

## Promoting Stair Use: Single Versus Multiple Stair-Riser Messages

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Message banners attached to stair risers produced a significant increase in pedestrian stair use, exceeding effects previously reported for conventional posters. Multiple instances of the same message banner, however, were as effective as banners featuring different messages. Therefore, greater visibility, rather than message variety, appears to account for the superiority of the banner format. Our findings indicate the feasibility of simple stair-use promotion campaigns based around the repetition of a single message. (*Am J Public Health*. 2005;95:1543–1544. doi:10.2105/AJPH.2004.046235)

In industrialized nations, at least 60% of the population are insufficiently active.<sup>1</sup> Early recommendations that emphasized vigorous exercise have been broadened to allow the daily accumulation of moderate-intensity activity, such as stair climbing.<sup>2</sup> Opportunities to climb stairs are abundant within the built environment and viable for most population groups.

Studies have shown that poster prompts at the point of choice between stairs and escalators increased stair use in public settings.<sup>3–6</sup> In an alternate approach, message banners were attached to the stair risers themselves, producing a greater increase in stair climbing than conventional posters.<sup>7,8</sup>

Two explanations may account for the heightened success of stair-riser banners. First, they may simply be more visible; in previous studies, 78% reported seeing them, whereas only 37% recalled seeing posters.<sup>6,8</sup> Alternatively, because each banner featured a different exercise message, these messages may have appealed to a broader population range, consistent with the health promotion belief that “one size does not fit all.”<sup>9</sup> To clarify this ambiguity, we systematically compared the effects of banners featuring 8 different messages with the effects of banners that repeated a single message.

### METHODS

The study was conducted in a shopping mall with a 24-step staircase and adjacent escalators in England. Four alternating observers (interobserver agreement=95%) followed a coding protocol<sup>10</sup> to record the stair or escalator choices of ascending pedestrians (N=32 597). Two weeks of baseline monitoring were followed by a 4-week intervention in which banners were fitted to alternate stair risers. For the first 2 weeks, 8 banners all featuring a single message (“Keep fit”) were interspersed with 3 banners reading “Take the stairs.” In the final 2 weeks, the “Keep fit” banners were replaced with the 8 different messages used by Kerr et al.<sup>8</sup>—namely, “Stay healthy,” “Free exercise,” “Work your legs,” “Daily exercise,” “Keep fit,” “Easy exercise,” “Be active,” and “Exercise your heart.” During the intervention period, 827 pedestrians were randomly approached

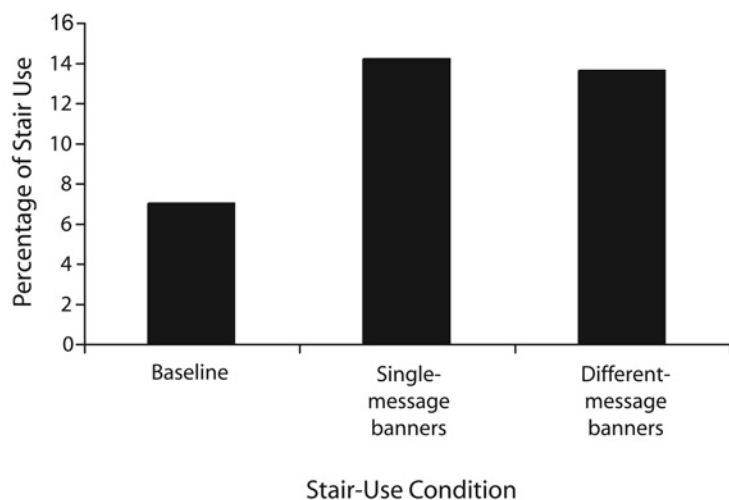
following ascent, of which 215 stair users and 305 escalator users agreed to disclose whether they had seen the banners. Data were collected 2 days a week, between 11:00 AM and 3:00 PM, to include daytime and lunchtime traffic.

Logistic regression analyses were performed with stair or escalator choice as the dichotomous outcome variable. Gender, age, ethnicity, baggage, and pedestrian traffic volume<sup>10</sup> were entered into all models because previous research suggested that they have important effects.<sup>3–8,10</sup> Although logistic regression requires independent observations, it is possible that in the current setting some pedestrians were observed more than once. Given the size of reported effects, however, it is unlikely that the general findings were prejudiced.

### RESULTS

Of the pedestrians observed, 54% were women, 80% appeared to be younger than 60 years, and 21% were classified as non-White. Figure 1 illustrates that 7.0% of the population used the stairs at baseline, compared with 14.2% and 13.6%, respectively, in the single- and multiple-message phases. Logistic regression analysis indicated that stair climbing increased significantly between baseline and the intervention period (odds ratio [OR]=2.45; 95% confidence interval [CI]=2.14, 2.80). When the single-message condition was compared with the multiple-message condition, however, no significant difference was found in stair or escalator use (OR=0.96; 95% CI=0.88, 1.04).

Table 1 presents percentages of stair use for different population subgroups, corrected for the possible effects of traffic, baggage, age, and ethnicity. Throughout the study, males, White persons, those younger than 60, and those without baggage climbed the stairs more than their counterparts (all  $P < .001$ ). However, no significant interactions occurred between demographic characteristics and either intervention phase. Also, traffic volume had no significant effect overall. A supplementary analysis that tested for possible adaptation to the messages over time showed no significant changes in stair or escalator use over successive weeks of the intervention.



**FIGURE 1—Stair use at baseline and after single-message and multiple-message banner implementation.**

**TABLE 1—Percentages and Odds Ratios (ORs) for Stair Use Compared With Baseline**

	Baseline	Single-Message Banners	Different-Message Banners
Men <60 y	9.4%	19.5% (OR = 2.074; 95% CI = 1.805, 2.383)	18.9% (OR = 2.014; 95% CI = 1.733, 2.341)
Women <60 y	6.0%	15.1% (OR = 2.518; 95% CI = 2.148, 2.952)	15.2% (OR = 2.532; 95% CI = 2.141, 2.995)
Men ≥60 y	5.7%	10.9% (OR = 1.907; 95% CI = 1.346, 2.701)	9.9% (OR = 1.736; 95% CI = 1.187, 2.539)
Women ≥60 y	3.5%	6.8% (OR = 1.954; 95% CI = 1.315, 2.905)	7.9% (OR = 2.260; 95% CI = 1.510, 3.382)
White men	9.4%	19.5% (OR = 2.077; 95% CI = 1.799, 2.397)	18.0% (OR = 1.912; 95% CI = 1.635, 2.234)
White women	5.6%	13.3% (OR = 2.377; 95% CI = 2.021, 2.795)	13.9% (OR = 2.481; 95% CI = 2.097, 2.937)
Non-White men	6.5%	12.7% (OR = 1.955; 95% CI = 1.453, 2.629)	14.6% (OR = 2.253; 95% CI = 1.641, 3.092)
Non-White women	4.9%	13.5% (OR = 2.751; 95% CI = 1.928, 3.924)	12.5% (OR = 2.560; 95% CI = 1.731, 3.786)

Note. CI = confidence interval

The majority of interviewees (79%) reported seeing the banners.

## DISCUSSION

Exposure to the intervention more than doubled pedestrian stair use, in keeping with effects previously reported for stair-riser banners.<sup>4,6</sup> The switch between message conditions failed to induce any further increment in stair climbing, however, indicating that repetition of a single message was as effective as multiple different messages. It appears, therefore, that the banner format outperforms posters because of enhanced visibility rather than message variety. The banner recall rate among interviewees in this study was consid-

erably higher than that reported for a previous poster intervention.<sup>6</sup>

Regular stair climbing is associated with health dividends, including weight loss, improved lipoprotein profiles, and reduced risk of osteoporosis.<sup>5,11,12</sup> Our findings confirmed that stair-riser banners are effective in increasing stair use and suggested that simple message campaigns are feasible. The reiteration of a single health promotion message may indeed be more appropriate in public settings, where pedestrians' attention is already diverted because of advertising, signage, announcements, and so forth. Interventions based around single messages also would be easier to devise and cheaper to implement, further enhancing the credibility of

stair-riser banners as a medium for achieving public health gains. ■

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### Contributors

O.J. Webb organized the study, collected and analyzed the data, and wrote the brief. F.F. Eves initiated the study design, supervised the data analysis, and reviewed drafts of the brief.

### Human Participant Protection

The study was approved by the University of Birmingham Ethics Subcommittee.

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