

Research Bank

Journal article

Facilitating knowledge of mental health nurses to undertake physical health interventions : A pre-test/post-test evaluation
Hemingway, Stephen, Clifton, Andrew, Stephenson, John and Edward, Karen-Leigh

This is the peer reviewed version of the following article:

Hemingway, S., Clifton, A., Stephenson, J. and Edward, K.-L.. (2014). Facilitating knowledge of mental health nurses to undertake physical health interventions : A pre-test/post-test evaluation. *Journal of Nursing Management*, 22(3), pp. 383-393, which has been published in final form at <https://doi.org/10.1111/jonm.12220>.

This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited

Facilitating knowledge of mental health nurses to undertake physical health interventions: A pre-post test evaluation.

Abstract

Background

For individuals who experience mental disorders, pharmacotherapy is often considered as a first line of treatment. However, due to adverse drug reactions and pre-existing physical conditions, outcomes for clients/service users may be compromised.

Aims

The aim of this project was to develop and deliver evidence-based educational packages to increase the knowledge of mental health nurses to undertake physical health care interventions.

Method

Pre-post study design

Five workshops were conducted in the fields of intramuscular injections, diabetes, health improvement, oral health and wound care. A total of 180 pairs of questionnaires to assess practitioner and student skills and knowledge were administered to participants pre- and post-workshops. All workshops resulted in a statistically significant improvement in subject skills and knowledge scores ($p < 0.001$ in all cases). Questionnaires also elicited participant satisfaction with the workshops: over 99% of participants reported being "satisfied" or "very satisfied" with the workshops.

Implications for Nursing Management

Evidence based workshops as presented in this paper can contribute to improving the health status of service users by increasing the health literacy of mental health nurses.

Keywords: Mental Health nursing; physical health; statistical analysis; health literacy; iatrogenic side effects.

Introduction

Improving the physical health of patients with serious mental illness such as schizophrenia and bipolar disorder is a global concern which presents a significant challenge to health

providers and professionals (NYS Center of Excellence for Cultural Competence (NYS) 2010). For those who experience mental illness, life expectancy is reduced by up to 25 years, due to chronic co-morbid physical conditions such as; cardiovascular disease, respiratory disease, cancer, eye and dental health conditions, and diabetes. Cardiovascular disease and diabetes mellitus are two to three times (respectively) more prevalent in people who have mental illness (De Hert *et al.* 2011). Alarming, rates of metabolic syndrome (a significant risk factor for the development of diabetes mellitus and cardiovascular disease) are reported to be as high as 60% in North America (Kato *et al.* 2004). The prevalence of a whole range of other physical co-morbidities are elevated, and can complicate having implications for care decisions (Steifel *et al.* 1990, Cournos *et al.* 2005, Hippisley-Cox *et al.* 2007, Robson & Gray 2007). Some evidence suggests that these problems have increased since the introduction of new service structures in the community, leading to service fragmentation for service users (Chang *et al.* 2009). Furthermore, physical complications can arise from the treatment of mental disorders using psychotropic medications.

For people with mental disorders, pharmacotherapy is often considered as a first line of treatment. Many psychotropic medications are well tolerated, but all these medicines have adverse reactions. For example, the major adverse reaction for atypical antipsychotics can include considerable weight gain, glucose intolerance, elevation of blood lipids, and cardiac abnormalities (Edward *et al.* 2010; Edward & Alderman 2013) Alarming, studies have found that the rate of obesity among people living with psychotic disorders and treated with antipsychotics is greater than in the general population (Coodin 2001, Tschoner *et al.* 2007). Available literature reveals that new generation antipsychotics – in particular, clozapine and olanzapine - impairs glucose metabolism, the appetite-regulation system resulting in weight gain and increase the potential for the risk of the development of Type 2 diabetes and dyslipidaemia (Murashita; *et al.* 2007, Tschoner, *et al.* 2007, Edward *et al.* 2010). Metabolic changes are also associated with antidepressants and mood stabilisers. The physical complications associated with pharmacotherapy for those who experience mental illness is central to care considerations, as many of these complications can increase morbidity and mortality.

Policy context on physical care for mental health clients/service users

Across the world there have been policy initiatives seeking to address the physical health needs of people with SMI (Serious Mental Illness) (Robson & Gray 2007, De Hert *et al.* 2011, Happell *et al.* 2011). For example, in the UK, in 2010 the Conservative/Liberal

Democrat coalition government initiated a raft of policy measures, including: the introduction of NHS Commissioning Boards, a new national public health service (Public Health England), a national measure of wellbeing, increased funding to give more people access to psychological therapies, and funding the “Time to Change” campaign aimed at reducing stigma and discrimination; all with the intention of improving the mental well-being of people experiencing mental health problems in England. More specifically, guidance on improving physical healthcare for people with SMI has been initiated in both the US and the UK with guidelines for monitoring metabolic risk factors for service users prescribed antipsychotic medication. Additionally, the European Psychiatric Association and the Spanish Societies of Psychiatry and Biological Psychiatry have made attempts at addressing aspects of physical health care monitoring, including cardiovascular disease and diabetes (Lawrence and Kiskey 2010). A nationally recognised need to address high mortality rates due to physical illness for people with severe mental illness was also recognised in Australia: in this country the Ministerial Advisory Committee (MAC) on Mental Health report stated that mental health cannot be separated from physical health (MAC, 2010) and in turn this reflects across all states in Australia (Happell *et al.* 2011).

In the UK, since the publication of the Chief Nursing Officer Review of Mental Health Nursing, England (DH 2006) over 300 best practice and policy guidelines have been published online. Additionally NICE (National Institute of Clinical Excellence) has a menu of 53 related topics, offering guidance, toolkits and best practice documents in relation to mental health issues (Hardy and Thomas 2012). In England, local policy and guidance was previously provided by regional Strategic Health Authorities (to be replaced by clinical commissioning groups) and local Mental Health Trusts: however, one study by Tosh *et al.* (2010) found that the physical healthcare guidance of local Trusts was often cumbersome, vague and lacked clear guidance on what particular action should be taken, when it should be taken, and by whom. Furthermore, these policies were difficult to read, and many incorporated vague language into their directives (Tosh *et al.* 2010). There is no shortage of international, national or local guidance aimed at improving the physical wellbeing of people experiencing mental illness: nonetheless, this is an area of mental health where practice is clearly lagging behind policy (Tosh *et al.* 2010, Lawn, 2011, Hardy & White 2013). Despite this political and policy activity, the physical healthcare of people with mental illness remains a hidden scandal (Gray 2012).

Hardy and White (2013) propose a five-point change management model to address the physical healthcare deficit, based around funding, involvement, commitment, impact and preparation. Included in this model is the ability of mental health nurses (and other clinicians)

to gain a level of physical healthcare competency which allows them to deliver evidence-based interventions. According to Hardy and White (2013), part of the problem is due to the way nurse education in the UK is delivered, focusing on the so-called binary opposites of physical health and mental health rather than adopting a holistic approach to care. Additionally Gray (2012) compounds this anomaly, suggesting that many mental health nurses adopt a defeatist approach to tackling the physical healthcare needs of people with mental illness, due to proportioning causation and blame on the iatrogenic effects of antipsychotic medication. Of course the side effects of antipsychotic medication do contribute to the physical well-being of patients: however, the time for apportioning blame to one treatment or a particular approach is not acceptable. We agree with Hardy and White (2013) that doing nothing is no longer an option: “action” is urgently required to address the physical healthcare needs of people experiencing mental health problems.

Assessment and managing physical health needs in mental health settings

The ability to screen for physical health conditions is of fundamental importance to mental health nursing practice, yet there is still evidence that physical health problems in mental health service users go largely unnoticed, and if identified are often poorly managed (Phelan *et al.* 2004, Edward *et al.* 2011). The seriousness of physical symptoms being incorrectly labelled as psychosomatic cannot be underestimated when one considers the number of people with severe and enduring mental illness at risk (Nocon 2004). Further studies have demonstrated that individuals who experience mental illness are less likely to be offered or gain access to screening which the general population would expect routinely; for example: cholesterol checks, urine or weight checks, and opportunistic advice regarding smoking cessation (Phelan *et al.* 2001, Robson 2010, Mitchell *et al.* 2012). The likelihood of service users developing a comorbid physical condition in the context of the symptoms of their condition, for example Jordan (2000) and Edward *et al.* (2011) posit that the physical health care needs of the patient diagnosed with SMI is a ‘care gap’ not being effectively met by either primary care or secondary mental health services. One major factor that may be a major influence here is that prevention of physical health problems for people with SMI would save economically billions in the long term (National Alliance on Mental Illness (NAMI) 2007, Mental Health Foundation Naylor *et al.* 2012).

Three recent systematic reviews have investigated physical illness as a co-morbid condition for those who experience severe mental illness (Tosh *et al.* 2010, Hardy *et al.* 2011, Happell *et al.* 2012;) From these reviews key areas for consideration in the physical and mental

health care delivery emerged, placing mental health nurses in an ideal position to monitor the adverse physical impact of pharmacotherapy, and assess service patients' physical health needs and promote a change in lifestyle choices to enhance physical wellbeing (Howard & and Gamble 2011, Happell *et al.* 2012c). Gray *et al.* (2009) asked if the mental health nurse does not intervene to improve the physical health needs of mental health patients 'who will'. However there appears to be great variation in confidence or ability in relation to physical health monitoring by mental health nurses (Nash 2010b, Happell *et al.* 2011). This would appear to be partly related to a lack of recognition of this role in undergraduate studies, a view supported by the latest review of mental health nursing in the UK (Department of Health 2006) and more recent evidence reviewing the training needs of registered mental health nurses in the UK and elsewhere (Nash 2009, Howard & Gamble 2011, Robson & Haddad 2012; Happell *et al.* 2013). An interesting comment by Happell *et al.* (2013) highlights the fact that although nurses in Australia are educated in a 'comprehensive' model including a major emphasis on physical health, this has not resulted in an improvement of the ability of mental health nurses (MHNs) educated in this way to undertake physical caring interventions.

It has been suggested that mental health service users should feel respected and be equal partners; and also be informed in the choices they have about their physical health (Lawn, 2012). This has been mirrored in the mental health nursing literature with the message that MHNs need the knowledge and skills to be able to meaningfully engage in interactions that allow transfer of information that keeps the mental health consumer at the heart of their physical needs (Happell *et al.* 2012a, 2012b; Hardy & White 2013). Thus to be recovery focused and to develop truly holistic practice their needs to be an increase in their physical health interventions (Silverstein & Bellack 2008)

The Project - The Physical/Registered and Student Nurse Workshop Series

Building on previous collaborations in physical health generally (Hargate *et al.* 2009) and medicines management training that specifically sought to build a pathway to competence (Hemingway *et al.* 2010), an application to the Yorkshire and Humber Strategic Health Authority Clinical Skills Network was made which secured a grant to produce interactive education and training packages that were specifically applied to the learning disability and mental health settings. Such collaboration is identified as a key determinant to achieving positive service user/client outcomes for biologically based interventions (Prowse & Heath 2005).

Project Aim and Objective

The aim of this project was to develop and deliver an evidence-based education package with a physical and mental health focus to clinicians and other health care workers in mental health settings. In addressing a potential knowledge and skill deficit, the objectives of the project were to build capacity of practitioners to enhance assessment and planning of appropriate physical health interventions for people diagnosed with a mental illness.

Methods

The Educational Package and materials.

Day workshops were chosen as the time of delivery of the training packages. These have the bonus of giving the practitioner 'protected time' to attend to their education and training needs in physical health interventions in contrast to purely reading comprehensive but book-based alternatives (Rinomhote & Marshall 2000, Blows 2010, Nash 2010), or e-learning alternatives (Jones *et al.* 2010).

Workshops content

Topic selection was based on an analysis of identified topics of interest by clinicians in the field and final year students. Feedback was sought from senior mental health nurses affiliated with the participating trust and through discussions with undergraduate students located at the hospital. Additionally, practical considerations such as the availability of experts to facilitate the workshops were considered. Additionally, a review of the available literature confirmed the selection of topics for the education package were important areas for mental health nurses to improve their knowledge and skills in physical health interventions. The topics identified from the needs analysis were: Oral health care as a physical care approach for people with mental illness (Edward *et al.* 2011) ; Diabetes and mental illness (Nash 2009); Intramuscular injectables (Gray *et al.* 2009); Wound management (Kilroy-Findley 2010) and Assessment of health profile of services users in mental health (White *et al.* 2009). Delivery of the educational package was multimodal and consisted of a 'reader' for the student to use to obtain the knowledge needed for practice; workshops which were up to seven and half hours in total and had a mixture of taught (PowerPoint), interactive content (class discussion, DVDs) and simulated practice in the university skills laboratories. The oral health workshop imparted key knowledge and tips to implement in practice and importantly explored oral health assessment within the scope of mental health nursing practice. The second workshop on diabetes used the narrative of a person diagnosed with type 1 diabetes recorded: stopping at various points to pose

questions, letting the workshop participants reflect and then give appropriate information. The diabetes workshop also included a simulation session in the afternoon in the university skills laboratory. The intramuscular workshop was a mixture of an update of the most recent evidence (adherence, choice of injection site, body mass index and needle length, side effect management) and simulated practice in the afternoon. The wound care session centred on the assessment and treatment of acute and chronic wounds and used the TIME acronym (T =Tissue, non-viable or deficient; I = Infection or inflammation; M = Moisture imbalance; E = Edge of wound, non-advancing or undermined) as a basis for practice. The Health Improvement Profile (HIP) formed the training to use the 28-item physical health assessment, with key physical health facts and figures related to practice. Participants in the HIP workshop then had the chance to use the HIP for differing scenarios and the chance to ask the facilitator about adapting for introduction in the clinical area. Importantly, all workshop content included a link to the iatrogenic side effects of psychotropic medication.

Design

A pre-test - post-test design was used for all workshops.

Participants and Recruitment

Participants were recruited through advertising regionally through the University CPD website, Clinical Skills Network and email. With the pressure on releasing staff for any extended periods of time, training day workshops appear to be one way of recruitment for continuous professional development (CPD) events. Purposive sampling was undertaken, where the target participant groups were qualified nurses, to access the workshops as part of continuing professional development for practising clinicians (CPD); and university final year nursing students to access the workshops as part of their undergraduate programme.

Ethical Considerations

Permission to undertake the study was sought and granted from the University School Research and Ethics Panel. Withdrawal of consent could be made at anytime of the project. Confidentiality and anonymity was maintained at all times.

Data collection

Education was developed by academic and clinical experts in each topic area. The education was delivered via workshops. At each workshop, participants were asked to

complete a pre-workshop questionnaire regarding their current knowledge of physical health interventions, using a multiple choice format. This questionnaire was re-administrated at the completion of the workshop, together with a post-evaluation of the workshop content, materials and delivery; using an additional questionnaire with Likert-style (scored from least (1) – most (3)) items and spaces for open-ended comments. The questionnaires were generated by the research team specifically for the purpose of this evaluation. This article mainly reports on the statistical findings only: The content analysis of the open ended findings are reported elsewhere (see Edward *et al.* 2012; Hemingway *et al.* 2013).

Data Analysis

All data analysis was undertaken using SPSS (Version 20.0). Data was summarised descriptively, and paired pre-and post-workshop test scores were analysed using the paired samples t-test, to assess the significance of changes in test scores as a result of the implementation of the workshops. In all cases data was pre-assessed for suitability of this parametric approach. Matching of test papers was facilitated using ID codes; names of participants on either test occasion were not recorded to maintain participant anonymity.

Results

Demographic data

In all 204 individual attendances at the workshops were recorded, comprising records of 89 registered and 115 student nurses. Some individuals attended more than one workshop. Of these a total of 180 (88.2%) pre- and post-test questionnaires and 166 (81.4%) evaluation of workshops were available for analysis. There were also some papers that were not possible to analyse due to ineligible writing. Table 1 gives a breakdown of all the five workshops with attendance figures and survey completions and mean scores.

Insert table 1 here

All workshop participants were predominantly female: the proportion of female respondents ranged from 20 out of 29 for the Wound Care workshop to 19 out of 23 (82.6%) for the Diabetes workshop. All age groups (18-30, 31-40, 41-50 and 51-60) were represented, with an approximately even distribution across all age groups. However, in most workshops, the majority of participants had less than 5 years' experience. Both in-patient and community contexts were represented, in approximately equal proportions. About three quarters of all

responses were from nurses in Mental Health branch, with the remainder from nurses in Learning Disability branch.

Due to the paired design, it would be expected that unsystematic variance (error variance) between the pre- and post- conditions would be minimized. The use of sub-groups was avoided in order to maximize the power of the analyses.

Pre- and post-test results

The workshop pre and post-test questionnaires were developed by the respective expert workshop facilitators. Thus not all the content scoring was the same. However, all the workshops resulted in statistically significant improvements to the baseline scores. Results are presented in Table 2 and Figure 1 below.

Insert table 2 here

Insert fig 1 here

Evaluation of Workshops

Virtually all participants rated themselves to be “very satisfied” or “satisfied” with the workshops with a small minority dissatisfied (see table 3).

Discussion

This article reports on the evaluation of the effectiveness of five physical health workshops directed at building capacity in physical assessment and interventions for mental health

nurses and disability nurses. The improvements observed in participants' satisfaction and knowledge in all workshops were statistically significant. The diabetes scores showed the best improvement from baseline, with mean post-workshop scores more than double the pre-workshop scores. However, the baseline for diabetes knowledge at 39.7% was considerably lower than baseline scores in other areas. The oral health workshop had both the highest pre-workshop and post-workshop scores. Given that rates of metabolic syndrome has been reported as relatively high in people with mental illness (Kato, et al., 2004) the low pre-education knowledge score in the diabetes workshop participants indicates a potential care knowledge gap. These results are interesting and have implications for continuing professional development focus for physical care knowledge of staff working in mental health services.

The relatively short period of time and similarity of testing conditions between the administration of the pre- and post-workshop questionnaires adds to the internal validity of the study: it seems reasonable to infer that the improvements noted were as a direct consequence of the workshop and not due to other changes over time. The results clearly show some transfer of knowledge had taken place and the statistical significance shown in all workshop evaluations means there is a strong likelihood this learning could transfer to practice.

Worthy of further consideration is virtually all participants rated themselves to be "very satisfied" or "satisfied" with the workshops. This concurs with research conducted by Terry & Cutter (2013) who undertook a pre and post-test analysis of MHNs undertaking a postgraduate module on physical health interventions. Satisfaction with education experience has been highlighted as a motivating factor for nurses working with mental health service users, and this in turn improves their therapeutic optimism (Edward *et al.* 2011; Hemingway *et al.* 2013b). If nurses and allied staff are trained appropriately this facilitates their confidence and in turn can have positive outcomes in the inpatient (Byrne *et al.* 2010), community mental health (Mitchell *et al.* 2011) and primary care settings (Hemingway *et al.* 2013). Thus educational initiatives reported in this paper can have a positive impact and transfer to the practice setting.

Developing physical healthcare capacity for MHNs

Hardy and White (2013) outline a five-point change management model to address the physical healthcare deficit: funding, involvement, commitment, impact and preparation. This model gives a baseline in which to measure the outcomes of the workshop series presented in this article. Firstly *funding* is required at a senior level to facilitate change and improve physical healthcare outcomes, although in these times of austerity, the 'political will' to manage change is just as important. The workshops, although partially funded by a grant award, were relatively inexpensive to resource, however, lecturers and practitioners skilled in physical health interventions collaborated with the ethos of improving the services available; something recognised as paramount to success in such interventions (Prowse & Heath 2005).

Secondly the *involvement* of key stakeholders is paramount to initiating change. 204 participants were recruited for the workshops: with a mixture of registered and senior MHN students. MHNs are the largest professional group working with mental health service users and it is recognised that we need to build a skilled workforce competent in physical healthcare interventions (Edwards *et al.* 2012). This collaboration between practitioners, students and nurse educators is a move in the right direction. It is hoped in future workshops to widen the net of attendees to include service users, service providers and commissioners.

The third element of this change model is gaining the necessary *commitment* of those involved; including organisational and individual commitment to improving physical healthcare outcomes. Hardy and White (2013) indicate the importance of staff being fully committed and incentivised to improve physical healthcare competency. This was the case of the workshop participants, who were allocated 'protected time' to be involved; which required some investment by the local Mental Health Trust to release staff, recognised as key to implementing change (Happell *et al.* 2012b, 2013).

Fourthly, there is a requirement in the change model to demonstrate *impact* directly on service users. The fact that these were stand-alone workshops limits their transferability to practice, but it was noted at a recent conference that two of the workshops had informed a physical health project innovation within SWYPFT (Saville *et al.* 2013). Thus we can see some small incremental outcomes from the project. Finally, *preparation*: the workshop can provide an appropriate baseline content for future practitioners that is necessary for future mental health practitioners (Nash 2009, Howard & Gamble, 2011, Robson & Haddad, 2012, Happell *et al.* 2013). However *preparation* also needs the ongoing commitment to implement new ways of working in terms of physical health interventions into an already packed clinical commitments for the mental health nurse (Hargate *et al.* 2009). Therefore the *preparation* has to be supported by wholesale commitment.

The healthcare environment in the UK appears to be in a state of permanent flux, with nurses at all levels having responsibility for managing change against a background of austerity measures. This is reflected across the world to differing extents. Coupled with this is the historical legacy of neglecting the physical healthcare of people with serious mental illness and other mental health problems. The five-point change management strategy provided by Hardy and White (2013) is a useful benchmark to measure the results of targeted education and training to increase the mental health skills and knowledge of students and practitioners. Added to this Hardy and White (2013) set out how service user's physical health needs are not being met. One important aspect of addressing this is to have appropriate assessments so that the physical health status of service user's can be assessed. White et al (2009) and Hardy and Gray (2010) have discussed the use of the Health Improvement Profile (HIP) and how this can give the nurse a framework to assess the physical health needs of service users with an SMI. However one of the barriers to successful implementation is how to include such an framework on an already packed menu of assessments the practising mental health nurse has to use. Petrucci et al (2013) researched the use of a global assessment that included physical health needs evaluation. Petrucci and colleagues also discussed how implementing assessments for mental health nursing has to take into account the complexity of care provision and the interrelationship between physical and mental health. Indeed findings from content analysis of this project reported elsewhere including participants commenting that the need to target education onto what can be realistically transferred to practice (Edward *et al.* 2012; Hemingway *et al.* 2013a; 2013c). Therefore educational initiatives can only facilitate education and skills to implement physical health interventions, if these interventions are to make a difference in improving people with an SMIs health status they need to be part of the MHNs global assessments as well as measured against health outcomes for the service user.

Addressing this 'silent scandal' will require a multi-faceted approach from government, commissioning boards, researchers and clinicians including, and in particular, mental health nurses (Gray 2012, Hardy & Thomas 2012, Hardy and White 2013).

Mental Health Literacy

One way of ensuring that MHNs and associated practitioners apply knowledge and skills in physical health is to increase their physical health literacy. Mental health literacy was introduced to increase service users' knowledge and beliefs about mental health problems that aid their recognition, management, or use health promotion strategies to decrease or prevent relapse (Jorm, 2000). Thus if the specific skills and knowledge (health literacy) and resultant confidence can be assimilated by MHNs, these factors can in turn have the

potential to positively impact on health outcomes for the patient (McCann *et al.* 2009; Edward *et al.* 2011b; Hemingway *et al.* 2013b).

Thus in the context of knowledge and skills imparted in these workshops, if the MHN has as a baseline an understanding of physical health, they can then conduct meaningful interactions with the service user; where a transfer of knowledge is given to the service user, putting them at the centre of their care (Happell *et al.* 2012a; 2012b). If the physical health literacy of MHNs is improved, as the largest professional workforce involved with people diagnosed with SMI, then the circle can be closed toward holistic care rather than the binary opposites, which have been to the fore.

Wellness in physical health cannot be divorced from wellness in mental health and vice versa (DH 2011). Thus workshops such as these presented in this paper can facilitate the health literacy of both the MHN, but more importantly, the service user, whose health status may be a major concern.

Implications for Nursing Management

The results from this study demonstrate that if targeted education and training is clinically relevant, it can inspire mental health nurses to include previously absent interventions in their routine practice, such as physical health assessments. This in turn can make a considerable contribution toward improving the detection and management of physical health for service users/clients both in the hospital and community setting (Edward *et al.* 2012, Hemingway *et al.* 2013; Happell *et al.* 2013). Nurse managers can include physical health interventions as a baseline assessment of physical health into routine practice in all contexts of mental health service provision, making a positive contribution to the improvement of the physical health status of the vulnerable group of health consumers. The importance of the findings of this phase of the physical/mental health education project is to provide both the novice and experienced nurse with additional knowledge of this specific health issue with which to inform their practice, and to thus include physical health assessment and interventions within their practice (Happell *et al.* 2012).

In this phase of the project we achieved the aim of developing and delivering an evidenced-based education package with a physical and mental health focus in specific topics, to clinicians and other health care workers in the disability and mental health settings. In addressing this potential knowledge and skill deficit, or affirming best practices for clinicians, the objective of the overall project (build capacity of practitioners) can be realised.

Limitations

The limitations of this study relate to participating sites (potentially affecting relevance to other settings), robustness of the questionnaires and person related considerations. This project included participants from a single University and NHS Trust. The tools used to assess pre- and post-workshop knowledge were not psychometrically developed so quantitative results need to be viewed with caution. Furthermore a student's knowledge post session has a recency effect: thus immediate recall would be higher than if conducted at a later time point in time. Added to this although participants were given specific explanations about how and why we were asking them to complete the questionnaires, it may have appeared unwieldy to be asked to do all three. Pressures of time may also have contributed to some participants choosing not to complete all that was asked of them. The overall findings also cannot show transferability and a direct cause and effect toward improving the health of service user's, this could only be shown by a prospective study such as an RCT that could evaluate the outcomes of such interventions. In light of these limitations, the study did illuminate the positive impact the education package had on knowledge of nurses related to the physical health requirements of mental health service users. The delivery and content of the developed education package suggests high accessibility and relevance to those mental health nurses/student nurses who participated.

Conclusion

Poor physical health can lead to an increased morbidity and mortality, and can increase the likelihood of poor absorption of common medicines used in mental health. Using clinical assessment to address possible pharmacokinetic issues for clients/service users should include screening for physical health factors which may alter oral drug absorption (such as gastrointestinal pathology (such as gastroenteritis), a variety of acute and chronic illnesses (such as diabetes, cardiac failure and renal impairment), and interacting drug therapy. In some cases oral medications may not be practical, so alternatives can be planned. Health assessment should also include consideration of factors that may influence drug elimination (such as the presence of cardiac problems or renal impairment). In some clinical situations the client may experience an adverse drug response (ADR), often not predictable from prior knowledge of the medication pharmacology. These ADRs may be idiosyncratic and could range from minor effects (skin rash) to quite serious (ie drug induced hepatitis). Personal drug metabolism can also increase the potential for an ADR. The importance of the findings

of the of the physical/mental health education project relates to increasing knowledge for clinicians in physical health practices, and these results can then inform future developments related to increasing the capacity of nurses in this clinical area.

Acknowledgement

We would like to thank the Clinical Skills Network (part of the Yorkshire and Humber Strategic Health Authority UK) for supporting this project.

References

Blows, M.T (2010) *The Biological Basis of Nursing: Mental Health*. London Taylor & Francis.

Brown S, Inskipp H, Barraclough B (2000) Causes of excess mortality of schizophrenia. *British Journal of Psychiatry*, 177, 212 – 217.

Byrne MK, Deane F P (2011) Enhancing patient adherence: Outcomes of medication alliance training on therapeutic alliance, insight, adherence, and psychopathology with mental health patients *International Journal of Mental Health Nursing* 20(4), 284–295.

Chang C-K, Hayes R D, Perera G, Broadbent M TM, Fernandes AC, Lee WE, 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*, 6(5), e19590.

Coodin S (2001) Body mass index in persons with schizophrenia. *Canadian J Psychiatry*, 46(6), 549-555

Cournos F, McKinnon MA, Sullivan G (2005) Schizophrenia and comorbid human Immunodeficiency Virus or Hepatitis C Virus. *Journal of Clinical Psychiatry* 66 (supplement 6), 27–33.

Dean J, Todd G, Morrow H, Sheldon K (2001) The physical health needs of adults with mental health problems: The perspectives of users, carers and front-line staff, *International Journal of Mental Health Promotion* 3(4), 16 – 24

Department of Health. (2006a) *From values to action; the chief nursing officer's review of mental health nursing*. London : DOH

Department of Health (2006b) *Choosing Health: Supporting the physical needs of people with severe mental illness - commissioning framework*. London: HMSO

Department of Health (2011) *No health without mental health: a cross-government mental health outcomes strategy for people of all ages*. London: HMSO

De Hert M, Correll C.U., Bobes J, Cetkovich-Bakmas M, Cohen D, Asai I, Leucht S (2011) Physical illness in patients with severe mental disorders. I. Prevalence, impact of

medications and disparities in health care. *World psychiatry : official journal of the World Psychiatric Association*, 10(1), 52-77.

Dinan TG (2003) Schizophrenia and Diabetes Expert Consensus Meeting , Dublin. *British Journal of Psychiatry* 184 (supplement 47), 112 – 114.

Disability Rights Commission (2006) *Equal Treatment: Closing the Gap – a formal investigation into physical health inequalities experienced by people with learning disabilities and/or mental health problems*, Disability Rights Commission, London (www.drc-gb.org). Accessed 17/03/13

Edward, K.-I., Rasmussen, B., & Munro, I. (2010) Nursing care of clients treated with atypical antipsychotics who have a risk of developing metabolic instability and/or type 2 diabetes. *Archives of psychiatric nursing* 24(1), 46.

Edward KL, Felstead B, Mahoney AM (2011) Hospitalized mental health patients and oral health. *J Psychiat Ment Health Nurs* 19(5), 419–25

Edward K, Welch A, Elsom S (2011) *Resilience, Recovery, Reconnection and Therapeutic Optimism*. Chapter 4 in: Edward K, Munro I, Robins A, Welch (2011) (eds) (2011) *Mental Health Nursing. Dimensions of Praxis*. Melbourne: Oxford University Press.

Edward KL, Hemingway S, Stephenson J (2012) Oral health – a key assessment skill for mental health nurses: a pilot evaluation. *Mental Health Nursing*, 32 (6):12-16.

Edward K, & Alderman C (2013) *Psychopharmacology: Contexts and current practices* (1 ed.). Melbourne: Oxford University Press.

Eldridge D, Dawber N, Gray R (2011). A well-being support program for patients with severe mental illness: a service evaluation. *BMC Psychiatry* 2011, 11:46
<http://www.biomedcentral.com/1471-244X/11/46> Accessed 4/07/11,

Gabe M E, Davies G A, Murphy F, Davies, D, Johnstone L, Jordan, S (2011) Adverse drug reactions: treatment burdens and nurse-led monitoring. *Journal of Nursing Management*. 19, 377-392.

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

Gray R (2012) Physical health and mental illness: A silent scandal. *International Journal of Mental Health Nursing*, 21, 191–192.

Happell B, Platania-Phung C, Gray R, Hardy S, Lambert T, McAlister M, Davies C (2011) A role for mental health nursing in the physical health care of consumers with severe mental illness. *Journal of Psychiatric and Mental Health Nursing* 18, 706–711.

Happell, B., Davies, C., & Scott, D. (2012a) Physical health in individuals diagnosed with a mental illness: A systematic review. *International Journal of Mental Health Nursing* 21, 236–247.

Happell B, Scott D, Platana-Phung C, Nankivel J (2012b) Nurses' views on physical activity for people with serious mental illness. *Mental Health and Physical Activity* 5, 4-12.

Happell B, Scott D, Platania-Phung C (2012c). Rural physical health care services for people with serious mental illness: A nursing perspective. *The Australian Journal of Rural Health* 20 (5), 248-253.

Happell B, Davies C, Scott D (2012d) Health behaviour interventions to improve physical health in individuals diagnosed with a mental illness. *International Journal of Mental Health*, 21, 236-247.

Happell, B., Scott D, Platania-Phung C (2013) Physical health care for people with mental illness: Training needs for nurses, *Nurse Education Today*
<http://dx.doi.org/10.1016/j.nedt.2013.01.015>

Hardy, S. (2008) Integrating Models of care for mental illness. *Practice Nurse*. 36(3), 38-40.

Hardy, S. Gray R (2010) Adapting the severe mental illness physical Health Improvement Profile for use in primary care. *International Journal of Mental Health Nursing* 19(5), 350–355.

Hardy S, White J, Deane K, Gray R (2011). Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing*, 18(8), 721-727.

Hardy S. Thomas B, (2012). Mental and physical health comorbidity: Political imperatives and practice implications. *International Journal of Mental Health Nursing* 21, 289–298.

Hardy S White J. (2013) Why are people with serious mental illness still not getting their physical health checked? *Mental Health Nursing* 33(1), 14-18.

Hargate A, Hemingway S, Plummer S, Padgett K (2008) A systems approach to improve the physical healthcare interventions available to the service user. *Mental Health Nursing* 28 (3), 6–9

Hemingway S, Maginnis R, Baxter H, Smith G, Turner J, White J (2010) Medicines with Respect (MWR) Phase 1: implementing a pathway toward competency in medicines administration for mental health nurses. *Mental Health Nursing* 30(3), 12-16.

Hemingway S, Baxter H, Smith G, Burgess-Dawson R Dewhirst K (2011) Collaboratively planning for medicines administration competency: a survey evaluation *Journal of Nursing Management* 19, 366–376.

Hemingway, S., Cook, L., Stephenson, J. (2013a). Assessing and managing wounds in mental health settings. *Wounds UK*, 9 (3), 34-40. ISSN 1746-6814.

Hemingway S, Rogers M, Elsom S (2013b) Measuring the influence of a mental health training module on the therapeutic optimism of advanced nurse practitioner students in the United Kingdom. *Journal of the American Association of Nurse Practitioners* doi: 10.1002/2327-6924.12028

Hemingway, S, Stephenson, J. Holliday, L. Covill, C (2013). Administering LAAs: an education and training workshop. *British Journal of Mental Health Nursing*, 2

(4), 27 216 - 220

Hippisley-Cox, J., Vinogradova, Y., Coupland, C., & Parker, C. (2007). Risk of Malignancy in Patients with Schizophrenia or Bipolar Disorder. *Archives of General Psychiatry*, 64(12), 9.

Howard L, Gamble C (2011). Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient settings. *Journal of Psychiatric and Mental Health Nursing* 18, 105-112.

Jones A, Pegram A, Fordham-Clarke C (2010). Developing and examining an Objective, Structured Clinical Examination. *Nurse Education Today* 30, 137-141.

Jordan, S., Philpin, S., Davies, S (2000) The biological sciences in mental health nursing: stakeholders perspectives. *Journal of Advanced Nursing*. 32 (4), 881-891.

Jordan G (2011) *Physical Health Agenda for Mental Health and Learning Disabilities*. Leeds Metropolitan University and Yorkshire and Humber NHS. Available at: <http://bit.ly/10dmXg1> (accessed 27.05.2013).

Jorm, A. (2000) Mental Health Literacy Public knowledge and beliefs about mental disorders. *British Journal of Psychiatry* 177, 396-401.

Kato M M, Currier MB, Gómez CM, Hall L, González-Blanco M (2004). Prevalence of metabolic syndrome in Hispanic and non-Hispanic patients with schizophre. *Prim. Care Companion; Journal Clinical Psychiatry* 6, 74-77.

Kilroy-Findley A (2010) *Tissue viability in mental health*. Nursing Standard. 24, 45, 60-67. .

Lawn, S. (2012). In it together: Physical health and well-being for people with mental illness. *Australian and New Zealand Journal of Psychiatry*, 46(1), 14-17.

Lawrence D, Kisely S. (2010) Inequalities in healthcare provision for people with severe mental illness. *Journal of Psychopharmacology* 24,61-8.

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

McCann, T., Lu, S., Perryman, C. (2009) Mental health literacy of Australian Bachelor of Nursing students: a longitudinal study. *Journal of Psychiatric and Mental Health Nursing* 16(1), 61-7

Meddings S, Perkins R (2002) What 'getting better' means to staff and users of a rehabilitation service: An exploratory study, *Journal of Mental Health* 11(3), 319 – 325.

Mitchell K, Byrne MA, Willis A, Deane FP, Hawkins B, Quinn R (2010) Training inpatient mental health staff how to enhance patient engagement with medications: Medication Alliance training and dissemination outcomes in a large US mental health hospital. *Journal of Evaluation in Clinical Practice* 16(1), 114–120.

Mitchell, A. J., Delaffon, V., Vancampfort, D., Correll, C. U., & De Hert, M. (2012). Guideline concordant monitoring of metabolic risk in people treated with antipsychotic medication: systematic review and meta-analysis of screening practices. *Psychological Medicine* 42(01), 125-147.

Murashita, M., Kusumi, I., Hosoda, H., Kangawa, K., & Koyama, T. (2007). Acute administration of clozapine concurrently increases blood glucose and circulating plasma ghrelin levels in rats. *Psychoneuroendocrinology*, 32(7), 777-784.

Nash, M. (2010a) Assessing nurses' propositional knowledge of physical health. *Mental Health Practice*. 14(2), 20-22.

Nash, M. (2010b) *Facilitating Physical Health and Wellbeing in Mental Health Nursing. Clinical Skills for Practice*. Open University Press. Milton Keynes. National Alliance on Mental Illness (NAMI) (2007)

Mental illness: Treatment saves money and makes sense.
Arlington, VA: NAMI

Nocon, A. (2004) *Background evidence for the DRC's formal investigation into health inequalities experience by people with learning difficulties or mental health problems*. Disability Rights Commission (WWW.dr4c-gb-org), London.

NYS Center of Excellence for Cultural Competence. (2010). *Improving the Physical Health of People with Serious Mental Illness: A Systematic Review of Lifestyle Interventions: A Report from the NYS Center of Excellence for Cultural Competence at the New York State Psychiatric Institute*. New York, NY.

Parks, J., Svendsen, D., Singer, P. and Foti, M. (2006) Foreword in : *Morbidity and Mortality of People with Serious Mental Illness*. National Association of State Mental Health Program Directors (NASMHPD) Medical Directors Council.

Petrucci, C. Marucci, G., Carpico, A, and Lancia L care complexity in a psychiatric setting: results of an observational study. *Journal of Psychiatric and Mental Health Nursing*. Article first published online: 5 FEB 2013 DOI: 10.1111/jpm.12049.

Phelan M, Stradins L Morrison, S (2001) Physical health of people with severe mental illness, *British Medical Journal*, 443 -444.

Phelan M, Stradins L, Amin D (2004) The Physical Health Check: A tool for mental health workers. *Journal of Mental Health* 13 (3), 277-284.

Prowse M A, Heath V (2005) Working collaboratively in health care contexts: the influence of bioscientific knowledge on patient outcomes. *Nurse Education Today* 25, 132-139.

Rinomhote A S, Marshall P (2000). *Biological aspects of mental health nursing*. Churchill Livingstone. London.

Robson D, and Gray R (2007) Serious mental illness and physical health problems: A discussion paper. *International Journal of Nursing Studies* 44, 457 – 466.

Robson D (2010) Mental Health and Smoking: effects on wellbeing. *British Journal of Wellbeing* 1(9), 22-26

Robson D, Haddad M (2012) Mental health nurses' attitudes towards the physical health care of people with severe and enduring mental illness: The development of a measurement tool. *International Journal of Nursing Studies* 49, 72–83.

Saha S, Chant D, McGrath J (2007). A systematic review of mortality in schizophrenia: Is the differential mortality gap worsening over time? *Archives of General Psychiatry*, 64(10), 1123-1131.

Samele C (2004) Factors leading to poor physical health in people with psychosis. *Epidemiologia Psichiatria Sociale*, 13, 141 – 145.

Saville A, Stead R, Butler S, Mark Payne M (2013) "My physical health" 'Progress towards Sustainability' *The physical Health Agenda for Mental Health and Learning Disabilities 19th* March 2013 Tankersley Manor Hotel Sheffield, UK.

Silverstein S., & Bellack A. (2008). A scientific agenda for the concept of recovery as it applies to schizophrenia. *hg*, 28 (7), 1108-1124.

Stiefel D, Truelove E, Menard T, Anderson V, Doyle P, Mandel L (1990). A comparison of the oral health of persons with and without chronic mental illness in community settings. *Special Care in Dentistry*, 10(1), 6.

Terry J, Cutter J (2013) Does Education Improve Mental Health Practitioners' Confidence in Meeting the Physical Health Needs of Mental Health Service Users? A Mixed Methods Pilot Study. *Issues in Mental Health Nursing*. 34(4), 249-255.

Tiihonen J, Långqvist J, Wahlbeck K, Klaukka T, Niskanen L, Tanskanen A, & Haukka J (2009). 11-year follow-up of mortality in patients with schizophrenia: a population-based cohort study (FIN11 study). *The Lancet*, 374(9690), 620-627.

Tosh G, Clifton A, Mala S, & Bachner M (2010). Physical health care monitoring for people with serious mental illness *Cochrane Database of Systematic Reviews: Reviews 2010* (Vol. Issue 3). Chichester.

Tschoner A, Engl J, Laimer M, Kaser S, Rettenbacher M, Fleischhacker WW, Ebenbichler, C F (2007). Metabolic side effects of antipsychotic medication. *International Journal Of Clinical Practice* 61(8), 1356-1370.

White, J., Gray, R., Jones, M. (2009) The development of a serious mental illness physical health improvement profile. *Journal of Psychiatric and Mental Health Nursing* 16 (3), 493-498.

