



USAID/E3 Water Communications and Knowledge Management (CKM) Project

GLOBAL WATERS RADIO

Nga Nguyen and Reshma Hussam on Incentivizing Handwashing Habit Formation

Interview Transcript / Published September 27, 2017

Global Waters Radio: You are tuned in to Global Waters Radio, a podcast series produced by the Water Team at the U.S. Agency for International Development. The series offers listeners insights from USAID officials, development partners, thought leaders, and experts from across the water sector, as they discuss current USAID water programming and cutting edge research from around the world.

In observance of Global Handwashing Day, this week's podcast focuses on incentivizing handwashing behavior change. To guide us, we are lucky to have Nga Nguyen in conversation with Dr. Reshma Hussam. Nga Nguyen is the Senior Water, Sanitation and Hygiene and Social Behavior Change Adviser at USAID's Office of Maternal and Child Health and Nutrition. She has more than 15 years of field experience in social and behavior change focusing on a variety of behaviors. Reshma Hussam is an economist and assistant professor at Harvard Business School, whose research explores the intersection of development, behavioral, and health economics, and she has a particular interest in the role of learning and habit formation in sustained behavioral change.

Building on a September two-thousand-seventeen webinar on handwashing behavior change co-hosted by USAID and the Global Handwashing Partnership, Nga and Reshma are back to take a deeper dive into the subject, and answer some of your questions.

Nga, take it away.

Nga Nguyen: On September 12, 2017, the U.S. Agency for International Development and the Global Handwashing Partnership co-hosted a webinar to highlight two different approaches to increasing handwashing with soap behavior. We had an amazing turnout with roughly 140 participants from 33 countries. And following the webinar, there has been such a response for a more in-depth discussion on the habit formation approach to handwashing that we have invited Dr. Reshma Hussam to do a deeper dive on her study.

Now for those listeners that were not able to join the webinar, I thought we could ask you to provide us with an overview of the study, your methods, and your findings so that we're all up to speed on the study. And following your short presentation, I'll follow up with some questions that had been sent to us by attendees of the webinar, as well as a few of my own questions. So take it away, Reshma.

Reshma Hussam: Sure, thank you so much, thanks for having me again. So I wanted to just take a step back and motivate broadly why we did this study. What we're interested in is preventative health behaviors broadly, so handwashing with soap is one of them, but you can think of, for example, latrine use, clean cookstove use, water treatment. These are all behaviors where we think as development economists and public health workers that these behaviors have really high returns and yet we see really, really low adoption on the ground.

And I think that there are a bunch of common themes that run across all of these behaviors. So like I said, number one is that they have high returns and yet there's very low adoption. The second thing is that it doesn't seem that information or resources can really fix the problem. So even when people know it's important and people have the resources to do it, still they're not engaging. The third thing is that, like I said, they are all preventative behaviors, which means that the returns are not necessarily salient so maybe people aren't internalizing the true returns. They are also not social norms because, like I said, they're not adopted widely so they can't be social norms. And the last thing is that they are all repetitive activities, so you have to engage repeatedly in order to really benefit from the behavior, and this sort of repetition can be very costly, unless the behavior becomes habitual.

And so that's where we ended up, we were interested in thinking about whether these behaviors are actually habit-forming behaviors and if they are, how people are engaging with that habitual nature of the behavior. So we think about this in the context of handwashing with soap, and the first thing we have to do there if we want to think about habit-formation dynamics with handwashing with soap is we have to first think of a good way to measure that outcome. So again across the board for these preventative health behaviors, the way people measure outcomes is usually either self-report, so you ask people 'Do you wash your hands with soap?' Or you have surveyors going in and checking whether people wash their hands with soap. And both of these sorts of outcomes are very noisy, they're imprecise, and they are not going to give us the statistical power to really think about habit-formation dynamics.

So we teamed up with the Media Lab at MIT to design these soap dispensers that have these electronic time-stamp sensors that are embedded inside. And these sensors can very precisely track handwashing behavior and the exact time of handwashing. And so what do we do with these sensors? Well, we took them to about 3,000 households in rural West Bengal. All of these households have young children who are our target audience, and we randomized the distribution of the dispensers. Among those who got the dispensers, we randomized whether you also received feedback and tracking for every day that you washed. This information you can get from the dispenser, the sensor in there. Or additionally, if you also received incentives for every day that you washed,

and these incentives were in the form of tickets that could be traded in for goods. The second thing we experimentally varied, is we varied whether households anticipated these services or these incentives or not. So to a subset of households, we announced two months ahead of time that they should look forward to receiving a monitoring service or extra daily incentive at a future date. So by doing this, what we are doing is changing exogenously the future value of the behavior, keeping your current value constant. And the only reason that people would change whether you wash your hands today or not based on something that changes in the future is if you really believe that this is a habit, and the more I do it today, the more I will do it tomorrow, and the more I will gain from those increases in service tomorrow. And importantly, our interventions were all temporary, but we continued to track handwashing behavior, so this gives us a measure of persistence, which is basically whether or not handwashing is a habit-forming behavior or not.

So that was the experiment, and the results is that we find that both the incentives and the monitoring services do raise contemporaneous handwashing rates. And so approximate handwashing rates are: for those who just get the dispensers, 30%; for those who get monitored, 40%; for those who get incentivized, 60%, as in 60% of the evenings when they are supposed to wash, they actually do wash. And these households do persist in washing even after the interventions are stopped, which is consistent with the story of habit formation.

And I think very interestingly, the households who are anticipating being monitored in the future, they also built up a considerable amount of handwashing stock in preparation. Which suggests that they're actually aware that this is a habit-forming behavior and they're kind of optimizing on that. So we don't only find changes in behavior, we also find changes in health. So we find that just combining all the treatment arms, compared to those guys who don't even get a dispenser, you see that child diarrhea rates drop by about 40% and child height for age increases by about 0.2 standard deviations. So they are pretty sizable effects, just within an eight-month period. So we're still following up with these households, so hopefully we'll have a better sense of whether the persistence in behavior and child health continue.

NN: I mean what really stands out is that when you see the group that received all the interventions had a 40% reduction in diarrheal diseases, and that is very consistent with the literature that says that by handwashing consistently, you can prevent roughly 40% of diarrhea cases. So I think it's fascinating because it further confirms the evidence that we have currently and also of course presents a rather innovative way to look at handwashing. So I'd like to move on to some of the questions that we received from the webinar participants. So the first set of questions are related to the impact of the soap dispenser itself on handwashing behavior. So given the novelty of the soap dispenser itself as well as the sensor within the dispenser, were you able to determine how much the dispenser itself contributed to the practice of handwashing versus conventional methods, including

just soap and water. And as a follow-up to that question, did the experiment measure whether the presence of the dispenser made it more likely that the household would purchase soap to refill the dispenser?

RH: We do have some evidence of the former. So the way we designed the experiment, we have a bunch of households who are just controls. So they don't get anything. But you should note that all of these households at baseline, they all have easy access to potable water and all of them, 99% of them, have soap. So you can imagine those control households as already having the resources needed to wash their hands with soap. And then we have the dispenser households. These households get the dispenser. Now there's a sensor in it and we are tracking their behavior, but they don't know we're tracking their behavior. And the sensor is camouflaged so there is no way they can see it. So they just think they have this soap dispenser and we have them use it as they wish. And then we have another group that is monitored and they know there's a sensor inside the dispenser.

And so what we find is that even among those households, which we call the dispenser-control guys, so the guys who only get the dispenser, they're not getting monitored or incentivized, we see some significant improvements in child health and also handwashing. You know, so the question is why do we see that? I mean all they got is soap, but they already have soap in the home, so why are they suddenly using it more?

And so I think that it's true, that the dispenser alone has a large effect, and one of the reasons for that could be just novelty, maybe they're excited about it. But I don't think that's the case because you can see, you can track their behavior, right, over time, and you see that within the first ten days of getting the dispenser, they're really excited, the kids are pressing it all the time, and then there's a steep drop-off, and it levels off around 30%, and that 30% stays pretty stable, and actually grows somewhat over the course of the experiment.

So I don't think it's novelty. I think what it really is, is that you know we thought a little carefully about human-centric design, so this is like a nice new-looking plastic handsoap dispenser, it's foaming, so we piloted with a bunch of different types of soaps, different smells, different consistencies, and we found that households like foamy soaps that have no smell because they eat with their hands and so they don't want a flowery smell when they are eating food with their hands. So it's a non-scented foamy soap. There's this big black button that you have to push, so the kids love it. It's like playing a game. So they get to push this big button and get a reward, which is the soap. We also put the dispenser in the veranda, which is where these households eat.

So I think these are actually the reasons why this dispenser alone, which is quite cheap, you know you can get these dispensers for as little as \$3.50 per piece—the dispenser alone seems to have a large effect. And on that second question of whether households are more likely to purchase soap, we just provided the soap for free for the year, because we just didn't want that to confound these other questions on habit-formation.

But soap is extremely cheap, and so we will be following up with the households now and see whether those households who were more likely to wash in the past, are more likely to purchase their own soap now.

NN: Okay great, fantastic. Our second set of questions is related to changing handwashing behavior. So we see from the study that monitoring has an impact on handwashing behavior. So can you tell us a bit more about the effect of monitoring in households that anticipated monitoring versus those that were surprised about the monitoring?

RH: Yeah, this is cool, when you look at it in the pictures. The idea behind the whole theory of habit formation is that the more I engage in a behavior today, the more likely I am to engage tomorrow. And so if I have built up a lot of what people call “habit stock,” then you’re more likely to keep doing the behavior.

And so, the first thing that we see among these monitoring households is those households that were anticipating getting monitored two months from now are already starting to wash more now, relative to those who have no such anticipation and then they get surprised about it two months from now. So that’s number one. And that’s a signal that people are rational about the habit-formation nature of this behavior, and they’re capitalizing on it by preparing now. The second thing we see is if you look at that picture, you see that even once the monitoring starts, the guys who had been anticipating that monitoring continue to wash more than the guys who were surprised with the monitoring. Now I don’t want to put too much weight on this, because it’s not statistically significant the difference, but you can see that it is kind of consistently above, one above the other. And it seems, again, consistent with the story of habit stock because those guys that had been anticipating, they built up more habit stock, right, because they’re washing more in anticipation—that seems to persist over time.

NN: So now based on the above question about monitoring, what is the right level of monitoring, and what other behaviors have you seen the impact of monitoring in changing behaviors?

RH: Well I think that this is an open and very important empirical question. I mean in this project, we see that monitoring has pretty substantial impact even relative to adding incentive, so it motivates thinking about incentives more broadly, not just as monetary incentives, but also as social incentives. We are hoping to run a new project now where we think about who could be the best monitor, right, this current project, we have surveyors as the monitors, but probably what would *really* work is if your neighbor was the one who knew what you were doing. And anecdotally, this did work: We would tell somebody, ‘Hey your *neighbor’s* kid is washing this much, why isn’t your kid washing?’ And that really got them kind of more emotional or more excited to engage.

And so we would like to explore that in an experiment, and also think about whether it's neighborly competition or neighborly cooperation that would be the most effective way to kind of create these social norms.

I do think that the CLTS literature has been thinking about this quite a lot: How to generate these social norms through community monitoring, but I think we do need to think about this in kind of a more mechanism-centered approach, where we think about exactly what are the behaviors and who are the people who can be the best monitors.

NN: Right, and I think your future research will be very insightful for the sanitation sector because we ourselves are also grappling with 'Yes we do know that social norms influence behavior, but is it positive norms? Is it negative norms? Is it shaming, is it pride, is it status, etc.'. From your research though, are the drivers for handwashing similar to drivers for other behaviors? And is there anything unique about handwashing from a behavior change standpoint?

RH: Well I think that the benefit of starting with handwashing is that it's a particularly small change in behavior. So in our context, and I think this is true in many contexts where people hope to increase handwashing rates, people are already rinsing their hands with water. That's a very common thing and it's an especially common thing to do before you eat. So really the only behavior change necessary is to add that soap to the mix, right. Whereas other preventative behaviors like latrine use, using clean cookstoves, or treating your water, even though they're very similar in all of those themes that I mentioned at the beginning, like they have high returns, and low costs, low take-up, information/resources are not sufficient, etc. etc., even though they're all common in all of those things, they might require much larger changes from the status quo than handwashing does, because they might be relatively new behaviors for some communities, right? It might not be entirely driven by habits in that case because it's not such a small change in behavior.

NN: Yes, okay great, and I agree. So our final set of questions is about how the findings of this study and other behavioral economic studies can influence policy and programming. I mean a finding that I personally found particularly relevant for policy and program design was the impact of incentives. So in your study we saw that increasing incentives does increase handwashing behavior, but only to a certain extent, right. So households with three tickets did not wash more than households that received one ticket, and higher incentives did not generate higher levels of habit formation. So what would you advise programs such as those on rural sanitation that are considering incentives or subsidies to reach the poorest households with regards to incentives, what aspect should they be considering in designing their programs? And then finally, are there other studies that you

know of that explore the level of incentives that would be sufficient and economically efficient to change decision making?

RH: I think honestly, this is a place where we just need a lot more experimentation before we can give policy recommendations. And I also think that this is a great place to highlight why it is so important to design these programs carefully and after a ton of groundwork. So like you said, in our case, with the one versus three tickets, we would have never believed that giving a single ticket has such a huge effect on handwashing rates, but tripling the ticket has no effect, unless we'd run this experiment.

So one way to interpret that result that we found is that attention is drawn to extensive changes in price, so going from getting nothing to getting something, but not to intensive changes in price, for example, going from one to three. That seems like a reasonable way to interpret it. But another way to read it, is just, honestly, that we messed up. And what I mean by that is that remember that these tickets are traded in for goods and we had priced our goods so that the most coveted good, which was a child's school backpack, could be purchased very easily by households getting three tickets, but would be tough to get for households getting one ticket. And we had calibrated these prices using a pilot study we ran before the full experiment, which we thought was a very responsible and thorough thing to do. But still, in the full experiment, it turned out that all of the households washed much more than in the pilot. So even the single ticket guys were able to get the backpack. Which meant that tripling the ticket didn't give them much more. So that sounds like I was really going into the weeds but I think exactly that's important, you know, it opens up that very important empirical question, which is 'What are the optimal sizes?' And also the timing of the incentives to generate persistence in behavior change. So really I just think that we need to be more liberal with our experimentation before we get too enthusiastic about incentives in large programs.

NN: So our final question is how are these types of behavioral economic findings usually applied in the business world, and how can we as public health practitioners learn from that?

RH: More than behavioral economics or not, I think what we can learn from is the process of experimentation. And often this is in the field of behavioral economics because I think that when we think about the take-up of certain behaviors or goods, that that's where we're going to find the most interesting questions, but when we think about the business world, I think the nice thing about many businesses these days is that it's pretty cheap for them to run experiments. So they have thousands of customers and most operations are digitized so they can experiment with different pricing or messaging schemes at little or no cost. And remember that that sort of experimentation is in their best interest, right? It helps them improve systematically and, also conveniently for them, rapidly.

And this unfortunately is much harder I think to do in the public health world and in the developing world because we don't have our "customers" at the tips of our fingers and

also because we don't really internalize the environment that these individuals are operating in. But still, despite that being harder, I think, arguably, it's so much more important given the consequences of the types of behavior change that you and I are interested in. And so for me, I think the biggest lesson in all of this, and thinking about how people implement it in the business world versus what we need to do in the development space, is one of patience. Even if it takes more time, we need to think quite carefully about both the measurement and the mechanism, and both of these things in context before we design and operationalize larger-scaled public-health programs.

GWR: Well thank you so much to Dr. Reshma Hussam and Nga Nguyen. For more information about the topics covered in today's podcast, please click on the links below. And as always, if you have a topic you would like to see covered in a future edition of the podcast, drop us a line at waterteam@usaid.gov.

This is Global Waters Radio.