'Do as I say, but not as I do': Are next generation nurses role models for health?

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Abstract

Aim: Promoting healthy lifestyles plays a key role in professional nursing yet nurses do not always practice what they preach. Efforts are currently being made to improve the health of NHS staff, yet little is known about the health and lifestyle behaviours of pre-registration nurses in the UK although these individuals are our next generation of NHS employees. The aim of this study was to investigate the health behaviours and wellbeing of pre-registration nurses based at an acute NHS teaching hospital in England.

Methods: In this cross-sectional questionnaire survey, 325 pre-registration nurses (50% response rate) completed a health and lifestyle questionnaire, measuring levels of physical activity, smoking and alcohol behaviour, dietary practices and general health.

Results: Age ranged from 19-53 years, and 96% of the sample was female. More than half of the sample did not meet public health recommendations for physical activity. Just under one-fifth were current smokers and over three-quarters did not consume five servings of fruit/ vegetables per day. Two-thirds reported exceeding the recommended maximum daily alcohol intake and around one third were classified as either overweight or obese. Those who were physically inactive were less likely to report good general health, good dietary practices and more sleep, and were more likely to report cigarette smoking and alcohol consumption than their active counterparts.

Conclusions: This study indicates that the health profile of pre-registration nurses is relatively poor, and that those who are sedentary engage in other negative lifestyle behaviours also. Despite significant education relating to health promotion and health behaviours of patients being targeted at pre-registered nurses, it seems that this knowledge is not always transferred to their own behaviour. There is a need for timely intervention to establish healthy lifestyle behaviours amongst nurses early in their career.

RATIONALE

Recent government publications emphasise the role of the public sector, and in particular the NHS, in promoting healthy lifestyle choices among the general population and setting the benchmark for workplace health and well-being.[1-4] Ensuring NHS staff take responsibility for their own health and act as good role models for healthy living is considered imperative for the successful delivery of government health policy.[5-6] In particular, nurses, who constitute the largest occupational group in the NHS and have the most direct contact with patients and their families,[7-8] are often seen as a point of reference for healthy behaviours.[9-11]. Therefore, the promotion of healthy practices among NHS nurses has become a key priority in the delivery of UK government health policy.[3-4] Indeed, a recent independent review of the health and well-being of NHS staff recommends that all NHS organisations provide health and well-being services that are centred on the prevention of lifestyle and work-related ill health of their frontline staff.[12] Although one might expect individuals who are educated and working in health promotion roles to exhibit an improved personal health profile when compared with other professions,[13] research has shown that nurses often exhibit poor lifestyle behaviours themselves, and a variety of explanations have been proposed, such as exposure to work-related stressors and shift-work, which may result in neglect of nurses own health needs.[7],[14-15] Nurses around the globe tend to have higher rates of smoking prevalence than both the general population and other health professionals (up to 45-7%).[11],[16-21] Low levels of physical activity have been observed with many nurses not meeting government recommended levels for physical activity[15],[22-24] and demonstrating levels of activity lower than those shown

in other medical occupations.[19] Poor dietary practices are evident [15],[24] with several studies showing that many nurses regularly consume high fat foods [23-25] and estimates suggest around 700,000 of the 1.2 million NHS staff are thought to be overweight or obese.[3] As may be expected from such observations of unhealthy lifestyle practices, sickness absence rates in NHS employees are high (4.5%)[26] and indeed are higher than in other sectors,[4],[27] presenting a huge, yet preventable, financial burden. Patient care may be at risk since poor physical and mental health of healthcare staff has been associated with poor work performance, and this poses a threat not only to productivity[28] but also to patient safety.[29-30] Furthermore, there is a link between healthcare practices of NHS staff and their tendency to raise lifestyle issues with patients.[31-32] The impact of poor health behaviours in nurses is therefore multifaceted impacting on individual health, NHS resources and quality of patient care.[4] The publication of the recent Boorman review demonstrates that the provision of health and wellbeing services for the NHS workforce can indeed contribute to reducing sickness absence and increasing productivity.[12]

AIM

Pre-registration nurses are our professional health promoters of the future. Whilst they can be educated about the importance of promoting healthy behaviours to their patients, it is equally important to establish whether this knowledge is transferred to their own lifestyle behaviours. There is little recent published evidence on the self-reported health behaviours of pre-registration nurses. The aim of this study was therefore to investigate the health behaviours and well-being of pre-registration nurses.

METHODS

Subjects

The study was conducted at a single site of a University Division of Nursing located within an acute NHS teaching hospital. All 650 pre-registration nursing students based on the site were invited to take part in the study.

Materials

The questionnaire tool was adapted from a measure used in a national evaluation of workplace wellness programmes across the UK [33] and also an evaluation of a workplace wellness scheme at the local NHS trust.[34] This measure was adopted in order that findings would be comparable with data gathered locally on qualified health professionals.

Demographics

Participants were asked to provide their age, gender, height and weight, from which Body Mass Index (BMI) was calculated (weight in kg/height in metres^2).

Physical activity level and barriers to physical activity

Level of physical activity was measured by a single item: "Think about all the physical activity you do in a typical week. Do you take part in physical activity or exercise on most days of the week for 30 minutes or more each time?" Participants who selected 'yes' were considered meeting the guidelines for physical activity. Participants were presented with a list of 20 common barriers which may prevent people from engaging in physical activity and were asked to select the item(s) that applied to them.[35]

Self-Efficacy for physical activity

This was measured using a 5-item scale.[35] Items were rated on a 3-point Likert Scale, from 0 = Not at all confident to 2 = Very confident, with higher score indicating higher level of efficacy. The reliability of the scale was satisfactory (Cronbach's $\alpha = .82$).

Knowledge of physical activity

Knowledge of physical activity was measured by a 5-item scale.[36] Participants were given five statements about physical health and were asked to rate them on a 5-point Likert Scale from, 0 = strongly disagree to 4 = strongly agree, with higher score indicating better knowledge of physical activity. The reliability of the scale was satisfactory (Cronbach's $\alpha = .84$).

Social support for physical activity

Social support for physical activity was measured by a 4-item scale, adapted from the RESIDE Project.[37] Participants rated how often their family, partner, friends and colleagues gave them encouragement to be physically active in the past month on a 5-point Likert Scale, from 0 = Rarely to 4 = Very often, with the higher score indicating a higher level of social support. The reliability of the scale was satisfactory (Cronbach's $\alpha = .88$).

General health

Perception of general health was measured by a single item "In general would you say your health is:" Item was rated on a 6-point Likert Scale, from 0 = very poor to 5 = excellent. In addition, the 12-item General Health Questionnaire-12

(GHQ) was used to measure the participant mood state.[38-39] Participants were asked to rate how their mood had been over the past few weeks on a 4-point Likert Scale, from 0= more than usual to 3 = much less than usual. Higher scores indicated more severe conditions. The reliability of the scale was satisfactory (Cronbach's $\alpha = .85$). Participants were also asked how often they got 7 hours of sleep per night on a 4-point Likert Scale, from 0 = Seldom or never to 4 = always.

Smoking

Participants were asked whether they smoked a cigarette or pipe. For participants who were smoking at the time of study, their intention to quit smoking was measured on a 5-point Likert Scale, from 0 = I have no intention of giving up smoking, to 5 = I intend to give up smoking within the next month. This item was adopted from the Western Australian Adults study of physical activity and modified for the context of smoking.[35] Knowledge about the dangers of passive smoking was assessed by a single item: "Do you think that breathing someone else's smoke is dangerous to your health?"

Diet

The diet of participants was measured by the following items: "Do you eat five servings of fruit/vegetables a day?", "do you eat foods high in fat and sugar?", and "how often do you drink 8 glasses (2 litres) of water a day?" Participants were also asked to indicate whether they considered that they ate healthily at the time of the study.

Self efficacy for healthy eating

Self efficacy for healthy eating was measured by an 8-item scale. Participants were given a list of factors and asked to rate how important these factors were in deciding how much fruit and vegetables they ate on a 4-point Likert Scale, from 0 = very unimportant to 3 = very important, with higher score indicating higher level of self efficacy. Items had been adopted from the Western Australian Adults study of physical activity and modified for the context of healthy diet.[35] The reliability of the scale was satisfactory (Cronbach's $\alpha = .85$).

Social support for healthy eating

Social support for healthy eating was measured by a 4-item scale, adapted from the RESIDE Project and modified for the context of healthy eating.[37] Participants rated how often their family, partner, friends and colleagues gave them encouragement to eat healthily in the past month on a 5-point Likert Scale, from 0 = Rarely to 4 = Very often, with the higher score indicating a higher level of social support. The reliability of the scale was satisfactory (Cronbach's $\alpha = .79$).

Alcohol behaviour

Alcohol behaviour was measured by two single items: "How often do you have a standard drink containing alcohol?" and "How many standard drinks containing alcohol do you have on a typical day when drinking?" Participants were also asked to indicate what they thought was the maximum number of units per day for men and for women.

Work performance

Participants' performance on their course was measured by a single item: "How would you rate your overall performance on your university course/placement on the days you attended the past 4 weeks?" Item was rated on a 6-point Likert Scale from 0 = my worse performance to 5 = my best performance, with a higher score indicating better perceived work performance.

Sickness absence

Sickness absence was measured by a single item: "When was the last time you threw a sickie?" A statement assuring that participants' answer would be anonymous was included after the question.

Study procedure

Ethical approval was granted from the University Medical School Research Ethics Committee. Questionnaires were distributed to all pre-registration nurses who were provided with a verbal and written explanation of the study by the same researcher. Those who chose to participate were asked to return the form anonymously within a week to a response-box located in a central area. Informed consent was taken to be return of the form. Data were analysed using descriptive statistics, Chi Square test and independent samples t-tests.

RESULTS

Sample characteristics

A total of 650 pre-registration nurses were invited to participate. Of these, 325

responded to the questionnaire (response rate 50%). Of the respondents, 96% were female, with an age range of 19-53 years (M=24.78, SD=6.88), which was representative of the pre-registration nurse total population at this site.

Physical activity

Less than half of the student nurses (45.98%) met the current government public health recommendations for levels of physical activity (i.e. 30 minutes, 5 times a week).[1] These individuals were classified as 'active' participants in the study. Most participants had a high level of knowledge about the benefits of physical activity (M=2.62, SD=.49). However, participants generally reported low levels of self-efficacy for physical activity (M=.79, SD=.45) and low levels of social support from friends and family to engage in physical activity (M=1.51, SD=.96). The most common reported barriers to engaging in physical activity were not having time to be physically active (70.6%), followed by the cost of participation (57.4%), and feeling tired (48.5%).

Active participants scored significantly higher in self efficacy for physical activity (M=.96, SD=.48 for active participants, M=.63, SD=.36 for inactive participants), $t(309)=6.93$, $p<.001$, knowledge about physical activity (M=2.70, SD=.49 for active participants, M=2.55, SD=.45 for inactive participants), $t(309)=2.68$, $p<.01$, and social support for physical activity (M=1.74, SD=.95 for active participants, M=1.28, SD=.93 for inactive participants), $t(304)=4.21$, $p<.001$, than inactive participants. Inactive participants were likely to report more barriers to doing physical activity than active participants (see Table 1).

General health

The average BMI of participants was 24 (SD = 4.38). Based on the classification of the World Health Organization (2000),[40] about two-thirds of the participants (70.8%) were classified as normal weight, whereas 18.1% and 9.0% of the participants were classified as overweight and obese, respectively. The mean score of general perception of health of the participants was poor (M=1.79, SD = .91). In addition, a quarter of participants (25.9%) had low mood on the GHQ-12. Over a third of participants (39.36%) reported they did not get 7 hours of sleep, more than half of the time. Active participants (M=2.04, SD=.91) reported significantly higher scores in general perception of health than the inactive participants (M=1.58, SD=.87), $t(304)=4.56$, $p<.001$. They also demonstrated better mood on the GHQ- 12, $\chi2(1)=5.52$, $p<.01$, and were more likely to get 7 hours of sleep per day, $\chi2(3)=11.01$, $p<.01$. There were no differences in BMI levels between active and inactive participants (see Table 2).

Smoking behaviour

Just under one-fifth (18.8%) of the sample were current smokers. The majority (97.4%) of participants agreed with the statement that breathing someone else's smoking was dangerous to health. Active participants were less likely to smoke than inactive participants, $\chi2(1)=6.4$, $p<.01$. No significant differences were found between active and inactive participants in knowledge about the risk of passive smoking and intention to quit smoking (see Table 3).

Diet

Over three-quarters (76.8%) of participants reported they did not consume five servings of fruit/vegetables per day. Over half of the participants reported they

ate foods high in fat and sugar at least once a day (53.9%). Only 18.3% of participants reported that they drank 8 glasses of water a day. However, more than half of the participants (58.5%) felt that they were eating healthily at the time of study. Despite this, participants generally reported low levels of self-efficacy (M=1.68, SD=.50) and social support from friends and family for eating healthily (M=1.62, SD=1.0). Active participants were more likely to eat five servings of fruit/vegetables every day, $\chi 2(2)=14.90$, $p<.001$, more likely to drink 8 glasses of water a day $\chi 2(2)=11.37$, $p<.01$, and more likely to report eating healthily, $\chi 2(1)=18.10$, $p<.001$. Active participants (M=1.77, SD=1.05) also reported significantly higher scores in social support for eating healthily than inactive participants (M=1.48, SD=.96). No significant differences were found in the frequency of consuming foods high in fat and sugar, and self-efficacy for eating healthily between the two groups (see Table 3).

Alcohol behaviour

Over half of the participants reported they had a standard drink containing alcohol more than twice a week (57.2%). About two-thirds of the participants reported having more than four standard drinks containing alcohol on a typical day when drinking (see Table 3), thus exceeding the recommended maximum daily alcohol intake.41 In general, around half of the participants thought that the maximum number of units per day was 3-4 units for men (45%) and 1-2 units for women (55.6%). Inactive participants tended to have alcoholic drinks more frequently than active participants, $\chi 2(4)=11.95$, $p<.05$ and were likely to have more drinks on a typical day when drinking, $\chi 2(4)=21.33$, $p<.05$.

Work performance and sickness absence

Most of the participants (86.2%) reported they were satisfied with their overall performance on the course. Over one-fifth of the participants (22.5%) indicated they had taken sickness absence within the past month. There were no differences in work performance or unauthorised sickness absence between active and inactive participants (see Table 2).

DISCUSSION

A high proportion of the pre-registration nurses exhibited a relatively poor health profile. Many were not active enough for health benefit, and a significant number also engaged in other unhealthy lifestyle behaviours. Specifically, our study found that over half of the sample failed to meet public health recommendations for levels of physical activity. This pattern is comparable with findings from studies with qualified nurses.[15], [19] As such, it appears that low levels of physical activity may be a global problem in the nursing profession which needs to be tackled early in the nurse's career. This finding is of significance given that recent government health reports have emphasised the importance of promoting physical activity in the general population.[2-3] For the success of such initiatives it is imperative that nurses can serve as appropriate mentors and role models for optimal exercise habits.[2],[4] Our results suggest that barriers relating to time, cost and tiredness may be factors influencing the likelihood of student nurses engaging in physical activity and there is a need to address such barriers in targeted development of affordable and accessible tailored physical activity interventions for the pre-registration nurse population.

For instance, through providing nursing staff with incentives to walk or cycle to work or offering physical activity programmes such as interdepartmental sports tournaments.[12]

The overall prevalence of smoking in this study was 18.8%, which is considerably lower than results from previous studies with qualified nurses (e.g.[11], [16-17] and student nurses (28%[42];26%[43]). It is also lower than smoking prevalence figures for the general adult population in the UK, which was around 21% in 2007.[44] This may be attributed to the general reduction in smoking among the adult population in recent years; figures suggest that around 300,000 people in England have tried to quit smoking since a ban on smoking in public places came into force.[45] Further, more than three-quarters of NHS staff were found to support a smoke-free policy at the same NHS Trust.[46]

Our findings concerning the poor dietary habits of the pre-registration nurses are consistent with findings from qualified nurses.[23-25] Results show that a large number of participants eat foods high in fat and sugar content and do not consume the recommended daily intake of fruit or vegetables or water, despite the majority reporting that they ate 'healthily'.

Whilst nurses are educated about the health risks of a high fat diet combined with low levels of physical activity, we found that just under a third of our participants were either overweight or obese. This figure is similar to obesity rates observed in the general adult population of the UK, which were estimated at 24% in 2007.[3] Since pre-registration nurses are educated to promote healthy lifestyle practices to their patients, it may be viewed as important (and by some even necessary) that this population are appropriate role models for weight management practices. These findings highlight the need to develop

programmes, which are designed to support pre-registration nurses in transferring their knowledge about physical activity and healthy eating to their own behaviour. Local NHS trusts could play an integral role in the implementation of these programmes by providing access to healthy food choices in the workplace and support services to help staff achieve and maintain a healthy weight.[12]

Our findings show that although many pre-registration nurses have an understanding about safe levels of alcohol consumption, binge drinking is still a common practice. This finding is in accordance with previous studies of student nurse populations.[41-43] The drinking patterns observed in this study may reflect drinking trends in the general UK population, particularly amongst students. Binge drinking is currently a huge public health issue in the UK, with 6% of all hospital admissions due to alcohol-related incidents.[47] There is also evidence that the rate of binge drinking among young women in the UK has increased dramatically in recent years.[48] Nurses are in a strong position to promote safe alcohol use in the population and it is therefore paramount that student nurses are educated about their potential role as exemplars of safe alcohol consumption.

The self-reported sickness absence figure obtained from our sample is considerably higher than the average sickness absence rate (4.5%) reported in the NHS.[49] Sickness absence is important as it not only leads to loss in productivity, but also poses a substantial financial burden to the workforce in the long run.[4],[50] Consequently, it is important to identify the underlying cause of sickness absence among pre-registration nurses, to help in developing behaviours early in the nursing career that will be transferred to the NHS setting

post-qualification.

These results support the concept of 'clustering' of health behaviours. Specifically, participants who were classified as physically active were more likely to report better general health, better diet and more sleep, and were less likely to report cigarette smoking and alcohol consumption than those who were less active. These findings are consistent with previous research showing that lower levels of physical activity are commonly associated with higher levels of other negative health behaviours [51] and with the modest literature documenting associations between multiple positive health-related behaviours.[52-54] For many of our pre-registration nurses, knowledge about the link between health behaviours and individual health was evident although they did not seem to transfer this knowledge to their own lifestyles across multiple behaviours. It seems that those students who engage in one health behaviour (e.g. physical activity) may simply be more able to transfer their learning about health behaviours to other aspects of their lives. This warrants further research.

There are several potential limitations to the current study that need to be addressed when interpreting these findings. Firstly, the study is limited by the lack of knowledge about non-responders i.e. whether those who did not respond engaged in more or less healthy behaviours. However, responses came from pre-registration nurses across several undergraduate nursing courses, spanning all years of study and with a sample age range and gender ratio representative of the pre-registered nursing population. Secondly, the study is based on cross-sectional data and thus, causality cannot be determined. However, it allows for an assessment of the current proportions of pre-registration nurses engaging in

negative and positive health behaviours and therefore indicates where education and supportive services need to be targeted. Finally, since the study relies on self-report data, there is a risk that some respondents may have underreported or over-reported certain health behaviours, in order to present a more favourable image of themselves. Evidence from this study suggests that a large number of pre-registration nurses are not engaging in the healthy lifestyle behaviours that they are expected to promote to their patients. Poor health amongst nursing students can have implications not only for the personal health of these individuals moving into a nursing career, but for the image of the NHS and the quality of patient care that pre-registered nurses can provide. Consequently, there is an urgent need to design interventions targeted to increase pre-registered nurses' awareness about their potential role as exemplars of healthy lifestyle choices and support them in transferring their learning to their own behaviour. For instance, health and well-being issues could be integrated into induction training for all new NHS nurses.[12] One example of this is to train pre-registration nurses to become workplace health champions and help to promote healthy lifestyle behaviours amongst their peers. This has been met with success in our region by offering student nurses an opportunity to undertake additional training such as the Royal Institute for Public Health Level 2 Award in Health Improvement, which will support them in a guidance role with an aim of improving the health of nursing staff as a population.[55] This will help not only to improve individual health but to set patterns of healthy behaviours that they will continue in their career as qualified healthcare professionals.

CONCLUSION

This study indicates that the health profile of pre-registered nurses is relatively poor. Despite significant education targeted at this group surrounding health promotion and health behaviours of patients, it seems that this knowledge is not always transferred to their own behaviour. Pre-registered nurses need to be educated early about the importance of maintaining and improving their own health, the financial impact of poor health of NHS staff on the NHS and the impact of poor health on their ability to effectively promote health to the patient population.

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Table 1

Difference in physical activity between active and inactive participants

Variables	Range	Total M(SD)	Active (N=143) M(SD)	Inactive (N=168) M(SD)	Difference between groups
Self-efficacy for physical activity	0-2	.79 (.45)	.96 (.48)	.63 (.36)	t(309)=6.93***
Knowledge about physical activity	0-4	2.62 (.49)	2.7 (.53)	2.55 (.45)	t(309)=2.68**
Social support for physical activity	0-4	1.51 (.96)	1.74 (.95)	1.28 (.93)	t(304)=4.21***
Barriers to physical activity					
I don't have time to be physically active		70.60%	31.90%	38.70%	χ (1)=0.11
I cannot afford it		57.40%	23.50%	33.90%	$\chi^2(1)=3.87^*$
I'm too tired		48.60%	19.40%	29.00%	$\chi^2(1)=3.95^*$
No motivation		36.40%	12.70%	23.70%	$\chi^2(1)=9.02^{**}$
Can't be bothered		32.30%	11.60%	20.60%	$\chi^2(1)=5.72^*$
I need rest and relax in my spare time		31.90%	14.20%	17.70%	$\chi^2(1)=0.11$
There is no-one to be physically active with		27.60%	9.40%	18.20%	$\chi^2(1)=6.43^{**}$
There are no suitable facilities		23.20%	9.70%	13.50%	$\chi^2(1)=0.65$
I am not the sporty type		17.10%	5.20%	11.90%	$\chi^2(1)=6.82^*$
I don't enjoy it		11.60%	2.90%	8.70%	$\chi^2(1)=7.10^{**}$
I've got young children to look after		10.40%	4.50%	5.80%	$\chi^2(1)=0.07$
Traffic is too heavy/I don't feel safe		9.70%	4.50%	5.20%	$\chi^2(1)=0.01$
My health is not good enough to be physically active		8.40%	3.20%	5.20%	$\chi^2(1)=0.64$
I'm active enough		8.10%	5.50%	2.60%	$\chi^2(1)=5.40^*$
Too fat/overweight		7.80%	2.60%	5.20%	$\chi^2(1)=1.63$
I'm injured		5%	4.20%	0.60%	$\chi^2(1)=10.6^{***}$
I have lost contact with family/friends		2.30%	0.60%	1.60%	$\chi^2(1)=0.86$
I might get injured or damage my health		1.60%	0.60%	1.00%	$\chi^2(1)=0.06$
I am too old		0.90%	0.30%	0.60%	$\chi^2(1)=0.19$
I don't think it's important		0.90%	0.03%	0.06%	$\chi^2(1)=0.19$

*$p<.05$, **$p<.01$, ***$p<.001$

Table 2

Difference in general health and work performance between active and inactive participants

Variables	Range	Total M(SD)	Active (N=143) M(SD)	Inactive (N=168) M(SD)	Difference between groups
BMI[1]	16.98-47.94	24.01 (4.38)	23.58 (3.96)	23.95 (4.71)	$t(275)=-.69$
General Perception of health	0-5	1.79 (.91)	2.04 (.91)	1.58 (.87)	$t(304)=4.56^{***}$
BMI Level					$\chi^2(3)=1.37$
Underweight (<18.5)		2.20%	2.40%	2.00%	
Normal (18.6-24.9)		70.80%	70.60%	70.90%	
Overweight (25-29.9)		18.10%	19.80%	16.60%	
Obese (>30)		9.00%	71.00%	10.60%	
GHQ-12[2]		25.9%	19.7%	31.1%	$\chi^2(1)=5.52^{**}$
Frequency of getting 7 hours of sleep				$\chi^2(3)=11.01^{**}$	
Always		8.12%	11.30%	6.00%	
Most of the time		52.50%	55.30%	51.20%	
Less than half the time		30.31%	21.30%	36.10%	
Seldom or never		9.06%	12.10%	6.60%	
Overall performance on the course				$\chi^2(5)=7.02$	
Worst performance	0.7%	0.7%	0.6%		0.7%
Bad performance	2.0%	2.1%	1.8%		2.0%
Not great performance	8.8%	5.7%	11.4%		8.8%
Ok performance	35.2%	30.7%	38.9%		35.2%
Better performance	44.0%	49.3%	39.5%		44.0%
Best performance	9.4%	11.4%	7.8%		9.4%
Last time reported 'sickie'				$\chi^2(4)=5.16$	
Last week	5.9%	7.0%	4.8%		5.9%
Within last month	16.6%	12.0%	20.6%		16.6%
Within the last six weeks	24.4%	23.9%	24.8%		24.4%
Within the last year	17.3%	19.7%	15.2%		17.3%
Never	35.8%	37.3%	34.5%		35.8%

*$p<.05$, **$p<.01$, ***$p<.001$

[1]Body Mass Index

[2]General Health Questionnaire 12-item

Table 3

Difference in smoking, dietary and drinking behaviour between active and inactive participants

Variables	Total	Active (N=143)	Inactive (N=168)	Difference between groups
Currently smoking	18.80%	12.70%	24.00%	$\chi^2(1)=6.4^{**}$
Knowledge about risk of passive smoking (is breathing someone else's smoke dangerous to health)				$\chi^2(2)=2.65$
Yes	97.4%	98.4%	96.6%	
No	1.5%	1.6%	1.4%	
Don't know	1.1%	0%	2.1%	
	Total	Active (N=18)	Inactive (N=40)	Difference between groups
Intention to quit for those who are smoking				
Give up in next month	10.17%	17.60%	7.50%	$\chi^2(4)=4.25$
Give up in next 6 months	33.90%	17.60%	42.50%	
Give up in next yr	23.73%	23.50%	22.50%	
Intend to give up but not in next yr	16.95%	23.50%	12.50%	
No intention of giving up	15.25%	17.60%	15.00%	
	Total	Active (N=143)	Inactive (N=168)	Difference between groups
Do you eat five servings of fruit/vegetables a day?				$\chi^2(2)=14.90^{***}$
Rarely	19.50%	12.60%	26.80%	
Sometimes	57.30%	55.90%	56.50%	
Everyday	23.20%	31.50%	16.70%	
Do you eat foods high in fat and sugar?				$\chi^2(2)=4.53$
A few times a week	46.10%	52.10%	40.00%	
Once a day	39.20%	35.20%	43.60%	
2-3 times a day	14.70%	12.70%	16.40%	
How often do you drink 8 glasses of water a day?				$\chi^2(2)=11.37^{**}$
Rarely	36.60%	33.10%	41.10%	
Sometimes	45.00%	40.80%	47.70%	
Everyday	18.30%	26.10%	11.30%	
I currently eat healthily	58.50%	71.40%	47.20%	$\chi^2(1)=18.10^{***}$
Self efficacy for healthy eating (range 0-3)	1.68 (.50)	1.73 (.50)	1.64 (.49)	$t(304)=2.54^{**}$
Social support for healthy eating (range 0-4)	1.62 (1.0)	1.77 (1.05)	1.48 (.96)	$t(306)=1.58$
Frequency of having a standard drink containing alcohol?				$\chi^2(4)=11.95^{*}$
Never	5.80%	6.30%	5.40%	
Monthly or less	9.10%	10.60%	7.80%	
2-4 times a month	27.80%	35.90%	21.00%	
2-3 times a week	43.00%	36.60%	48.50%	
4 or more times a week	14.20%	10.60%	17.40%	

(continued)

Table 3 (Continued)

Difference in smoking, dietary and drinking behaviour between active and inactive participants

Variables	Total	Active (N=143)	Inactive (N=168)	Difference between groups
How many standard drinks containing alcohol do you have on a typical day when drinking?				$\chi^2(4)=21.33^{***}$
1-2	14.50%	23.10%	7.00%	
3-4	22.20%	17.20%	27.20%	
5-6	27.70%	32.10%	25.30%	
7-9	21.50%	17.20%	27.20%	
10 or more	11.60%	10.40%	13.30%	
	Total	Total		
What do you think is the maximum number of units per day for men and women?	Men	Women		
1-2 units	13.40%	55.60%		
3-4 units	45%	30%		
4-5 units	25.60%	9.20%		
5-6 units	10.20%	4.10%		
7-8 units	3.80%	1.30%		
9-10 units	1.00%	0%		
10 or more units	0.60%	0%		

*$p<.05$, **$p<.01$, ***$p<.001$