**What works to encourage healthier student nurses? Findings from an intervention study.**

**Abstract**

The health and lifestyles of student nurses has been widely explored internationally finding relatively high levels of smoking, low levels of physical activity and unhealthy diets. Not only does this have implications for productivity, personal health and the ability to do the demanding job of nursing, but unhealthy behaviours are also associated with a reluctance to undertake health promotion in their roles. Stress, time constraints and the irregular routine of nurse training were cited as barriers to a healthy lifestyle.

Three types of accessible interventions were piloted to encourage the adoption of healthier lifestyles by student nurses: an educational session on having ‘healthy conversations’ with patients, an accelerometer to record steps, and an online personal wellness tracker. Students did not take up either of the offers designed to motivate behaviour change but did welcome the educational input on how to have a ‘healthy conversation’ with a patient.

This project highlights the need to incorporate programmes that addresses student nurses’ health behaviours within nurse education, and at salient time points (e.g. induction or just before going on placement) over the course of study.

**Key words**

Student nurse

Health promotion

Healthy conversation

Making Every Contact Count

Health behaviour

Lifestyle

**Background**

Given the rising prevalence of preventable diseases caused in part by lifestyle choices, encouraging people to think about their health, whatever their profession, is important. Nurses are the largest occupational group within health services and student nurses who are the next generation of health promoters are said in many countries to be obese and have a poor diet (Blake, Malik, Mo, & Pisano, 2011), are smokers (Baron-Epel, Josephsohn, & Ehrenfeld, 2004; Fernandez, Martin, Molina, & De Luis, 2010), are not active enough to benefit their health (Irazusta et al., 2006), and drink in excess of recommended levels (Rabanales Sotos et al., 2015). Epidemiological and observational studies of nurses are limited (aside from the longitudinal Nurses’ Health Study in the US). Studies of student nurses’ health have tended to focus on specific behaviours and are not consistent , but do indicate that levels of health risk factors amongst students as well as registered nurses are at least equivalent or greater than population values (Schluter, Turner, Huntington, Bain, & McClure, 2011; Tucker, Harris, Pipe, & Stevens, 2010).

Student nurses have the same influences on their health behaviours as others in the population but additionally, nursing is a stressful and demanding job in busy environments. This can mean nurses have fewer opportunities to make changes to their lifestyle. Yet long- term diet and physical activity habits established during the period of education may help to equip them to keep up with the demands of their busy roles (Laska et al. 2011). Poorer health behaviours amongst student nurses not only has negative implications for them as individuals, but also for the quality of care provision, the costs of sickness absence (Boorman, 2010) and the public image of the health service (Blake et al., 2011). Additionally, nurses’ personal health behaviours may act as a barrier to effective counselling of patients about lifestyle (Clément et al 2002) as nurses who are themselves unhealthy may be less willing to discuss lifestyle and health behaviours with patients (Esposito & Fitzpatrick, 2011; Wright, 1998) and any such messages may not appear credible (Aranda & McGreevy, 2014; Hicks et al., 2008).

The aim of this study was to pilot three types of interventions that could be easily introduced into the student nurse environment to encourage a healthier lifestyle: an education and training session, an accelerometer; and an online personal wellness goal-setting tool. These interventions are reflective of different approaches to promote behaviour change. Self- monitoring and goal-setting is consistently reported as an effective tool for dietary and physical activity change (Greaves et al., 2011; Michie, Abraham, Whittington, McAteer, & Gupta, 2009; Teixeira et al., 2015) and is regularly used as part of motivational interventions. The development of technology and virtual learning environments for students widens the possibilities for the use of lifestyle hubs and enables reminders to be sent. Pulse accelerometers or pedometers have been used in the hospital environment and have been shown to be feasible and acceptable (Blake & Batt, 2015). Taking part in education about behaviour change has been shown to lead to changes in behaviour for the participants (Hsiao et al., 2005).

**Methods**

The project was set up as a before and after study with a single cohort of 370 nursing students across their final two years of training in 2014-15 at an English university. Students across all fields of nursing (mental health, learning disability, adult, children’s) were included in the study.

Three different types of interventions were offered to students;

* Education and training: Project staff delivered a one-hour educational session on ‘Making Every Contact Count’ (MECC; <http://www.makingeverycontactcount.co.uk/>) an initiative in England to encourage frontline workers to initiate conversations based on behaviour change methodologies (ranging from brief advice to more advanced behaviour change techniques). Information on four health behaviours (smoking, alcohol, physical activity and diet); ways in which lifestyle can be raised, assessed and addressed with patients; and video links to examples of ‘healthy conversations’ were made available on the student virtual learning environment. Signposting information was also available about health behaviour support in a square 500 metres of campus and at placement sites relating to smoking cessation, weight management, physical activity, healthier food options, and water outlets.
* Personal health awareness: Pulse accelerometers were provided for students in the study by the Global Corporate Challenge (<https://www.gettheworldmoving.com/>), a global charity that encourages physical activity. This allowed students to measure their steps over a period of a couple of weeks whilst at university and then on placement, and these could be uploaded onto the virtual learning environment platform.
* Personal goal -setting: An online wellness tool offering online self-assessment of health behaviours was available on the student virtual learning environment. Students could assess their health behaviours, set a goal, identify challenges and develop an action plan based on their stage of readiness.

The students’ self-reported health status and health behaviours were assessed at three time points: in the second year of training, and at the start and end of the third year (completion of pre-registration education). The questionnaire items also included demographic information, height and weight (so that BMI could be calculated), and self-report measures of physical activity, smoking, alcohol, and diet. Student use of the dedicated health promotion virtual learning environment was monitored. Ethical approval for the study was granted by London South Bank University (UREC1363).

Data were analysed using SPSS 21 for Windows. The study used an open cohort design, meaning that participants could leave or join the study at any of the data collection time points. Data were analysed for the cumulative cohort (N = 227) and for the subgroup of participants who completed the questionnaire at all three time points (N=41). Descriptive statistics were used to describe the sociodemographic characteristics of the respondents. The chi-squared test was used to test for differences in proportions. A difference was considered statistically significant when p< 0.05.

**Results**

There were 375 students in the total nursing cohort. There were 244students who participated in the first wave of data collection (65% of the total cohort). At point two 302 students participated, a response rate of 82%. There were 96 participants in the final wave of data collection. This represented 26% of the total cohort. Sixty-two percent of participants (N=227) completed the questionnaire at two time points, and 41 participants (17% of the baseline sample) completed the questionnaire at all three time points. The demographic characteristics and health behaviours of those who completed the questionnaire more than once and the cumulative study cohort were compared. No significant differences were found between the two groups.

The participants comprised mainly female nursing students (86%). Their ages ranged from 19 to 55 with a mean age of 27 years. The predominant ethnicity of students was White (53%), with a smaller number of Black (39%), Asian (5%) and Mixed or other race (4%) students. This is broadly similar to the ethnic makeup of the university student body.

Participants were asked to rate their own health on a continuum from ‘very good’ to ‘very poor’ at each time point. There was no significant change in self-rated health among participants over the course of the study, χ2 (2) = .35, p=. 84. The majority of participants reported that their health was ‘good’ or ‘very good’. However, 45% of participants at Point Three reported that their health had got worse since they started training. The effects of placement on participants’ health in relation to stress, lack of time and irregular routine lessened over the course of study.

The students’ health behaviours (smoking, alcohol, physical activity and diet) (Table 1) were broadly similar to the general population and did not change significantly over the period of the study apart from a decline in smoking, where 18% of participants at Point One compared to 12% at Point Three were current smokers. A higher proportion of participants were classed as more obese at Point Three than when the study began.

Insert table 1 here

Students received a Pulse accelerometer (N=189) and were asked to record their daily steps while on campus and during their time on clinical placement. Thirty-nine participants (11% of the total cohort, 21% of those who received accelerometers) uploaded accelerometer data. The number of days recorded by each participant ranged from 1 to 38 days. On average, participants provided data for 9 days (median was 5 days). Daily steps ranged from 865 to 28623 when at university, and between 3759 and 21021 when on placement. The average daily steps taken at university were 9495 (median 8646). The average daily steps taken on placement were slightly higher at 10496 (median 10605). Individual ranges in behaviour also reflected higher activity levels when on placement (e.g. from 6100 steps at university to 16666 when on placement).

Of all those who took part in the study, 32% students enrolled onto the wellness portal (N=118). Of those who had used the site, 67% reported accessing the site ‘a few times’ and 22% reported using it just once. Its most useful aspect was said to be the healthy lifestyle information.

Of the three interventions offered, the educational session was most valued. The majority of students reported that they had then engaged in a ‘healthy conversation’ with a patient on placement. Participants were most confident discussing exercise (32% highly confident) and nutrition and diet (29%) with patients. They were the least confident discussing alcohol (23% not at all confident), smoking (20%) and weight (18%). Only 6% of students regarded lifestyle issues as an inappropriate or unnecessary part of their nursing practice. Having prior knowledge such as understanding the benefits of behaviour change and knowing how to raise the issue (54%); having accessible information to hand (38%); and knowing where to signpost patients (38%) were strongly associated with the likelihood of having a ‘healthy conversation’ with a patient. Healthier lifestyles were not significantly related to having a healthy conversation with patients at either Point Two (p=.51) or Point Three (p=.62) of the study.

**Discussion**

This study helps us to better understand the health behaviours of student nurses, the factors that affect their lifestyles, and what might encourage them to adopt healthier lifestyles. Given the potentially sensitive nature of the behaviours studied and because the study relies on self-reported data, some participants may have underreported or over-reported certain health behaviours, in order to present a more favourable image of themselves. However, the study was anonymous and a large proportion of participants did appear to self-report their less healthy behaviours.

It is difficult to draw definite conclusions from the data given the differences in response rate at each of the different time points. Those who volunteered to participate in the study may be more health conscious or even healthier than those who declined to participate. The study findings may have been particularly biased by the low response rate at point three. Although no significant differences were found between those who completed the questionnaire more than once, and the total study cohort, the results tracking change should be interpreted cautiously.

This project investigated the impact of three different types of interventions to promote the health of student nurses: an educational input, an accelerometer to record physical activity and an online wellness tracker. Although all of the interventions were well received in class, there was little evidence of take up of the offers. Although this was disappointing, it is not an unusual finding in studies of this population. Previous intervention studies with student nurses have noted low take-up and high rates of attrition (e.g. Chalmers et al. 2001; Tucker et al. 2011). Intervention studies of working nurses have also noted that they are less likely to engage in health promotion at work than other occupational groups (Blake & Lloyd, 2008).

In general, the student nurses were not adopting healthy lifestyles. These findings are consistent with previous studies of nurses and student nurses (Blake & Patterson, 2015; Malik, Blake, & Batt, 2011). In particular, the majority of participants failed to meet current government recommendations around physical activity. Contrary to a study of nurses’ walking in which they walked an average of 4-5 miles per 12 hour shift (Welton, Decker, Adam, & Zone-Smith, 2006), these student nurses were not active frequently enough for health benefit. The low levels of physical activity reported by participants were also reflected in the data on Pulse accelerometer use. Those who inputted Pulse data exhibited more physical activity at baseline suggesting that those who stand to benefit most from interventions are least likely to take them up. The prevalence of smoking was also lower than smoking prevalence figures for the UK general population and dropped between baseline and Point Three. This may be attributable to the ubiquity of smoke-free university campuses and health service premises.

Overall, student nurses’ health behaviours appeared to worsen at Point Two before improving again at Point Three. The negative effects of placement on health significantly decreased over time. A possible explanation may be that student nurses’ health behaviours are more negatively affected while they are still adjusting to being on placement and the realities of nurses’ working lives. The negative impact of the job on health behaviours may lessen over time as the students become more accustomed to the role and learn to mitigate the effects of being on placement. This finding may point to a ‘critical time’ when student nurses may benefit from advice or support in maintaining a healthy lifestyle while on placement.

The educational input was welcomed by students who reported greater confidence in raising a behavioural issue with patients and the results suggest that it is confidence that is a barrier to students attempting to have a healthy conversation with a patient rather than the knowledge to advise them. Evidencing a healthier lifestyle at baseline was related to a positive attitude towards role modelling healthy behaviours but did not appear to influence engaging in ‘healthy conversations’ with patients. A systematic review conducted as part of research associated with this study (Kelly, Sykes, & Wills, 2016) has found that personal positive health behaviours such as being physically active may influence willingness to undertake health promotion. The discrepancy between education about having a healthy conversation and being expected to undertake this in practice and visibly not adopting a healthy lifestyle oneself may prompt the student nurse to address their own lifestyle.

These findings highlight several challenges for health initiatives with student nurses.

The first challenge is to engage students and staff with health promotion. Most reviews of the nurse education curriculum recognise the increasing importance of public health and the necessity of preparing the student nurse to address health lifestyles (Whitehead 2006). Almost all the students viewed health promotion as a core part of the nursing role. However, they reported little preparation for addressing health behaviours with patients. The majority of students claimed to have used the skills on placement that they had gained in their single session on ‘having a healthy conversation’ but previous work with student nurses has suggested that a time lag between intervention delivery and the opportunity to use the new knowledge in practice may be a barrier to successful implementation (Holland et al. 2013).

The second challenge is incorporating health awareness and self-care into the pre-registration curriculum. Although there is recognition that nursing is a demanding job and students need to be fit to practise, there are few examples where health awareness and self-care are incorporated into nurse education. Healy and McSharry (2011) report on a workshop intervention delivered as part of pre-registration nurse training in Ireland to raise awareness of student nurse’s own relationship to health and their personal health behaviours. They cite a Turkish study (Alpar, Senturan, Karabacak, & Sabuncu, 2008) which suggests that the health behaviours of 70 Turkish student nurses showed a significant progressive increase from the time the students entered the programme to the time they graduated, particularly in the area of self-responsibility for personal health. Horneffer (2006) suggests that students need to develop a self-concept that values their personal health. Fostering an identity that includes personal health as relevant to being a health professional is not only for student nurses’ own wellbeing but also given the possible link between nurses’ health behaviours and willingness to raise lifestyle issues with patients.

The third challenge is for the university as an education and training facility to model healthy behaviours itself. Given the heavy workload of the course, it may be difficult for students to find time outside of the classroom to focus on their own health. Nursing faculties are in an ideal position to encourage behaviour change in student nurses (Clemmens, Engler, & Chinn, 2004). The channels of communication and social cohesion established within a nursing cohort are valuable resources which could be harnessed to promote interventions, provide peer support, publicise facilities and programmes, and encourage students to lead a healthy lifestyle. However, less than half of the baseline sample viewed the nursing faculty as good role models for a healthy lifestyle. Just as patients to nurses, student nurses may not heed advice from faculty if they are perceived as not meeting the expectations that they are aiming to engender in the student population.

The final challenge then is to find out what works to encourage student nurses to ‘practise what they preach’. Students were asked what would enable them to adopt a healthier lifestyle and the majority cited such environmental supports such as a subsidised gym and a healthy eating canteen (see Table 2). Universities can support healthy choices by providing a supportive studying and working environment (Zapka, Lemon, Magner, & Hale, 2009) and become ‘healthy universities’ (Dooris & Doherty, 2010) making it easier for students to adopt healthier choices in relation to diet and exercise. This study piloted different approaches for the individual but as has been found in intervention evaluations with nurses, individual offers such as wellness programmes, public health advice specifically targeted for nurses that address the challenges of eating well whilst doing shift work, individual or group challenges using pedometers or health coaches are rarely taken up. Long hours, shift work, stress and the work of caring for others all militate against the student nurse being motivated to address their own health. What this study showed is that the educational expectation of being able to conduct a brief health promotion intervention was most likely to prompt the student nurse to address their own lifestyle.

Insert table 2

**Conclusions**

Given the increased focus on preventive care within health services, the low level of training reported raises serious concerns for participants’ future roles as health promoters. The competencies required for a registered nurse in the UK (NMC, 2010) clearly state that providing health promotion and lifestyle advice is indicated content for pre-registration education, yet this appears to be neglected in training. Previous studies of health promotion in nursing have noted that much of nursing strategies remain rooted in reactive ill health and are ‘out of step’ with wider health promotion agendas (Whitehead, 2006). This study clearly showed that a commitment to health promotion arises from a personal commitment to healthy living and the confidence that also comes from training.

The Nursing and Midwifery Council (NMC) in the UK currently require nurses and student nurses to self-monitor in order to assess good character and good health (NMC, 2015). Nurses are required to self-declare their “good health and good character” at the point of, and when renewing their registration (NMC 2015). This study showed that interventions framed as individual offers of health lifestyle support are insufficient to motivate student nurses as healthcare professionals. For students, that support must be embedded in the curriculum and assessed. Future interventions with student nurses may evidence greater success if incorporated more fully into the curriculum and delivered at salient time points (e.g. at induction or just before going on placement) within the course of study.

Table 1. Health behaviours at baseline

|  |  |
| --- | --- |
| **Variable** | % |
| **Current smoker** | 18 |
|  |  |
| **Eat less than 2 servings of fruit daily** |
| 5 days or more | 11.4 |
| 2-4 days | 25.1 |
| Less than once a week | 63.4 |
| **Eat less than 2 servings of vegetables daily** |
| 5 days or more | 14.4 |
| 2-4 days | 32.8 |
| Less than once a week | 52.9 |
|  |  |
| **Engage in moderate physical activity** |
| 5 days or more | 45.2 |
| 2-4 days | 32.0 |
| Less than once a week | 22.8 |
| **Engage in vigorous physical activity** |
| 5 days or more | 5.8 |
| 2-4 days | 18.8 |
| Less than once a week | 75.4 |
|  |  |
| **Drink alcohol** |
| Non-drinker | 21.1 |
| Once or twice a year | 19.8 |
| Once or twice a month | 28.5 |
| Once or twice a week | 26.4 |
| 3 or more days per week | 3.3 |

Table 2. Factors which make it easier for student nurses to adopt healthier lifestyles

|  |  |  |
| --- | --- | --- |
| **Factor** | **N** | **%** |
| Subsidised gym or exercise facilitiesHaving a healthy canteen at the universityHaving a healthy canteen on placementA resource to set and track goals for healthy livingHaving readily available information on being healthyCompletely smoke-free university campuses and hospitalsHaving advice on healthy living in the curriculumHaving a healthy ‘buddy’ or ‘champion’ on placement | 187105954946353432 | 61.934.831.516.215.211.611.310.6 |

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