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## PROMOTING HEALTHY BEHAVIOUR CHOICES: UNDERSTANDING PATIENT CHALLENGES BY UNDERTAKING A PERSONAL BEHAVIOUR CHANGE TASK

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### BIOGRAPHICAL NOTE

To be provided

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### KEYWORDS

Health behaviours; Adherence; Experiential learning; Integrative learning; Flexible learning; Medical education

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### ABSTRACT

**INTRODUCTION:** Unhealthy behaviours such as poor diet, smoking and physical inactivity contribute significantly to chronic disease. Our first year medical school project aims to increase student awareness of: the importance of these behaviours and their systematic measurement; recommended behaviour targets in health professional guidelines; challenges in achieving patient behaviour change; and psychological theories which aid behaviour change.

**METHODS:** Students are provided with evidence-based health behaviour guidelines for prevention of heart disease. Students select whichever behaviour they would personally like to achieve improvement in, systematically record behaviour for one week (baseline), and then try to implement (healthy) behaviour change for the next two weeks, using psychological theory as an aide. Students report their results and discuss outcomes reflecting on explanations for the success or otherwise of their behaviour attempts. A virtual learning environment (Moodle) ensures project engagement and completion during the relevant timeframes.

**RESULTS:** This assignment has been successfully completed by students over previous academic years. The use of deadlines for uploading sections of coursework to Moodle (e.g. baseline data) has increased the quality and completeness of the projects. Students learn to use standard instruments such as the Fagerstrom Test for Nicotine Dependence and also learn recommended professional guidelines on diet and physical activity at an early point in a medical training. Also, self-reported health behaviours improved over the course of the assignment.

**CONCLUSIONS:** This project allows students to test the difficulty of adhering to professional advice they themselves will give to future patients. The assignment combines knowledge (e.g. education on chronic conditions, on the role of behaviour change and on professional guidelines), skills (e.g. documenting behaviours, planning and implementing change) and attitudes (e.g. on understanding the difficulties encountered by individuals when making

and sustaining recommended behaviour change). The novel use of a virtual learning environment ensures high participation.

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## INTRODUCTION

The impact of individual behaviours on health has been subject to much research and recommendations. In the context of medical education, the US Institute of Medicine focus on six: smoking, eating, physical inactivity, alcohol consumption, risky sexual behaviour and intentional and unintentional injury (Institute of Medicine, 2001). Indeed, these behaviours account for much of the burden of disease in developed countries. They have been linked to chronic diseases such as diabetes, cardiovascular disease, cancer, chronic obstructive pulmonary disease, musculoskeletal disorders, and oral health problems (Institute of Medicine, 2001). Modification – in a healthy direction – of such behaviours forms an essential part of many chronic disease prevention and clinical management guidelines (e.g. cardiology; Graham *et al.*, 2007). These guidelines are extremely important for healthcare professionals, and the role of patient health behaviour profiles and changes in a healthy direction needs to be highlighted from the start of health professional education. Such education is challenging in the abstract, with a need for educational activities which engage future professionals in the complexity and challenges of health behaviour change.

Our medical school provides an early focus on health behaviour change through a module completed by students in the first semester of their medical education. This module is called Health Behaviour and Society (HBS) – it commences a ‘pillar’ of topics in Population and International Health, and begins the theme of Personal and Professional Development (see Royal College of Surgeons in Ireland, 2010). The HBS module largely focuses on Social and Health Psychology, and has a particular emphasis on models to predict health behaviours, but also addresses basic psychological processes (e.g. learning, memory), cognitive and emotional influences on and responses to illness (e.g. stress) and human psychosocial development.

Modification of unhealthy behaviours is a core focus of the field of Health Psychology. This discipline offers several theories of how health behaviour patterns are formed, and influenced, and how behaviour change may be facilitated when advice is tailored or contextualised to meet individual needs (e.g. whether or not nicotine replacement is required to help smokers quit) (Morrison and Bennett, 2006). The details of such theories are beyond the scope of the current article. However, there is ample evidence to demonstrate their ability to predict unhealthy behaviours in longitudinal studies, while randomised trials have demonstrated that the adoption of such theory-informed techniques are proven to increase the likelihood of behaviour change (e.g. Hardeman *et al.*, 2002, Durantini *et al.*, 2006, Eccles *et al.*, 2006). During teaching, these theories are presented in a manner that encourages students to select theory components as one or more ‘tools’ that they can use in a given situation to guide behaviour change.

As a complementary discipline, medical or other health professional students may not necessarily find psychology topics, or theory, the most engaging areas of their studies (Doherty *et al.*, 2000). Furthermore, teaching young people, who for the vast majority are healthy (i.e. do not have chronic disease, even if current behaviour patterns may be unhealthy), about the long-term risks of such behaviours also poses a challenge. Young people may also think that they can always change their behaviours later on, perhaps after

college, without realising the difficulties of such changing such ingrained habits. Therefore, the integration of such a breadth of topic areas, and the limited experience of the audience, would suggest that such education would probably benefit from integrative learning techniques. Integrative learning concerns the learning process when individuals draw on a wide range of knowledge to inform decisions, and make connections in seemingly disparate information (e.g. understanding issues contextually, applying theory in practice, utilising non-college experiences etc.)(Higgs, 2008, Higgs *et al.*, 2010).

In order to provide an integrative and flexible learning opportunity for students regarding health behaviours which may be beyond their current experiences, we have devised a reflective assignment which requires medical/physiotherapy students to modify their own health behaviours. In essence, the students attempt to try out the advice they will subsequently be giving to patients once qualified. We believe that this requires integrative learning, and demands that students engage with and increase awareness of: the importance of these behaviours and their systematic measurement; recommended behaviour targets in health professional guidelines; challenges to achieving patient behaviour change; and psychological theories which aid behaviour change. The project also utilises experiential learning, flexibility, interaction with a virtual learning environment (RCSI Moodle), and student choice, and requires students to reflect on their own experiences during their attempts to change their behaviours. We describe in the detail the assignment here.

## **METHOD**

### Assignment learning outcomes:

These are divided into knowledge, skills and attitudes, and are provided to the students in didactic form and on Moodle. At the end of the assignment, students are required to:

#### Knowledge

- Recognise the difficulty of changing behaviour
- Apply psychological theory to enhance behaviour change
- Describe and appraise their own profile regarding a selected health behaviour

#### Skills

- Assess health behaviours systematically
- Critically appraise the behaviour change in a written report

#### Attitudes

- Reflect on the challenge of changing behaviour in the context of professional role giving health behaviour advice

### Assignment instructions:

The assignment required that students:

- Select one of the following health behaviours: diet (reducing saturated fat intake; increasing fruit and vegetable intake to recommended 5-a-day portions), increase physical activity, smoking cessation/reduction, and reducing caffeine intake
  - Although caffeine reduction is not part of chronic disease guidelines (e.g. Graham *et al.*, 2007)), it has been associated with increased hypertension (James, 2004), and is provided for an option for very healthy students without the above behavioural pathogens
- Recall and record how often they engaged in that behaviour in the past week
- Monitor and record their actual behaviour for one week

- Attempt to change (improve) their current behaviour profile, using psychological theories of behaviour change
- Reflect on success or otherwise of attempts to change, specifically:
  - the opportunity to see what it is like to try to change health behaviour in accordance with professional guidelines;
  - how difficult or easy this may be to achieve
  - the factors about them or their environment that make it easier or difficult
  - the likelihood that they would be maintaining the behaviour change in the medium- to long-term
- Communicate this task in writing within the guidelines provided.

#### Methods:

We describe the method using the example of smoking – but these are equivalently applied to the other behaviours. Within one week of project commencement, students were required to complete a psychometric scale which measured their baseline levels of smoking dependence – the Fagerstrom test for nicotine dependence (Heatherton *et al.*, 1991) (other scales were used for other behaviours, i.e. About.com, 2011, Ekelund *et al.*, 2006, Hallal and Victora, 2004, Retzlaff *et al.*, 1997). This ensured that students engaged with systematic measurement of their behaviours – an important module learning outcome. These were completed again at the end of the project period.

Students then estimated how often they smoked on each day of the previous week. They were then required to monitor their smoking for one week – recording how many, when and where they smoked.

The intervention phase of the assignment then followed. Firstly, students completed a questionnaire in respect to their smoking – eliciting attitudes, beliefs and habits concerning their behaviour. This was designed to make the students reflect on these aspects, and possibly act as an intervention or further help students design their own intervention to reduce/cease smoking. Secondly, students decided which aspects of their behaviour could be changed, and used elements of psychological theory(ies) to aid this behaviour change. Examples could be providing themselves with a reward (positive reinforcement) if they met a pre-defined target of reduced cigarette consumption, or removing stimuli, such as ashtrays, that reminded them of smoking (classical conditioning), or not meeting fellow smokers during coffee breaks (theory of planned behaviour – subjective norm, classical conditioning etc.; Morrison and Bennett, 2006). They then had to apply this plan for two weeks of the intervention phase, and record the number of cigarettes they smoked. At the end of the two weeks they were required to again complete the Fagerstrom test scale on Moodle.

#### Assignment final report

Between 1–2 weeks after the intervention was finished (the start and end dates were somewhat flexible, but the final deadline was fixed), the students were then required to upload to Moodle a two-page scientific report of their experience (summatively graded according to the following weightings: Introduction – 5%, Method – 25%, Results – 10%, Discussion – 40%, 3 key learning points for changing patients' behaviour – 15%), along with separate line graph of behaviour, and appropriate references (5%).

The project was worth 15–20% of the HBS module. Written feedback and a summative grade were provided. The entire project duration was about 5–6 weeks.

## RESULT

### Observations

There was significant engagement with the project from students. For example, one student reported going to a general practitioner to obtain extra advice on smoking cessation, so this could be utilised for his project. Furthermore, there was clear engagement with psychological theories, sometimes even with theories which were not covered in the course lectures or textbooks. Students readily adopted the jargon of such models (e.g. “norms”, “self-efficacy”, “antecedents”, “cues to action”, “reinforcers”, see Morrison and Bennett, 2006). Probably most importantly, there was a clear understanding coming through the body of assignments that behaviour change was a difficult task, and that multiple social, environmental and personal factors influenced health behaviour.

Management of the assignment through Moodle, with the required scale completion at different stages of the project, ensured active engagement with the required tasks.

### Scale results

We also analysed the self-report scale results for each behaviour, using dependent sample t-tests. Over the course of the assignment, significant improvements in each of the health behaviours were observed. Specifically, this was a reduction in mean nicotine dependence scores (3.2 v 1.6;  $t=-4.5$ ,  $p<0.001$ ), a reduction in intake of mean grammes of saturated fat (30.6g v 25.4g;  $t=-8.3$ ,  $p<0.001$ ), an increase in physical activity (metabolic equivalent: 228.7 v 513.2;  $t=8.7$ ,  $p<0.001$ ) and a reduction in milligrams of caffeine consumed (350.7 v 194.2;  $t=-5.0$ ,  $p<0.001$ ).

## DISCUSSION

The reflective assignment has been successfully implemented in the RCSI curriculum. Overall, we believe that the pedagogy used for the assignment promoted experiential, flexible and integrative learning.

Students got first-hand, ‘real-world’ experience of how difficult it was to change health behaviours. This clearly came through in the student reports, for example:

“Change should be planned in stages, and one should value the results of slight progress. Change is hard and dramatic change even more so. Change in steps facilitates the process of behaviour modification.”

“By immersing myself into the depths of behavioural intervention, I learnt a number of things. The most important lesson is the fact that implementing and maintaining a behavioural change is extremely challenging.... I found that maintaining physical activity on a daily basis was exceedingly difficult.”

“I also found it difficult to find the time to exercise while continuing with my daily activities and studies..... The first thing I would change if I were to do this project again is that I would make a gradual change in my behaviour. This is because for the first 3 days of my intervention I exercised each day and I realized that changing my behaviour immediately was more difficult than I had anticipated..... A gradual change will also minimize the shock of the change

and will hopefully increase the effectiveness of the change..... This is because although the patient may seem ready to make changes, actually implementing and maintaining these changes can be more difficult than predicted.”

This was probably the most important learning objective for the project. To appreciate by personal engagement how difficult it is to change a health-related behaviour, and to understand how behaviours are intrinsically tied to our surroundings, should be of great benefit to future health professionals.

The project was flexible, in that it allowed students to choose from a menu of health behaviours. Thus, it prevented students becoming bored, or being engaged in tasks that they might feel to be irrelevant for them as individuals. Indeed, the project provided an impetus for some students to modify behaviours that they had already intended to change. For example, for some smokers, students specifically stated they were glad of the project, as they wanted to cut down on smoking for some time. Equally, the project allowed smokers who were not interested in quitting the opportunity to pick one of the other behaviours, and it was important that students were allowed this autonomy.

Overall, the pedagogy fostered integrative learning, incorporating the use of a virtual learning environment, the scientific method, professional guidelines, awareness of chronic disease behavioural risk factors and their measurement, and psychological theory. The use of the virtual learning environment allowed progress to be monitored, and required students to engage at particular time points. Materials were also supplied that allowed students to compare their behaviour scores with other populations (e.g. was their caffeine intake ‘high’, or their physical activity scores in comparison to patient populations). The various choices throughout the project encouraged students to make disciplinary connections, as shown in previous work (Higgs, 2008). Indeed, students had to understand their behaviours in context, and reflect on different personal (psychology), social (sociology) and environmental aspects of their behaviours. They also got to apply health behaviour theories in practice. These two aspects clearly link to definitions of integrative learning (Huber and Hutchings, 2004). We would like to think that students can now consider behaviour change as not only being important to health psychology, but as being part of ‘real’ medicine.

Faculty also provided individual and critical feedback via email, allowing further reflection on the assignment. In some instances, students replied to the feedback with further details about their experience – often these were not looking for grade changes or did not have disagreements about their grades – demonstrating that students were still thinking about their experience, and were processing their experiences in light of the given feedback. Finally, asking students to provide details of what would aid their future practice as health professionals demonstrated that they fully understood and integrated the concepts and experiences.

## **CONCLUSION**

This experiential, flexible, integrative reflective assignment learning project allows students to test the difficulty of adhering to professional advice they themselves will give to future patients. The assignment combines knowledge (e.g. education on chronic conditions, on the role of behaviour change and on professional guidelines), skills (e.g. documenting behaviours, planning and implementing change) and attitudes (e.g. on understanding the

difficulties encountered by individuals when making and sustaining recommended behaviour change).

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