



University of HUDDERSFIELD

University of Huddersfield Repository

White, Jacqueline, Hemingway, Steve and Stephenson, John

Training Mental Health Nurses to Assess the Physical Health Needs of Mental Health Service Users: A Pre- and Post-test Analysis

Original Citation

White, Jacqueline, Hemingway, Steve and Stephenson, John (2014) Training Mental Health Nurses to Assess the Physical Health Needs of Mental Health Service Users: A Pre- and Post-test Analysis. *Perspectives in Psychiatric Care*, 50 (4). pp. 243-250. ISSN 0031-5990

This version is available at <http://eprints.hud.ac.uk/id/eprint/19276/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

Training mental health nurses to assess the physical health needs of mental health service users: A pre and post-test analysis.

Abstract

PURPOSE: The aim of this project was to develop, deliver and evaluate a brief evidenced based education package to enhance physical health literacy in mental health nurses.

DESIGN AND METHODS: Pre and post-test survey of knowledge of physical health in serious mental illness, satisfaction with the workshop and applicability to practice.

RESULTS: Participants were motivated to attend and complete the questions. There was statistically significant knowledge gain immediately post workshop and participants described satisfaction with the content and a willingness to apply learning from the session to their practice.

PRACTICE IMPLICATIONS: If such workshops are provided as a collaborative and relatively inexpensive way of education they can contribute to building the capacity of mental health nurses to be literate in physical health interventions.

Search Terms

Physical health, health literacy, Serious Mental Illness [SMI], schizophrenia, bipolar disorder, mental health nursing, statistical analysis, content analysis

Improving the physical health of patients with serious mental illness [SMI] such as schizophrenia and bipolar disorder presents a significant challenge to health providers and professionals. Life expectancy is reduced by up to 25 years mainly due to cardiovascular disease with evidence from large cohort studies that this problem has increased since the introduction of new service structures and new medication treatments (Saha et al. 2007; Tiihonen et al. 2009; Chang et al. 2010). Cardiovascular disease and diabetes mellitus are two to three times more prevalent in this population (De Hert et al. 2011). Rates of metabolic syndrome (a significant risk factor for the development of diabetes mellitus and cardiovascular disease) as high as 60% have been reported in SMI patients in North America (Kato et al. 2004). Risk factors for metabolic disease exist in first-episode patients and increase with the duration of illness making the provision of screening and intervention to promote good health of vital importance (De Hert et al. 2006; Mitchell et al. 2012). The

prevalence of a whole range of other physical comorbidities are elevated including respiratory disease, bowel cancer, sexual, eye and dental health conditions (Stiefel et al. 1990; Cournos et al. 2005; Hippisley-Cox et al. 2007; Robson and Gray 2007).

The ability to screen for physiological health conditions is of fundamental importance to mental health nursing practice, yet there is still evidence that such conditions go largely unnoticed, and if identified are often poorly managed (Phelan et al., 2001; 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, termed diagnostic overshadowing (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; Mitchell et al. 2012; Hardy et al. 2013). Once a problem is identified people with SMI are much less likely to be offered treatment than people in the general population (Nasrallah et al. 2006; Mitchell et al. 2009).

Jordan et al. 2000 and Edward et al. 2012) posit that that the physical health care needs of the patient diagnosed with a serious mental illness (SMI) was a 'care gap' not being effectively met by either primary care or secondary mental health services. This would appear to be partly related to a poor educational preparation for this role, a view highlighted in the latest review of mental health nursing in the UK (Department of Health 2006) and in a survey of 585 MHNs in London where the majority agreed physical health was a key part of their role but only 20 % had received training for it (Robson et al. 2012) A survey in primary care found 98% of practice nurses had no formal training in mental health care (Department of Health 2003). Organisational barriers such as time to perform the role have also been reported (Howard and Gamble 2011).

Health literacy is defined as "the cognitive and social skills that determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (World Health Organisation,1998:10). Although most commonly used to explain the intended outcome of health promotion activities in patients or populations, this concept is equally relevant to practitioners who are expected to deliver health screening and intervention as part of their role. Importantly because health literacy

does not just apply to providing information but enabling people to use that information in their everyday lives (or practice). Health literacy is considered 'central to empowerment' (World Health Organisation, 1998:10). Developing mental and physical health literacy in patients could be considered central to the holistic role of any nurse but nurses themselves need education and support to develop their own health literacy and realise the potential of such a role. It would appear, certainly in the UK, that deficits in education, service structures and the resulting culture of practice has inhibited the development of physical health literacy in mental health nurses and mental health literacy in nurses working in physical health care services.

Three systematic reviews in serious mental illness have investigated physical health monitoring, interventions aimed at educating healthcare professionals to act on physical health needs and health behaviour interventions with the potential to be delivered by mental health nurses (Tosh et al. 2010; Hardy et al. 2011; Happell et al. 2012). No randomised controlled trial evidence was identified for screening interventions with a failure of researchers to date to report knowledge gain or a change in attitude following education of healthcare professionals in any setting (Tosh et al, 2010; Hardy et al, 2011). Happell et al (2012) used a qualitative methodology to identify a range of interventions that have the potential to be provided by mental health nurses but require further research including smoking cessation, weight management, physical activity and alcohol interventions.

The serious mental illness Health Improvement Profile [HIP] is a risk assessment tool designed for mental health nurses to use with patients to identify and 'red flag' physical parameters that require intervention (White et al. 2009). When an item such as blood pressure or smoking flags red the HIP then allows the nurse and patient to select from recommended actions to agree an individual health action plan. The HIP is intended as a simple and pragmatic way to support physical health literacy within the existing nurse workforce and with minimum additional education. Clinical utility and acceptability to patients and practitioners has been demonstrated (Shuel et al. 2010) and the potential effect of the HIP Programme (the HIP and brief training package) on patients health related quality of life outcomes is currently being tested in a cluster RCT (White et al. 2011). The HIP is currently used by a number of mental health providers across a variety of inpatient and community settings, in the UK and internationally.

The Project - The Physical Health :Registered and Student Nurse Workshop Series

Continuing Professional Development [CPD] is 'a process of lifelong learning in practice' (Peck et al, 2000: 432). Alongside colleagues from South West Yorkshire Partnership Foundation Trust (SWYPFT), the researchers applied to the Yorkshire and Humber Strategic Health Authority Clinical Skills Network and secured a grant to produce a series of interactive education and skills training packages to meet the learning needs of nurses and health care workers currently working in mental health settings. The following topics were included in the first series: Epilepsy; Oral health; Intramuscular injections; Diabetes; Assessment using the Health Improvement Profile and Wound Care. Selection of learning outcomes for the first series of packages was based on a list of topics of interest generated by clinicians and service users and the Nursing and Midwifery Council Essential Skills Clusters (Nursing and Midwifery Council, 2010).

Collaboration

Building on previous collaborations in physical health generally (Hargate et al 2009) and incorporating the concepts of medicine management education and training for mental health nurses', key stakeholders involved in the development of the education packages included nurses from the Trust, mental health and learning disability service-users and University lecturers. The approach to developing the education used here complements and builds upon the 'stepped approach' to medicines management training developed by Hemingway and colleagues (Hemingway et al. 2010). Such collaboration is identified as a key determinant to achieving positive service user/client outcomes (Prowse & Heath 2005). In a systematic review of the outcomes of educational meetings, the use of mixed didactic and interactive methods was found to be more effective in changing professional behavior than didactic methods alone (Forsetlund et al, 2012). Harnessing the motivation and enthusiasm of participants for a topic through discussion has been identified as important in supporting implementation of learning into practice after CPD (Lee, 2011). Workshops were therefore designed that integrated didactic teaching from key opinion leaders with experiential activities and discussion.

Project Aim and Objectives

The aim of this project was to develop and deliver an evidenced based education package comprising of a series of 7 day workshops, with a physical and mental health focus to clinicians and other health care workers from learning disability and mental health settings. In addressing a potential knowledge and skill deficit the objective of the project was to build the capacity of practitioners to assess and plan appropriate physical health interventions for people diagnosed with a mental illness. The aim of the HIP workshop was to facilitate the learning of evidence-based skills and knowledge for mental health nurses [MHN]. This article reports on the evaluation of the effectiveness of the learning in terms of knowledge gained immediately after the workshop and participants' views about the transferability of learning to their practice.

Method

Participants were recruited through advertising regionally to reach as many nurses as possible. In addition all qualified MHNs in South West Yorkshire Partnership Foundation NHS Trust [SWYPFT] and MH students at the University of Huddersfield who may benefit as part of their CPD, postgraduate or undergraduate programme were invited to attend. The workshop was facilitated by one of the developers of the HIP (JW) over a 2.5 hour session.

The session started with a narrative from JW about a mental health service user known to her who had died unexpectedly from cardiovascular disease. The workshop delegates were asked for a show of hands regarding any similar experiences that they had known in their practice. This produced a powerful indication of the importance of the topic as the majority of the qualified nurses in the room raised their hands. Some audience members voluntarily shared experiences and this served to encourage interaction from the beginning of the session, reinforcing the importance of the topic. The workshop then proceeded with a presentation of evidence about 'why physical health is important and nurses need to act'. Interaction from the audience was encouraged and facilitated throughout the presentation using a question and answer style. Once the HIP was introduced and copies circulated, the audience was encouraged to ask questions about specific parameters. Answers were given with reference to slides (from the HIP Manual content) to match the queries raised. The audience was then asked to work in small groups on a range of scenarios (designed to show how the HIP could be used to support decision making about appropriate interventions) and feedback to the larger group. The workshop was concluded with a discussion about the potential barriers and support available to enable the HIP to be

implemented in practice. A short plenary for delegates to share individual action points to take away from the workshop was then facilitated. The workshop slides, the HIP and the HIP Manual was made available to delegates after the workshop.

A pre- and post-test design was used to evaluate this phase of the project. Firstly the workshop attendees were asked to complete a pre workshop questionnaire regarding their current knowledge of physical health in serious mental illness as they entered the room and just before the workshop started. This was repeated on completion of the workshop, together with a post-evaluation of the workshop content, materials and delivery. A multiple choice format was used for knowledge questions and a Likert scale for the attitudinal items with spaces for answers to open-ended questions. Participants were asked to place their questionnaires in a box at the beginning of the workshop and in a second box when leaving the workshop. Paired questionnaires (from the same participant were identified via an identification number.

Permission to undertake the study was granted by the School of Health and Human Sciences Research Ethics Panel. Information about the nature of the study was verbally exchanged with the participants at the beginning of the workshop by two authors (JW,SH) and it was explained that consent to use the data was assumed if the questionnaire was completed. Participants were invited to ask any questions and were assured that completing of the questionnaires was completely voluntary and anonymous. They were reminded of their right to choose to complete or not complete the second questionnaire at the end of the workshop. Confidentiality was maintained throughout the project and only aggregated data is presented.

The questionnaires were subject to statistical analysis using SPSS (Version 18.0) 53 participants attended the workshop. 39 questionnaires were submitted before the beginning of the workshop (74%), and 44 on leaving the room (83%), the higher number reflecting participants who arrived late. Responses submitted before and after the intervention were paired and 38 (72%) participants were included in the analysis as they provided valid pre- and post-workshop responses.

Each participant was assessed on their response to 10 equally weighted multiple choice questions relating to their agreement with statements relating to physical health assessment in SMI and the recommended action to take if a physical health parameter

was at risk. The participants' overall scores were obtained by summing the marks allocated to each response: hence a maximum of 10 marks could be obtained. Open-ended comments were analysed for their content and emergent themes (Newell & Burnard, 2006). Two authors (SH, JW) read and re-read the written responses in order to be familiar with the text, ideas and themes. Subsequently, they agreed on emerging themes. Responses with the data set were examined for content that related to the respondents' written answers to the five open response questions.

Findings

Demographics

Demographic information was collected from the participants. All the following demographic information refers to valid responses.

36 participants were female (78.3%) and 10 participants (21.7%) were male. The majority of participants (23 participants; 47.9%) had been working in health care for less than 5 years. All age groups from 18 to 55 were represented. Contexts were approximately equally represented, with 18 in-patient nurses (38.3%), 14 community nurses (29.8%) and 15 (31.9%) who recorded their context as "Other".

Pre and post test knowledge scores

The mean score recorded pre-test was 4.47, with a standard deviation of 1.59. The mean score recorded post-test was 8.11, with a standard deviation of 1.67. Hence the mean score was raised by 3.64 units after the test, with the variability of the data broadly unaltered. The spread of pre- and post-scores is shown in Figure 1 below.

*Insert Figure 1 About Here****

A paired samples t-test was conducted on the 38 cases for which valid pre- and post-scores were recorded. The t-test found a statistically significant difference between pre- and post-scores ($p < 0.001$), with a 95% confidence interval for the difference in mean scores in the two groups being given by (3.00, 4.58).

Although all groups of participants recorded higher post-scores than pre-scores, improvement in participants who reported their context as *In-patient* was lower than improvement recorded in participants who reported their context as either *Community* or *Other*. Participants from the *In-patient* context improved by an average of 2.84 points (SD 2.31); whereas those from the *Community* context improved by an average of 4.27 points (SD 1.19); and those from other contexts improved by an average of 4.36 points (SD 3.04).

Evaluation of the session

Further information relating to the effectiveness of the session was also recorded post-test. All participants except 1 reported themselves to be either “satisfied” or “very satisfied” with both the topic delivery and with the content of the day and its relevance to practice, with 38 respondents (77.6%) reporting themselves to be “very satisfied”. All participants reported that the use of mental health/learning disabilities examples helped them in their understanding of the topic. While only a minority of respondents answered the question relating to learning strategies fully, both the multi-choice questions and the guided reading package were rated highly by the majority of participants who submitted an answer to this question.

Content Analysis

There were 3 themes that emerged after analysis. The first theme centred on the enthusiastic and clinically relevant style of the workshop delivery and the second theme on suggestions to improve the session. The third theme considered the HIP and its application to practice.

Positive style of delivery

In line with the overwhelming satisfaction reported in the statistical findings the comments gave reasons why. Participants commented that the session delivery was interesting and clinically relevant because it focused on current practice. Practice examples were valued:

“Very good fantastic knowledge, More awareness of physical health observations for patients”.

[I found it] *“enjoyable and informative, and related to current practice and useful in making improvements”.*

“Excellent lecture. Interesting and inspiring subject matter. Factual up to date, evidence based information. Presentation was interesting, practice based with real examples”.

One respondent stated where they intended to implement the HIP:

“Very relevant to practice- to improve physical health monitoring on an inpatient ward”.

With a another participant commenting on how the session could impact on care delivery:

[I was] *“Very satisfied, informative to ensure high quality of care”.*

Other comments related to the inspiring way the information was delivered:

“Very knowledgeable and enthusiastic”

And with obvious learning taking place showing why the HIP was needed:

“Good explanation of diseases related to mental health service users”.

And how the right delivery can potentially change the MHN interventions in physical health:

“Excellent information and motivation to value physical health as a future role of the mental health nurse”.

With a final thought about the realisation from one participant about the potential impact of treatment on service users' health status:

“The side effects and complications are frightening”.

Improving the impact of the session by including managers, allowing more time and broadening the content to include groups other than people with SMI.

There were several comments that managers in practice needed to be made aware of the HIP and it’s potential and that it is not just practitioners who need education:

“Discussion of manager between University and manager of community mental health”;

“I think training should be given to directors/managers with nursing staff-not just the nurses on their own-as managers/directors that effect changes to hospitals”.

A comment was made that to be able to learn how to use the HIP, more time to engage with the workshop material was needed:

[Provide] *“More time to discuss scenarios”.*

And finally a suggestion that to make the session more useful to a broader range of practitioners examples other than those in SMI were required:

[Provide] *“Examples of adapted HIPs for use in Dementia”.*

Clinical application of the HIP

Any new innovation in clinical care can be shown to be successful in laboratory conditions but its real success and impact would be influenced as to whether it adoption and utilisation in practice. Thus comments in this theme reflected on this possibility and potential barriers to it’s adoption in practice (i.e. governance issues, workload, role confusion) and drivers (i.e. ease of use in practice, support to aid the planning of care):

“The HIP tool is not licensed in the trust but will consider taking part of the tool away and definitely consider when accessing a person’s health”;

Whilst one respondent stated the real crux of whether it has an impact can depend on clinical pressures:

“This tool is very relevant to our practice, however it may prove difficult to deliver due to volume of other requirements of our role”.

One suggestion put forward was that the HIP may not be implemented by MHNs because it may not be considered a requirement of their role:

[I am] Satisfied [with the session] although in medium secure services it is onsite GPs and RGNs that fulfil this role”.

A further comment was positive about how the HIP, when compared to another physical health tool, it might be easier to use in practice:

“Didn’t know much about the HIP. Have been using the Rethink Physical Health check. The HIP is useful as it is on one page, will probably use along with an action plan”.

There was a suggestion that the HIP scoring may need some alterations:

“Good risk assessment tool but needs mediums between green and red”

Two final comments seemed to indicate how the HIP could be utilised to help plan care:

“We do annual health checks, this is a good guide to use giving outcomes”.

“The HIP would be useful in an acute inpatient care to identify physical health ideas & aid to develop care plans”.

Discussion

This small evaluation provides evidence that the HIP workshop was well received by participants and was effective at improving knowledge immediately after the workshop. This firstly involved analysing the effectiveness of the learning in terms of knowledge gained in a pre-post test design. Secondly by rating participant feedback statistically and then subjecting open ended comments to content analysis, the potential of the transferability of this learning to practice and satisfaction were further supported. The statistical findings showed a change of mean score recorded pre-test was 4.47, to 8.11 thus was raised by 3.64 units indicating learning or a transfer of knowledge had taken

place. The evaluation of the quality and relevance of the workshop in terms of statistical analysis was overwhelmingly positive with the majority of respondents very satisfied. Content analysis indicated concurrence to the statistical findings supporting the high levels of satisfaction by highlighting how the session both informed and inspired the participants and was relevant to their clinical practice. There were also comments about how nurses felt the HIP could be implemented. There were some suggestions to improve the topic delivery and relevance by use of more scenarios and examples of how the HIP could be adapted to other populations (e.g. dementia). This is perhaps not surprising when the audience was drawn from a wide range of services but the HIP itself is designed for use in adults with serious mental illness (e.g. schizophrenia and bipolar disorder). Several participants commented on how service managers needed to access the same workshop so that they understood the need for its implementation and could support the use of the HIP in practice. The perception of organisational barriers (Happell et al 2012) and confusion about whose role it is to meet physical health screening and intervention needs (primary or secondary care) has been previously highlighted in research (Hardy & White 2013).

The training of mental health nurses in physical caring skills has received growing attention over the last decade. However to date these have been limited to training needs analyses' (Ward, 2005; Nash, 2009), training for implementing a screening tool (White et al, 2009; Hardy & Gray 2010), or recently collected views on training (Robson et al 2012; Happell et al 2013). The evaluation of the HIP in this article and other physical healthcare workshops (Edward et al 2012; Hemingway et al 2013a; Hemingway 2013b) is beginning to show that knowledge and skills can be imparted to MHNs who are motivated to transfer this learning to their practice.

The health outcomes of people with an SMI has actually worsened over the previous decade (Tosh et al, 2011) and any research that is undertaken should have at its heart transferability to the clinical arena. Thus the intention of these workshops was to introduce and empower nurses to adopt such skills into their day-to-day practice. The delivery of these workshops was designed to have a mixture of theory and evidence to inform practice and clinical related content to allow the HIP to be considered immediately for use. The open-ended comments clearly showed that the participants felt as though they had experienced a content that was relevant to practice and transferable.

Happell et al (2012) described how MHNs in their study wanted face-to-face training for physical health skills rather than the online alternative, although face-to-face education is arguably more expensive than elearning. The key issue is that education in physical health knowledge and skills in SMI needs to be made widely available so that the mental health service user receives a service on par with the general public at a population level (Happell et al 2013; Hardy & White 2013). Happell et al 2013 comment there are established specialist courses in physical health care that the MHN can access, for example in diabetes and cardiovascular care. The experiential and discussion elements of the short workshop using scenarios from MHN practice and a sharing of experience from practice were valued by participants and would be difficult to replicate quickly online or in a course with a more generic, rather than SMI focus. The engagement of students in a 'community of practice' where they feel confident enough to discuss issues in online forums is known to take time and resources. This workshop provides an example of how a short pragmatic workshop alongside information exchange about a clinical decision making tool and manual (the HIP and HIP Manual) may provide enough working knowledge to enable MHNs to assess and implement care for a wide variety of problems typically endured by the service users they work with. This is a fundamental need if the present predicament of this care deficit is to be addressed (White et al, 2009; Edward et al 2012; Robson et al 2012). Thus it could be said that the participants in this workshop were empowered to be more physical health literate.

Physical Health Literacy

As a first step to meeting the physical health literacy needs of practitioners and final year student nurses this was encouraging. The workshop was well received, the participants engaged with the content, they had retained enough of the content by the end of the session to show an improved knowledge of the topic and they described being motivated to try to implement some of the learning into their practice. This is highly relevant in the current National Health Service [NHS] as service pressures and difficulty releasing staff for education mean that short training packages are a popular way to impart key facts and start to engage practitioners in thinking about what needs to change to improve health outcomes for patients. However, short training packages cannot address complex organisational barriers to change and it is not yet clear how best to support mental health

nurses to implement health checks and interventions to enough people to make a real difference to their lives and life chances.

Practice Implications

Participants were motivated to attend and complete the questions, they showed knowledge gain post workshop and described satisfaction with the content and relevance of the session to their practice. If such workshops are provided as a collaborative and relatively inexpensive way of educating and training this can contribute to building the capacity of mental health nurses to be literate in physical health interventions.

Limitations

The study has further limitations regarding the tools used to assess the pre and post knowledge were not psychometrically developed so quantitative results need to be viewed with caution. A student's knowledge post session has a recency effect thus immediate recall would be higher than if conducted at a later time point. Consequently these findings cannot claim any generalizability.

Conclusion

Further research is required to evaluate if education delivered in a short workshop of this nature is retained for any length of time and if it results in any change in practice that effects health outcomes.

References

Chang, C. K., Hayes, R. D., Broadbent, M., Fernandes, A. C., Lee, W., Hotopf, M. and Stewart, R. (2010). All-cause mortality among people with serious mental illness (SMI), substance use disorders, and depressive disorders in southeast London: a cohort study. BMC Psychiatry 10 (1): 77

Cournos, F., McKinnon, M. A. and Sullivan, G. (2005). Schizophrenia and Comorbid Human Immunodeficiency Virus or Hepatitis C Virus. Journal of Clinical Psychiatry

66(Supplement 6).

De Hert, M., Correll, C. U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., Detraux, J., Gautam, S., Moller, H. J., Ndetei, D. M., Newcomer, J. W., Uwakwe, R. and 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.

De Hert, M., van Winkel, R., Van Eyck, D., Hanssens, L., Wampers, M., Scheen, A. and Peuskens, J. (2006). Prevalence of diabetes, metabolic syndrome and metabolic abnormalities in schizophrenia over the course of the illness: a cross-sectional study. Clinical Practice and Epidemiology in Mental Health 2(14): doi: 10.1186/1745-0179-2-14.online.

Department of Health (2003). Fast forwarding primary care mental health: Graduate Primary Care Mental Health Workers-Best Practice Guidance. London, Department of Health.

Department of Health (2006). From Values to Action: The Chief Nursing Officer's review of mental health nursing London, Department of Health.

Edward, K. L., Hemingway, S. and Stephenson, J. (2012). "Oral health-a key assessment skill for mental health nurses: a pilot evaluation of an educational intervention." Mental Health Nursing 32(2): 5.

Forsetlund L, Bjørndal A., Rashidian A, Jamtvedt G., O'Brien M.A, Wolf F.M, Davis D, Odgaard-Jensen J, Oxman A.D. (2012) Continuing education meetings and workshops: effects on professional practice and health care outcomes (Review) Cochrane Database of Systematic Reviews: Reviews 2012. Chichester. Issue 11, 2012.

Happell, B., Davies, C. and Scott, D. (2012). "Physical health in individuals diagnosed with a mental illness: A systematic review." International Journal of Mental Health Nursing 21: 11.

Happell, B., Scott, D., Platania-Phung, C. (2013) Physical health care for people with mental illness: Training needs for nurses, Nurse Education Today 33(4): 396 - 401

Hardy, S., White, J., Deane, K. and 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., Hinks, P. and Gray, R. (2013). "Screening for cardiovascular risk in patients with severe mental illness in primary care: A comparison with patients with diabetes." Journal of Mental Health 22(1): 42-50

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., Cook, L., Stephenson, J. (2013a). Assessment of wounds in mental health settings. Wounds UK 9(3): 34-40.

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.

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

Howard, L. and Gamble, C. (2011). Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient care

settings. Journal of Psychiatric & Mental Health Nursing 18(2): 105-112.

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

Lee, N-J. (2011) An evaluation of CPD learning and impact upon positive practice change Nurse Education Today 31 (2011) 390–395

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

Mitchell, A. J., Delaffon, V., Vancampfort, D., Correll, C. U. and 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.

Mitchell, A. J., Malone, D. and Carney Doebbeling, C. (2009). Quality of medical care for people with and without comorbid mental illness and substance misuse: systematic review of comparative studies. British Journal of Psychiatry 194: 491-499.

Mitchell, A. J., Vancampfort, D., De Herdt, A., Yu, W. and De Hert, M. (2012). Is the Prevalence of Metabolic Syndrome and Metabolic Abnormalities Increased in Early Schizophrenia? A Comparative Meta-Analysis of First Episode, Untreated and Treated Patients." Schizophrenia Bulletin. doi:10.1093/schbul/sbs082.online

Nasrallah, H. A., Meyer, J. M., Goff, D. C., McEvoy, J. P., Davis, B., Stroup, S. and Lieberman, J. A. (2006). "Low rates of treatment for hypertension, dyslipidemia and diabetes in schizophrenia: Data from the CATIE schizophrenia trial sample at baseline." Schizophrenia Research 86(1): 15-22.

Newell, R., Burnard, P., (2006). Research for Evidence-based Practice. Blackwell, Oxford.

Nocon, A. (2004). Equal Treatment; Closing the gap. Background evidence for the DRC's formal investigation into health inequalities experienced by people with learning disabilities or mental health problems. London, Disability Rights Commission.

Nursing and Midwifery Council (2010). Essential Skills Clusters and guidance for their use (guidance G7.15b). London, Nursing and Midwifery Council.

Peck, C., McCall, M., McLaren, B. and Rotem, T. (2000) Continuing medical education and continuing professional development: international comparisons. British Medical Journal 320: 432-435

Phelan, M., Stradins, L. and Morrison, S. (2001). "Physical health of people with severe mental illness." BMJ 322(7284): 443-444.

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

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., Haddad, M., Gray, R. and Gournay, K. (2012). Mental health nursing and physical health care: A cross sectional study of nurses' attitudes, practice and perceived training needs for the physical health care of people with severe mental illness. International Journal of Mental Health Nursing Early View 10.1111/j.1447-0349.2012.00883x.

Saha , S., Chant, D. and 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.

Shuel, F., White, J., Jones, M. and Gray, R. (2010). "Using the serious mental illness health improvement profile [HIP] to identify physical problems in a cohort of community patients: A pragmatic case series evaluation." International Journal of Nursing Studies 47(2): 136-145.

Stiefel, D., Truelove, E., Menard, T., Anderson, V., Doyle, P. and 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): 6-10.

Tiihonen, J., Långqvist, J., Wahlbeck, K., Klaukka, T., Niskanen, L., Tanskanen, A. and 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. and Bachner, M. (2010). Physical health care monitoring for people with serious mental illness. Cochrane Database of Systematic Reviews: Reviews 2010. Chichester. Issue 3.

White, J., Gray, R. and Jones, M. (2009). "The development of the serious mental illness physical Health Improvement Profile." Journal of Psychiatric and Mental Health Nursing 16(5): 493-498.

White, J., Gray, R. J., Swift, L., Barton, G. R. and Jones, M. (2011). The serious mental illness health improvement profile [HIP]: study protocol for a cluster randomised controlled trial. Trials 12: 167. <http://www.trialsjournal.com/content/12/1/167>.online

World Health Organisation (1998). Health Promotion Glossary. Geneva, World Health Organisation.