**DO NURSES’ PERSONAL HEALTH BEHAVIOURS IMPACT ON THEIR HEALTH PROMOTION PRACTICE? A SYSTEMATIC REVIEW**

**Abstract (N=299)**

**Background:** There is a growing expectation in national and international policy and from professional bodies that nurses be role models for healthy behaviours, the rationale being that there is a relationship between nurses’ personal health and the adoption of healthier behaviours by patients. This may be from patients being motivated by, and modelling, the visible healthy lifestyle of the nurse or that nurses are more willing to promote the health of their patients by offering public health or health promotion advice and referring the patient to support services.

**Methods:** An integrated systematic review was conducted to determine if nurses’ personal health behaviour impacted on (1) their health promotion practices, and (2) patient responses to a health promotion message. Medline, CINAHL, SCOPUS, and PsycINFO databases were searched. A narrative synthesis was conducted.

**Results:** 31 studies were included in the review. No consistent associations were noted between nurses’ weight, alcohol use, or physical activity level and their health promotion practice, although smoking appeared to negatively impact on the likelihood of discussing and engaging in cessation counselling. Nurses who reported confidence and skills around health promotion practice were more likely to raise lifestyle issues with patients, irrespective of their own personal health behaviours. The two studies included in the review that examined patient responses noted that the perceived credibility of a public health message was not enhanced by being delivered by a nurse who reported adopting healthy behaviours.

**Conclusions:** Although it is assumed that nurse’s personal health behaviour influences their health promotion practice, there is little evidence to support this. The assertion in health care policy that nurses should be role models for healthy behaviours assumes a causal relationship between their health behaviours and the patient response and adoption of public health messages that is not borne out by the research evidence.

**Keywords**

Behaviour change; health behaviours; nurse ; health promotion; systematic review

**BACKGROUND**

Health promotion practice is a very broad concept encompassing a wide range of approaches with the same goal, which is to enable people to have better control over, and improve their health (Naidoo and Wills, 2016). Reducing the unhealthy lifestyle behaviours that contribute to non-communicable diseases (such as smoking, obesity, poor diet, and lack of exercise) is a major global goal for public health and health care (World Health Organisation (WHO), 2008), and health education to support individual behaviour change is widely accepted as a core part of the role of most nurses (Whitehead, 2010). Increasingly, nurses and other health care professionals (HCPs) are expected to take on and effectively incorporate health promotion into their clinical practice. For example, the standard National Health Service (NHS) Contract (section 8.6) requires providers to develop an organisational plan for “making every contact count” (MECC) – using day-to-day interactions that HCPs have with individuals to support them in making changes to their physical and mental health and wellbeing (NHS England, 2016).

In a bid to improve unhealthy lifestyles among its own workforce, the “Five Year Forward View” in England requests that all NHS staff “stay healthy, and serve as health ambassadors in their local communities” (NHS England *et al.*, 2014, p.11). In particular, there has been a steer in policy discourse on workforce health and public health towards encouraging nurses to be role models for healthy behaviours. The Nursing and Midwifery Council (NMC) Code of practice asks for nurses to be a “model of integrity and leadership for others to aspire to” (p.15) as well as to “be aware at all times of how your behaviour can affect and influence the behaviour of other people” (NMC, 2015, ibid.). Internationally, professional nursing bodies have also raised concerns about nurses’ lifestyles. The International Council of Nurses (ICN) has noted that “If each of the world’s 13 million nurses… acted as role models, educators and change agents among their families, friends, workplaces and local communities to promote healthier lifestyles, together we could help to halt the tide of chronic disease.” (p.41) (ICN, 2010). Nurses themselves perceive an expectation to be healthy role models (Rush *et al.*, 2005), yet this expectation is not borne out by research which shows that nurses worldwide exhibit a poor health profile (Perdikaris et al. 2010, Lobelo & de Quevedo 2013).

Despite the expectation that nurses should “practise what they preach”, the effects of nurses’ health behaviours on patients are not known. Two arguments are proffered for why a nurse’s own health behaviours might matter in relation to their health promotion practice. First, that a nurse may be less willing to attempt to promote healthy lifestyles if they do not have a healthy lifestyle themselves. Second, advice given by a visibly unhealthy nurse may be less credible and patients may be less willing to follow it. Health behaviours which have visibly not been adopted by a nurse are less likely to be valued. Social learning theory (Bandura 1986; 1977) asserts that when an individual sees a model who they identify with or admire, the model’s behaviours may serve as a cue for the individual to initiate similar behaviours. So if an individual identifies with a nurse in some way and sees that nurse practising a healthy behaviour, they are more likely to follow suit. A source with high credibility is generally more persuasive in encouraging individuals to change their beliefs, attitudes, or behaviours than a low credibility one (Hovland and Weiss, 1951). The greater the perceived trust and expertise of the source of a communication, the more likely that a recipient will accept it and be persuaded by it. In a similar way, should the nurse’s health promotion actions not be well received by patients, their motivation to engage in health promotion in future will be lessened.

**REVIEW AIM**

Figure 1 shows a logic model developed to provide a framework for the review and which (i) makes explicit the underlying theories of change and assumptions about causal pathways between the personal health behaviours and the outcome of patient behaviour change (Anderson *et al.*, 2011), (ii) identifies relevant outcomes and indicates the type of evidence that might therefore be included, and (iii) provides a rationale for the analysis of differences among studies and along dimensions of interest such as the behaviour, the context/specialty of the nurse. This review takes a broad approach integrating various types of research evidence to understand this complex relationship. The logic model makes clear the assumptions of current policy and the explanations from social learning and communication theories about the relationship between health behavior and health promotion practice, whereby nurses’ health behaviours may moderate their ability to show emapthy or develop rapport with patients, their confidence and knowledge in health promotion practice, how important they perceive the behaviour to be, their willingness to raise the issue and their credibility. The logic model identifies a range of nurse outputs based on the “Making Every Contact Count” (MECC) approach (Public Health England *et al.*, 2016) which includes the 5 As of Ask, Advise, Assess, Assist, Arrange (Agency for Healthcare Research and Quality, 2012). The patient outputs are the patient’s attenion to the nurse and the receptiveness of the patient to any health promotion message or actions.

The logic model uses the term ‘outcome’ to describe any impact on patient behaviours related to this health promotion practice, and the impact of the encounter on the nurse’s likelihood of engaging in future health promotion actions.

The review questions were:

1. Do nurses’ personal health behaviours impact on their health promotion practices? and;
2. Do nurses’ personal health behaviours impact on patient responses to a health promotion message?

**Figure 1 Logic model for understanding how nurses’ personal health behaviours influence patient outcomes**

**OUTCOMES**

**EFFECT MODERATORS**

**INPUTS**

**OUTPUTS**

Interpersonal factors:

* Empathy
* Rapport with patients

Confidence

Knowledge

Importance attached to the behaviour

Willingness to raise the issue

Credibility

Nurses’ health behaviours:

* Smoking
* Alcohol use
* Physical activity
* Diet and weight

**NURSE OUTPUTS**

Health promotion practice:

* Ask
* Advise
* Assess
* Assist (refer, intervene)
* Arrange (support)

**PATIENT OUTCOMES**

* Motivation
* Learning
* Intention to change
* Behaviour change
* No change

**MEDIATING FACTORS**

Setting/context/speciality

Training and skills

Guidelines

**PATIENT OUTPUTS**

Attention to source

Reception to message

**NURSE OUTCOMES**

Likelihood of future health promotion actions

**METHODS**

**Identification of studies**

Searches were conducted on Medline, CINAHL, SCOPUS, and PsycINFO databases over a two-week period in June 2017 by the principal researcher. Following the focused research questions, the search strategy was assembled using a PEO framework (population, exposure, and outcome), combining terms within each concept of nurse and the patient population as the population groups, and health behaviours as the exposure as shown in Table 1. Synonyms and truncation symbols were used to be as comprehensive as possible. These were then combined using the Boolean operator ‘and’ with the outcomes associated with health promotion practice.

Table 1 PEO framework used in the review

|  |  |  |
| --- | --- | --- |
| Population | Exposure | Outcome |
| Nurse | Smoking or tobacco  Alcohol or drinking  Physical activity or exercise  Diet, nutrition, weight | Nurses’ attitudes to health promotion:  Self-efficacy, willingness, confidence, importance attached to the behaviour, perception of being a role model, attitudes towards the behaviour, attitudes towards health promotion practice |
| Nurses’ health promotion practice:  Intention to raise the issue, asking, discussing or raising the issue, giving advice or giving a message, referral, health education, referral to smoking cessation or weight management |
| Patient responses:  Perceived credibility or believability of advice given, confidence in advice given, perceived trustworthiness of advice given, perceived impact of nurses’ health behaviours on advice received, willingness to follow or comply with advice given, willingness to listen or attend to the nurse, acceptance of advice given, receptiveness to advice given, perception of nurses as role models or exemplars |

Ancillary searching included citation trails from all the included papers. An example of the search string used for MEDLINE is shown in Supplementary File 1.

**Screening**

A team of three researchers screened the titles and abstracts for eligibility according to the inclusion/exclusion criteria in Table 1. Quantitative studies that assessed a direct statistical relationship between nurses’ personal health behaviours and their health promotion practice or patient responses and outcomes, or qualitative studies that claimed to be reporting on that relationship were included.

Table 2 Inclusion and exclusion criteria

| **Inclusion criteria** | **Exclusion criteria** |
| --- | --- |
| * Studies that report nurses’ personal health behaviours (smoking, diet, physical activity, weight, alcohol use) AND their health promotion practice, OR   + Studies that report patients’ responses (members of the public recruited in clinical and non-clinical settings) to nurses’ personal health behaviours. | * + Studies that report the prevalence of nurses’ personal health behaviours but did not examine the relationship between these health behaviours and participants’ health promotion practice. |
| * Peer reviewed | * + Examined nurses’ attitudes only and did not examine health promotion practice |
| * Studies in English | * + Did not include nurses, or did not stratify findings based on type of HCP |
| * Any study design | * Studies that report only other behaviours such as stress or eating-related disorders |
| * Published at any time | * Opinion or discussion pieces |
| * Primary research | * Grey literature |
|  | * Not primary research |

**Data extraction**

A data extraction form was developed and piloted with three studies. Data extracted included study title, country, setting, behaviour, outcome measure and whether the study showed a relationship between nurses’ personal health behaviours and health promotion practice or patient responses.

**Study appraisal**

Critical appraisal checklists from the Joanna Briggs Institute (JBI) were used as guides to examine each study. Quantitative studies were examined using the individual checklists for each study design (JBI 2014). No composite score was assigned during appraisal of the studies (Higgins & Green, 2011). Qualitative studies were examined using the JBI Qualitative Assessment and Review Instrument (JBI-QARI) (Joanna Briggs Institute, 2014a). No studies were excluded based on quality because of the limited amount of research in this area and the potential valuable insights that may be contained even within poorer quality research (Hannes, 2011). However study quality was considered while reviewing studies outcomes and summarising the evidence.

**Data analysis**

The review process identified studies that were heterogeneous in their design, populations studied, and reporting of findings. Due to this heterogeneity, a narrative synthesis was undertaken following the principles described in the Economic and Social Research Council (ESRC) guidelines (Popay *et al.*, 2006). This approach helped to examine consistencies in the data and elucidate a theory by which the relationship between nurses’ personal health behaviours and their health promotion practice could be seen.

**RESULTS**

**Identified studies**

The search process is shown in the PRISMA diagram in Figure 2. A total of 117 full-text studies were assessed for eligibility to answer the two research questions. 109 studies related to the first review question examining the relationship between nurses’ personal health behaviours and their health promotion practice. Eighty papers were excluded despite the sensitivity of the search. Ten studies were excluded as they were not primary research (e.g. Duaso et al. 2017), but the reference lists of these studies were searched for relevant citations. Seven studies that included nurses and other health care professionals but did not stratify the different professions were excluded as it was not possible to distinguish which findings applied to nurses (e.g. Din *et al.*, 2015; Gifford *et al.*, 2014), and one study was excluded as it did not report data from nurses although they were sampled in the study (Asfar *et al.*, 2011). Most studies of health promotion practices and health behaviours are not designed to examine the association between a nurse’s personal health behaviours and their health promotion practice. For example, 35 studies did not examine the relationship between the personal behaviours of nurses and their health promotion practice (e.g. Al-Qahtani, 2015; Kurnat-Thoma *et al.*, 2017; Malone *et al.*, 2016; Sarna *et al.*, 2014). Twelve studies were excluded because they reported on nurses’ attitudes only but not their practice (e.g. Hall *et al.*, 2005; Slater *et al.*, 2006; Stojanović *et al.*, 2013). Seven studies reported on nurses’ health behaviours only (e.g. Bialous *et al.*, 2009; Callaghan, 1999; McElligott *et al.*, 2009; McKenna *et al.*, 2001). A further seven studies were excluded as they reported on attitudes to specific aspects of behaviours such as obesity-related stigma (Garcia *et al.*, 2016; Gujral *et al.*, 2011). One study (Mujika *et al.*, 2014) was excluded as it contained duplicate data to another study included in the review (Mujika *et al.*, 2017). Thus, 29 studies were included relating to the first research question.

The second review question examined the relationship between the personal behaviours of nurses and patients’ responses. Eight studies were reviewed that related to the second review question, of which six were excluded. One study examining the impact of health care professionals’ body mass index (BMI) perceptions of patient trust in weight loss advice was excluded as it did not stratify by profession (Bleich et al. 2014). Five studies examined the patient response to nurses’ health promotion practice but did not examine nurses’ personal health behaviours (Ball *et al.*, 2014; Bjorklund and Fridlund, 1999; Borup *et al.*, 2010; Borup and Holstein, 2010; van Rossem *et al.*, 2015). Thus two studies were included relating to the second research question (Hicks *et al.*, 2008; Olive and Ballard, 1992).

Records identified through database searching (*N* = 1088)

Additional records identified through other sources (*N* = 42)

Identification

Records after duplicates removed (*N*=897)

Records screened

(*N* = 214)

Records excluded

(*N*= 98)

Screening

Full-text articles assessed for eligibility (*N*= 117: Q1 =109, Q2=8)

Full-text articles excluded for Q1, with reasons (*N*=80):

Did not stratify findings by HCP (*N*= 7)

Examined attitudes not practice (*N*= 12)

Did not measure nurses’ health promotion practice (*N*= 7)

Did not report relationship (*N*= 35)

Did not report data from nurses (*N*= 1)

Same data in two papers (*N*= 1)

Not primary research (*N*= 10)

Examined irrelevant behaviours (*N*= 7)

Full-text articles excluded for Q2, with reasons (*N*= 6):

Did not measure nurses’ personal behaviours (*N* = 5)

Did not stratify findings by HCP (*N*= 1)

Q1: Studies examining the relationship between health care professionals’ personal health behaviours and their health promotion practice (*N*= 29)

Q2: Studies examining the relationship between nurses’ personal health behaviours and patients’ response to a health promotion message (*N*= 2)

Eligibility

Inclusion

**Figure 2 PRISMA diagram of the studies included in the review**

***Q1: Do nurses’ personal health behaviours impact on their health promotion practice?***

**Overview of included studies**

*Location*

Twenty-nine studies examined the relationship between nurses’ personal health behaviours and their health promotion practice. The included studies were published between 1995 and 2017 and included data from a wide range of countries. Eleven studies were conducted in the United States. Six studies were conducted in the UK, three in Australia, and two in Spain. There was one study each from Canada, the Czech Republic, Denmark, Finland, Iceland, Jordan, and Serbia.

*Nurses’ health behaviour*

The majority of studies (*N*= 21) examined nurses’ smoking behaviour. There were five studies of physical activity, two studies examining nurses’ health promotion practice in relation to weight, and one study looked at diet. No studies were found which examined nurses’ alcohol use. The results have been stratified by behaviour (Table 3).

*Setting*

Four studies were conducted in primary care settings; 13 in hospitals; and one with US nurses providing home care in the community. Eleven studies included nurses who worked in a mixture of settings such as hospital and primary care, or hospitals and in the community.

Table 3 Studies of the relationship between nurses’ personal health behaviours and their health promotion practice, stratified by behaviour

| *Author* | *Location* | *Setting/context and sample size* | *Design* | *Outcome measure* | *Conclusion* |
| --- | --- | --- | --- | --- | --- |
| Diet | | | | | |
| 1. Blake and Patterson, 2015 | UK | Hospital (paediatric)  *N* = 67 | Cross-sectional survey | Self-efficacy; Attitudes towards being a role model | Yes  Those who were hesitant to promote health were more likely to be overweight or obese, and/or had poor diet and/or low levels of physical activity; almost half said they found it difficult to promote behaviours they did not participate in themselves |
|  | | | | | |
| Physical activity | | | | | |
| 1. Bakhshi *et al.*, 2015 | UK | Hospital (88%) and community (12%)  *N* = 623 | Cross-sectional survey | Self-efficacy; attitudes towards role in health promotion practice; knowledge regarding health promotion practice; perceived importance attached to the behaviour | Yes  Personal physical activity behaviour and body weight were significantly related to nurses’ professional physical activity-related practices. |
| 1. Esposito and Fitzpatrick, 2011 | US | Hospital  *N* = 112 | Cross-sectional survey | Self-reported frequency of physical activity promotion; perceived importance attached to the behaviour | Yes  A moderate to strong positive relationship was found between personal physical activity and nurses’ belief in the benefits of, and their recommendation of, physical activity |
| 1. McKenna *et al.*, 1998 | UK | Primary care  *N* = 272 | Cross-sectional survey | Self-reported frequency of physical activity promotion; training regarding health promotion practice | Yes  Personal physical activity was the strongest predictor of promotion level for practice nurses |
| 1. Stanton *et al.*, 2015 | Australia | Hospital mental health inpatient  *N* = 34 | Cross-sectional survey | Self-reported frequency of physical activity promotion; attitudes towards physical activity; knowledge regarding physical activity promotion | No  No significant relationship between personal physical activity and frequency of exercise prescription |
| 1. Webb *et al.*, 2016 | UK | Mixed practice nurses (24%) and clinical nurse specialists (76%)  *N* = 62 | Mixed methods feasibility study | Self-efficacy; self- reported frequency of physical activity promotion; intention to engage in physical activity promotion | No  No correlation was found between frequency of delivery of physical activity advice and the physical activity levels of nurse participants. |
|  | | | | | |
| Smoking | | | | | |
| 1. Borrelli *et al.*, 2001 | US | Community  *N* = 98 | Cross-sectional survey | Self-efficacy; intention to engage in smoking cessation practice; perceived importance attached to the behaviour; perceived outcomes of offering advice | Yes  Current smokers were less likely to advise their patients to quit than never- or ex-smokers, and less likely to insist that patients do not smoke in front of their children |
| 1. Dwyer *et al.*, 2009 | Australia | Mixed including hospital (37%), community (19%) and forensic (3%) mental health  *N* = 289 | Cross-sectional survey | Attitudes towards their role in health promotion practice; attitudes towards smoking; attitudes towards being a role model | Mixed evidence  Most participants disagreed that being a smoker facilitated interactions with patients (regardless of personal smoking status), but a greater proportion of non-smokers (90%) than smokers (66%) agreed with this concept |
| 1. González *et al.*, 2009 | Spain | Primary care  *N* = 15 | Qualitative study (phenomenological approach) | Self-efficacy; attitudes towards smoking | Mixed evidence  Some participants felt hypocritical/guilty because they smoked or did not believe in the beneficial effects of cessation therapies, others felt that their smoking allowed them to empathise more with clients |
| 1. Heath *et al.*, 2004 | US | Hospital (trauma, neurology, cardiology) and primary care  *N* = 12 | Qualitative study (phenomenological approach) | Self-efficacy; Attitudes towards smoking | Yes  The majority of nurses who smoked described avoiding cessation interventions with patients, however they felt they better understood how to intervene effectively because of their smoking status |
| 1. McCarty *et al.*, 2001 | US | Hospital (surgical, medical, oncology, cardiac, neurology, gynaecology, orthopaedic)  *N* = 397 | Cross-sectional survey | Self-reported frequency of smoking cessation practice; intention to engage in smoking cessation practice; attitudes towards their role in health promotion practice; perceived outcomes of offering advice | No  Smoking status did not predict self-reported delivery of cessation techniques and no significant interaction was found between smoking status, attitudes towards providing cessation advice, and ability to provide cessation advice |
| 1. Merrill *et al.*, 2010 | Jordan | Hospital  *N* = 266 | Cross-sectional survey | Self-efficacy; attitudes towards their role in smoking cessation practice; attitudes towards smoking; training regarding smoking cessation practice; perceived outcomes of offering advice | Mixed evidence  Nurses who smoked were less likely to believe that counselling or offering advice to patients who smoked would be effective, however smoking status was not significantly related to feeling prepared to help patients quit smoking |
| 1. Merrill, Gagon, *et al.*, 2010 | Serbia | Hospital (surgery and paediatric)  *N* = 230 | Cross-sectional survey | Self-efficacy; attitudes towards their role in smoking cessation practice; attitudes towards smoking; attitudes towards being a role model | Yes  Nurses who smoked were significantly less likely to believe that their counselling about smoking could be effective. They also felt significantly less well prepared to assist patients to quit smoking. |
| 1. Mujika *et al.*, 2017 | Spain | Hospital  *N* = 11 | Qualitative study (framework approach) | Attitudes towards their role in smoking cessation practice; attitudes towards being a role model | Yes  Nurses who smoked felt anxious that patients noticed their smoking and this made them less willing to raise the issue of smoking cessation. They felt that their smoking undermined their professional and moral authority to counsel patients on smoking when they could not manage their own habit. Ex-smokers noted that smoking had a negative effect on their past cessation practice. |
| 1. Mundt *et al.*, 1995 | US | Hospital and community  *N* = 1538 | Cross-sectional survey | Self-reported frequency of smoking cessation practice; attitudes towards smoking; attitudes towards being a role model | Yes  Current smokers were less likely to discuss smoking with patients and took smoking history and made assessments less often than former smokers |
| 1. Nagle *et al.*, 1999 | Australia | Hospital  *N* = 288 | Cross-sectional survey | Self-efficacy; intention to engage in smoking cessation practice; attitudes towards their role in smoking cessation practice; attitudes towards smoking; knowledge regarding smoking cessation practice | No  Lowest priority was given to nurses’ personal smoking status as a facilitator of providing advice; no significant differences in attitudes found by smoking status. More non-smokers than current or former smokers thought that their personal smoking status was a hindrance to providing cessation care |
| 1. Pelkonen and Kankkunen, 2001 | Finland | Mixed (20% public health nurses)  *N* = 882 | Cross-sectional survey | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; knowledge regarding smoking cessation practice | Mixed evidence  Nurses who were smokers themselves reported higher skills and knowledge around smoking cessation, and were more skilful in creating a trusting atmosphere for patients than former or non-smokers. However smoking nurses reported lower ability to encourage patients to quit smoking and had lower belief in the effectiveness of advising and supporting smoking cessation. |
| 1. Radsma and Bottorff, 2009 | US | Not described but all nurses provided direct patient care  *N* = 23 | Qualitative study (grounded theory approach) | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; attitudes towards smoking | Mixed evidence  The nurses were cognisant of the health effects associated with smoking and their professional obligations to intervene; on the other hand, they were motivated to protect themselves from feelings of hypocrisy and stigmatization because of their own smoking |
| 1. Sarna *et al.*, 2000 | US | Hospital (oncology)  *N* = 1508 | Cross-sectional survey | Self-reported frequency of engaging in smoking cessation practice | No  Being a current smoker was not associated with statistically significant differences in the frequency of tobacco assessment and interventions |
| 1. Sarna *et al.*, 2009 | US | Hospital (87%) (Intensive care, medical, surgical, cardiac, outpatient obstetrics, mental health, emergency and gynaecology) and community (13%)  *N* = 3482 | Cross-sectional survey | Self-reported frequency of engaging in smoking cessation practice | No  Current smokers were less likely to arrange for follow-up after cessation counselling, but there were no other differences by smoking status. |
| 1. Sarna *et al.*, 2012 | US | Hospital  *N* = 1790 | Cross-sectional survey | Self-reported frequency of engaging in smoking cessation practice | Yes  Nurses’ who were current smokers were less likely to consistently advise, arrange, and refer smokers to a quitline compared to never/former smokers. |
| 1. Sarna *et al.*, 2015 | Czech Republic | Hospital (Intensive care, Medical- surgical, oncology, mental health, obstetrics, outpatient)  *N* = 157 | Cross-sectional survey | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice | Yes  Nurses who smoked had the lowest frequency of assessing readiness to quit, arranging for follow-up, referring to a quitline, or recommending a smoke-free environment. |
| 1. Schultz *et al.*, 2009 | Canada | Hospital (surgery, cardiac, medical, psychiatry, and rehabilitation)  *N* = 214 | Cross-sectional survey | Self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; training in smoking cessation practice | Yes  Nurses who did not smoke reported a stronger perceived ability to engage in tobacco reduction activities. Former and non-smokers were more likely to address tobacco reduction than current smokers. |
| 1. Sharp *et al.*, 2009 | US | Mixed mental health (41% inpatient; 31% outpatient; 4% residential, 25% other settings)  *N* = 1365 | Cross-sectional survey | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; knowledge regarding smoking cessation practice | No  There was no relationship between nurses’ smoking status and their likelihood of making a referral, nor was there a relationship between nurses’ smoking status and the delivery of intensive interventions |
| 1. Svavarsdóttir and Hallgrímsdóttir, 2008 | Iceland | Mixed sampling based on union membership (63% hospital-based)  *N* = 868 | Cross-sectional survey | Self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; attitudes towards smoking; training regarding smoking cessation practice | Mixed evidence  Nurses who smoked were less likely to advise against smoking and were less likely to have or be interested in increasing their knowledge in smoking cessation counselling, but there was no difference between smoking and non-smoking nurses as to asking clients about smoking, or their self-evaluated skills, use of treatment options, confidence and knowledge in smoking cessation |
| 1. Tong *et al.*, 2010 | US | Mixed sampling based on professional register (61% hospital; 30% primary care; 9% private sector)  *N* = 388 | Cross-sectional survey | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; perceived importance attached to the behaviour | Yes  Current smoking was negatively associated with asking, advising or assisting patients to quit smoking. |
| 1. Willaing and Ladelund, 2004 | Denmark | Hospital  *N* = 2561 | Cross-sectional survey | Self-efficacy; self-reported frequency of engaging in smoking cessation practice; attitudes towards their role in smoking cessation practice; attitudes towards smoking; training and knowledge regarding smoking cessation practice; perceived importance attached to the behaviour | Yes  Current smokers were more likely to underestimate smoking as an important risk factor for disease and less likely to consider passive smoking a health risk than ex-smokers or non-smokers.  Ex-smokers and never-smokers gave counselling on the health consequences of smoking and gave advice on smoking cessation twice as often as did current smokers. Current smokers felt less qualified to give cessation advice than non- or ex-smokers. |
|  | | | | | |
| Weight | | | | | |
| 1. Aranda and McGreevy, 2014 | UK | Primary care  *N* = 7 | Qualitative study (Gadamerian phenomenological approach) | Self-efficacy; attitudes towards their role in health promotion practice | Mixed evidence  Some participants described avoiding discussing weight for fear of being challenged by patients, whereas others felt that being overweight helped them better understand their patients |
| 1. Brown and Thompson, 2007 | UK | Primary care  *N* = 15 | Qualitative study (Pragmatic framework approach) | Self-efficacy; attitudes towards their role in health promotion practice; attitudes towards weight | Mixed evidence  Participants with low BMI felt that they were perceived as lacking in experience or empathy to discuss weight with patients; those with high BMI felt that they were not good role models, but could discuss weight more easily with patients |

*Outcome measures*

The included studies explored the relationship between personal health behaviours and how important nurses considered it to address a particular behaviour if they engaged in it themselves; their willingness and intention to discuss the behaviour with a patient; their confidence in discussing the behaviour; and how important nurses perceived their own lifestyle to be by asking nurses about being a healthy role model. Although all the studies aimed to explore the relationship between personal health behaviours and health promotion practice, there was considerable heterogeneity in the ways in which that relationship was measured. As Table 3 shows, twelve studies explored nurses’ attitudes towards specific health behaviours such as smoking, and whether nurses considered it a priority if they engaged in the behaviour themselves. Four studies assessed the importance that nurses attached to specific health behaviours, regardless of their own personal behaviours. Four studies assessed the relationship between nurses’ personal health behaviours and their attitudes towards being a healthy role model as a nurse. Five studies assessed the relationship between nurses’ health behaviours and how willing they were to raise the issue with a patient. Seventeen studies assessed nurses’ perceived self-efficacy in discussing unhealthy behaviours with patients, of which twelve were about smoking, two were about weight, two were about physical activity and one about diet.

Other studies focused on examining the relationship between the health behaviour and the activities of the nurse. Sixteen studies examined the frequency with which nurses engaged in any aspect of the 5 A’s to talk to patients about unhealthy behaviours. Ten studies also asked about nurses’ perceived training or knowledge in health promotion practice, and two studies examined nurses’ perceived skills in health promotion practice. In studies of smoking cessation, seven studies measured nurses’ health promotion practice against the five A’s model. Two studies used a modified version of the five A’s, where the four A’s were Ask, Advise, Assist, and Arrange. One study measured nurses’ smoking cessation practice against a manual of best practice for nurses.

*Study designs*

The majority of the included studies were cross-sectional studies (*N*= 22). These studies were designed to test the association between a personal health behaviour and actual or intended health promotion practice, such as current use of the 5As guidelines in smoking cessation practice, perceived effectiveness of smoking cessation counselling, or recommendation of exercise to patients. Six studies used qualitative methodologies to explore attitudes, beliefs and perceptions around personal behaviours in relation to giving health promotion advice, to describe how nurses who engage in unhealthy behaviours address the health promotion needs of patients, and to explore the views of nurses who engage in unhealthy behaviours on their role in supporting patients to adopt healthier behaviours. Webb et al (2016) used a mixed methods approach to understand the association between the physical activity levels of nurses and the frequency of delivery of very brief physical activity advice to patients.

Table 4 categorises the results by the outcome measures used to test the association between health behaviours and health promotion practice. Though designed to answer similar questions about the association between nurses’ health behaviours and their health promotion practice, there was substantial heterogeneity of outcome measures, which makes it difficult to summarise and combine studies in a meaningful way. As Table 4 shows, the most commonly used outcome measures to assess the relationship between nurses’ personal health behaviours and their health promotion practice were measures of nurses’ perceived self-efficacy (*N*=17), their attitudes towards their role in health promotion practice (*N*=17), and their self-reported frequency of engaging in any of the 5 A’s (*N*=16). Almost all of the studies used more than one measure, apart from three studies which relied on nurses’ self-reported frequency of engaging in the 5 A’s alone.

Although most studies used researcher-developed measures, four studies also included existing instruments such as the Generalised Self-Efficacy Scale (Schwarzer and Jerusalem, 1995), subscales of the Exercise Benefits/Barriers Scale (Sechrist, Walker and Pender, 1987) or the Health-Promoting Lifestyles Profile-II (Walker Sechrist, and Pender, 1987). Two studies used translated versions of the same Helping Smokers Quit measure and a further two studies used the same smoking cessation measure developed by the WHO. Less than half (*N*= 14) reported piloting their measures prior to data collection. Reliability was reported for at least one measure in ten studies, such as test-retest reliability (e.g. Sarna *et al.*, 2000; Stanton *et al.*, 2015) or internal consistency (Schultz *et al.*, 2006). Eight studies presented evidence for the validity of the measures used. All the outcome measures reported were based on self-report scales, apart from one study which used both a self-report measure and a researcher-administered knowledge test in data collection (Nagle et al., 1999). All of the qualitative studies used face-to-face interviews with open-ended questions to collect data, with Heath et al (2004) also conducting online interviews. Webb et al (2016) used telephone interviews in their mixed methods study.

*Theoretical frameworks*

Only six of the studies were based on explicit theoretical frameworks. The transtheoretical model (TTM) of behaviour change was used by Bakhshi et al (2015) and Esposito and Fitzpatrick (2011) in their studies of physical activity promotion. The theory of planned behaviour was used by McCarty et al (2001) to explore factors affecting the delivery of smoking cessation advice by nurses. Webb et al (2016) measured nurses’ physical activity advice to patients against the COM-B model of behaviour change (Michie *et al.*, 2011). Pender’s Theory of Health Promotion provided the framework for the third study, which aimed to understand how practice nurses’ beliefs around exercise influenced their promotion of physical activity(J. McKenna *et al.*, 1998). One study used organisational behaviour theory to examine how nurses’ participation in tobacco reduction activities were informed by personal behaviours, workplace norms and organisational climate (Schultz *et al.*, 2009). Four studies made loose reference to concepts such as cognitive dissonance (González et al. 2009) or self-efficacy (Heath et al. 2004; Borrelli et al. 2001).

Table 4 Outcome measures used to assess the relationship between nurses' personal health behaviours and their health promotion practice

|  | 1. Self-efficacy | 1. Self-reported frequency of any of the 5 A’s (ask, advise, assess, assist, arrange) | 1. Intention to engage in any of the 5 A’s | 1. Attitudes toward their role in health promotion practice | 1. Attitudes towards the health behaviour | 1. Attitudes towards being a role model | 1. Training or knowledge regarding health promotion practice | 1. Perceived importance attached to the behaviour | 1. Perceived outcomes of offering advice |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Aranda & McGreevy, 2014 | ✓ |  |  | ✓ |  |  |  |  |  |
| 1. Bakhshi et al., 2015 | ✓ |  |  | ✓ |  |  | ✓ |  |  |
| 1. Blake and Patterson, 2015 | ✓ |  |  |  |  | ✓ |  |  |  |
| 1. Borrelli et al., 2001 | ✓ |  | ✓ |  |  |  |  |  | ✓ |
| 1. Brown & Thompson, 2007 | ✓ |  |  | ✓ | ✓ |  |  |  |  |
| 1. Dwyer et al., 2009 |  |  |  | ✓ | ✓ | ✓ |  |  |  |
| 1. Esposito & Fitzpatrick, 2011 |  | ✓ |  |  |  |  |  | ✓ |  |
| 1. González et al., 2009 | ✓ |  |  |  | ✓ |  |  |  |  |
| 1. Heath et al., 2004 | ✓ |  |  |  | ✓ |  |  |  |  |
| 1. McCarty et al., 2001 |  | ✓ | ✓ | ✓ |  |  |  |  | ✓ |
| 1. McKenna et al., 1998 |  | ✓ |  |  |  |  |  |  |  |
| 1. Merrill et al., 2010 | ✓ |  |  | ✓ | ✓ | ✓ |  |  |  |
| 1. Merrill, Madanat, et al., 2010 | ✓ |  |  | ✓ | ✓ |  | ✓ |  | ✓ |
| 1. Mujika et al., 2017 |  |  |  | ✓ | ✓ |  |  |  |  |
| 1. Mundt et al., 1995 |  | ✓ |  |  | ✓ | ✓ |  |  |  |
| 1. Nagle et al., 1999 |  |  |  |  |  |  | ✓ |  |  |
| 1. Pelkonen & Kankkunen, 2001 |  | ✓ |  | ✓ |  |  | ✓ |  |  |
| 1. Radsma & Bottorff, 2009 |  | ✓ |  | ✓ | ✓ |  |  |  |  |
| 1. Sarna et al., 2000 |  | ✓ |  |  |  |  |  |  |  |
| 1. Sarna et al., 2009 |  | ✓ |  |  |  |  |  |  |  |
| 1. Sarna et al., 2012 |  | ✓ |  |  |  |  |  |  |  |
| 1. Sarna et al., 2015 | ✓ | ✓ |  | ✓ |  |  |  |  |  |
| 1. Schultz et al., 2009 |  |  |  | ✓ |  |  | ✓ |  |  |
| 1. Sharp et al., 2009 | ✓ | ✓ |  | ✓ |  |  | ✓ |  |  |
| 1. Stanton et al., 2015 |  | ✓ |  |  |  |  | ✓ |  |  |
| 1. Svavarsdóttir & Hallgrímsdóttir, 2008 |  | ✓ |  | ✓ | ✓ |  | ✓ |  |  |
| 1. Tong et al., 2010 | ✓ | ✓ |  | ✓ |  |  |  | ✓ |  |
| 1. Webb et al., 2016 | ✓ | ✓ | ✓ |  |  |  |  |  |  |
| 1. Willaing & Ladelund, 2004 | ✓ | ✓ |  | ✓ | ✓ |  | ✓ | ✓ |  |

***Q2: Do the health behaviours of the HCP affect the patients’ response to a health promotion message?***

**Overview of included studies**

Two studies related to the relationship between nurses’ health behaviours and patients’ response to health promotion messages. Both studies are summarised in Table 5. The included studies were published in 1992 and 2008, with both studies conducted in the United States. The study by Hicks et al (2008) examined public confidence level in receiving health teaching from either an overweight or a weight-appropriate nurse, whereas Olive and Ballard (1992) aimed to understand if the smoking behaviours of nurses affect patients' perceptions of their trust and effectiveness as health care professionals.

*Study designs*

Hicks et al (2008) conducted a quasi-experimental study, which was a replication study designed to understand what patients actually think about nurses’ body sizes, and how that may influence their perception of confidence in a nurse’s ability to teach them about healthy lifestyles. Participants were randomly assigned to be shown images of a nurse, either overweight or weight-appropriate, then asked to rate their confidence in health teaching received from that nurse. A convenience sample of 150 participants was recruited, consisting of university students (89%, n=134), faculty (6%, n=9), and visitors (5%, n=7). The majority (almost 75%) were under 21 years of age. Fewer than 14% of the sample worked in healthcare, and 55% reported having received healthcare advice regarding diet or exercise in the past.

The cross-sectional study by Olive and Ballard (1992) was designed to assess patients' attitudes regarding smoking behaviours of health professionals, and to determine patients' knowledge of the smoking behaviours of their physicians and nurses. 116 patients from a US military hospital were surveyed while awaiting discharge. The sample was 28% current smokers, 35% never smokers, and 38% ex-smokers, which the authors noted was consistent with the prevalence of smoking in the US population at the time of the study.

Both studies used self-report measures and neither reported pilot testing prior to data collection. Hicks et al (2008) verified all measurements by a second researcher to ensure accuracy. Neither study used a theoretical framework.

*Patient response to nurses’ personal health behaviours and their health promotion practice*

Hicks et al (2008) conducted an independent t test to determine if nurses’ body size had any effect on participants’ level of confidence in their ability to provide education on diet and exercise. The test was significant, indicating that people felt less confidence in the overweight nurse’s ability to provide education on diet and exercise. No correlation was found between individuals’ own BMI and reported confidence level, and the differences in confidence were not explained by any other factors relating to the participants (e.g. age, gender, etc.).

Olive and Ballard (1992) found mixed evidence around patients’ attitudes towards nurses’ smoking habits. Although non- and ex-smokers felt that nurses should avoid unhealthy behaviours, they did not feel that nurses’ smoking affected the trust placed in them or the effectiveness of their health promotion practice. Patients who smoked felt strongly there was no relationship between nurses’ smoking habits and their trustworthiness or effectiveness as a health care professional. Non- and ex-smokers felt strongly that nurses should act as healthy role models, whereas smokers expressed no opinion in this regard. The study concluded that patient's smoking status is a more important determinant of patient opinion than is patient knowledge of the smoking status of the nurse.

Table 5 Studies reporting on the relationship between health care professionals’ personal health behaviours and patients’ response to a health promotion message

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Author* | *Location* | *Setting* | *Design* | *Behaviour* | *Outcome measure* | *Conclusion* |
| 1. Hicks *et al.*, 2008 | US | University campus | Quasi-experimental study | Weight | Level of confidence in the ability of an overweight or normal-weight nurse to provide health education | Yes  People felt less confident in the overweight nurse’s ability to advise on diet and exercise |
| 1. Olive & Ballard 1992 | US | Hospital | Cross-sectional survey | Smoking | Attitudes regarding smoking behaviours of health professionals | Mixed evidence  Although former and non-smokers thought that health care professionals should avoid unhealthy behaviours, they did not feel that smoking affected their trust in a nurse. Patients who smoked expressed strong support that the smoking habits of nurses did not impact their trust or effectiveness. Non- or ex-smokers felt strongly that nurses should be healthy role models, while smokers indicated they had no opinion. |

**SYNTHESIS OF REVIEW FINDINGS**

As shown in Tables 3 and 5, the research team drew a conclusion from each study on whether nurses’ health behaviours influenced their health promotion practice or patient responses. This review shows that there is not a consistent or significant association between the health behaviours of the nurse and their likelihood of undertaking lifestyle advice, referral or management. Such practices are not more likely to be associated with any specific health behavior. Nurses working in particular settings such as cardiology or primary care were more likely to engage in health promotion practice.

*Health behaviours*

The majority of the included studies examined the relationship between smoking behaviour by the nurse and their practice (*N*= 22), of which one was a study of patient responses to nurses’ smoking (Olive and Ballard, 1992). No consistent relationship was found between being a smoker and nurses’ health promotion practice, although former and non-smokers more frequently addressed smoking cessation than current smokers in four studies (Mundt *et al.*, 1995; Schultz *et al.*, 2006; Tong *et al.*, 2010; Willaing and Ladelund, 2004). Several studies suggested that current smokers were less likely to raise smoking with patients (Mundt *et al.*, 1995; Sarna *et al.*, 2012; Tong *et al.*, 2010) and discourage patients from smoking (Dwyer *et al.*, 2009; Pelkonen and Kankkunen, 2001), or did so only if patients had a smoking-related complaint (Pelkonen and Kankkunen, 2001; Radsma and Bottorff, 2009). Smokers were more likely to downplay the health risks of smoking, and reported less negative attitudes towards smoking than non- or ex-smokers (Merrill, Gagon, *et al.*, 2010; Merrill, Madanat, *et al.*, 2010; Mundt *et al.*, 1995). Three studies reported no differences in the frequency of smoking cessation practice between nurses who smoked and non-smoking nurses, and concluded that differences in frequency of cessation practice were related to mediating factors such as nursing specialty or context rather than smoking status (McCarty *et al.*, 2001; Sarna *et al.*, 2000, 2009).

The one study of diet included in the review found that nurses’ own diet did affect their confidence in giving healthy eating advice, and were incongruent with their attitudes towards the importance of nurses being healthy role models (Blake and Patterson, 2015). Both studies of weight (Aranda and McGreevy, 2014; Brown and Thompson, 2007) reported mixed evidence as to whether a nurse’s own weight impacted on their self-efficacy in discussing weight with patients, with some overweight or obese nurses reporting that they felt hypocritical to raise the issue with patients for fear of being judged, whereas others felt that their own weight helped them to better relate to patients and develop rapport.

There were five studies of physical activity in the review, all of which used different measures to assess physical activity. Three studies noted that nurses who reported a more active lifestyle appeared to more frequently recommend physical activity to patients (Bakhshi *et al.*, 2015; Esposito and Fitzpatrick, 2011; J. McKenna *et al.*, 1998) and two reporting no association between nurses’ own physical activity and their physical activity promotion (Stanton *et al.*, 2015; Webb *et al.*, 2016). The studies suggested that both personal physical activity and job-related variables underpin physical activity promotion, as nurses who had more years of practice, a longer consultation time, or knew where to refer patients more likely to engage in physical activity promotion (Bakhshi *et al.*, 2015; J. McKenna *et al.*, 1998; Webb *et al.*, 2016)

*Settings or context*

Although health promotion advice giving was reported as part of professional responsibilities, it was not always seen as relevant or appropriate in some clinical settings such as paediatric care, surgery, or intensive care. McCarty et al (2001) noted that although the majority of nurses in their study had a positive attitude towards offering patients cessation advice, the actual practice of giving advice was influenced by the setting they worked in. Nurses in cardiology units were more likely to report offering smoking cessation advice on a consistent basis compared with nurses in other types of nursing units. They noted that lower levels of consistent advice among nurses working in oncology units, where presumably a significant number of patients might have a smoking- related illness, might be explained by a reluctance to give advice if a patient is extremely ill, terminal, or under a great deal of stress. Bakhshi *et al.* (2015) found that working in the community was related to higher levels of physical activity- related health promotion, which the authors suggested may be due to greater awareness of nurses’ public health role.

*Self-efficacy*

Borrelli *et al.* (2001) found that the best predictor of consistent practice in counselling all smokers was nurses’ perceived self-efficacy. Although some nurses who smoked thought their smoking status gave them the advantage of better relating to patients (Dwyer *et al.*, 2009; González *et al.*, 2009; Radsma and Bottorff, 2009), five studies reported that nurses who smoked had lower belief in the effectiveness of advice they gave or their ability to help patients to stop smoking, but reported no difference in their cessation skills or knowledge compared to non-smokers (Merrill, Gagon, *et al.*, 2010; Merrill, Madanat, *et al.*, 2010; Pelkonen and Kankkunen, 2001; Sarna *et al.*, 2015; Svavarsdóttir and Hallgrímsdóttir, 2008).

Sarna et al (2015) noted that although many nurses wanted to take a more active role in helping smokers quit, they were uncomfortable discussing the topic and concerned about offending patients. Nurses who did engage in health promotion practice with patients were more likely to be those who had confidence in their ability to help someone stop, or had past positive experiences with assisting people (Schultz *et al.*, 2006).The included studies suggested that nurses’ confidence in their health promotion practice may be influenced by their training and experience more so than their personal behaviour. Borrelli et al (2001) found that for every single point increase in nurses’ self-efficacy level, the odds that nurses would discuss tobacco use with their patients regardless of their own smoking status increased by 30% (Borrelli *et al.*, 2001). Two studies also found that nurses with training felt significantly better prepared to assist patients to quit smoking, regardless of their own smoking status (Merrill, Gagon, *et al.*, 2010; Merrill, Madanat, *et al.*, 2010).

Nurses who engaged in unhealthy behaviours were less likely to hold positive attitudes towards health-promotion practices. The qualitative studies exploring attitudes to, or intention to address patients’ health promotion needs identified a range of themes to describe how nurses who engage in unhealthy behaviours view their role in encouraging behaviour change, including hypocrisy, guilt, cognitive dissonance, and anxiety about being challenged. Nurses who engaged in unhealthy behaviours reported feeling subjected to others’ disapproval (Aranda & McGreevy 2014; Radsma & Bottorff 2009). On the other hand, non-smokers or nurses of a normal weight felt that their lack of experience of the behaviour was a hindrance to providing health promotion and care in that area (Brown & Thompson 2007; Nagle et al. 1999). Nurses who had successfully overcome the behaviour such as quitting smoking felt they were well placed to advise patients (Nagle et al. 1999; Radsma & Bottorff 2009), and former smokers counselled patients on smoking cessation twice as much as current smokers in one study (Willaing and Ladelund, 2004).

Where nurses had personal experience of the health behaviour, this was sometimes used as a way to develop rapport. Both studies of weight reported that although some overweight or obese nurses felt hypocritical or embarrassed to raise the topic of weight with patients, others thought that it helped them to better empathise and relate to overweight or obese patients. In Heath et al’s (2004) study of nurses who smoked, all participants felt that they were better placed to address smoking cessation, as they avoided talking down to patients and could address smoking in a non-judgmental way compared to non-smoking colleagues. Similarly, Pelkonen and Kankkunen (2001) noted that nurses who smoked reported that they were better placed to create a supportive atmosphere for patients than former or non-smokers. However, this perception of enhanced rapport was not borne out by the one study of patient responses (to nurses’ weight), which found that patients placed less confidence in health advice given by an overweight nurse (Hicks *et al.*, 2008). Yet no studies were found that tested how patients respond to the health behaviours of a nurse with whom they have contact; both of the included studies of patient responses asked participants about hypothetical situations. So it is not known if the development of rapport with a familiar nurse may affect patient perceptions of their trustworthiness or effectiveness in health promotion practice.

*Patient response- source credibility*

Only three studies asked nurses about the perceived effectiveness of their health promotion practice (Borrelli *et al.*, 2001; McCarty *et al.*, 2001; Merrill *et al.*, 2010). Of these, only Borrelli et al (2001) asked nurses about perceived patient adherence to smoking cessation advice given. The two studies of patient responses (Hicks *et al.*, 2008; Olive and Ballard, 1992) reported mixed findings. Olive and Ballard (1992) concluded that it was the patient’s own smoking status that influenced their opinions more than their knowledge of nurses’ smoking habits, whereas Hicks et al (2008) found no association between participants’ personal characteristics and their confidence in overweight nurses’ ability to give diet or exercise advice. No studies examined patient behaviour change after health advice or education given by a nurse.

*Patient receptivity*

Several studies identified other factors than personal health behaviours that impacted on health promotion practice. Raising the issue was regarded as difficult and dependent on patient characteristics such as whether the patient had raised the topic themselves (Brown & Thompson 2007; Nagle et al. 1999). Nurses’ perception that patients were unmotivated to change unhealthy behaviours made them reluctant to engage in health promotion practice (McCarty *et al.*, 2001; Nagle *et al.*, 1999; Sarna *et al.*, 2000; Schultz *et al.*, 2006) whereas being asked for advice by patients motivated nurses to deliver health promotion practice (McCarty *et al.*, 2001; Nagle *et al.*, 1999; Sarna *et al.*, 2000).

*Barriers and enablers of health promotion practice*

There were common barriers and enablers which impacted on nurses’ ability to deliver health promotion. Organizational factors such as training (Svavarsdóttir and Hallgrímsdóttir, 2008; Tong *et al.*, 2010; Willaing and Ladelund, 2004), perceived resource availability (Schultz *et al.*, 2009) and support (Nagle *et al.*, 1999) were cited as influential where nurses actively promoted positive health behaviours and equally workload, lack of resources, lack of time and lack of experience were cited as barriers (McKenna *et al.*, 2001; Nagle *et al.*, 1999; Sarna *et al.*, 2000; Svavarsdóttir and Hallgrímsdóttir, 2008).

**DISCUSSION**

Nurses’ personal health behaviours and the influence of these behaviours on professional practice has been flagged as an important determinant of successful behaviour change (e.g. Cummings, 2016). Studies of the personal health behaviours of nurses refer to their obesity or smoking as “unfortunate” given their role as public health role models (e.g. Smith & Leggat 2007). One reason for concern about nurses’ health behaviours is whether those who lead an unhealthy lifestyle themselves may be less likely to take an active role in prevention and public health. If nurses are less willing to raise lifestyle issues with patients because they struggle to maintain a healthy lifestyle, then it is of concern given that they are the largest health care workforce and the occupational group with the most direct patient contact (World Health Organisation, 2014). This review has shown that the assertion that nurses should be healthy role models is not supported by conclusive evidence that there is a relationship between nurses’ personal health behaviour and their health promotion practice. There is too little research on the patient response to the personal health behaviours of nurses to confirm or refute that a public health message or advice from a nurse who did not appear to “practise what they preach” would not be heeded.

There is however some evidence that health behaviours do have an impact. The only consistent observation across the included studies was that nurses were more likely to discuss health behaviour where they perceived it to be important and warranting attention. This positive association was noted in four studies (Borrelli *et al.*, 2001b; Esposito and Fitzpatrick, 2011; Tong *et al.*, 2010; Willaing and Ladelund, 2004).

The logic model in Figure 1 identified potential mediating factors on nurses’ intentions to engage in health promotion practice. Indeed, Freeman *et al.* (2011) suggested that normative expectations of the people involved (e.g. patient, patient’s family, medical staff) may influence nurses’ health promotion practice, as may workplace factors such as time constraints or busyness (Kelley and Abraham, 2007). This review bears out that the likelihood of a nurse engaging in health promotion practice may be less influenced by any reluctance associated with personal health behaviours, and more influenced by professional skills and training. Nurses with skills and confidence are more likely to raise the issue, irrespective of their own personal health behaviours. Greater awareness of the situational factors which can help or hinder conversations about behaviour change may thus be a more useful focus for future nursing education and policy than a focus on nurses’ personal health behaviours.

Behaviour change is a complex process, and different health behaviours may present differing barriers to raising the issue for nurses. In England, some behaviours such as weight management or smoking have clear referral pathways (e.g. NICE 2014) and nurses’ own behaviour is less important as they have to routinely ask about these issues. Behaviours without clear referral mechanisms, such as physical activity, may be treated differently. Nurses do not have to ask about these behaviours routinely, but might be more likely to do so if they engage in the behaviour themselves (McKenna *et al.*, 1998).

The assertion that nurses should personally practise those behaviours they wish to encourage in others has been countered with an argument that the shared experience of an unhealthy lifestyle may help nurses to better understand the difficulties of behaviour change. This view is often asserted in opinion pieces and commentaries in the professional nursing literature (e.g. Cook 2010; Denehy 2008). These interpersonal factors were included in the study logic model as potential effect moderators of nurses’ health promotion practice. This review found mixed evidence regarding this argument, but suggested that patients may have more confidence in nurses who have a healthy lifestyle, although it should be noted that there were only two studies from a patient perspective. All of those studies that asserted that unhealthy behaviours help nurses to better relate to patients were conducted from the point of view of the nurse themselves, and only one study asked nurses about whether they thought that patients adhered to health promotion advice given (Borrelli et al. 2001). The views of patients merit further investigation to better fill this gap in the research.

Both social learning theory and source credibility theory posit that whether a patient responds to a health promotion message or not is influenced by the behaviours and communication of the messenger. The assertion within nursing policy that role modelling healthy behaviours will encourage behaviour change in patients is based on these tenets. However, that a nurse’s personal behaviour may directly influence behaviour change in their patients is an assumption. This review suggests that by focusing solely on visible behaviour, the potentially important role of contextual factors such as timing and interpersonal factors such as rapport and communication within the professional-patient relationship are ignored. There is an absence of research into the factors mediating patients’ decisions to follow or ignore behaviour change advice.

**Strengths and limitations**

The strengths of this review include its well-defined review questions considering the relationship from both the nurse and the patient perspective. The use of clearly-defined outcomes relating to health promotion practice (raising the issue, giving advice and referral) mean that the nature of the impact of personal health behaviours can be identified. It is also the first review to gather a body of evidence on the patient response to the visible health behaviours of nurses.

The inclusion of diverse forms of evidence through taking a mixed methods approach maximised the usefulness of the review and enhanced the ability of the review to develop actionable findings that could illuminate whether nurses should be expected to be role models for healthy lifestyles.

The findings of this study must nevertheless be interpreted with caution. Although health promotion practices were defined, the objectives and outcome measures of the included studies varied greatly. It was not therefore possible to perform any meta-analysis or to improve estimates of the size of any effect on practice.

**CONCLUSION**

It is widely assumed that nurses in particular should be healthy role models, based on the assumption that their health behaviours influence their health promotion practice. This review shows that there is inconsistent evidence for this claim. There is some evidence to suggest that training and having a supportive working environment also influence whether a nurse engages in health promotion practice. Not enough is known about patients’ responses to nurses’ health behaviours to understand whether public health messages or advice given by a visibly unhealthy nurse may or may not be heeded by patients.

(6909 words; word limit is 7000)

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**Supplementary File 1: Search strings used in the review**

Table 1 Search string for MEDLINE via EBSCO for review question 1

|  |  |
| --- | --- |
| **Search 1. The relationship between health care professionals’ personal health behaviours and their health promotion practice** | **Title & Abstract** |
| 1. nurs\* | 262647 |
| 1. ("health\* behavio?r\*" OR “health\* habit\*” OR “health\* lifestyle\*” OR “health\* promot\*” OR obes\* OR "body weight\*" OR "body mass index" OR overweight OR “physical\* \*activ\*” OR exercis\* OR "physical fitness" OR smok\* OR tobacco\* OR cigarette\* OR alcohol\* OR eating OR nutrition\* OR diet\* ) | 1516368 |
| 1. “health promot\*” OR “health education” OR “rais\* the issue\*” OR referral\* OR cessation OR advi\* OR “weight management” OR messag\* OR willing\* OR perception\* OR “self efficac\*” OR discuss\* OR attitud\* OR “role model\*” OR confiden\* OR intention\* OR importan\* OR credib\* | 3987378 |
| 1. #1 n1 #2 | 2163 |
| 5. #3 AND #4 | 1180 |
| Limit English language | 1077 |
| Exclude dissertations, magazines, guidelines | 1077 |
| Review abstracts | 215 |
| Review full text | 109 |

Table 2 Search string for MEDLINE via EBSCO for review question 2

|  |  |
| --- | --- |
| **Search 2. The relationship between health care professionals’ personal health behaviours and patients’ response to a health promotion message** | **Title & Abstract** |
| 1. nurs\* | 262647 |
| 1. ("health\* behavio?r\*" OR “health\* habit\*” OR “health\* lifestyle\*” OR “health\* promot\*” OR obes\* OR "body weight\*" OR "body mass index" OR overweight OR “physical\* \*activ\*” OR exercis\* OR "physical fitness" OR smok\* OR tobacco\* OR cigarette\* OR alcohol\* OR eating OR nutrition\* OR diet\* ) | 1516368 |
| 1. (patient\* OR client\*) N1 (Credib\* OR believ\* OR confiden\* OR trust\* OR impact\* OR follow\* OR complian\* OR willing\* OR listen\* OR attend\* OR accept\* OR recepti\* OR exemplar\* OR "role model\*") | 154774 |
| 1. #1 N1 #2 | 2163 |
| 1. #3 AND #4 | 73 |
| Limit English language | 64 |
| Exclude dissertations, magazines, guidelines | 64 |
| Review abstracts | 64 |
| Review full text | 8 |