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Exploring barriers, motivators and potential solutions to achieve healthy lifestyle among undergraduate student nurses

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Exploring barriers, motivators and potential solutions to achieve healthy

lifestyle among undergraduate student nurses: A cross-sectional questionnaire

Daniela Austin[1],

Jon May[1],

Jackie Andrade[1],

Andy Nichols[2]

[1]School of Psychology,

Faculty of Health, University of Plymouth

[2]School of Nursing and Midwifery,

Faculty of Health, University of Plymouth

*Corresponding author: Daniela Austin, School of Psychology, Plymouth University, Drake

 Circus, Plymouth, UK PL4 8AA (e-mail: daniela.austin@plymouth.ac.uk).

Abstract

Background: Pre-registered nurses tend to overweight, obesity, and unhealthy lifestyles.

Aims: To quantify the prevalence of these issues, to identify barriers and potential solutions to a healthy lifestyle, to explore the use of smartphone health apps.

Methods: An online questionnaire examined diet and physical activity habits, general health, and attitudes to eHealth. An in-class questionnaire with a new sample assessed current lifestyle, barriers to healthier living, support needed to achieve goals and use of health apps.

Findings: Half of student nurses were overweight or obese and only 41% met recommended levels of physical activity. An in- class questionnaire revealed that over half wanted to have a better diet, and exercise more.

Conclusion: Generally, student nurses were not satisfied with their current lifestyles. Lack of motivation and time were the most frequently reported barriers; an intervention that focuses on motivational support could be introduced as an acceptable and effective means of achieving and sustaining positive behaviour change.

Key points

- Pre-registered nurses tend to overweight and unhealthy lifestyles despite their knowledge about the associated negative health consequences

- Lack of motivation and time are the most frequently reported barriers

- There is the need for a more effective intervention that focuses on motivational support

- eHealth intervention could be an acceptable and effective means of achieving and sustaining positive behaviour change

Introduction

Nurses are role models for health (Blake & Patterson, 2015) and recognise that their own health behaviours influence the quality of patient care they are able to deliver (Blake & Harrison, 2013). However, nurses are often not following their own advice, in spite of being well informed about the impact. Bogossian et al. (2012) found that 62% of nurses and midwives in Australia, New Zealand, and the UK were overweight or obese. A cross-sectional study using the Health Survey for England found that 25% of nurses were obese compared with 14% of other healthcare professionals, which included doctors and dentists (Kyle, Wills, Mahoney, Hoyle & Atherton, 2017). Unregistered care workers had the highest prevalence of obesity at 31%. Obesity prevalence within the general population shows similar patterns as in 2018, 67% of men and 60% of women were classed as overweight or obese (NHS Digital, 2020).

While the pressures of the nursing profession may not be conducive to a healthy lifestyle, those joining the profession show similar problems from the outset. Malik, Blake & Batt (2011) and Hawker (2012) reported that approximately 40% of nursing students were within the overweight to obese categories. In Ireland, Burke and McCarthy (2011) found that nearly 20% of student nurse participants smoked and 19% were exceeding the recommended weekly safe level for alcohol consumption. Blake, Malik, Mo, & Pisano (2011) found that 77% did not consume five portions of fruit or vegetables per day, and Malik et al. (2011) found that 43% of them also ate foods high in sugar and fat every day. Fewer than half of student nurses do the recommended amount of moderate-intensity aerobic physical activity each week (Blake et al., 2011; Hawker, 2012).

Malik et al (2011) examined the health behaviour of registered and pre-registered nurses, and found "room for improvement" in both groups, advocating a need to target education and support service to improve the diet and exercise habits of nursing professionals. Kelly and Wills (2018) examined interventions addressing obesity and unhealthy lifestyles amongst nurses and concluded that there is insufficient evidence and mixed messages about successful interventions to address these issues. The problem may not be lack of knowledge about healthy behaviours, however, but one of motivation.

Some studies have examined interventions offering additional support to nurses involving eHealth technology solutions such as mobile phone apps and text message reminders (Chyou, Scheuer & Linneman, 2006; Tucker et al., 2016). Among other advantages, apps can be obtained at little cost, offer rapid and constant accessibility, and are anonymous and therefore perceived as non-judgmental. By 2017, there were over 300,000 different apps to support healthy lifestyles (Ferarra et al, 2019), but to be effective, interventions need to be based on psychological theories, be focused on the need of individuals, tackle barriers to healthy lifestyles and offer motivational support, which is critical in achieving desired goals.

The aims of this research are to quantify the prevalence of obesity and unhealthy lifestyles within the student nurse population in the South West of England, to identify barriers, potential solutions and to explore the use of health-related apps that could lead to a healthier lifestyle. Three authors of this paper research the cognitive basis of motivation and desire, particularly in situations with competing goals, to better understand human processes in order to develop ways to strengthen desires for healthy behaviours. The fourth author is a lecturer in Nursing

Studies, Education, passionate about improving health and wellbeing among future NHS workforce.

Method

Ethical approval was granted by the research ethics committee of the Faculty of Health and Human Sciences, University of Plymouth, prior to the online survey going live.

To support comparability with the findings of Malik et al. (2011), we followed their methodology of using a cross-sectional online questionnaire to record nursing students' own perceptions of their behaviour, using a variety of Likert scales, checkboxes, and free-text responses. While Malik et al (2011) had sent their questionnaire by email, we sent potential respondents a link to the survey, hosted on an online survey platform.

Materials

An online survey was followed up by an open-ended in-class survey with a new sample. The online survey was based on Malik et al, 2011, with questions on physical activity, general health, smoking and diet. We added the Alcohol Use Disorders Identification Test (AUDIT), and Stunkard's Figure Rating Scale (FRS, Stunkard, Sorensen & Schulsinger, 1983). AUDIT is a 10-question screening tool developed by the World Health Organisation (Babor, Higgins-Biddle, Saunders and Monteiro, 2007) to assess alcohol consumption, behaviours, and problems associated with excessive alcohol use. The FRS presents nine line-drawings of differently shaped male and female bodies, ranging from underweight to obese, asks respondents to indicate which is closest their body shape.

We included novel questions to assess the current use of mobile phone health apps, barriers to using these apps and motivation to live a healthy lifestyle.

The in-class survey with the new sample consisted of four open ended questions assessing current lifestyle, barriers to healthier living, support needed to achieve goals and use of health apps.

Sample and recruitment

All 458 1st year nursing students studying at the University of Plymouth, UK, were invited to participate in the online survey by email, and two follow-up reminders were sent to all non-responders after two and four weeks. In total, 154 (34%) provided responses. The majority were female (92.1%), white (97.4%), with an age range from 18-49 years (Median= 23.8, Mean= 26.1, SD=7.6). 95 were aged 18 to 25; 27 were aged 26 to 29, and 32 were 30 or older.

The following academic year, all new 1st year students were asked to take part in an in-class survey during lectures, using a Mentimeter survey which they could complete using their phones, tablets or computers. From a total cohort of 430, 207 (48%) participated in this survey. Demographic variables were not collected.

Results

The mean self-reported BMI of participants was 25.4 (SD= 6.5), which correlated r= .71 with calculated BMI (Mean=26.7, SD= 6.5). According to calculated BMI, 4% (n=6) were underweight (BMI<18.5), 46% (n=68) in normal range, 23% (n=35) overweight (BMI 25-30) and 27% (n=39) were classed as obese (BMI >30). BMI could not be calculated for six participants who did not provide valid height or weight data. The mean value of Stunkard Figure Rating Scale was 4.8 (SD=1.7), correlating r= .66 with calculated BMI (see figure 1), showing that the students had

good self-awareness of their body shape and size in all four categories, which is an essential factor to start following weight-related behaviours.

There was a negative correlation r=-.31, p=.001 between calculated BMI and ratings of general health, although both the mean health rating for the overweight of 3.23 and for the obese of 2.67 were above the mid-point of the scale.
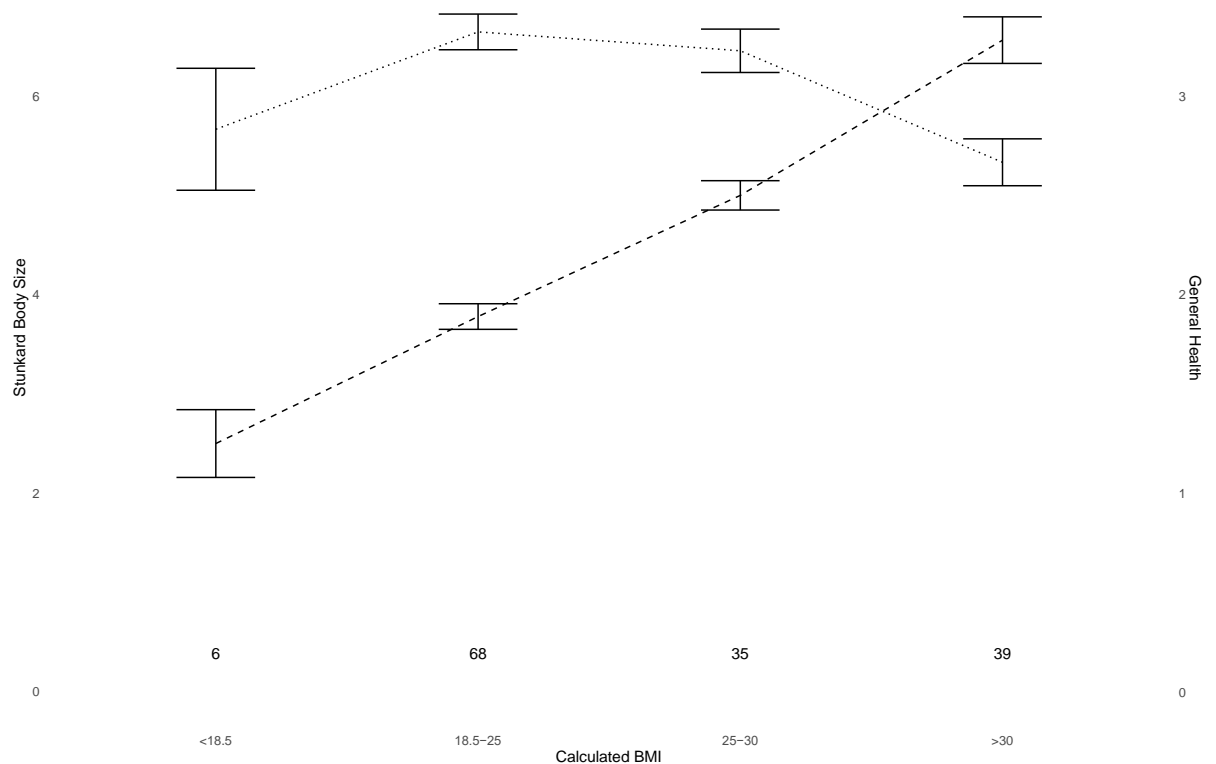

Figure 1. Mean (dashed line, left hand axis; ± 1 SE) choices of each Stunkard mannikin and mean General Health (dotted line, right hand axis; ± 1 SE) according to calculated BMI category.

While the majority of participants (61%) stated they currently ate healthily, only under a third (29%) ate the recommended daily five portions of fruit and vegetables per day, and two-fifths (40%) ate food high in fat and sugar every day, with 18% eating these types of food two to three times a day.

Student nurses had received little encouragement to make healthy food choices during the past month, (M=1.4, range 0-4, SD= 0.91) with the highest support coming from family members (M=1.8, SD= 1.4). They had little confidence that they would be able to avoid unhealthy foods such as chocolate or pizza (M= 3.5, SD= 0.8, Table 1).

Table 1. Confidence to avoid unhealthy food and snacks

Type of food and snacks	Not at all confident		Slightly confident		Somewhat confident		Confident		Very confident	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Chocolate	44	29.1	39	25.8	26	17.2	22	14.6	20	13.2
Pizza	19	12.6	30	19.9	30	19.9	31	20.5	41	27.2
Fizzy drinks	17	11.3	18	11.9	23	15.2	19	12.6	74	49
Crisps	12	7.9	24	15.9	26	17.2	41	27.2	48	31.8
Cakes	10	6.6	26	17.2	32	21.2	49	32.5	34	22.5
Sweet biscuits	9	6	16	10.6	33	21.9	51	33.8	42	27.8
Sweets	9	6	20	13.2	21	13.9	35	23.2	66	43.7
Ice cream	6	4	8	5.3	21	13.9	49	32.5	67	44.4

Price and availability of good quality fruit and vegetables were cited as the main reasons for not eating more of them (M=1.7, SD= 0.5, Table 2).

Table 2. Reasons for not eating fruit and vegetables

	Very Important		Important		Unimportant		Very Unimportant	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
The price of fruit and vegetables	39	25.8	73	48.3	28	18.6	11	7.3
Ability to buy at University/ Placement	36	23.8	71	47	34	22.5	10	6.6
The money I have available to spend	35	23.2	74	49	34	22.5	8	5.3
The quality of fruit and vegetables	33	21.9	85	56.3	27	17.9	6	4
The time I have available to prepare	26	17.3	72	48	40	26.7	12	8
Likes and dislikes of my family	25	16.9	46	31.1	51	34.5	26	17.6
My knowledge about ways to prepare	17	11.3	59	39.3	48	32	26	17.3
How easy it is for me to get to the shops	17	11.2	70	46.4	50	33.1	14	9.3

Participants were aware of benefits and importance of regular exercise (M= 3.8, range 0-4, SD= 0.4), and motivation levels to live a healthy lifestyle were generally good (M= 6.4, range 0-10, SD=1.9).Yet, only two-fifths (41%) met recommended levels of weekly physical activity, which is 150 minutes of moderate to vigorous exercise (Donnelly et al., 2009). The most frequently reported barriers (Table 3) were tiredness, lack of time, and lack of motivation.

Table 3**.** Self-efficacy, social support, knowledge and barriers to physical activity

Variables	Range	M (SD)
Self-efficacy for physical activity	0-3	1.39 (.94)
Social support for physical activity	0-4	1.28 (.85)
Knowledge about physical activity	0-4	3.75 (.39)
Barriers to physical activity	***n***	*%*
I am too tired	94	61
I don't have time to be physically active	79	51.3
I have no motivation	51	33.1
I need rest and relax in my spare time	47	30.5
I cannot afford it	46	29.9
Cannot be bothered	41	26.6
I have young children to look after	38	24.7
There is no-one to be physically active with	33	21.4
I am not a sporty type	33	21.4
I don't enjoy it	21	13.6
I am active enough	21	13.6
I am too fat/ overweight	15	9.7
I am injured	15	9.1
I might get injured or damage my health	13	8.4
My health is not good enough	11	7.1
There are no suitable facilities	8	5.2
Traffic is too heavy/ I don't feel safe	7	4.5
I have lost contact with my family/ friends	6	3.9
I am too old	2	1.3
I don't think it's important	2	1.3

There was a lack of social support for physical activity, with student nurses feeling they had received only slight encouragement from friends, family, partner or colleagues during the past month (M= 1.3, range 0-4, SD= 0.9).

It is recommended that adults aged 18-64 years should get 7-9 hours of sleep per night (National Sleep Foundation, 2019). Only 61% (N=93) of our participants reported getting this more than half the time. Insufficient sleep can compromise health and well-being (Hirshkowitz et al., 2015), increase dietary intake (Capers, Fobian, Kaiser, Borah & Allison, 2015), type 2 diabetes and consequently increased BMI (Cappuccio et al., 2008).

The data on drinking and smoking was more encouraging, with one in six (17%) being current smokers, and over half of these (58%) intended to quit smoking in the next year. Almost all participants (98%) reported having an alcoholic drink no more than 2-3 times per week, which is within recommended guidelines (NHS Digital, 2018) of no more than 14 units a week. A unit of alcohol is about a single small shot measure of spirits or half a pint of lower to normal-strength lager/beer/cider. A small glass of wine contains about 1.5 units of alcohol. However, there was a tendency to binge drink, with two-fifths (40%) reporting having more than five drinks on a typical drinking day; 19% five or six drinks; 13% seven to nine drinks and 7% ten or more. One in seven (15%) reported consuming six or more drinks a day on a monthly basis, and 7% did so weekly.

Over half of participants (56%) reported currently using a health related application on their smart phones. The most popular supported exercise (33%), diet and healthy eating (24%) with very few used for smoking (0.9%) or alcohol cessation (0.5%). In an open-ended free response question, commonly reported barriers to

using eHealth apps were: 'Not sure which one to get'; 'Can't commit to it'; 'They are too expensive'; 'I find them boring and do not keep up to date with them' and 'I don't have the time to use them or even understand how to use them.'

Overall, student nurses were aware of their body shape but did not appreciate how to eat healthily; most did not drink excessively although there was a tendency to binge drink; most of the few who did smoke wanted to quit soon; and they did not exercise enough though they understood the benefits, and although they wanted to take more exercise, they lacked the confidence to do so. Importantly, they did not receive social support to engage in a healthier lifestyle, and felt constrained by time, money and circumstances.

We repeated these analyses to compare the three age groups (18-25; 26-29, 30+) and found some lifestyle differences in health behaviour (Table 4). Although the age groups did not differ significantly in calculated BMI, the younger age group's self-reported BMI was lower, and they selected smaller body shapes on the Strunkard test and reported higher motivation to be healthy than the older groups. The older two age groups were more likely to say that having children to look after was a barrier to being physically active, they received less encouragement to make healthy food choices from family members, and their consumption of food and vegetables was more likely to be influenced by the likes and dislikes of their family. The 18-25 group expressed lower confidence in being able to resist eating pizza, were more likely to drink six or more drinks on one occasion and drank more per day.

Table 4: variables where Age Groups differed

Variable	18 to 25			26 to 29			30 and over			Statistic
	N	M	SD	N	M	SD	N	M	SD	
Calculated BMI	93	25.7	6.3	27	28.6	6.4	31	28.0	6.6	$F(2,148)=3.03$, p=.051
Self-reported BMI	76	23.8	5.6	25	29.0	6.2	27	26.3	7.9	$F(2,125)=6.66$, p=.002
Strunkard Bodyshape	93	4.4	1.5	27	5.5	1.9	32	5.3	1.7	$F(2,149)=7.18$, p=.001
Motivation to be healthy	93	6.9	1.6	27	5.6	2.0	32	5.8	2.3	$F(2, 149)=7.31$, p<.001
Children as barrier	95	Yes=8		27	Yes=15		32	Yes=15		$\chi^2 (2)= 35.8$, p<.001
Healthy food choices	93	2.0	1.4	26	1.4	1.2	32	1.3	1.2	$F(2, 148)=4.03$, p=.020
Family influence	93	1.2	0.9	26	2.0	1.0	29	1.9	1.0	$F(2, 148)=9.96$, p<.001
Able to resist pizza	92	3.1	1.4	27	3.4	1.6	32	3.8	1.2	$F(2, 148)=3.31$, p=.039
Binge drinking	93	2.1	0.9	27	1.8	0.9	32	1.6	0.8	$F(2,149)=4.35$, p=.015
Drinks per day	86	2.5	1.3	23	2.3	1.3	26	1.8	0.9	$F(2,132)=5.94$, p=.025

We specifically addressed these barriers to healthy lifestyle in the following year's in-class survey, with a new sample. 53% answered 'What do you need to do to be healthier' by stating that they need to have a better diet (less sugar, more fruit and vegetable consumption and less junk food), with 52% mentioning taking more exercise. When asked 'What is stopping you', the most frequent answer was a lack of motivation (enthusiasm, willpower, self-control, laziness and procrastination: 31%), followed by lack of time and busy lifestyle (university, children, work, commitments: 30%). In answer to 'What kind of support do you need', 24% said they needed financial support (childcare, gym, food), and 21% professional support (dietician, personal trainer, mental health professional). Other frequent answers were time management (19%), personal support (partner, family and gym buddy: 19%) and motivational support (18%). Finally, 'How could a smart phone help' was most frequently answered by using diet tracking apps (food, planning, reminders, steps, calories: 43%). While 22% would use their mobile phone to gain some inspiration (meal plans, simple recipe ideas, exercise plans and shopping lists), 24% felt that technology alone could not help to achieve their goals.

Discussion

Student nurses in the South West of England engage in numerous unhealthy lifestyle behaviours and half are overweight or obese. This substantiates previous findings in the literature about unhealthy lifestyles among student nurses (Malik et al., 2011; Hawker, 2012; Blake et al., 2011). There is a clear discrepancy between the nurses' individual perception of their own health and their self-reported engagement in healthy lifestyle behaviours.

A positive correlation between Stunkard Figure Rating Scale and calculated BMI suggests that student nurses are aware of their body size. This finding challenges previous research which showed that overweight individuals are more likely to underestimate their body weight (Burke, Heiland & Nadler, 2010). As the rates of obesity prevalence within the UK show annual increases (NHS Digital, 2019), physical exercise may represent an important factor in tackling this growing problem. This also plays a key role in the prevention of chronic health conditions and the lowering of mortality risk (Warburton & Bredin, 2017).

Despite the importance of regular exercise in the maintenance of good health, only two-fifths of students surveyed stated that they engaged in the recommended weekly exercise regime. Considering that 33% of student nurses reported lacking motivation to engage in exercise and 27% stated they could not be bothered, these findings were not surprising and were also similar to what Malik et al. (2011) reported. However somewhat contradictory, students were knowledgeable about the importance of regular exercise for good health, and expressed a good motivation to live a healthy lifestyle. Clearly there is a large disconnect between knowledge and application regarding regular engagement in exercise. Other frequently reported barriers were tiredness, lack of time and need to rest.

Therefore, a health intervention aimed toward student nurses should seek to address these barriers by being low cost, make minimal demands on time or effort to use, and focus on making motivational support available at any time. Interventions providing motivational support could lead to improvements in self-efficacy, an important factor in any positive behaviour change (Walpole, Dettmer, Morrongiello, McCrindle & Hamilton, 2011). Tucker et al., (2016) found an increase in physical activity in nursing staff following a workplace intervention that offered personalised

health coaching via text messaging and a variety of activities with other staff which fitted into the workday, including workstation treadmill, stair climbing and walking meetings.

Concerning the impact of physical activity on sleep quality, exercise positively influences sleep through various physiological and psychological mechanisms as described by Chennaoui, Arnal, Sauvet, and Léger (2015). On the other hand, a bidirectional relationship between exercise and sleep exists, lowered physical activity levels lead to poor sleep and vice versa (Kline, 2014). Our findings indicate that over a third of students did not get at least seven hours of sleep per night. The lack of sleep, among other factors could provide a plausible explanation for poor dietary choices within the current sample. In support of this view, ghrelin, an appetite stimulating stomach-derived peptide (Cummings & Foster, 2003; Van Der Lely, Tschop, Heiman & Ghigo, 2004) increases and leptin an appetite suppressing adipocyte-derived hormone (Zigman & Elmquist, 2003) decreases during chronic sleep deprivation (Taheri, Lin, Austin, Young & Mignot, 2004).

Student nurses perception of their dietary choices were mostly good as over 60% reported that they followed a healthy diet. However, we found that over two-thirds of student nurses did not consume the recommended daily amount of fruit and vegetables, and nearly half ate food high in fat and sugar on daily basis. Marquis (2005) speculated that student nurses over rely on convenience foods due to heavy study schedules and financial restraints. This is in line with the current findings as the most important factor for consuming recommended amount of fruit and vegetables was the price followed by the accessibility to buy these foods at the university or work placement. There are facilities available to support exercise and cafes that serve healthy food with a good variety of fruit on offer. However,

preparation is the key as during the busy day on campus or work placement some students may not have enough time to make the use of these facilities.

When we questioned the second cohort of nursing students, it became very clear that over half of them were not satisfied with their current lifestyles and would like to have a healthier diet and better exercise regime. The most reported barrier to these behaviours was a lack of motivation, followed by lack of time and busy lifestyle. These results are consistent with the previous research run with cohorts 18 months previously.

Further exploration revealed that to achieve the goals they needed financial, professional, personal and motivational support and better time management skills. Although the majority of student nurses did not exceed the recommended weekly allowance of alcohol consumption, some displayed typical binge drinking behaviour (four or more drinks for women; five or more drinks for men), and over one-third (40%) admitted to drinking more than five drinks on one occasion. The reported prevalence of binge drinking was much higher compared to the general population for this age group (29% of men; 26% of women; Office for National Statistics, 2013). This behaviour might be typical of university students in general (Howell et al., 2013; Dantzer, Wardle, Fuller, Pampalone & Steptoe, 2006), but these findings may not be desirable for the future workforce of the NHS, whom are often expected to act as role models (Blake et al., 2011).We are aware that our research has limitations. Only one-third of student nurses invited to take part in the research completed the online survey, therefore, the results may not be representative of the entire nursing population at the University of Plymouth as little is known of the health behaviours in the non-respondents. Nevertheless, a large number of student nurses reported engaging in negative health behaviours.

This study suggests that student nurses engage in poor health behaviours despite their knowledge about the associated negative health consequences. Our study indicates the need for a more effective intervention that focuses on motivational support and addresses barriers to healthy lifestyles. An intervention needs to be cost-effective and accessible at any time while remaining convenient to this population, who feel under pressure of time and money and so are unlikely to take on the additional effort of classes or training courses beyond their curriculum. It is very challenging to address all barriers identified within this research, but the use of health related apps to get inspiration for meal ideas, planning, exercise plans and shopping lists together with personal motivational support could be the right solution. With over half already using some form of smartphone app to help them improve their diet or exercise, an eHealth app incorporated into training about patients' weight management could be an acceptable and effective means of achieving and sustaining positive behaviour change as well as meeting an educational objective.

The challenge now is to develop an intervention that incorporates these factors and provides the motivational support that is currently lacking.

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