Workplace intervention to promote stair-use in an NHS setting

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Abstract

Purpose – Increasing physical activity (PA) is an international public health priority. This study aims to assess the impact of an environmental stair-use intervention using "point of decision" prompts with varying messages in an NHS workplace in the UK.

Design/methodology/approach – Observational data were collected using a covert method (infra-red sensors) in an interrupted time-series design over an eight-week period.

Intervention - consisted of posters displaying encouraging messages in the entrance to two stairways of an acute NHS hospital. The hospital site is a public building accessible to patients, staff (n = ~7,000), students and the general public. Questionnaires (n =221) assessed employee self-reports of and attitudes towards stair-use.

Findings – Following 24-hour observational counts (n = 143,514) no statistically significant differences were seen in either stair climbing or descent on either stairway through the introduction and removal of promotional posters. A number of determinants and barriers to stair-use were identified. Posters were reported as "seen" by a low proportion of respondents (7-25 per cent) and only a small number felt encouraged to use the stairs as a result of the prompts (25-37 per cent of those who "saw" them, 3-18 per cent of total sample).

Research limitations/implications – The study evaluates the impact of a stair-use intervention in a public hospital building, a setting within which research investigations have to date been limited. More research is needed to further investigate determinants and barriers to stair-use and the impact of different message types and locations of "point-of-decision" prompts in a hospital setting.

Practical implications – Environmental interventions to increase stair-use in this setting may be best placed within a comprehensive workplace programme including health education and multi-component interventions.

Originality/value – "Point of decision" prompts are inexpensive as a long-term intervention. As part of a large-scale workplace health campaign, encouraging even a small percentage of employees to use the stairs in organisations of this size is of significance to workplace health promoters.

Background

Physical activity levels in the UK today are the lowest they have been for 30 years (Department of Health, 2004a). With the rising prevalence of obesity and preventable disease caused by sedentary lifestyles, increasing physical activity in the population has become a public health priority for most countries in the developed world (Department of Health, 2004b; World Health Organization, 2004). It is well documented that gains in energy expenditure have positive effects on physical health and psychological well-being (Lane and Lovejoy, 2001; Kahn et al., 2002) and that inactivity is associated with morbidity and mortality (Booth et al., 2000). Despite this, in industrialised countries, up to three-quarters of the population do not meet the recommended levels of physical activity for health benefit (National Centre for Health Statistics, 2001; Office for National Statistics, 2002), indicated as 30 minutes of moderate activity on most days of the week, which may be accumulated in short bouts throughout the day (Department of Health, 2004a).

Common reasons adults cite for not adopting more physically active lifestyles are that they "do not have enough time to exercise" and "find it inconvenient to exercise" (Sallis and Hovell, 1990; Sallis et al., 1992). Incidental activities such as stair climbing and walking address these issues and are continually endorsed by health promoters as universal and undemanding ways, for most people, to increase activity levels by accumulating activity throughout the day. Stair climbing is particularly beneficial and has long been associated not only with health benefits (Yu et al., 2003), but also weight loss (Brownell et al., 1980; Bassett et al., 1997; McArdle et al., 2001). This is important since obesity is dramatically increasing worldwide and has been linked with adverse health consequences (James et al., 2004) and significant economic burden (National Audit Office, 2001).

Recent National Institute for Health and Clinical Excellence (NICE) guidance advises employers to put up signs at strategic points and distribute written information to encourage people to use the stairs rather than the lifts if they can to promote physical activity in the workplace (NICE Public Health Guidance 13, 2008).

Stair-use interventions

Environmental interventions to encourage stair-use are limited but have developed over previous decades in public environments such as shopping malls and commuter venues (Brownell et al., 1980; Blamey et al., 1995; Andersen et al., 1998; Kerr et al., 2000, 2001a; Eves et al., 2008; Olander et al., 2008). More recently, interventions have targeted the workplace in line with the UK government's drive to adopt a "settings" approach to health promotion (Kerr et al., 2004; Cooley et al., 2008). NHS settings have been identified as particularly important environments to "lead the way" in workplace health (Department of Health, 2004b) although few studies have evaluated the impact of stair-use interventions in a hospital setting (Marshall et al., 2002).

A NICE review of interventions from 1996 to 2007 (Dugdill et al., 2007, 2008) demonstrated mixed findings, with some studies showing an increase in stair-use and some reporting a decrease. Within the review there was evidence from four studies (Marshall et al., 2002; Auweele et al., 2005; Kerr et al., 2001d; Eves et al., 2006) that the use of posters/signs can increase stair use, although in two of these studies stair usage declined back to baseline levels at follow-up (Marshall et al., 2002) or by the end of the study period (Auweele et al., 2005). This suggests that the effectiveness of poster/signage intervention may be short term. In other studies, a decline in stair use/step count with a poster/signage intervention was observed (Adams and White,

2002; Badland and Schofield, 2005). These studies also differentiated between ascent and descent.

Previous studies investigating methods that could be used to encourage an increase in stair use have used "point of decision" prompts. These prompts are often posters situated in prominent locations relative to the stairs, lifts or escalators that use graphics, pictures and motivational phrases to encourage the use of stairs (Foster and Hillsdon, 2004). "Point of decision" prompts have shown promising findings for increasing activity levels, although published evidence is mixed and any increases are often small and short-lived. In general, increases range from 1 per cent to 15 per cent (Brownell et al., 1980; Blamey et al., 1995; Marshall et al., 2002; Russell et al., 1999; Russell and Hutchinson, 2000; Kerr et al., 2004), with some studies focusing on message "presentation" such as posters versus banners (Kerr et al., 2001b, c) and others focusing on message "type", such as "health benefit versus weight control" (Andersen et al., 1998), "encouragement versus deterrent" (Russell et al., 1999; Russell and Hutchinson, 2000) and "family focused" messaging (Coleman and Gonzalez, 2001). Some messages have been designed by the users of the building and have been shown to be more acceptable.

Further work has measured the impact of improving the aesthetics of stairways on use through combinations of signs, music and artwork (Boutelle et al., 2000; Kerr et al., 2004) and observations have suggested that stair accessibility/number of stairs and environment may influence use (Titze et al., 2001).

Previous studies are limited in that data has often been collected over a relatively short time-frame with only a few studies collecting data using automated methods rather than relying on human observation (Titze et al., 2001; Kerr et al., 2001a;Marshall et al., 2002; Eves et al., 2006) with even fewer studies taking

measurements over a 24-hour period. However, in a hospital setting where shift work is prevalent, 9 am-5 pm measures may not be representative of actual stairway usage. It is logical that NHS establishments be visibly health-promoting and "practice what they preach" in order to lead by example in promoting physical activity to employees (Blake and Lee, 2008). With NHS workplace wellness programmes on the increase (Blake and Lee, 2008) it is important that worksite interventions are evaluated within the hospital environment to ensure that limited resources are invested in the most effective way.

The present study aimed to assess the impact of "point of decision" prompts using different message types on stair climbing/descending behaviour of stairway users in an acute NHS hospital setting. A secondary aim was to ascertain the attitudes of employees within the building towards the stair-use intervention and their opinions as to whether the intervention had influenced their behaviour.

Method

The study was conducted at the Queens Medical Centre (QMC) Campus of the Nottingham University Hospitals (NUH) Trust in Nottingham, England, over a ten-week period between May and July 2007. Ethical approval for the study was granted by the Central Office of Research Ethics Committees (COREC) and NUH Trust R&D. QMC is a 1970s public building consisting of four blocks: East, West and South Blocks plus a university-owned medical school block, with floors A to F. The main entry level is on B floor and estimates of pedestrian traffic throughout the whole building are between 20,000 and 30,000 people per day including employees, patients, students and visitors.

Infrared counters and receivers were situated in two main stairways (East and West) of the hospital main entrance floor, selected as the two areas of heaviest pedestrian traffic. An interrupted time-series design was adopted, incorporating covert observational data collection before, during and after the introduction of "point-of-decision" signage at the stairways. Following a baseline measurement period (week 1), the study followed a pattern of intervention periods (weeks 2, 4, 6 and 8) followed by wash-out periods (weeks 3, 5, 7, 9 and 10). Coloured posters with themed motivational messages and artwork were positioned either side of the lifts adjacent to the call button and near to the stairway entrance. Posters are described further below.

Infra-red sensors

Following security approval and a site environment inspection, small infra-red motion sensor (IR sensor) devices, (Spottic (SP) Peoplecounter EN, SOLVA, The Netherlands) were fitted to the first of five flights of stairs rising from the main entrance level, in an upward direction, in both stairways. These battery-powered devices unobtrusively and objectively counted the movement of people using the stairs and provided a reading of direction of travel (upwards and downwards) according to the order in which infra-red beams were "cut". This supplied 24-hour electronic data collection providing a more accurate reflection of stair-use in a hospital environment than would observational data over a set time-period during traditional UK "office hours" (9.00 am-5.00 pm). Data were transmitted wirelessly to a receiving unit, from which it was uploaded to a laptop at frequent intervals. Sensor units and receivers were monitored daily by a trained researcher to ensure they were in safe working order.

Researcher observations

For further verification of electronic data collection, supplementary observational data was collected on each stairway for two hours (8.00 am-10.00 am) on the same day each week by two trained observers from the research study team. Observers recorded stair counts with gender and direction of travel using a pre-designed, standard data collection tool.

Intervention posters

Posters were large enough to be "eye-catching" (size A1) and of five different designs. Previous research has suggested that tailored messages may be important (Kreuter et al., 1999) and so this study combined previously identified "message-framing" methods for stair interventions. The posters carried different motivational messages based on either weight loss, health benefit consequences, family focus or time-saving (e.g."Burn Off That Last Biscuit . . . Take The Stairs"; "Keep Up With The Kids . . .Take The Stairs"; "Take Care Of Your Heart . . . Take The Stairs"; "Why Wait . . . UseThe Stairs"; "Save Time . . . Use the Stairs") with appropriate coloured artwork matched to the message content, with the exception of one poster which was a direct message in black print with no artwork except an arrow pointing to the stairs. Since previous studies have found increases in stair use that returned to baseline post-intervention (Auweele et al., 2005; Marshall et al., 2002), posters were rotated at both sites in order that all poster messages were displayed at each location, to avoid "adaptation" to a single message. However, posters displaying the same message were never simultaneously sited in East and West locations (as described previously).

Self-reported stair-use

A survey was conducted amongst employees to assess the visual impact of the intervention and to assess individual preferences toward movement around the building. A brief self-administered questionnaire with an internal reply envelope was distributed to 450 employees situated in the East and West blocks of the hospital on floors A through to E. An electronic version of the questionnaire was made available via a Trust-wide e-mail message. Questionnaire data collection took place in weeks 10 and 11 of the intervention in order that employees had been exposed to the posters for a considerable period of time prior to evaluating the impact of the intervention.

Statistical analysis

The inter-accuracy between the IR sensor and the observers was assessed and expressed as a percentage of accuracy using a Bland-Altman plot, which presents the difference between measurements on both East and West stairways. Observational data counts for stair use were available over eight time-points named as "Intervention1", "Washout1", "Intervention2", "Washout2", "Intervention3", "Washout3", "Intervention4" and "Washout4". For each intervention and washout period, the daily mean and standard error stair counts were compared to identify observed changes in stairway usage. A significant difference (non-equivalence) was determined by non-overlapping confidence intervals. Questionnaire responses were analysed using descriptive statistics, independent t-tests and x 2 tests. "IR sensor data", questionnaire data and "Observer – IR sensor data" were analysed using Microsoft Excel 2003 and SPSS 14.0.

Results

Observer and IR sensor comparison

Accuracy between observer measurements and IR sensor measurements in the West and East stairways was 97.9 per cent and 96.7 per cent, respectively. A Bland-Altman plot demonstrated agreement between the means of values within the upper and lower standard deviation boundaries. Inter-observer accuracy was 97.4 percent.

IR sensor analysis

Statistical significance was set at $p < 0:05$. Values are presented as mean ± SEM unless otherwise stated. Weekly values for upward and downward stair counts are shown for both East (Figure 1) and West (Figure 2) stairways. A total of 143,514 counts of stair-use were recorded, with 76,146 counts in the West stairway (downwards direction = 47,674; upwards direction = 28,472) and 67,368 counts in the East stairway (downwards direction = 37,699; upwards direction = 29,669). No statistically significant differences were found on either stairway through the introduction and removal of promotional posters ($p > 0:05$).

Questionnaire analysis

Demographic data.

There were 221 questionnaires returned (49 per cent response rate). Of the respondents, 81.4 per cent were female, which was anticipated and is comparable with the male-female ratio of employees at the Trust. The mean age of the respondents was 40:28 ± 11:41 years (range = 18-63) with no significant age difference between genders ($p = 0:441$). The mean self-reported BMI of women was 24:31 ± 4:86 kg:m2

(range = 14:5-45.4) and the mean BMI of men was 25:54 ± 2:57 kg:m2 (range = 20:55-30.33). Of the respondents, 44 per cent worked in an admin, clerical or managerial role, 22.2 per cent in a nursing role, 14.4 per cent in a science and professional role, and 19.4 per cent were from a variety of other job roles, including university employees, allied health professionals, medical, technicians, ancillary and maintenance. Only 4.5 per cent of respondents classified themselves as having a disability that would prevent them from using the stairs, although half of these stated that they still used the stairs more frequently than the lifts and almost a third of those with a disability agreed that they accumulated at least 30 minutes of moderate intensity physical activity on most days of the week.

Self-reported physical activity levels.

Just over a quarter (27.6 percent) of all respondents reported that they "always" accumulated "at least 30 minutes of moderate intensity physical activity on most days of the week" (males = 31:7 percent, females =26:7 percent). There was no significant age difference between those who did and did not (38:96 ± 1:44 years and 40:78 ± 0:92 years) achieve this level of physical activity (p = 0:29). Of the respondents, 71 per cent stated that they currently used the stairs more frequently than the lifts, with 87.3 per cent of these reporting using the stairs in both directions, 8.1 per cent using stairs in a downward direction only, and 2.3 percent using the stairs in an upward direction only. The mean number of times respondents reported using the stairs per day was 4:51 ± 3:91 (range = 0-30).

Barriers and determinants to stair-use.

Reasons employees gave for preferring to use the lift over the stairs are presented in Table I. The most common reasons cited for not using the stairs were that the individual was carrying bags or files, was with a colleague who preferred the lifts or if they were travelling several floors. Additional unprompted reasons provided were that the individual was accompanying patients, or carrying equipment.

Reasons employees gave for increasing their use of the stairs are presented in Table II. These were most commonly health-related reasons, weight loss, or for convenience if the lifts were full or they were in a rush.

Respondent evaluation of intervention

Copies of the posters used on both stairways were inserted on the questionnaire and respondents were asked to identify whether they had "seen" the poster and if they felt it had encouraged them to use the stairs. Of the respondents, 16.7 per cent had seen Poster One ("Burn Off That Last Biscuit . . .Take The Stairs"), just 7.2 per cent had seen Poster Two ("Keep Up With The Kids . . . Take The Stairs"), 25.8 per cent had seen Poster Three ("Take Care Of Your Heart . . . Take The Stairs"), 18.6 per cent had seen Poster Four ("Why Wait . . . Use The Stairs") and 48.9 per cent had seen Poster Five ("Save Time . . . Use the Stairs"). In the case of all posters, the proportion of respondents who reported that they were encouraged to use the stairs (25-37 per cent of those who had seen the poster, 3-18 per cent of all respondents) was significantly lower than the proportion of those who reported that they were not encouraged ($p < 0:05$). As mentioned previously, by the end of the study period, all posters had been displayed at all locations but were never simultaneously displaying the same message at both stairwells. Of the respondents who were encouraged by any

of the five posters, more than half (52.7 percent) were encouraged on “multiple occasions”, a third (32.7 percent) were encouraged on a “single occasion” and 14.6 percent did not specify. Of the respondents who were not encouraged by any of the five posters, almost half had not noticed them (48.2 percent), 6.6 percent did not think that the posters applied to them, 3.6 percent felt that their employer should not “tell them how to be healthy” and 25.9 percent gave “other” as a reason. Of these, 59.5 percent reported that they were already stair users and had not noticed the posters next to the lift doors.

Discussion

There has been a decline in activity levels over the last two decades, which has been associated with the concurrent reduction in work-related physical activity. It is therefore logical to predict that increases in workplace physical activity may assist in altering the current trends in population activity levels. Using this rationale, the introduction of workplace health programmes that promote the use of stairs may be valuable, especially since the benefits of stair climbing on physical health are well established (Brownell et al. , 1980; Bassett et al. , 1997; McArdle et al. , 2001; Yu et al. , 2003).

The use of “point of decision” prompts to increase the daily physical activity of individuals has previously been shown to produce small and short-term effects (Blamey et al. , 1995; Marshall et al. , 2002). In contrast to these findings, the present study found no significant increases in stair-use with “point of decision” prompts, using an automated, non-intrusive data collection method. A non-significant trend was identified towards increased stair use on the East stairway following Intervention Period One, although this did not reach statistical significance and was not maintained

for the duration of the study period. It is possible that this lack of intervention effectiveness could be related to the short length of the intervention period, and this requires further investigation.

Our questionnaire data on self-reported physical activity levels supports national statistics as three-quarters of our sample did not meet government recommendations for physical activity (Office for National Statistics, 2002), and the proportion in our study may be an underestimate since it is possible that the self-reports were completed by more active employees. Despite only a quarter meeting recommendations for activity, 71 per cent of respondents stated that they currently used the stairs more frequently than the lifts. If these individuals are active in stair-use but do not consider themselves to meet recommended activity levels, this may either reflect infrequent cause to travel between floors during the course of the day, or alternatively, frequent stair use but a lack of knowledge as to what constitutes “moderate” activity. The latter has been evident in our recent large-scale surveys of employee and student health and wellbeing at this site (Blake et al. , 2007; Pisano, 2008), and this has implications for health education as an integral component of interventions to increase physical activity in the workplace.

Some of the more commonly reported reasons for not using the stairs may be interpreted as work-related issues rather than motivational issues (e.g. carrying bags or files, accompanying patients). In contrast, other studies have reported the main reasons for not using the stairs to be associated with issues to do with time and effort for the individual (Mutrie et al. , 1997; Kerr et al. , 2000). It is possible that individuals may have felt the lifts to be more convenient than stairs. However, waiting times for lifts and stoppages between floors can mean that lift movement is slower than using the stairs. Our finding may be related to the nature of the hospital

workplace setting, in which case pursuing other methods of increasing activity may be more beneficial. Alternatively, participants may have preferred to offer a more "socially acceptable" answer given the health promoting purpose of the study, which was set in the context of a new NHS workplace health programme. In order to address these issues adequately in future interventions, determinants and barriers to physical activity in a hospital workplace setting may warrant further investigation.

Electronic sensors recorded objective stair counts around the clock, and therefore our observational data was an accurate reflection of all pedestrian traffic in the selected areas, although it was not possible to distinguish between employees, patients, visitors and students in this setting. While questionnaire data was gathered from a range of occupational groups proportionately, the occupational range was not directly comparable with employment roles within the Trust since the NHS employs a greater percentage of nursing staff than any other job role. This is interesting, since it was not possible to ascertain reasons for non-response from certain groups and this leads to the question of whether certain occupational groups are more or less active, or more difficult to reach and therefore should be specifically targeted for workplace health promotion.

Previous studies that have used direct human observer measurement may be subject to both observer bias and social desirability effect, which may influence behaviour (Titze et al. , 2001; Auweele et al. , 2005; Eves et al. , 2006), and have drawn conclusions from relatively small observational periods, often just a few hours per day. Such findings are therefore less likely to reflect the true impact of interventions and may account, in some cases, for the positive effects previously identified. Most studies in this field are before and after studies, with few controlled studies. The time

series design used here means that a comparator (washout periods) was naturally built into the study design.

The present study captured electronic observational data for the entire intervention period (24 hours per day, seven days per week) with an acceptable level of accuracy/consistency, and consequently the results truly reflect the outcome of this intervention, in this setting. However, IR sensor data capture did not allow categorisation of gender, nor did it allow for the incidence of lift use to be measured; therefore the rate of lift use and stair use could not be compared.

Despite the limitations of much of the research in this area, the small but positive effects of stair-use interventions previously observed in the literature suggest a need for further investigation into a range of factors, including the way in which the messages are framed (e.g. positive or negative), the nature of message presentation and the location and setting of the posters. While it has been concluded previously that for the message to prompt individuals to change their behaviour it needs to be directed towards or "tailored" to them, the present study does not provide evidence to support this. In our study, all posters were displayed in all locations on a rotation system, and so each message presentation had an equal chance of being "seen". However, the poster identified as having been "seen" by the greatest proportion of respondents, was a generic non-tailored "direct" message: "Save Time . . . Use The Stairs". In fact this message was seen by nearly twice as many people as any other poster and influenced more than a third of people that had seen it. In an earlier study, Russell et al. (1999) also found an increase in stair-use with a simple direct poster message, although they discouraged the use of lifts compared with our positive message encouraging increased use of stairs. Further work is recommended to investigate message framing in different environments.

This intervention was based on the use of posters as the medium of choice. While previous research has suggested that banners may be more effective than posters (Kerr et al. , 2001c), the nature of this intervention was limited to environmental changes which could be authorised within the hospital setting, and so the type of workplace and practicality of such interventions for specific environments needs to be taken into account in the intervention design process. The intervention itself was limited in that the "point of decision" posters were only situated on floor B (the main entrance floor). It may be that a greater number of prompts may increase visibility and therefore viewings of the messages and thus increase potential for stair-use. No data were available regarding the number of floors travelled, yet this may be significant since previous research has suggested that stair-use may be influenced by the number of stairs needed to be climbed (Titze et al., 2001). This issue was raised in the questionnaire findings since travelling more than one floor was stated as a reason by almost a quarter of respondents for using the lift instead of the stairs. This is key in this hospital workplace since each floor climb is actually two separate flights of stairs due to maintenance floors between each "public" floor. Further, as a consequence of the age and design of the building, the aesthetics of the stairways was poor since they were initially designed as fire escapes rather than public areas, yet aesthetics have shown to be important in stair-use (Kerr et al., 2004) and recent NICE Public Health guidance also recommends that staircases should be clearly signposted and attractive to use (NICE Public Health Guidance 8[1]).

Conclusion

It seems there are a number of key issues resulting from this study. Statistically, these findings suggest a possibility that promoting stair-use within a hospital workplace is

ineffective at increasing the number of people using the stairs and that NHS employees are not influenced by health promoting messages. However, the clinical relevance of these non-significant findings is paramount. If using our most "recognised" poster over all stairways within the Trust, and if a minimum of 18 per cent of employees felt encouraged to use the stairs over the lifts (as we found in this case), then of approximately 7,000 people employed at a single hospital site, 1,260 individuals would be encouraged to use the stairs. Whether or not this reaches statistical significance, the health implications of encouraging this number of people to increase their physical activity in the workplace are of great magnitude in public health terms. Given the overall low rates of "recognition" of the posters, this intervention may have been more successful over a longer time period, and with this optimism, our posters have now been permanently fixed to the wall at stairwells, as part of an ongoing Trust commitment to changing workplace health culture. It may be that messages presented in different locations or simply more locations (e.g. every floor from A to F), messages presented in different forms (e.g. with or without artwork, more direct messages) or perhaps framed differently (e.g. "negative" versus "positive"), may have exerted a different effect. Alternatively, it may be that NHS employees would benefit from increased health education, and indeed, this intervention was delivered in the early stages of a large-scale workplace wellness programme focused on promoting workplace physical activity and advocating workplace "health culture" change. It is possible that repeating the intervention after an extended period of health education campaigns may be more effective. The cost effectiveness of stair-use interventions has not yet been determined in research studies, although poster messaging is inexpensive. In practice, therefore, the possibility of stair-use interventions increasing physical activity amongst employees,

or even encouraging people to consider their activity levels, makes them worthy of inclusion within a larger workplace health programme.

Note

1. See www.nice.org.uk/guidance/index

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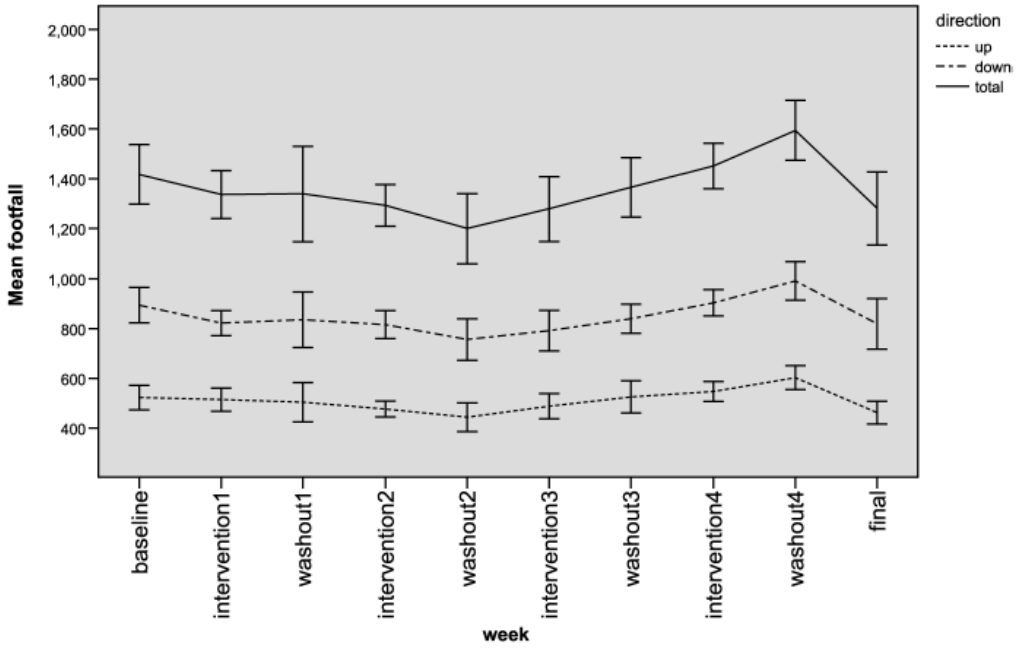
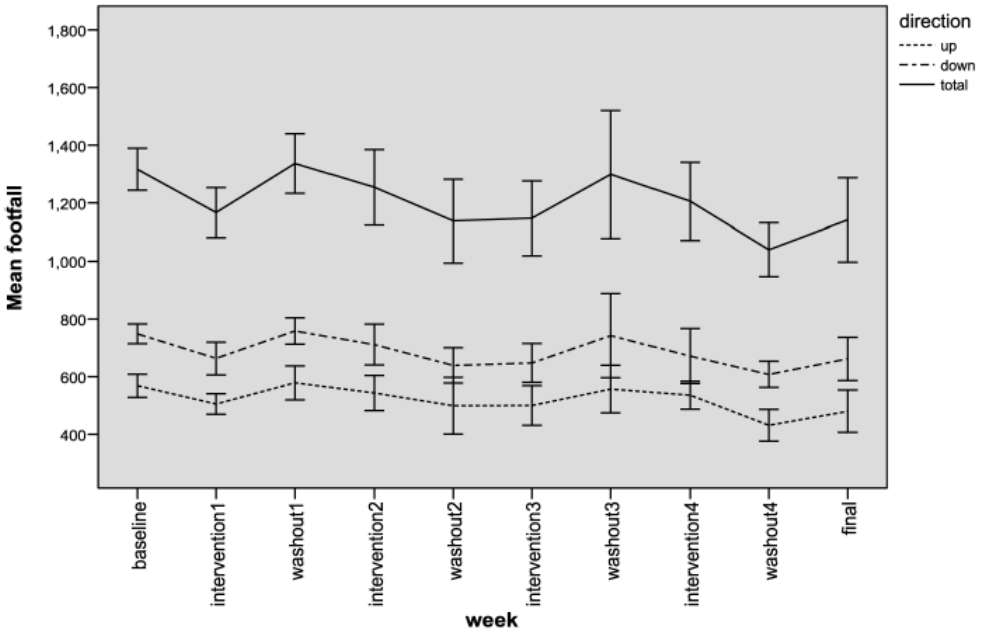
Figure 1. Daily observational sensor counts for East stairwell



Note: Error bars: +/- 1.96 SE

Figure 2. Daily observational sensor counts for West stairwell



Note: Error bars: +/- 1.96 SE

Table1: Reasons given for using the lift in preference to the stairs

Reason	Yes		No	
	n	Per cent	*n*	Per cent
If I am carrying bags/files	159	71.9	62	28.1
If I am with colleagues who prefer lifts	77	34.8	144	65.2
If I am tired	17	7.7	204	92.3
I feel that lifts are more convenient	34	15.4	18	84.6
I would use lifts if I were in a rush	34	15.4	187	84.6
It would not occur to me to use stairs	2	0.9	219	99.1
I don't know where the stairs are	6	2.7	215	97.3
I have aching legs or an injury	48	21.7	173	78.3
I use a wheelchair/walking aid	10	4.5	211	95.5
I am going more than one floor	52	23.5	169	76.5
I don't feel very fit	6	2.7	215	97.3
Other	53	24	168	76

Table 2. Reasons given by employees for increasing their use of the stairs

Reason	Yes		No	
	n	Per cent	*n*	Per cent
I would use stairs if the lifts were full	65	29.4	156	70.6
I would use stairs if I were in a rush	59	26.7	162	73.3
To burn calories and potentially lose weight	99	44.8	122	55.2
To improve my health	109	49.3	122	50.7
If the lifts looked unsafe	48	21.7	173	78.3
I'm scared of lifts	8	3.6	213	96.4
If the lifts were out of order	71	32.1	150	67.9
Depends on my mood	34	15.4	187	84.6
If only going one floor	56	25.3	165	74.7
Other	22	10	199	90