior to painting of the nudges. The observations were repeated every four weeks for the duration described above. Observers were discretely placed so they could observe when students left the latrines and washed their hands with soap. A female observer was assigned to the girls' latrine area and a male at the boys'. A typical school day started at 7:15 with morning assembly followed by two back-to-back study periods, a 15 minute break and two more back-to-to back study period. This pattern was repeated after a 2-1/2 hour lunch break (although usually without the assembly). Our observations started 15 minutes before the assembly and ended 15 minutes after the last class session in the morning and started again 15 minutes before the afternoon classes and ended 15 minutes after the last class. The children went home during the long lunch break and, thus no observations were made during this time.

Based on this schedule, the day was divided into 12 observation period. At the start of each period, the observers inspected the latrines and handwashing facilities and recorded smell, cleanliness, functionality of all facilities, availability of soap as well as weather conditions. All data was recorded using tablets and downloaded to a central computer after each day. As part of the research, all schools were supplied with soap by East Meets West, the research sponsor. If soap was missing at the start of the day, the observers would notify the school custodian.

Study Results

The first result of the research—after the baseline survey—was that we indeed found a significant Hawthorne effect, but not the one we had expected. The research team had consulted with the headmasters prior to the start of the study. In order to explain why some adult strangers would be watching the latrines, the headmasters informed the teachers and other staff. Unfortunately, believing that the study was aimed at recording how well the school did in terms of HWWS, many teachers appear to have encouraged the students to go and wash their hands. This forced us to repeat the baseline at all the schools. Some of this effect seemed to have carried out to the following observation round.

All the observations were analyzed using OLS regression with "dummies" for the two first observation rounds and for the schools where the observers had been informed that the teachers encouraged the students. We also did the same regressions excluding the two first observation rounds. The regression results are presented in the adjacent table.

Variable	All Rounds (14 Schools)	Rounds 2-5 (8 Schools)
Constant	42.6 ***	41.8 ***
Nudges	27.4 ***	27.7 ***
Nudges have been removed	1.5	2.1 **
Distance to HW place > 10 m	-12.1 ***	No control > 10 m
Distance > 10 m & nudges	-17.6 ***	-30.1 ***
Rain	-11 ***	-7.8 ***
Dummy variables	Yes	Not applicable

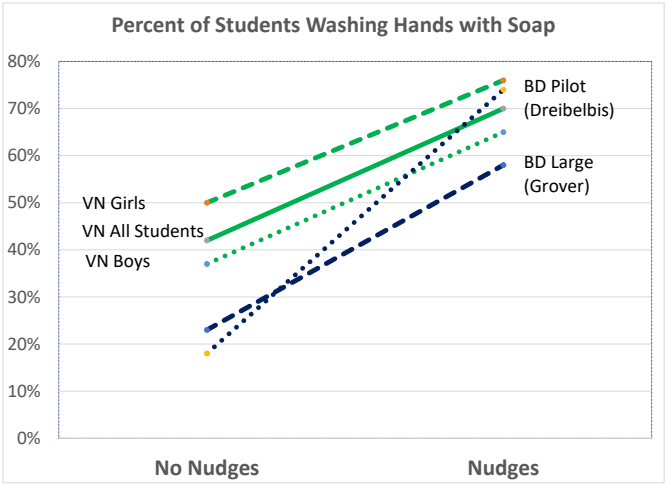
*** Significant at 1% level; ** Significant at 5% level; * Significant at 10% level

The two models both estimate that without nudges, about 43% of the students practice

HWWS after latrine visits. The nudges increase HWWS frequency by 27-28 percentage points. This estimate is significant at the 1% level. Of special interest is the positive coefficient for "nudges have been removed." In the "rounds 2-5" analysis, the coefficient is significant at the 5% level. Thus, it appears that the nudge effect remains after the nudges have been removed, i.e. a habit has been created. In addition, the research indicates that HWWS frequency declines if the handwashing place is far from the latrine and if it is raining. Finally, separate analyses (not shown) for boys and girls show that the HWWS frequency for girls is higher (about 50% without nudges) than for boys (around 38%).

Conclusions

The original Bangladesh study has subsequently been replicated on a larger scale (Grover et al. 2018). We have rearranged their results to make them comparable to Dreibelbis et al. (2016) and our study. As can be seen from the three studies show large impacts of nudges on schoolchildren's handwashing behavior. Thus, nudges seem to be effective in different social/cultural settings.



There was no significant decline in HWWS frequency shortly after the nudges had been installed. Thus, we conclude that the effect of the response to the nudges was not due to a "novelty effect." As noted above, the response to the nudges over a couple of months appear to have generated a more widespread habit of HWWS.

We identified a Hawthorne effect related to the response by the teachers. We cannot rule out the possibility that the presence of observers made the children wash their hands more frequently. However, the influence on control and treatment schools should be about the same. Thus, the measured increase due to the nudges should be free from any significant Hawthorne effect.

We saw that convenience or lack thereof—i.e. rain, long distance to the handwashing place—influenced the behavior of the children. The extent to which other factors also influence the practice of HWWS is analyzed in a companion research. In that study we demonstrate that the main constraint appears to be that only one sixth of the primary schools have handwashing facilities with soap.

Consequently, we have made the following recommendations to central and provincial education departments:

- Budget to ensure consistent availability of soap and water is essential
- The handwashing place must be close to the latrine and convenient for kids to practice handwashing
- A second handwashing place can be placed at the main school building to encourage the children to wash hands after playing in the dirt, etc.
- There should be a roof over the handwashing place
- Nudges have a significant impact on handwashing and should be used at all schools.

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