

Planning health promotion activities based on the assessment of nutritional status of the students

Summary

Young adulthood is a critical time of development of life-long health habits. According to national diet data, young adults are at risk of poor diet and health behaviours. This case study demonstrates a model of incorporating local, background dietary research and working collaboratively with University departments, staff and students to deliver small interventions to improve diet through nutrition education and cookery skills.

Aims/Objectives

- To provide a model of incorporating research in empowering nutritionally vulnerable groups of university students.
- To assess nutritional status to identify the prevalence of nutritional inadequacies in a sample of university students.
- To identify subgroups of the university students who are at risk of nutritional disorders.
- To provide an evidence-base required for developing health intervention strategies in the universities.
- To enhance the health and wellbeing of students through delivering a small package of interventions together with staff and students.

What did you do?

More than five hundred university students were recruited in a cross-sectional study within the framework of the Collaborative Investigation on Nutritional Status of Young Adults (CINSYA) in the city of Liverpool, UK. Participants were recruited by convenience sampling from universities across the Northwest of England and attended two clinical visits. All participants gave their written informed consent for inclusion in the study, before participation.

Demographic data were collected by the questionnaire using questions extracted from the validated questionnaires of the UK National Diet and Nutrition Survey (NDNS). Body composition, fat and fat-free mass, total body water, and the overall percentage body fat were assessed by a multi-frequency bioelectrical impedance body composition analyser and height was measured using a stadiometer.

A three-day integrated diet and physical activity diary were used to assess energy and nutrient intake and to estimate energy expenditure. The diet diary was extracted from the validated questionnaires of the UK's NDNS with minimal adjustments. The food diaries were analysed for energy, macronutrients, and micronutrients using Microdiet dietary analysis software. Difference between groups (e.g. based on gender, BMI, residential status, etc.) was assessed using parametric and non-parametric statistical tests.

Findings were disseminated in journal publications and conference presentations; and discussed with university students studying health and nutrition. A package of interventions was developed together with students to enhance the nutritional status of the university students including a) directing students to evidence-based healthy eating resources, b) producing a variety of nutritionally balanced, affordable recipes and recipe cards to encourage students to cook, c) developing a cookery course for students for cooking education and to enhance cooking confidence, d) developing a cookery demonstration video to share with students to encourage cooking via social media, e) educating students about how to save money by meal planning,

making a shopping list using up leftovers; and f) promoting the above online, within the hall of residences, and the Fresher's fair.

What was the context / background?

The UK National Diet and Nutrition Survey (NDNS) has identified that the youngest adults (i.e. aged 18 - 24 years) consumed larger quantities of high calorie, high-fat foods and fewer portions of fruits and vegetables than other adults. Health Survey for England (HSE) also showed that the adults within the youngest age category consumed, on average three portions of fruit and vegetables per day and this is far less than UK's recommendation of 'Five-a-day' referring to eating at least five portions (400g) of fruit and vegetables. Although NDNS and HSE as national surveys do not provide specific evidence regarding the diet, lifestyle and health of university students (USs), most USs belong to this age group. This makes British USs a group, vulnerable to positive energy balance and consequently at risk of developing health complications such as obesity and its associated co-morbidities such as diabetes, cardiovascular diseases and cancer later in life.

Project CINSYA (Collaborative Investigation on the Nutritional Status of Young Adults) was designed to actively engage students in practical perspectives of conducting research and delivering health promotion by providing a supportive and exciting opportunity to develop ideas and research questions and then plan how to address those through teamwork outside their routine learning environment. The project has been running for several years (since 2014), hosting several final year research projects and dissertations, and voluntary summer placements.

How was it organised and who was involved?

This work was led by the academics who are Registered Nutritionists of the School of Health Sciences. Internal collaborators included Students who were interested in health promotion, together with the Health and Wellbeing officer from the Students Administration team, and Catering team.

What resources did you need?

All expertise, laboratory consumables and consultations required were provided in-house, and there were very few financial implications for the university outside of staff time, printing and consumables. The printing costs (e.g. production of the required questionnaires) and lab equipment, consumables and overhead were provided by the School of Health Sciences. The programme incorporated cooking training from an established programme called Let's Get Cooking (funded by the British Dietetic Association, previously funded with Children's Food Trust).

Has it been evaluated? How successful has it been?

Nutritional status was assessed using Dietary Analysis software Microdiet, together with SPSS software for analysis of relationship and differences in the target population. The interventions were formatively evaluated through word of mouth (e.g. student verbal feedback reflecting on what they had learned and what they have changed or might change in future), as well as uptake of hard copies of the cookery booklet and recipe cards.

How did it draw on or contribute to a Healthy University Whole System Approach?

The project draws on the Healthy Universities whole system approach through a) supporting and promoting health and wellbeing, b) producing an opportunity to allow the contribution of the views, skills and experience of students, academic staff, catering team, and health and wellbeing officer as the key stakeholders of the university as a community, c) producing an opportunity for enhancing participation and generating collaborations and partnerships, d) leading to improve the health and wellbeing of students (and potentially

staff involved), e) fundamentally interlinking research, educational, operational and outreach activities and engaging students in each.

Future Plans

- Continue and expand cooking classes.
- Formally evaluate the visibility and success of the healthy affordable recipe booklet and recipe cards.
- Engage with new student cohorts to obtain feedback and improve booklet, resources and courses to educate and encourage cooking.
- Continue working with university catering department to add nutrition information to menus and encourage healthy choices.
- Specifically evaluate each element of the intervention to understand which element is working more efficiently
- Save the key procedures, data, information and feedback centrally.
- Produce and share resources that can be used within other universities.
- Continue emphasising on the necessity of the development and delivery of the activities as part of the whole system healthy university approach appreciating that in many cases university resources in health and wellbeing may not stretch to food and nutrition (e.g. in consideration of the focus on COVID-19, mental health and sexual health).

Key Learning Points

Assessment of diet diaries showed that the average fibre intake was below the recommendations for both male and female university students; whereas, average sugar, sodium (salt) and saturated fat intake were above the recommendations for both men and women.

The mean intakes of vitamin A, vitamin D, magnesium, potassium, iodine and selenium were below the recommendations for both male and female university students. Women also reported having lower intakes of iron, folate and calcium. For vitamin A, women reported closely meeting the recommendations, but men reported a lower intake of this vitamin.

Weight status (healthy weight versus overweight) was significantly and inversely associated with quality of diet and micronutrient intake, and a trend towards a decrease in vitamin and mineral intake with increasing weight was noted. This trend was gender and micronutrient specific. For example, in males, independent t-test showed that compared to overweight participants, those with healthy BMI had a higher intake of iodine and vitamin B2. In females, there were significant differences between overweight and normal-weight participants for levels of magnesium, and selenium.

Some students lack basic cookery skills, e.g. chopping vegetables or boiling water for pasta/rice/potatoes so recipes cards and healthy eating education alone would not always be useful for all students.

Therefore, it is essential to determine ability at the start of the course to adapt teaching to suit.

University students have an exceptional tacit knowledge to contribute to research and health promotion projects targeting students as part of the Whole System Healthy Universities Approach.

Thematic Categories (tick any that apply to your case study)

Method	Topic	Population Group
Campaign / Event <input type="checkbox"/>	Alcohol /Substance Misuse <input type="checkbox"/>	Staff <input type="checkbox"/>
Curriculum <input type="checkbox"/>	Built Environment <input type="checkbox"/>	Students <input checked="" type="checkbox"/>
Project <input checked="" type="checkbox"/>	Food / Healthy Eating <input checked="" type="checkbox"/>	Wider Community <input type="checkbox"/>
Policy / Procedure <input checked="" type="checkbox"/>	Mental Health <input type="checkbox"/>	Other <input type="checkbox"/>
Whole System Approach <input type="checkbox"/>	Physical Activity / Active Transport <input type="checkbox"/>	

Other	<input type="checkbox"/>	Sexual Health	<input type="checkbox"/>
		Sustainable Development	<input type="checkbox"/>
		Tobacco	<input type="checkbox"/>
		Other	<input checked="" type="checkbox"/>

Contact Details

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Links	<p><u>Sample Publication:</u> Public Health. 2019 Feb;167:70-77. doi: 10.1016/j.puhe.2018.10.016.</p> <p><u>Healthy eating resources:</u> https://www.hope.ac.uk/gateway/students/studentdevelopmentandwell-being/healthathope/eatingwell/</p> <p><u>Sample presentation:</u> https://prezi.com/p/3h7z_jhpblae/nutrition-of-young-adults-june-2019/</p>