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Title

Stakeholders' views about nutrition education for mental health

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Key Points

This paper:

- Describes the views of a range of stakeholders about the scope and design of nutrition education for mental health.
- Gives an overview of the challenges in designing e-learning to meet the needs of healthcare workers.
- Emphasises the need for mental health professionals to have access to nutrition education.

Introduction

This paper reports findings from a stakeholder consultation on the development of nutrition education for mental health. The consultation emerged from a recognition that there is a need for interventions for people at risk of developing long term conditions in the UK (DH, 2011; Royal College of Psychiatrists, 2013) and internationally (Chang and Lu, 2012; Gladigau *et al.*, 2013). There is compelling evidence that people experiencing serious mental health problems are at increased risk from obesity (Meyer *et al.*, 2008; Seeman, 2009) and long term conditions (Gladigau *et al.*, 2013; Osborn *et al.*, 2007). The relationship between serious mental health problems and long term physical health problems is bi-directional, however, Naylor *et al.*, (2012) reported that people living with a physical long term condition are two to three times more likely to experience mental health problems. Multi-factorial causes for these co-morbid health problems are reported, including smoking (Phutane *et al.*, 2011), leading a sedentary lifestyle (Shiers *et al.*, 2009; Lotufo, 2012) and a poor diet (Appelhans *et al.*; 2012). In populations with complex health needs, detailed analysis of food intake uncovers specific unhealthy eating habits including: high sugar (Appelhans *et al.*; 2012) and caffeine intake; low fibre, fruit and vegetable intake; and regularly missing meals (Simonelli-Muñoz *et al.*, 2012); micronutrient deficiencies (Williamson *et al.*, 2015) and poor diet literacy (Hardy and Gray, 2012).

In people with serious mental health problems, these health risks are compounded by prescribed psychotropic medicines which cause increases in appetite and alter how fats are metabolised (Chang and Lu, 2012; Meyer *et al.*, 2008) contributing to alarming rates of Type 2 diabetes, cardiovascular disease and metabolic syndrome (Gray *et al.*, 2009; Chang *et al.*, 2011). The effects of such medicines for many people is secondary to inherited cardiovascular risk (Phutane *et al.*, 2011; Chang and Lu, 2012) and the impact of an unhealthy lifestyle (Benseñor *et al.*, 2012) suggesting that the delivery of nutritional behaviour change interventions could have a positive impact on health. Systematic reviews of lifestyle interventions have shown some promising outcomes in people with serious mental health problems (Caemmerer *et al.*, 2012; Bonfioli *et al.*, 2012).

As well as an emphasis on physical health, it is also important to also acknowledge the link between nutrients and mental health. An emerging body of evidence suggests that a healthy diet can not only contribute to the prevention and management physical health problems (Curtis *et al.*, 2012; Smith *et al.*, 2007) but may also help to ameliorate mental health problems such as low mood (Jorde *et al.*, 2008; Shipowick *et al.*, 2009; Bertone-Johnson, 2009) and the experience of psychosis (Amminger *et al.*, 2010; Stokes and Peet, 2004).

Despite evidence suggesting that dietary interventions may have some value, Archie *et al.*, (2007) concluded that mental health workers overlook diet when planning care and that mental health nurses underestimate how many people will be motivated to make lifestyle changes. Mental health nurses are well positioned to advocate for healthy living, (Fusar-Poli *et al.*, 2009) yet two recent reviews of the literature (Blythe and White, 2012; Collins *et al.*, 2012) reported that mental health nurses lack skills, knowledge and confidence in the

physical health care aspects of their role and recommend that specifically targeted education is required. A lack of focus on nutrition in healthcare education programmes has also been described (Murphy and Girot, 2013, Murphy *et al.*, 2015).

Background

One NHS Early Intervention in Psychosis Team in the UK routinely delivers dietary interventions to people experiencing a first episode of psychosis. Health professionals carry out a detailed dietary assessment which includes 24-hour dietary recalls and information on food preference. The Trust purchased a specialist, licensed software package (NetWISP, Tinuviel Software) to produce individual nutrient profiles. Using the nutrition assessment, the service user works in partnership with the professional to create an individually tailored intervention. The interventions may include for example; health education; healthy recipes; dietary advice; support with shopping; and supported cooking.

The Parliamentary Food and Health Forum report (2008) recommended that the nutrition intervention used in this NHS Early Intervention in Psychosis Team should be disseminated more widely. However, small local strategies such as this are known to be vulnerable to local resource pressures which pose a threat to their sustainability (Collins *et al.*, 2012). In order to disseminate the nutritional practice described here, a short e-learning course in nutritional care in mental health was developed by the NHS Trust.

The course was delivered part time; included clinical practice and academic assessments, and aimed to develop skills and knowledge in nutritional assessment and intervention for professionals working with people experiencing a first episode psychosis. The course outcomes were intended to compliment rather than replace specialist nutrition and

dietetics services and it was attended by a range of health professionals working in secondary mental health including social workers, nurses and occupational therapists.

A student evaluation was conducted with ten students who had previously completed the e-learning. The evaluation consisted of 32 questions in nine categories. Students responded to a five point Likert scale which has been collapsed into three categories for reporting; agree, neutral and disagree. Table 2 summarises the mean average number of students responding in each category. The responses were largely positive although some students felt their expectations of the course were not met and some were not confident that their feedback was being used to make changes. The positive evaluation feedback suggested that there was value in exploring the future scope and design of nutrition education in mental health.

Project Design and Methods

Permissions were obtained from both the NHS Trust and the University where the project was hosted; a specialist ethics review was not required. Stakeholders were invited to take part in either a focus group or an individual interview and were recruited by email from within the local region from across health, social care and higher education. They represented academics and students from a range of health care professions; clinical staff from a range of professions; service users; and senior managers in the NHS and higher education; and NHS commissioners (Table 1). Information about the project and its purpose was given to stakeholders before seeking written consent.

Two focus groups were conducted; group one with healthcare students and academics, and group two with healthcare professionals in clinical practice. This approach was used for two reasons; firstly, whilst heterogeneity in focus groups can support discussion, if participants

are too diverse in experience, views or status, individuals can feel inhibited (Finch, Lewis and Turley, 2013). Secondly, focus groups in healthcare can be difficult to organise due to lack of participant availability (Jayasekara, 2012). To increase likelihood of attendance, the student and academic focus group was held in a university setting and the practicing health professional focus group in an NHS setting.

Both focus groups had two moderators (Chair NC and notes KW) and two volunteer students who took additional hand written notes as well as contributing to the discussion (Table 1). Students attended a one hour project methods briefing with NC in advance. Individual interviews were conducted with stakeholders who were unable to attend the focus groups due to either availability or their role falling outside the scope of the focus group membership.

Focus groups and individual interviews lasted between 45 mins and 75 minutes and were preceded by a presentation outlining the NHS nutrition course. Course materials in hard copy were made available throughout the focus groups and interviews. A semi-structured topic guide using open questions focused on; nutrition, mental health and educational approaches.

Hand written notes were chosen over audio recording because in focus group research the recordings can be difficult to transcribe, especially if participants talk over one another (Jayasekara, 2012). This can result in some data being lost. Whilst hand written notes taken by more than one person in each focus group provided an opportunity for different perspectives in the discussion to be captured it produced data which was less grounded in the language of the participants than a verbatim transcript.

Before analysis, the hand written notes from the focus groups and interviews were collated with free text comments from the student evaluation questionnaire into an electronic format in readiness for thematic coding. A qualitative thematic approach as outlined by Ritchie and Spencer (2002:307) was used to analyse data from the perspective of “evaluating effectiveness” and “strategically identifying new plans and actions”.

Findings

Thematic analysis identified five themes: design; widening participation; content; overcoming problems and barriers; and ideas for the future.

Design

E-learning was felt to be the most accessible design although some suggested that there should be at least one attendance day for administration and key lectures. A lack of face-to-face tutorial support was felt to be one disadvantage of e-learning. There was also concern amongst some stakeholders that e-learning relies too heavily on students having access to a computer and confidence in their IT skills.

Stakeholders suggested that the course should be more closely allied to a multi-professional university graduate programme. This would enable the nutrition education to be delivered alongside other related topics such as motivational interviewing or clinical leadership.

Stakeholder views about the academic level of the module were divided. Some felt that it should be validated at a range of academic levels both undergraduate and postgraduate. The stakeholders who were registered health professionals preferred postgraduate delivery whilst others felt that nutritional skills and knowledge should be available on pre-registration health professional programmes. It was also suggested that an option with no

academic credits could be made available for staff in non-graduate caring roles, service users, and carers. Stakeholders were in agreement that students would benefit from having access to a practice supervisor with a dietetic or nutrition background.

Widening participation

Stakeholders felt that a nutrition course focused on mental and physical health has national and international relevance and they consistently reported that it should be available to a wider range of professionals including nurses from all fields, occupational therapists, health visitors, midwives, GPs and social workers. They also felt it relevant for staff working in a wider range of health and social care settings including acute hospitals, primary care teams, mental health services and independent sector services as well as beyond health care, such as for catering staff, schools, sports industry, retail or lay people.

Content

All stakeholders emphasised the importance of both theory and skills. The specific emphasis on mental health and nutrition was also felt to be important, although some stakeholders felt that this could be offered alongside a more 'generic' nutrition module. The science of nutrition was felt to be central.

In order to have relevance for a wider range of people, the content would have to relate to a wider range of mental health problems. This included, for example, dementia and mood disorder as well as psychosis and should have a very clear focus on the bi-directional relationship between mental and physical health.

Clinical stakeholders described a desire to feel more confident in their ability to assess people's eating habits and dietary needs across hospital and community settings.

Overcoming problems and barriers

Skills maintenance in the longer term was identified as a challenge. There were also concerns that those who completed the course may not have authority to implement their learning because it may require changes to the service, policy or practice. Those who are faced with these problems were felt to be even more likely to become frustrated and experience skills attrition.

Whilst the stakeholders identified that having a clinical supervisor with a dietetic or nutrition qualification would be important, they were less sure that this would be accessible or realistic. This was felt to be important not only to support individual clinical staff but also to support the development of infrastructure (e.g clinical policy) within organisations ensuring that practice is safe.

Ideas for the Future

In light of some stakeholders concerns regarding skills maintenance, one suggestion for the future was the creation of a peer-supervision network for nutritional care. Stakeholders were also keen to consider how technology could be used to deliver nutritional interventions through mobile phone applications for example.

Discussion

The data analysis supported the development of a new e-learning nutrition module proposal (Table 3) which has been developed to include a wider range of mental health issues and to make clearer links between mental and physical wellbeing. The design of the new module has to balance the delivery of specialist mental health content whilst also providing learning materials that are relevant for professionals working outside mental health services.

Delivering at post graduate level may help facilitate meaningful learning across this wide spectrum of experience by supporting students to critically apply core theoretical concepts, such as nutrition science and mental health, to their own area of clinical practice.

The content of the proposed module is therefore focused on nutrition science, which the stakeholders felt to be central, with specific learning outcomes related to biopsychosocial care of people presenting with a range of mental health problems. Importantly, the critical analysis of these concepts as applied to clinical practice would be contextualised by the student. Post graduate students are more able to self-regulate their learning which is described by Artino and Stephens (2009) as the ability to learn based on previous experiences, set goals and contextualise learning.

It is critical to the success of e-learning that attention is paid to the curriculum within which the learning is delivered (McPherson and Nunes 2008). Being embedded in a post graduate programme adds the advantage of students learning in related topics alongside the nutrition module. This may provide support for students to translate their nutrition knowledge and skills into practice and avoid the skills attrition and frustration the stakeholders feared.

The module, as designed here, may be less suitable for undergraduates who would not usually have become embedded in one focused area of practice. Undergraduate health professional courses are often structured around clinical placements which would not offer the length or depth of focus required to apply the specialist nature of the module content proposed here. Whilst many pre-registration health professional learning outcomes include nutrition, for example the Nursing and Midwifery Council (2010), they are currently generic rather than focused on specific issues for mental health and may therefore benefit from development of greater depth and focus (Murphy and Girot, 2013). Undergraduate

professional courses should nonetheless provide sound theoretical and practical preparation for specialist post graduate learning.

Delivering a non-credit bearing version of the module may be a consideration for future development but would require different learning outcomes to those proposed here. There are, however, examples of non-credit bearing specialist nutrition education. Murphy *et al.*, (2015) situated such a module within a national cancer charity website learning zone. A positive evaluation of the module by health professionals led to it being made available to cancer survivors. A future development for a mental health nutrition module could be to engage with the recovery colleges (Perkins *et al.*, 2012) where co-produced education is delivered as part of a recovery focused community approach to people living with mental health problems (Boardman and Friedli, 2012). Whilst service users were engaged in the stakeholder consultation here, much greater focus on co-production would be required for this to be a viable option.

Stakeholders raised concerns about some healthcare staff having limited ICT skills and confidence. Whilst there is evidence that ICT skills in healthcare staff are improving over time (Bond and Procter, 2009), increased anxiety and a lack of skill continues to impact on the outcomes for learners on e-learning programmes (Button *et al.*, 2014). E-learning in healthcare needs to be as accessible as possible and take account of the varied skills and confidence of healthcare staff to have successful outcomes (McPherson and Nunes, 2008). Embedding the module in a postgraduate programme enables students to have access to ICT support through University infrastructures. Kapeniaks, (2013) advocated a focus on user friendliness of the learning platform and materials to improve accessibility achieved by

creating easy to navigate systems, clear labelling of materials and providing clear explanations of tasks and assessments (Park and Song, 2015).

The lack of face-to-face contact was a concern. In e-learning, effective alternatives to face-to-face contact with educators includes the use of webcasts and podcasts of lectures, discussion boards and the use of social media enable contact between students and between student and educator (Bond and Procter, 2009). Importantly, e-learning needs to provide both synchronous (real time) and asynchronous (at any time) activities to meet a range of students' learning needs (Lahti *et al.*, 2014a) sometimes referred to as 'e-tivities' (Pavey and Garland, 2004). This engages students in the social aspects of learning which Forman *et al.*, (2002:79) propose; "broaden the student's access to concepts and knowledge".

This proposed module provides alternatives to face-to-face contact through a process of formative tasks designed to engage students with each other and with educators throughout the duration of the module (Childs *et al.*, 2005, Artino and Stephens, 2009). One example of a formative task (e-tivity) is for students to upload a 500 word brief critical appraisal of a nutrition research paper related to their clinical practice (asynchronous activity). One week later, students join an on-line (synchronous) discussion at a specified date and time where they debate and discuss the issues raised in their short appraisals with peers. The educator joins the discussion and provides expertise and critical debate; also considered an important factor in increasing students' critical thinking (Artino and Stephens 2009). Other examples include using video conferencing between pairs or groups of students to practice nutrition assessment and interpersonal skills; in a similar manner to e-supervision increasingly adopted in clinical psychology (Deane *et al.*, 2015).

The assessment of skills through an e-learning platform poses a significant challenge, however. There are examples of software simulations where positive learning outcomes have been achieved, for example (DeLazzari *et al.*, 2014) but these are limited to the student interacting with the e-platform rather than with each other. The novel use of video conferencing provides a possible solution to this challenge where educators can observe students simulate interpersonal skills remotely (Koo *et al.*, 2014). This is more feasible where the simulated skills are interpersonal and there is no need for medical devices.

The stakeholders' suggestion of a network of clinical supervisors in practice may provide a work-based learning mechanism for the student to develop skills in nutritional care to receive feedback on performance during the module and to provide support and updates in the longer term. Face-to-face supervision may be complex and costly, particularly if the module is developed internationally. E-supervision through a professional network may be a future development and could be CPD endorsed by professional organisations such as the Association for Nutrition, (2015).

Despite these concerns about e-learning, access to the module could be widened by retaining an e-learning approach. Importantly, the module could be accessed internationally. Observers of e-learning in healthcare have also found that despite fears about a lack of face-to-face contact and ICT skills, e-learning provides access to education with equally good outcomes (Lahti *et al.*, 2014a and 2014b) and opportunity for learning when release from clinical work to attend courses is increasingly difficult (Murphy *et al.*, 2015). E-learning also offers a more flexible learning experience where learners can access materials at times and for durations that fit with their busy professional lives (Forman *et al.*, 2002).

Limitations

The stakeholders consulted were local to the areas where the nutrition course had been delivered and whilst they represented an appropriately diverse range of professional expertise and experience, engagement with service users was limited and we were unable to engage carers. Wider consultation with users and carers would have not only given a clearer picture of the views about professional education from those who receive care but would also have strengthened our understanding of the nutrition education needs of service users and informal carers.

The new module is limited by a lack of robust evidence that the interventions taught are impactful in practice despite being based on well evidenced scientific concepts. This project is also not able to assert any link between the delivery of the proposed module skills acquisition and actual health outcomes. Further research is required to establish the efficacy of both the nutrition intervention and the education provided to deliver it.

Conclusion

The best outcome for the future is for nutritional care to be embedded in service delivery and no longer seen as 'optional', as Gray (2009: 300) wrote; “Our patients are dying and we have a duty to act now...” For this to occur, nutritional knowledge and skills must reach a critical mass of people.

Despite concerns about e-learning, it offers healthcare staff accessible and flexible access to learning. In order to meet the learning needs of people delivering care to those living with mental health problems, widening participation in nutrition education focusing on mental health, is crucial.

Given the compelling evidence that eating healthily contributes to mental and physical wellbeing, it is essential that those delivering care in a range of health settings are confident and competent in nutritional assessment and care.

References

Amminger, G. P., Schäfer, M. R., Papageorgiou, K., Klier, C. M., Cotton, S. M., Harrigan, S. M., Mackinnon, A., McGorry, P. D. and Berger, G. E. (2010), "Long chain omega-3 fatty acids for indicated preventions of psychotic disorders: a randomized, placebo-controlled trial", *Archives of General Psychiatry*, Vol.67, pp.146-154.

Appelhans, B., Whited, M., Schneider, K., Ynsheng, M., Oleski, J., Merriam, P., Waring, M., Olendzki, B., Mann, D., Ockene, I. and Pagoto, S. (2012), "Depression severity, diet quality, and physical activity in women with obesity and depression", *Journal of the Academy of Nutrition and Dietetics*, Vol. 112, No. 5, pp. 693-698.

Archie, S. M., Goldberg, J. O., Akhtar-Danesh, N., Landeen, J., McColl, L. and McNiven, J. (2007), "Psychotic Disorders, Eating Habits, and Physical Activity: Who is ready for Lifestyle Changes?" *Psychiatric Services*, Vol. 58, pp. 233-239.

Artino, Jr. A. and Stephens, J. (2009), "Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online", *Internet and Higher Education*, Vol. 12, pp.146-151.

Association for Nutrition (2015), "CPD Endorsement", Available at:

<http://www.associationfornutrition.org/default.aspx?tabid=75> (Accessed 10th February 2016).

Beñsenor, I., Brunoni, A., Pílan, L., Goulart, A., Busatto, G., Lotufo, P., Scazuca, M. and Menezes, P. (2012) "Cardiovascular risk factors in patients with first episode psychosis in São Paulo, Brazil", *General Hospital Psychiatry*, Vol. 34, pp. 268-275.

Bertone-Johnson, E. R. (2009), "Vitamin D and the occurrence of depression: causal association or circumstantial evidence?" *Nutrition Review*, Vol. 67, pp. 481-492.

Blythe, J. and White, J. (2012), "Role of the mental health nurse towards physical health care in serious mental illness: an integrative review of 10 years of UK literature", *International Journal of Mental Health Nursing*, Vol. 21, pp. 193-201.

Boardman, J. and Friedli, L. (2012), *Recovery, Public Mental Health and Wellbeing*, Centre for Mental Health and Mental Health Network NHS Confederation, London.

Bond, C. and Procter, P. (2009), "Prescription for nursing informatics in pre-registration nurse education", *Health Informatics Journal*, Vol. 15 No. 1, pp. 55-64.

Bonfioli, C., Berti, L., Goss, C., Murano, F. and Burt, L. (2012), "Health promotion lifestyle interventions for weight management in psychosis: a systematic review and meta-analysis of randomised controlled trails", *BMC Psychiatry*, Vol. 12, No. 1, pp. 78. Doi:10.1186/1/71-244x-12-78

Button, D., Harrington, A. and Belan, I. (2014), "E-learning and information, communication technology (ICT) in nursing education: A review of the literature", *Nurse Education Today*, Vol. 34, pp. 1311-1323.

Caemmerer, J., Correll, C. & Maayan, L. (2012), "Acute maintenance effects of non-pharmacologic interventions for antipsychotic associated weight gain and metabolic abnormalities: a meta-analytic comparison of randomised controlled trials", *Schizophrenia Research*, Vol. 40, pp.159-68.

Chang, C-K., Hayes R. D., Perera G., Broadbent M. T. M., Fernandes A. C., Lee W. E., Hotopf M. and Stewart R., (2011), "Life Expectancy at Birth for People with Serious Mental Illness and Other Major Disorders from a Secondary Mental Health Care Case Register in London", *PLoS ONE*, Vol. 6, No. 5, e19590. doi: 10.1371/journal.pone.0019590.

Chang, S-C. and Lu M-L. (2012), "Metabolic and Cardiovascular adverse effects associated with treatment with antipsychotic drugs", *Journal of experimental and clinical medicine*, Vol. 4, No. 2, pp. 103-107.

Childs, S., Blenkinsopp, E., Hall, A. and Walton, G. (2005), "Effective e-learning for health professionals and students – barriers and their solutions. A systematic review of the literature-findings from the HeXL report", *Health Informatics and Libraries Journal*, Vol. 22, pp. 20-32.

Collins, E., Tranter, S. and Irvine, F. (2012), "The physical health of the seriously mentally ill: an overview of the literature", *Journal of Psychiatric and Mental Health Nursing*, Vol. 19, pp. 638-646.

Curtis, J., Newall, H. and Samaras, K. (2012), "The heart of the matter: cardio-metabolic care in youth with psychosis", *Early Intervention in Psychiatry*, Vol. 6, pp. 347-353.

Deane, F., Gonsalvez, C., Blackman, D., Saffioti, D. and Andersen, R. (2015), "Issues in the development of e-supervision in professional psychology: a review", *Australian Psychologist*, Vol. 50, pp. 241-247.

Department of Health (2011), *No Health Without Mental Health: A cross-government mental health outcomes strategy for people of all ages*, Department of Health, London.

DeLazzari, C., Genuini, I., Pisamelli, D.M., D'Ambrosi, A., Fedele, F. (2014), Interactive simulator for e-learning environments: a teaching software for health care professionals, *Bio-medical Engineering Online*, Vol. 13, No. 1, DOI: 10.1186/1475-925x-13-172.

Finch, H., Lewis, J., Turley, C. (2013) *Focus Groups*, IN: Ritchie, J., Lewis, J., McNaughton-Nicholls, C., Ormston, R. (Eds) *Qualitative Research Practice: A guide for social science students and researchers*, (Second Edition) Sage, London.

Food and Health Forum (2008), *The links between diet and behaviour: the influence of nutrition on mental health*. Report of an enquiry held by the Associate Parliamentary Food and Health Forum, Crown Copyright, London.

Forman, D., Nyatanga, L. and Rich, T. (2002), "E-learning and educational diversity", *Nurse Education Today*, Vol. 22, pp. 76-82.

Fusar-Poli, P., DeMarco, L., Cavallin, F., Bertorello, A., Nicolasi, M. and Politi, P. (2009), "Lifestyles and cardiovascular risk in individuals with functional psychosis", *Perspectives in Psychiatric care*, Vol. 45, No. 2, pp. 87-99.

Gladigau, E., Fazio, T., Hannam, J., Dawson, M. and Jones, S. (2013), "Increased cardiovascular risk in patients with severe mental illness", *International Medicine Journal*, [issue unknown], 65-69.

Gray, R., Hardy, S. and Hoehn-Anderson, K. (2009), "Physical Health and severe mental illness: if we don't do something about it, who will?" *International Journal of Mental Health Nursing*, Vol. 18, pp. 299-300.

Hardy, G., and Gray, R. (2012) "The secret food diary of a person diagnosed with schizophrenia, *Journal of Psychiatric and Mental Health Nursing*, Vol. 19, No. 7, pp- 603-609. Doi:10.1111/j.1365-2850.2011.01826.x

Jayasekara, R.S., (2012) "Focus groups in nursing research: Methodological perspectives", *Nursing Outlook*, Vol. 60, pp.411-416.

Jorde, R., Sneve, M., Figenschau, Y., Svartberg, J. and Waterloo, K. (2008), "Effects of vitamin D supplementation on symptoms of depression in overweight and obese subjects: randomized double blind trial", *Journal of Internal Medicine*, Vol. 264, pp.599-609.

Kapenieks, J. (2013), "User-friendly e-learning environment for educational action research", *Procedia Computer Science*, Vol. 26, pp. 121-142.

Koo, L., Kayson-Wolfe, C., Brandt, N., Hammersla, M., Idzik, S., Rocafort, P., Tran, D., Wilkerson, R. and Windermuth, B. (2014), "Qualitative evaluation of a standardised patient clinical simulation for nurse practitioner and pharmacy students", *Nurse Education in Practice*, Vol. 14, pp. 740-746.

Lahti, M., Hätönen, H. and Välimäki, M. (2014a), "Impact of e-learning on nurses' and student nurses' knowledge, skills and satisfaction: A systematic review and meta-analysis", *International Journal of Nursing Studies*, Vol. 51, pp. 136-149.

Lahti, M., Kontio, R., Pitkänen, A. and Välimäki, M. (2014b), "Knowledge Translation from an e-learning course to clinical practice", *Nurse Education Today*, Vol. 34, pp. 842-847.

Lotufo, P. A. (2012), "Cardiovascular risk factors in patients with first-episode psychosis in Sao Paulo, Brazil", *General Hospital Psychiatry*, Vol. 34, No. 3, pp. 268-275.

McPherson, M. and Nunes, J. (2008), "Critical issues for e-learning delivery: what may seem obvious is not always put into practice", *Journal of Computer Assisted Learning*, Vol. 24, pp. 433-445.

Meyer, J. M., Davis, V. G., Goff, D. C., McEvoy, J. P., Nasrallah, H. A., Davis, S. M., Rosenheck, R. A., Daumit, G. L., Hsiao, J., Swartz, M. S., Stroup, T. S. and Lieberman, J. A. (2008), "Change in metabolic syndrome parameters with antipsychotic treatment in the CATIE Schizophrenia Trial: prospective data from phase 1", *Schizophrenia Research*, Vol. 101, pp. 273-286.

Murphy, J. and Girot, E. (2013), "The importance of nutrition, diet and lifestyle advice for cancer survivors- the role of nursing staff and inter-professional workers", *Journal of Clinical Nursing*, Vol. 22, pp. 1539-1549.

Murphy, J., Worswick, B., Pulman, A., Ford, G. and Jeffrey, J. (2015), "Translating research into practice: Evaluation of an e-learning resource for health care professionals to provide nutrition advice and support for cancer survivors", *Nurse Education Today*, Vol. 35, pp 271-276.

Naylor, C., Parsonage, M., McDaid, D., Knapp, M., Fossey, M., and Galea, A. (2012), *Long term conditions: the cost of co-morbidities*, The Kings Fund and the Centre for Mental Health, London.

Nursing and Midwifery Council (2010), *Standards for pre-registration nursing education*, Nursing and Midwifery Council, London.

Osborn, D., Levy, G., Nazareth, I., Peterson, I., Islam, A. and King, M. (2007), "Relative risk of cardiovascular and cancer mortality in people with severe mental illness from the United Kingdom's general practice research database", *Archives of general psychiatry*, Vol. 64, pp. 242-249.

Park, H. and Song, H-D. (2015), "Make e-learning effortless! Impact of a redesigned user interface on usability through the application of an affordance design approach", *Educational Technology and Society*, Vol.18, No.3, pp.185-196.

Perkins, R., Repper, J., Rinaldi, M. and Brown, H. (2012), *Recovery Colleges*, Centre for Mental Health and Mental Health Network NHS Confederation, London.

Pavey, J. and Garland, S. (2004), "The integration of a range of 'e-tivities' to enhance students' interaction and learning", *Innovations in Education and Teaching International*, Vol. 41, No. 3, pp.305-315.

Phutane, V., Tek, C., Chwastiak, L., Ratcliffe, J., Ozyuksel, B., Woods, S. and Srihari, V. (2011), "Cardiovascular risk in a first episode psychosis sample: A critical period for prevention?" *Schizophrenia research*, Vol. 127, pp.257-261.

Royal College of Psychiatrists (2013), *Whole-person care: from rhetoric to reality. Achieving parity between mental and physical health*, (OP88), Royal College of Psychiatrists, London.

Ritchie, J. and Spencer, L. (2002), "Qualitative Data Analysis for Applied Policy Research", IN Huberman, A.M. and Miles, M.B., *The Qualitative Researcher's Companion*, Sage Publications, London, pp. 305-329.

Seeman, M. V. (2009), "Secondary effects of antipsychotics: women at greater risk than men", *Schizophrenia Bulletin*, Vol. 35, No. 5, pp. 937-948.

Shiers, D., Jones, P. B. and Field, S. (2009), “Early Intervention in Psychosis: keeping the body in mind”, *British Journal of General Practice*, Vol. 59, No. 563, pp. 395-396.

Shipowick, C. D., Moore, C. B., Corbett, C. and Binder, R. (2009), “Vitamin D and depressive symptoms in women during the winter: a pilot study”, *Applied Nursing Research*, Vol. 22, pp. 221-225.

Simonelli-Muñoz, A., Fortea, M., Salorio, P., Gallego-Gomez, J., Sanchez-Bautista, S. and Balanza, S. (2012), “Dietary habits of patients with schizophrenia: A self reported questionnaire survey”, *International Journal of Mental Health Nursing*, Vol. 21, pp. 220-228.

Smith, S., Yeomans, D., Bushe, C. J. P., Eriksson, C., Harrison, T., Holmes, R., Mynors-Wallis, L., Oatway, H. and Sullivan, G. (2007), “A well-being programme in severe mental illness: Reducing the risk for physical ill-health: A post-programme service evaluation at 2 years”, *European Psychiatry*, Vol. 22, pp. 413-418.

Stokes, C. and Peet, M. (2004), “Dietary sugar and fatty acid consumption as predictors of severity of schizophrenia symptoms”, *Nutritional Neuroscience*, Vol. 7, No. 4, pp.247-249.

Williamson, K., Kilner, K. and Clibbens, N. (2015), “A comparison of the nutrient intake of a community-dwelling first episode psychosis cohort, aged 19-64 years, with data from the UK population”, *Journal of Nutrition Science*, Vol. 4, No. e28, pp. 1-8.

Table 1 Stakeholders consulted

Method	Stakeholder	Number
Focus Group 1 Clinical staff	Occupational Therapy Midwifery Mental Health Nursing Undergraduate nursing students (note taking)	10
Focus Group 2 Academic Staff	Mental Health Nursing Adult Nursing Nutrition	9

	Bioscience Undergraduate OT Students Post graduate social work students (note taking)	
Individual Interviews	NHS commissioner Pro vice chancellor Continuing Professional Development leads Lead nurse, NHS University course leaders Service users Post graduate social work students	10
Total Consulted:		39

Table 2

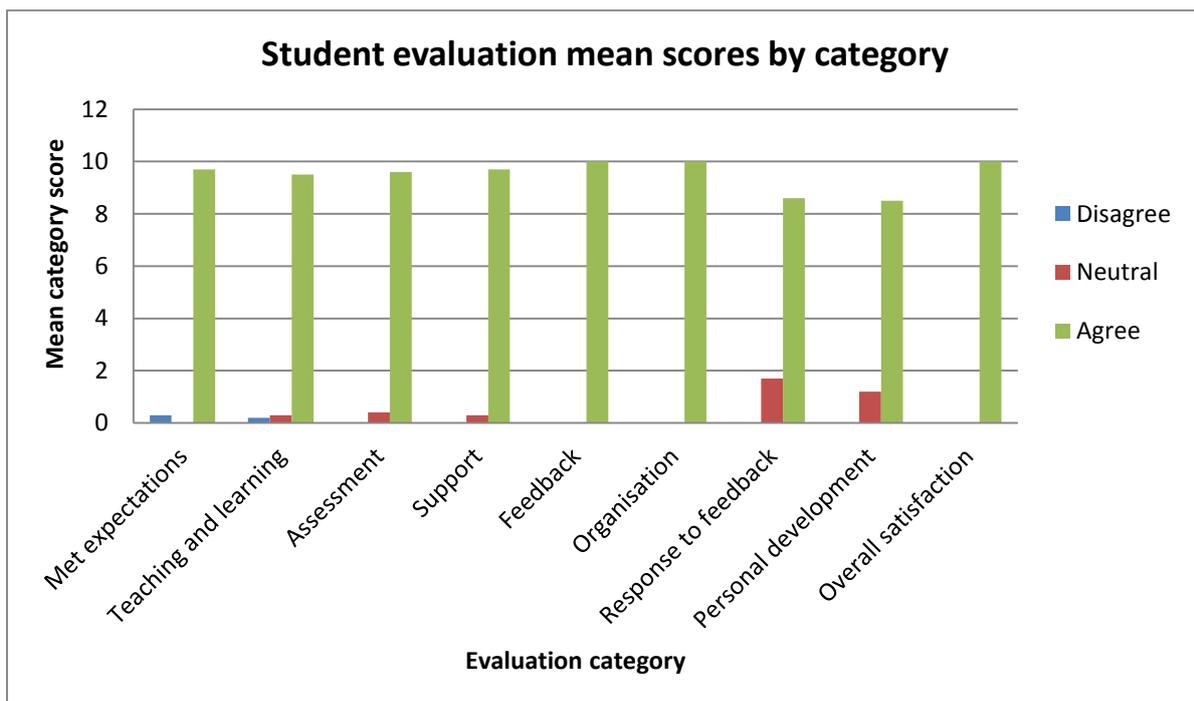


Table 3 Summary of proposed changes to the nutrition education

Themes	Previous Nutrition Course	Proposed New Nutrition Module
Design of the course Overcoming problems & barriers	Accredited by a University as an NHS stand-alone short course.	Fully validated international postgraduate module as part of advanced practice programme.
Design of the course	Included academic assessment and practice assessment.	Retains academic and practice assessment.
Design of the course	Undergraduate 10 credits at certificate level.	Postgraduate 20-30 credits
Design of the course	E-learning and students are offered 'virtual' support throughout the process. Some face-to-face support offered.	E-learning and students are offered 'virtual' support throughout the process. Fully supported by University infrastructure as part of a postgraduate programme.
Widening participation Content of the course	Nutrition course focused on the nutritional needs of people with psychosis within secondary mental health services.	Content to cover a wider range of mental health issues (e.g. dementia, mood disorder) with focus on people with co-morbid physical and mental health problems. Not limited to secondary mental health service provision.
Design of the course Widening participation Content of the course	Available to any health professional working in secondary mental health services (e.g. nurses, OT's, social workers).	Available to any health professional working with service users that would benefit from nutritional care to support their mental and physical wellbeing. Including nurses from all fields, midwives, O.T's, physiotherapists, social workers in any health and social care setting.
Overcoming problems & barriers Ideas for the future	Contact between students not enabled as part of the course design. Ad hoc contact encouraged.	E-learning processes planned to include opportunities for group discussion, group assessment and shared learning. Mechanism available to enable network supervision in the longer term through virtual technology and social media.