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# Changing everyday health behaviors through descriptive norm manipulations

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We conducted an observational study to examine the effects of descriptive norm information on daily health behaviors. For 3 weeks, in three university campus locations, we counted the number of people who used an elevator versus stairs to go up one or two floors. Signs posted near two of the elevators during the second week stated either that most people used the stairs or that taking the stairs was a good way to get some exercise. In the location with the norm information sign, the number of individuals who used the elevator versus the stairs dropped by 46% between the first and second week. This lower rate of elevator use was also found the week after the sign had been removed. No significant change in elevator use was seen either at the location with the sign encouraging exercise or at the location with no sign. The findings are consistent with the focus theory of normative conduct and suggest avenues for improving everyday health behaviors.

***Keywords:*** Norms; Descriptive norms; Health behavior.



Although the benefits of exercise are widely known, fewer than one in three American adults engages in leisure-time physical activity on a regular basis (Centers for Disease Control and Prevention, 2009). Rising rates of obesity, diabetes, and other health issues have become multi-billion dollar problems, yet changing poor habits remains a significant challenge for health professionals. The present study examined one social psychological concept that might help in this effort. We were interested in the role social norms might play in the development and maintenance of daily health habits.

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Specifically, we wanted to know whether drawing attention to descriptive norms could lead to small but significant changes in people's daily behaviors.

The focus theory of normative conduct (Cialdini, Reno, & Kallgren, 1990; Reno, Cialdini, & Kallgren, 1993) identifies two types of social norms. *Injunctive norms* represent societal standards of behavior. These standards are widely known, and individuals often rely on injunctive norms out of a sense that following societal standards generally leads to rewards and failure to follow the norm leads to punishment. *Descriptive norms* reflect what most people actually do in a particular situation. Individuals rely on descriptive norms out of a sense of collective wisdom. That is, if most people act a certain way, the behavior is likely to be appropriate or at least rewarded.

In recent years researchers have found that providing specific descriptive norm data or drawing a person's attention to existing information about descriptive norms can lead to significant changes in behavior. Behaviors examined in these studies include household energy conservation (Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007), littering in public settings (Cialdini et al., 1990), reusing hotel towels (Schultz, Khazian, & Zaleski, 2008), and making healthy food choices (Burger et al., 2010). For example, when residents received feedback indicating that they used more energy than their neighbors, researchers saw an immediate drop in energy use (Schultz et al., 2007). When undergraduate women saw discarded wrappers indicating that other women participants typically had chosen to eat either a healthy or unhealthy snack as part of a taste test, they tended to select the snack food that matched what they perceived to be the descriptive norm (Burger et al., 2010).

The focus theory maintains that people are most likely to rely on an injunctive or descriptive norm when their attention is drawn to the norm. For example, participants in one study saw a confederate drop a useless flyer into an area that was either pristine or already quite littered (Cialdini et al., 1990). Compared to control conditions, these participants were more likely to notice that either no one littered in this situation or that many people did, and were more likely to rely on this descriptive norm information when deciding what to do with the useless flyer they found tucked into their own windshield. Similarly, when the two norms suggest different actions, people will most likely rely on the more salient of the two norms. For example, the injunctive norm says that pedestrians should wait until the traffic light turns green before crossing the street. But seeing several people dash across the street when the light is still red is probably so eye-catching that uncertain pedestrians are likely to follow the salient descriptive norm and cross on the red rather than rely on the less salient injunctive norm to guide their behavior.

Our study had three goals. First we wanted to demonstrate that descriptive norms can be a valuable tool for professionals working to improve health behaviors. Much has been written about the need for better health and exercise practices. Drawing attention to descriptive norm information could be a relatively simple and inexpensive tactic for dealing with this ongoing problem.

Second, we were interested in the carry-over effects of changing behavior through a descriptive norm manipulation. Reno et al. (1993) argue that descriptive norms may be less powerful than injunctive norms because descriptive norms usually are limited to a specific time and place. That is, although people may throw a useless flyer on the floor of a parking garage when they see that others have already done so, they may not rely on this norm information the next time they find a flyer on their windshield or the next time they are faced with a decision about whether to litter. In fact, few studies have examined whether descriptive norm information has an effect on the targeted behavior after the norm manipulation is removed. One exception to this pattern was the energy use manipulation employed by Schultz et al. (2007). Residents who lowered their energy use after learning that their neighbors used less energy than they did continued to conserve energy at a lower rate 4 weeks after receiving the norm information.

Third, we wanted to examine the effectiveness of drawing attention to descriptive norms in a situation for which norm information is readily available. In previous investigations, prior to the manipulation, participants either had little ability to obtain existing descriptive norm data (e.g., how much energy their neighbors use) or were in a situation for which the descriptive norm was unknown (e.g., whether most guests reuse hotel towels). But it is not difficult to find situations in which a small but significant number of people appear to pay little or no attention to what everybody else is doing (e.g., a restaurant customer fails to notice that other customers are bussing their own tables; a cell-phone user does not notice that no one else is using a cell-phone at this social gathering). The focus theory proposes that people rely on descriptive norms to the extent that their attention is drawn to the norm. Changing the behavior of people who, prior to the manipulation, seemed not to have noticed apparent descriptive norm information would provide a powerful demonstration of this aspect of the theory.

We attempted to alter one everyday health behavior—using stairs instead of an elevator—through a simple descriptive norm manipulation. Taking stairs up one or two flights instead of riding in an elevator is an easy way to build a little exercise into one's day. Our manipulation consisted of a sign posted next to the elevator pointing out that most people opted for the stairs over the elevator. We expected that a significant number of elevator riders would respond to this norm information and decide to use the stairs rather

than the elevator. To ensure that the norm information and not some other aspect of the sign or message was responsible for this predicted change, we also included a condition in which participants were urged to take the stairs without referring to norm information.

We also predicted that many people who started taking the stairs as a result of the norm manipulation would continue to use the stairs instead of the elevator even after we removed the sign. There are several reasons to expect this extended effect from the manipulation. Taking the stairs as a result of reading the sign could lead to a change in self-perception (Bem, 1972). That is, people may start to see themselves as the kind of person who uses the stairs instead of the elevator. Consistency motives might also contribute to continued use of the stairs after the sign is removed. A wealth of experimental data indicate that people are motivated to act in a consistent manner (Harmon-Jones & Harmon-Jones, 2007). Thus taking the stairs once can lead to similar behavior in the future. It also is possible that people who start using the stairs will find the behavior reinforcing. Over an extended period of time these individuals should also find that climbing the stairs takes less effort. Finally, consistent with the focus theory, taking the stairs a few times might draw people's attention to the naturally occurring norm information that they somehow had been overlooking, i.e., the fact that most people in this situation opt for the stairs over the elevator.



## METHOD

### Participants

Participants were adults using either a stairway or an elevator to go up one or two floors in one of three locations on a university campus. All participants appeared to be at least 18 years of age. Participants who appeared to have a reason for using the elevator instead of the stairs were not included. In total, 2643 observations were made.

### Procedure

We identified three buildings on the same university campus in which to conduct the observational study. Each was a three-story building with upper floors that consisted largely of classrooms, department offices, and faculty offices. Each building also had one elevator and one stairway near the elevator. Although each building also had a second stairway, this other stairway was a significant distance from the elevator and could not be seen from the elevator. Thus, in all three buildings, the elevator and the stairs we used for observation were equally accessible for those wishing to go to either the second or third floor.

Observations were conducted during the fourth, fifth, and sixth weeks of a 10-week quarter (identified here as Week 1, Week 2, and Week 3). Three hours were selected for observation: 1:30–2:30 pm Tuesdays, 2:30–3:30 Wednesdays, and 1:30–2:30 Fridays. Most classes at the university are held on either a Monday–Wednesday–Friday or a Tuesday-Thursday schedule. Each of the three observation hours included one 10-minute period in between typical class times. Thus, for 10 of the 60 minutes during each observation period there was a flurry of activity as students and faculty came and went from classes. However, observers reported no problems recording data during these busy times. Observations were made the same times each week, and there were no scheduled academic holidays during the 3 weeks.

Observers were trained undergraduates positioned on the first floor of the building so that they could clearly see either the elevator or the stairway. Observers were seated in an inconspicuous location and hid the fact that they were counting people. They were instructed to count either the number of people who went up the stairs or the number of people who took the elevator up. That is, one observer counted people using the stairs and another counted people using the elevator. There was no basement in any of the buildings. Although the observers understood that the study was concerned with stair use versus elevator use, they were not aware of specific hypotheses about the impact of the signs. Observers were instructed to count only individuals who appeared to be at least 18 years old. Observers watching the elevators divided elevator users into those who appeared to have a legitimate reason for using the elevator and those who did not. In total, 18 elevator riders were identified as having a good reason for using the elevator. The reasons included wearing a leg cast, walking with a dog, carrying a large or heavy object, pushing a cart, walking with a limp, using crutches, and pushing a bicycle. Some observers kept count with pencil and paper, whereas others used handheld counters.

No signs were posted during the first week of observation. We calculated the percentage of individuals who used the elevator instead of the stairs during the first week and used these data to identify the two locations for the experimental conditions the following 2 weeks. The two experimental locations were selected for three reasons. First, the two buildings had very similar rates of elevator use (15.10% and 15.25%). Second, the two locations had noticeably lower elevator use than the third location (35.96%), which served as our control condition. With this arrangement, finding a significant reduction in elevator use in an experimental condition while the control condition remained unchanged would provide strong support for our hypothesis. That is, were we to use the building with 35.96% elevator use as an experimental condition, and the building with 15.10% elevator use as the control condition, it is possible that we would find a significant drop

in elevator use in the experimental condition but not the control condition the following week. If that were the case, the failure to find a drop in elevator use in the control condition could be attributed to a floor effect. Third, because elevator use was relatively low in the two buildings we selected, the norm feedback would be more credible than if we had selected the building with higher elevator use for the norm information condition.

During the second week, we posted a single 8.5-inch by 11-inch sign at approximately eye level just to the left of the first-floor elevator door in the two buildings selected for the experimental conditions. The signs had a green background with a simple message in large white letters. There were no other signs or postings anywhere near the elevator. Thus it would have been very difficult for anyone waiting for the elevator to have missed the sign. One location was randomly assigned to the exercise-sign condition. The sign at that location read, ''Did you know? Taking the stairs instead of the elevator is a good way to get some exercise. Why not try it?'' Another location was assigned to the norm-sign condition. The sign at that location read, ''Did you know? More than 90 percent of the time, people in this building use the stairs instead of the elevator. Why not you?'' We removed the signs at the end of the second week. No signs were posted during the third week of observation.



## RESULTS

We calculated the percentage of participants who used the elevator each week in each of the three locations. We did not include in this calculation participants who appeared to have had a legitimate reason for choosing the elevator over the stairs. The percentages are shown in Table 1. We compared the percentage of elevator users across each of the three weeks within each of the three conditions.[1] We found no change in elevator use over time in either the no-sign condition, $\chi^2(2, N = 525) = 2.86$, $p = .87$ or the exercise-sign condition, $\chi^2(2, N = 1351) = 2.31$, $p = .32$. However, a significant effect was found in the norm-sign condition, $\chi^2(2, N = 767) = 9.87$, $p = .007$. Specific cell comparisons within this condition found that a significantly smaller percentage of participants used the elevator during Week 2 than had used the elevator during Week 1, $\chi^2(1, N = 517) = 5.59$, $p = .02$, $\Phi = .10$,

[1] Although the Pearson chi-square test is designed for independent samples, we cannot assume that different individuals participated in the study each week. Indeed, our assumption is that many of the people we observed in Week 1 and Week 3 were exposed to the elevator sign during Week 2. However, statistical tests for non-independent samples require matching each participant's response from one week to another, and this was not possible with our data. Because the Pearson test requires a larger difference between conditions to find statistical significance than do tests for non-independent samples, our statistical analysis represents a conservative test of our hypotheses.

TABLE 1
Percentage of participants using elevator

| | *Week 1* | *Week 2* | *Week 3* |
|---|---|---|---|
| Exercise-sign condition | 15.10 | 13.32 | 13.41 |
| Norm-sign condition | 15.26 | 8.21 | 7.92 |
| No-sign condition | 35.96 | 34.91 | 37.64 |

odds ratio = 1.86. The percentage of participants in this condition who used the elevator during Week 3 also was significantly smaller than the percentage who used the elevator during Week 1, $\chi^2(1, N = 499) = 6.50$, $p = .01$, $\Phi = .11$, odds ratio = 1.93.



## DISCUSSION

Drawing people's attention to descriptive norm information led to a significant decrease in the percentage of people who took the elevator relative to the stairs to go up one or two floors. Specifically, there was a 46% drop in the percentage of participants who used a first-floor elevator to go to the second or third floor of the building after they read a sign that pointed out most people used the stairs. This lower rate of elevator use continued 1 week after the sign was removed, suggesting an extended change in behavior for at least this period of time.

The findings are in line with the focus theory of normative conduct (Cialdini et al., 1990), which maintains that individuals often rely on descriptive norms when their attention is drawn to norm information. Consistent with the norm interpretation of our results, we found no change in elevator use in a condition in which participants read a sign encouraging them to use the stairs but which did not contain norm information. Thus the findings cannot be attributed to some other aspect of the sign (e.g., awareness of the stair option). Rather, it appears the descriptive norm information was necessary to produce the effect.

It is also noteworthy that we produced a significant change in behavior even in a situation in which descriptive norm information was otherwise readily available. This finding suggests that drawing attention to readily available norm information can be an effective strategy for changing behavior (e.g., pointing out that the vast majority of people do not talk during the movie). However, it is not clear from our study whether the participants failed to notice the relatively large number of people who used the stairs relative to the elevator, or whether they simply did not consider this information prior to reading the sign. Most likely, the signs

both provided norm information and made existing norm information salient.

The results also provide much-needed evidence that descriptive norm manipulations can lead to long-term changes in behavior. In our study many people who started taking the stairs as a result of reading the norm-information sign continued to take the stairs during the week after the sign was removed. There are many reasons to expect that the descriptive norm manipulation would have this long-term effect (e.g., changes in self-perception, consistency needs). The questions now become: how long does the effect last, and does it generalize to other settings and other behaviors? It is not difficult to imagine that consistency needs and changes in self-perception might have led some of the individuals in our study to begin taking stairs over an elevator in other buildings. It also is possible that these same processes could have led to changes in related health behaviors, such as walking a short distance instead of driving.



Relying on observational data added to the external validity of the findings. That is, we produced a noteworthy change in the everyday behavior of individuals who did not know they were part of an investigation. However, observational studies also come with their limitations. Perhaps chief among these is the inability to collect data on the underlying mechanisms we propose for the effect. For example, it is possible some participants began taking the stairs because the signs embarrassed them, although it is not clear why the norm sign would have produced more embarrassment than the sign encouraging exercise. It is also possible that, during the busiest times, some participants responded to the norm information of seeing others waiting for the elevator. Of course, the nearby stairways also were busier than usual during these times. In addition, by ending the study after 3 weeks, we do not know how long the change in health behaviors we produced lasts. The procedures also did not allow us to control for or identify how many participants were counted more than once (undoubtedly some were) or to account for potential differences between the kinds of individuals who frequent the different buildings we selected for our study. Future studies might consider extending the period of observation to obtain a better idea of the strength of the manipulation and perhaps counterbalancing the location of the signs over the course of this lengthier investigation. We also did not observe whether some people who saw the signs simply left the building rather than use the stairs, although it seems unlikely that very many students or faculty members would decide to skip a class or meeting because of the signs. Finally, although we arranged the situation so that the signs were difficult to miss, we cannot rule out that some individuals nonetheless failed to notice the signs. However, enough participants apparently did notice the signs to produce the significant results.

Finally, the findings also suggest avenues for changing poor health habits. Although efforts to improve health-related behavior should continue to use all reasonable tools and tactics, our results suggest that healthcare professionals might also include descriptive norm data in their arsenal. Messages pointing out that most adults use seat belts, inoculate their children, avoid cigarette smoke, etc., could be effective. Of course, these kinds of efforts are necessarily limited to situations in which the typical citizen already follows the heath-promoting option.

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