

An integrative review exploring the perceptions of patients and healthcare professionals towards patient involvement in promoting hand hygiene compliance in the hospital setting

Mamdooh Alzyood MSc, BSc, RN, Doctoral Student  | Debra Jackson PhD, FACN, Professor  | Joanne Brooke CPsychol, MSc, RN, Reader in Complex Older Persons Care  | Helen Aveyard PhD, MA, RGN, Senior Lecturer 

Faculty of Health and Life Sciences, Oxford Institute of Nursing, Midwifery, and Allied Health Research (OxINMAHR), Oxford Brookes University, Oxford, UK

Correspondence

Mamdooh Alzyood, Faculty of Health and Life Sciences, Oxford Institute of Nursing, Midwifery, and Allied Health Research (OxINMAHR), Oxford Brookes University, Oxford, UK.

Email: mamdooh.alzyood-2015@brookes.ac.uk

Funding information

The project is self-funded by the doctoral researcher and the main author of this article.

Aims and objectives: To review patients' and healthcare professionals' perceptions of patient involvement in promoting hand hygiene compliance in the hospital setting.

Background: Initiatives continue to emphasise the importance of involving patients in their safety at the point of care. A patient-centred care approach aimed to empower patients to become active members of the healthcare team. However, understanding the perceptions of patients and healthcare professionals of patient involvement in promoting hand hygiene compliance among healthcare professionals has yet to be fully explored.

Design: Integrative literature review.

Methods: A five-stage review process informed by Whittemore and Knafl's methodology was conducted. MEDLINE and CINAHL were searched for papers published between January 2009–July 2017. Data were extracted manually, organised using NVivo 11 and analysed using thematic analysis.

Results: From an identified 240 papers, 19 papers were included in this review. Thematic analysis revealed two main themes with three related subthemes. Patients were willing to remind healthcare professionals (especially nurses) to wash their hands, healthcare professionals perception towards patients' involvement varied from one study to another. However, an overall positive attitude towards patient involvement was related to how patients asked and how healthcare professionals responded to being asked.

Conclusion: There is limited evidence regarding patients' actual intention to ask healthcare professionals to wash their hands, and some evidence that patients are reluctant to do so. Further research is required to understand this area thoroughly, including which situations patients would feel more empowered to speak up.

Relevance to clinical practice: Simple messages promoting patient involvement may lead to complex reactions in both patients and healthcare professionals. It is unclear, yet how patients and staff react to such messages in clinical practice. There is a need for a deeper understanding of how they can work together to support harm free care.

KEY WORDS

hand hygiene compliance, integrative review, patient engagement, patient involvement, patient participation

1 | INTRODUCTION

There is a wealth of evidence to suggest that hand hygiene is the single most effective way to prevent the burden of endemic healthcare-associated infection (Allegranzi, Conway, Larson, & Pittet, 2014; Pittet, 2001). Since Ingaz Semmelweis implemented a handwashing regimen which resulted in dramatic reductions in puerperal sepsis in 1847 (Semmelweis, 1983), there have been many initiatives to promote hand hygiene. In 2009, the World Health Organization (WHO) launched a campaign "SAVE LIVES: Clean Your Hands" to promote a "multimodal strategy" for hand hygiene compliance (WHO 2009). The multimodal approach includes the provision of alcohol-based hand rub at the point of care, education of healthcare professionals (HCPs), audit and performance feedback of hand hygiene behaviour, different forms of reminders in the workplace to prompt hand hygiene and an institutional culture of safety (WHO 2013). Implementation of the multimodal strategy for hand hygiene has been found to provide substantial and rapid improvements in hand hygiene compliance among HCPs in the hospital setting (Luangasanatip et al., 2015). However, despite this, hand hygiene compliance rates remain concerning (Erasmus et al., 2010; Jones, Martello, Biron, & Lavoie-Tremblay, 2017; Trampuz & Widmer, 2004).

Patient involvement in supporting their own safety has been discussed globally (Berger, Flickinger, Pföh, Martinez, & Dy, 2013; Davis, Jacklin, Sevdalis, & Vincent, 2007; Prey et al., 2013; Schwappach, 2010; Thompson, 2007; Vaismoradi, Jordan, & Kangasniemi, 2015; WHO 2009). Terms such as "patient involvement," "patient engagement," "patient empowerment," "patient participation," "collaboration" and "partnership" of patients, "client," "consumer" and "user" have been used to describe this approach (Sahlsten, Larsson, Sjöström, & Plos, 2008; Vahdat, Hamzehgardeshi, Hessam, & Hamzehgardeshi, 2014).

There is a range of innovative strategies to promote patient involvement. These include patients checking that they have been given the correct medication (Davis et al., 2007; Vincent & Coulter, 2002), asking patients to report deterioration in their own condition (Rainey, Ehrich, Mackintosh, & Sandall, 2015) and reminding HCPs to perform hand hygiene (Davis, Parand, Pinto, & Buetow, 2015; McGuckin & Brown, 2003; McGuckin & Govednik, 2013; McGuckin et al., 1999, 2001). There is some evidence that these initiatives are acceptable to patients, for example, a recent multi-centre cluster-randomised controlled trial reported that patients are willing to provide feedback about the safety of their care (Lawton et al., 2017). Wright et al. (2016) designed a programme to enhance patient safety and concluded that patients are willing to "codesign, coproduce and participate in" initiatives to prevent incidents and unintended harm in the hospital setting (Wright et al., 2016, p. 67).

Patient involvement in hand hygiene might be appropriate when patients notice that HCPs do not wash or sanitise their hands before touching them, but may not feel able or encouraged to speak up to

What does this paper contribute to the wider global clinical community?

- To gain insight into the role of the patient in reminding healthcare professionals to wash their hands as an effort to increase hand hygiene compliance in real-life setting.
- To provide an understanding from the perspective of healthcare professionals on patient involvement in improving hand hygiene compliance of clinical staff.
- To provide direction on how future interventions should take into considerations the variation in behaviours and cultures of patients and healthcare professionals.

improve the quality and safety of their healthcare (Nacioglu, 2016). The concept of asking patients to remind HCPs to wash their hands may seem simple enough (Davis et al., 2015); however, patient involvement in this process is a new, and there is little evidence to suggest it happens in practice (Ridley & Jones, 2002) or indeed whether it is acceptable to both patients and HCPs.

Davis et al. (2015) conducted a systematic review which investigated the effectiveness of strategies aimed at involving the patient in promoting hand hygiene. They concluded that a variety of strategies such as leaflets, videos and encouragement from the HCPs themselves could promote patients' involvement. However, the variety of studies included in the review made it difficult to determine which of these strategies may be the most successful, and why.

Regarding patient willingness to be involved in prompting hand hygiene, McGuckin and Govednik's (2013) undertook a review to explore patient empowerment and barriers to empowerment in hand hygiene. The researchers concluded that there was some evidence that patients were willing to be involved in prompting hand hygiene, although the review focussed on empowerment rather than willingness. The review did not include the perceptions of staff of patient involvement in prompting hand hygiene, and the authors recommended that further work be done to address this. Thus, our review follows on from the work of McGuckin and Govednik's work and incorporates the views of both patients and staff regarding the patients' role in prompting hand hygiene in a hospital environment. Our review presents the literature from both patients and HCPs, whereas previous reviews have focussed on HCP perspectives only. The review addresses some cultural variations in patients and HCPs views based on studies from different countries.

2 | THE REVIEW

2.1 | Aim

The aim of this review was to review patients' and healthcare professionals' perceptions towards patient involvement in promoting hand hygiene compliance in the hospital setting.

2.2 | Design

An integrative literature review was adopted as a design for this review.

2.3 | Search methods

The literature published between January 2009–July 2017 was retrieved from online databases MEDLINE via PubMed and CINAHL. The search strategy was undertaken using keywords related to “patient involvement” and “hand hygiene compliance.” Searching was employed using Boolean operators. The final search was conducted on 31st of July 2017. The search strategy and keywords used to search all databases (patient involvement OR patient participation OR patient empowerment AND hand hygiene). To be inclusive, we did not search specifically for any healthcare professional but compared the papers identified with our inclusion criteria. We searched through the reference lists of relevant papers but did not seek unpublished papers or grey literature. An alert was set up on all databases to avoid any missing data while undertaking the review.

Inclusion criteria were primary research studies of all types which were published in English. Studies on patient and public involvement in healthcare research (PPI) and studies that explored students’ (medical or nursing) perceptions of patient involvement were excluded. The screening process was undertaken in four stages: identification, screening against inclusion criteria, removing duplications and finally including or rejecting studies (Whittemore & Knafl, 2005). The original screening was undertaken by the first-named author and was verified by other members of the author team.

Authors assessed the quality of studies included in this review based on the methodology and the strength of evidence that these articles provided in assessing patients’ and HCPs’ perspectives in promoting HCPs to wash their hands (see Table 1). Therefore, articles were not rejected based on quality rather the quality of studies was taken into consideration when presenting the results, findings and within the discussion of this review.

2.4 | Data analysis and synthesis

Richards and Richards (1991) suggested the application of software to organise data may add to the rigour of qualitative research. Therefore, nvivo 11 (Houghton et al., 2017) was used to organise and support thematic data analysis and the construction of themes. All initial codes relevant to the research question were incorporated into a theme (Node). A thematic map as suggested by Braun and Clarke (2006) was developed to aid the generation of themes. The thematic map helped in visualising the links and relationship between themes using nvivo. After repeated reading of included articles, the researchers independently constructed a code list of emerging codes and main themes, codes were compared and cross-checked, and consensus was reached. Themes were divided into two categories: patients’ view of involvement and HCPs’ view of patient

involvement. Themes comprised a number of subthemes and are reported below (see Figure 1).

2.5 | Findings

From 240 articles located through searching, 19 met the inclusion criteria and were therefore included in this review (see Figure 2). Included studies were international and drew on a range of methods (see Table 2). The 19 papers represent data from 3,400 patients, 1,174 families/parents and 3,077 HCPs from Europe, Australia, North America and Asia. The next section will provide detailed findings from different countries namely (UK, USA, Australia, Switzerland, South Korea, Georgia and Taiwan).

The review reports findings from the four UK studies (Davis, Briggs, Arora, Moss, & Schwappach, 2014; Davis, Sevdalis, & Vincent, 2011; Davis et al., 2012; Pittet et al., 2011) as patients are more inclined to ask nurses, rather than doctors, about their hand hygiene. Likewise, patients reported a difference between their perceived importance of asking HCPs to wash their hands and their actual intention to make the request. Patient education (after watching learning videos) and providing the patient with authorisation (It’s OK to Ask campaign) were some of the interventions responsible for an increase in patient intention to request that UK HCPs wash their hands. Results from the four studies carried out in the United States (Clare, Afzal, Knapp, & Viola, 2013; Lastinger, Gomez, Manegold, & Khakoo, 2017; Lent et al., 2009; Michaelsen, Sanders, Zimmer, & Bump, 2013) reported that knowing the HCP’s name increases patient willingness to ask about hand hygiene. Further, US patients reported a greater intention in asking HCPs to wash their hands when they presented the “Thanks for Washing” script. Yet, differences existed in patients’ willingness to ask HCPs compared with their actual intention to do so.

Australian HCPs reported some barriers to patient empowerment such as lack of support, busy workloads and negative attitudes (Seale et al., 2016). Australian patients would feel comfortable and happy to ask HCPs to wash their hands (Seale, Travaglia, et al., 2015). However, patients were more likely to be willing to ask a doctor or nurse a factual question than a challenging question (Seale, Chughtai, et al., 2015).

A South Korean study reported that it is not the patient’s responsibility to remind HCPs to wash their hands (Kim et al., 2015). When HCPs were questioned as to why they did not wash their hands, most patients suggested that they had either forgotten or were too busy. Patients from Georgia stated that their willingness to ask HCPs about their hand hygiene depended on the situation, while HCPs stated that they had not been asked to wash their hands over a period of 1 month, and that it would depend on the manner in which the patient asked (Garcia-Williams, Brinsley-Rainisch, Schillie, & Sinkowitz-Cochran, 2010).

Cross-cultural variations were reported among the studies’ populations. Indeed, patients from Taiwan reported that they could assist in reminding HCPs that they needed to wash their hands (Pan et al., 2013). On the other hand, patients from Switzerland would feel

TABLE 1 Main articles characteristics and findings

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Clare et al. (2013)	To determine patient's level of assertiveness and other factors influences their comfort level in asking HCPs to wash their hands.	Cross-sectional pilot survey	50 patients USA	25% (who answered NO when asked assertive questions) said that they would ask their HCPs to wash their hands 68% (who answered YES when asked assertive questions) said that they would ask their HCPs to wash their hands. Knowing HCPs' name increased patients' willingness to ask about handwashing to 79%.
Davis et al. (2011)	To investigate medical and surgical patients' perceived willingness to participate in different safety-related behaviours and the potential impact of doctors'/nurses' encouragement on patients' willingness levels.	Cross-sectional exploratory Qualitative	80 patients UK	<i>Interactions behaviours:</i> Patients reported higher willingness to ask doctors factual questions than asking challenging questions or notify doctors of problems or errors. Patient reported higher willingness to notify nurses of problems or errors than to ask them factual questions. <i>After receiving doctor or nurse encouragement:</i> Patients reported higher willingness to ask doctors challenging questions and to notify doctors of problems or errors. Patients reported higher willingness to ask nurses factual questions.
Davis et al. (2012)	To examine patients' and HCPs' attitudes towards a video aimed at promoting patient involvement in safety-related behaviours.	Pre/postintervention design was used using participant self-report surveys.	201 patients 95 HCPs: 46 Doctors 49 Nurses UK	Patients are more willing to ask HCPs about handwashing after watching the PINK video. A significant and notable disparity reported between patients' perceived importance of asking HCPs to wash their hands and their actual willingness to do so.
Davis et al. (2014)	To investigate HCPs' attitudes towards patient involvement in safety-related behaviours.	Cross-sectional functional fractional survey	4 hospitals 116 Doctors 100 Nurses UK	HCPs reported more favourable intention to report medication errors than failure to use hand sanitizers for hand hygiene. Doctors view patient intervening less favourable than nurses. The predictions were mainly focused on how patient would ask and how provider would respond. A negative response from HCPs to the patient (irrespective of whether an error actually occurred); perceived as having negative effects on the provider-patient relationship.
Garcia-Williams et al. (2010)	To evaluate lay persons and HCPs perception towards hand hygiene and willingness to ask HCPs to wash their hands before and after watching a Video.	Four focus groups interviews Qualitative	18 laypersons 8 doctors 9 nurses Georgia	<i>Before watching the video:</i> Laypersons with previous hospital experience are less likely to ask their nurse to wash their hands. <i>Laypersons with hospital experience:</i> Asking about hand hygiene, depends on the situation 50%, fear of reprisal 16.7%, perception of need 16.7%, believe it is not their job to ask 16.7%. <i>Laypersons without hospital experience:</i> Feeling comfortable to ask 71.4%. Base on the situation 100%, "if provider scratches his/her head or nose of something."

(Continues)

TABLE 1 (Continued)

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Kim et al. (2015)	To examine patients'/families' and HCPs' perception of patient participation in hand hygiene.	Cross-sectional Survey	152 doctors 387 nurses 148 patients 177 families South Korea	<p>HCPs (nurses and doctors): Over 1 month, they said that they had not been asked to wash their hands.</p> <p>Comfortable being asked: Depends on the situation 58.5% "how the patient ask," Depends on the situation "asking in the wrong time while I am very busy, it would irritate me" 55.6%.</p> <p>Nurses would feel embarrassed 75% or insulted 25% if asked. Nurses (55.6%) were more comfortable than doctors (25%) if been asked to wash their hands.</p> <p>After watching the video: Laypersons with or without hospital experience reported more willingness to ask nurses to wash their hands "I am more encouraged now," "I am not scared anymore." Laypersons were more likely to ask doctors than nurses about handwashing.</p> <p>Laypersons with previous hospital experience reported that they would feel more likely to be scared "I'd still be scared or nervous," "I am still scared."</p> <p>Patients/families perceptions: 75% of patients and 84% of their families reported that they should be aware of nurses or doctors hand hygiene. 60% of patients/families reported that they observed HCPs washing their hands.</p> <p>Less willingness from patients/families was reported when the extent of the intention to ask was examined.</p> <p>When patients/families asked why: It is not a patient's role (patients 72%, families 70%).</p> <p>Threat to relationships with HCPs (patients 26%, families 39%): HPCs are too busy (patients 20%, families 28%).</p> <p>Authoritarian attitude of HCPs (patients 6%, families 7%): Hand hygiene is less important than other medical problems (patients 1%, families 1%).</p> <p>HCPs' perceptions: More doctors (69%) than nurses (62%) reported the need for additional programmes for hand hygiene improvement.</p> <p>When HCPs were asked why they are not complying to hand hygiene: "too busy" (70%), "having forgotten" (26%), "skin trouble due to handrub" (15%), "annoyed" (9%) and "not motivated" (6%).</p> <p>Doctors (46%) and nurses (55%) anticipated less positive effect of patient participation in hand hygiene than patients (70%) or families (76%).</p> <p>26% of doctors supported the idea of patients participation.</p> <p>31% of nurses reported their willingness to accept the patient</p>

(Continues)

TABLE 1 (Continued)

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Lent et al. (2009)	To assess patients participation in the "Partners in Your Care" programme.	Before-after interventional study	193 patients USA	<p>Of the 193 patients:</p> <p>(a) 3% of patients stated that they had asked at least one HCPs to wash their hands.</p> <p>(b) 8% of patients did not comment, although they have observed HCPs failing to wash their hands.</p> <p>(c) 90% of patients reported that they did not ask as HCPs to wash their hands as they had observed HCPs washing their hands.</p> <p>After editing the script and providing 38 patients with script "Thanks for Washing":</p> <p>(a) 45% of patients reported that they had monitored HCPs hand hygiene.</p> <p>(b) 16% of patients reported not commenting on handwashing despite the fact they observed HCPs failing to wash their hands.</p> <p>(c) 100% of patients presented script thanking HCPs to wash their hands.</p> <p>(d) 0% of patients did comment on doctors hand hygiene while working rounds.</p> <p>(e) 7% of nurses reported they were asked to wash their hands.</p>
Longtin et al. (2009)	To assess patients' perception to participate in programme aim to improve HCPs hand hygiene.	Cross-sectional survey	194 patients Switzerland	<p>Of the 194 patients:</p> <p>(a) 76.3% of patients would not feel comfortable to ask nurses to wash their hands.</p> <p>(b) 77.3% of patients would not feel comfortable to ask doctors to wash their hands.</p> <p>After receiving an explicit invitation from nurses and doctors:</p> <p>(a) Intention to ask nurses increased from 34.0%–82.5%.</p> <p>(b) Intention to ask doctors increased from 29.9%–77.8%.</p>
Michaelsen et al. (2013)	To seek understanding of patients' involvement in reminding doctors to wash their hands. To determine which method would be acceptable for patients to remind them to prompt doctors to wash their hands.	Cross-sectional interview and survey. Mixed methods	250 patients USA	<p>96% of patients thought it is very important that doctors wash their hands.</p> <p>78% of patients believed that they should remind doctors to wash their hands.</p> <p>66.67% of patients felt that doctors are not aware of their hand hygiene compliance rate.</p> <p>98% of patients believed reminding doctors to clean their hands might help prevent them from contracting an infection.</p> <p>32 of patients did not observe doctors washing their hands.</p> <p>Reasons that are behind less willing to discuss hand hygiene with their doctors:</p> <p>Feeling disrespectful 33%, feeling embarrassed or awkward 31%.</p>

(Continues)

TABLE 1 (Continued)

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Pan et al. (2013)	To assess hand hygiene knowledge and the attitudes and intentions regarding patient empowerment among HCPs, patients' families.	Cross-sectional Survey based on questionnaire	115 patients 220 families 241 doctors 505 nurses 69 medical/nursing students 65 technicians, Taiwan	not a patient's role 8%, fear of reprimis 5%, trust the doctors 4%. Patients would be more comfortable to discuss the hand hygiene with their doctors if they receive an information pack on the HAs (7% vs. 93%). 84% of patients said that doctors should get reports on how often they clean their hands before touching patients.
Pittet et al. (2011)	To assess the feasibility of the UK National Patient Safety Agency programme to promote patient to ask about hospital hand hygiene.	Telephone Survey	254 HCPs 530 Member of public 210 Inpatients, UK	77.1% of patients/families observed that HCPs had washed their hands. 96.5% of patients/families reported that they could help to remind HCPs to wash their hands. 67.2% of patients/families stated that they would do it and remind HCPs to wash their hands. Risk factors reported associated with no intention to ask were as follows: female, illiteracy and being patients/families in the paediatric department, age above 25 years old, and negative attitude towards patient empowerment.
Schwappach et al. (2013)	To investigate how HCPs evaluate patients and how they responded to safety-related behaviours and potential error.	Cross-sectional functional fractional survey	876 nurses 161 doctors 55 other professions Switzerland	Of the 530 members of the NPSA: 57% of the public were unlikely to question doctors about their hand hygiene. 43% of inpatients reported that HCPs should already clean their hands as they assume that. 20% of inpatients did not want to be involved in asking HCPs to wash their hands, and therefore, they could be misunderstood that they want to question their professional ability to do their job correctly. Interventions such as the reminder "It's OK to ask" attitude were one of the most useful interventions to undermine the possible negative effect on the patient-HCPs relationship.

(Continues)

TABLE 1 (Continued)

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Seale et al. (2016)	To explore the knowledge and attitudes of HCPs towards the concept of patient empowerment focused on improving infection control practices.	Semistructured interview. Qualitative	20 Nurses 9 HCPs Australia	Unanimous agreement on patient engagement in preventing HAI. The degree of patient responsibility and level of system engagement varied. HCPs reported some barriers for patient empowerment: (a) Lack of support. (b) Busy workloads. (c) Negative attitudes.
Seale, Travaglia, et al. (2015)	To explore the attitudes of hospital patients towards patient empowerment as one of the key components of patient engagement.	Semistructured interview Qualitative	15 patients Australia	<p>Patients have a right to ask HCPs about infection control and/or asking them to wash their hands, and that they would feel comfortable and happy to do so.</p> <p>Only one participant suggested that infection control should be an open issue and that patients should feel comfortable to ask "Have you washed your hands?"</p> <p>Some other patients would find it challenging asking these questions to HCPs of the opposite gender and/or senior staff members.</p> <p>What makes them less willing to engage are as follows: feeling intimidated, embarrassed or shy.</p> <p>Some patients reported that when asking staff about hand hygiene might upset or embarrass or annoy the staff members.</p> <p>Active engagement by the patient was seen as an implied criticism of the work of the staff members and could cause harm.</p> <p>More intention to talk to doctors and cleaners about hand hygiene than nurses as nurses already doing that and will be happy to do so if being asked.</p>
Seale, Chughtai, et al. (2015)	To examine the receptiveness of hospital patients towards a new empowerment tool aimed at increasing awareness and engagement of patients in preventing HAI.	A prospective, controlled intervention. Pre- and postsurveys. Randomised control Trial	60 patients Australia	<p>Patients were more likely to be willing to ask a doctor or nurse a factual question than a challenging question.</p> <p>95% of patients reported that they felt they will acquire infection when staff do not wash their hands before or after a procedure.</p> <p>Three participants asked an HCP if they had washed their hands, 70% of the patients reported that they did assume that HCPs are already washing their hands and trusted them.</p>

(Continues)

TABLE 1 (Continued)

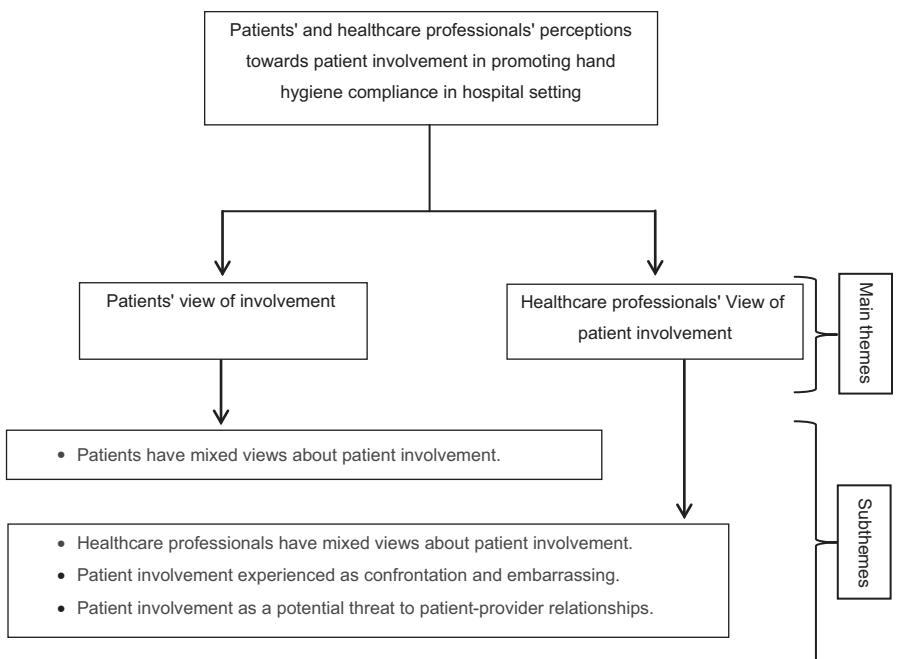
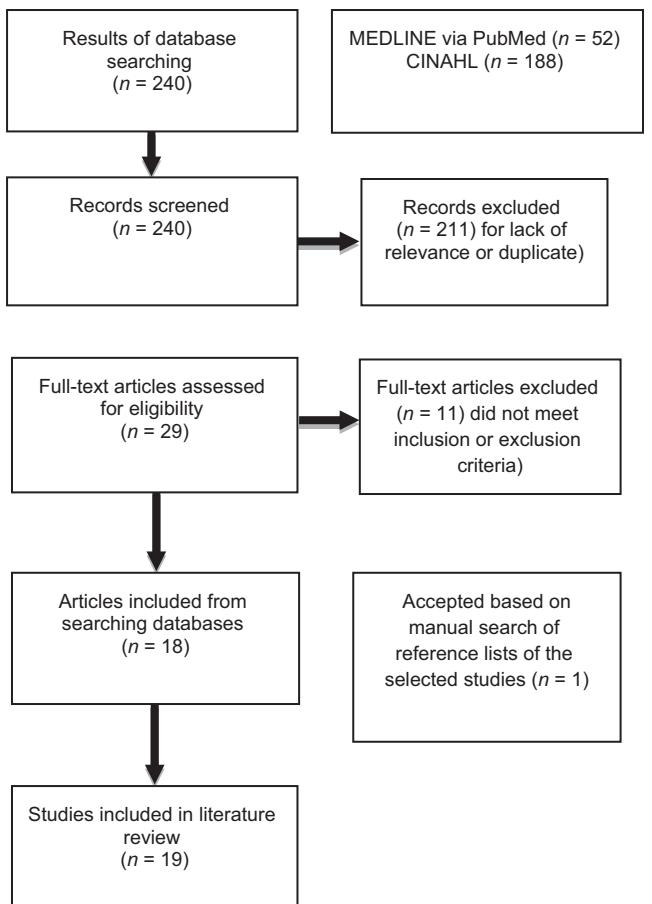
Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
von Lengerke et al. (2017)	To estimate the extent to which patients with type-2-diabetes intend to speak up for HCPs' hand hygiene during inpatient foot treatment.	Cross-sectional Questionnaire survey.	473 patients Germany	<p><i>The study test:</i> Whether motivation was given by the hospital would invite patients to speak up.</p> <p><i>The result of this study shows:</i></p> <ul style="list-style-type: none"> (a) 41% of patients strongly intended to speak up. (b) Institutional encouragement increases patient intention to speak up. (c) Knowledge is an important start as patients will not be able to speak up about less hand hygiene compliance without knowledge.
Wu et al. (2013)	To better understand patients' attitudes and perceptions towards hand hygiene. To identify patients with the highest motivation to participate in hand hygiene.	Cross-sectional Survey. Self-reporting questionnaire.	303 patients 556 family members Taiwan	<p>89.8% reported that hand hygiene is important.</p> <p>93.9% would feel comfortable knowing that HCPs performed hand hygiene before contacts.</p> <p>75% reported that they did observe HCPs washing their hands.</p> <p>58.6% would prefer to see HCPs washing their hands within their field of vision.</p> <p>77.1% thought that HCWs should be reminded to perform hand hygiene whenever necessary.</p> <p>75.9% would consider hand hygiene when they chose hospital to receive care.</p> <p>78.4% desire more information on hand hygiene.</p> <p>48.9% was willing to remind a doctor to wash their hands.</p> <p>50.8% was willing to remind a nurse to wash their hands.</p> <p>If the HCP would appreciate the reminder, patients' willingness increased from 74.6% for doctors and 76.3% for nurses.</p>
Zhang et al. (2012)	To investigate the baseline status of patients' awareness, knowledge and attitudes to patient safety. To determine the factors that influence patients' involvement in their safety.	Cross-sectional Survey based on questionnaire Quantitative	1000 patients China	<p>Questionnaire items included:</p> <ul style="list-style-type: none"> (a) Medical errors. (b) Infection. (c) Medication safety. (d) Other patient safety aspects. <p>959 questionnaire collected from 1,000 participants and resulted in:</p> <ul style="list-style-type: none"> (a) 78% of patients thought that HCPs are already washing their hands before the examination. (b) 68% are willing to remind HCPs about the need for sanitization.

(Continues)

TABLE 1 (Continued)

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Lastinger et al. (2017)	To examine the attitudes of adult patients and parents of paediatric patients towards a new patient empowerment tool (PET).	Cross-sectional Survey	531-bed tertiary care teaching hospital in West Virginia. 89 doctors 114 patients' parents 108 adult patients USA	Most parents (77.0% for doctors and 81.4% for nurses) and most adult patients (64.8% for doctors and 71.2% for nurses) felt comfortable using the PET to remind HCPs to wash their hands. 114 surveys were completed by patients' parents. Parents were more likely than adult patients to feel that it is their role to speak up if a doctor (95.6% vs. 77.6%) or to a nurse (99.1% vs. 86.0%) if did not perform hand hygiene. 22% of patients' parents would feel shy to speak up about hand hygiene. 108 were completed by patients. Most patients reported it was their role to speak up about providers' hand hygiene compliance.

89 surveys were completed by doctors:
65.5% of doctors agreed on patients' involvement in reminding them to wash their hands.
Doctors reported that patient involvement would have positive effect on provider-patient relationship.
Those who did not support patient involvement reported that it is not the patient role to remind the providers to wash their hands.
54.9% of doctors felt that patients should be involved in reminding HCPs to perform hand hygiene.
Overall, doctors preferred that patients use words rather than the PET to remind them to perform hand hygiene.

**FIGURE 1** Thematic map**FIGURE 2** PRISMA diagram: search process and study identification

uncomfortable in requesting that HCPs wash their hands (Longtin, Sax, Allegranzi, Hugonnet, & Pittet, 2009). These variations describe the need for future research to qualitatively address such cross-cultural and cross-national differences in patients' views and intentions in asking HCPs to wash their hands.

Alongside methodological differences, most studies are based on a self-reported cross-sectional survey which assesses patients' perceptions of participating in safety-related behaviours, including patient willingness to request that HCPs wash their hands. Yet, only three studies used a qualitative approach based on interviews and focus

TABLE 2 Studies' characteristics

Code	Reference	Study participants	Country/setting	Study design/data collection tool
1	Clare et al. (2013)	P	US	Cross-sectional survey
2	Davis et al. (2011)	P	UK	Cross-sectional survey
3	Davis et al. (2012)	P, N, D	UK	Before and after intervention
4	Davis et al. (2014)	N, D	UK	Cross-sectional survey
5	Garcia-Williams et al. (2010)	N, D, MOP	Georgia	Focus group study
6	Kim et al. (2015)	P, N, D, FM	South Korea	Cross-sectional survey
7	Lent et al. (2009)	P	US	Before and after intervention
8	Longtin et al. (2009)	P	Switzerland	Cross-sectional survey
9	Michaelsen et al. (2013)	P	US	Cross-sectional survey
10	Pan et al. (2013)	P, N, D, FM	Taiwan	Cross-sectional survey
11	Pittet et al. (2011)	P, HCPs, MOP	UK	Telephone survey
12	Schwappach et al. (2013)	N, D	Switzerland	Cross-sectional survey
13	Seale et al. (2016)	N, HCPs	Australia	Interview
14	Seale, Chughtai, et al. (2015)	P	Australia	Randomised control trial
15	Seale, Travaglia, et al. (2015)	P	Australia	Interview
16	von Lengerke et al. (2017)	P	Germany	Cross-sectional survey
17	Wu et al. (2013)	P, FM	Taiwan	Cross-sectional survey
18	Zhang et al. (2012)	P	China	Cross-sectional survey
19	Lastinger et al. (2017)	P, D, Parents	US	Cross-sectional survey

P, patients, HCPs, healthcare professionals, N, nurses, D, doctors, FM, family members. MOP, Member of Public, UK, United Kingdom, US, United States.

groups on exploring patients' attitudes and knowledge of HCPs and patients towards the patient empowerment. Thus, future research needs to feature more focused qualitative studies which interview both patients and HCPs to understand their perception and actual intention towards patient involvement in asking HCPs to perform hand hygiene. The following section offers a detailed analysis of both patients and HCPs' views on patients requesting that HCPs wash their hands.

2.6 | Patients' view of involvement

Fifteen articles explored patients' view of involvement in questioning HCPs' hand hygiene behaviours in the hospital setting (see Table 3). In two studies, some patients were willing to prompt HCPs to wash their hands (Seale, Chughtai, et al., 2015; Zhang et al., 2012), but many were reluctant to do so (Longtin et al., 2009), suggesting that patients may be less willing to ask challenging questions, such as "have you washed your hands?" than asking factual questions, such as "how long will the pain last?" (Davis et al., 2011; Seale, Chughtai, et al., 2015). Reasons for patient reluctance were wide-ranging and included the following: viewing involvement as not the patients' role (Kim et al., 2015; Longtin et al., 2009; Michaelsen et al., 2013), feeling disrespectful, embarrassed or awkward (Longtin et al., 2009; Michaelsen et al., 2013; Seale, Travaglia, et al., 2015), especially with opposite gender and/or senior staff members (Seale, Travaglia, et al., 2015), feeling intimidated, upset (Lastinger et al., 2017), fear of causing annoyance (Seale, Chughtai, et al., 2015), being uncertain (Zhang et al., 2012) and fear of reprisal (5%) (Longtin et al., 2009; Michaelsen et al., 2013; Seale, Travaglia, et al., 2015).

A factor that might increase patients' willingness to ask HCPs to wash their hands was knowing the name of the HCP. Clare et al. (2013) found that willingness to ask increased from 25%–79% when the patient knew the name of the care provider. Patients were also more willing to ask HCPs if they had received an encouragement, invitation or a reminder from nurses or doctors (Davis et al., 2011; Kim et al., 2015; Michaelsen et al., 2013). For example, patients who had received an explicit invitation from nurses led to 82.5% feeling comfortable to ask, arise from an initial 34% patients (Lent et al., 2009). Patients were also more willing to ask after watching a video (Davis et al., 2012), being given a script "Thanks for Washing" (Lent et al., 2009), feeling that the HCPs would appreciate the reminder (Wu et al., 2013), and previous hospitalisation (Garcia-Williams et al., 2010).

2.7 | Healthcare professionals' view of patient involvement

2.7.1 | Healthcare professionals have mixed views about of patient involvement

Nine studies explored HCPs' views and their willingness to accept patient involvement in reminding them to wash their hands (Davis et al., 2012, 2014; Garcia-Williams et al., 2010; Kim et al., 2015; Lastinger et al., 2017; Pan et al., 2013; Pittet et al., 2011; Schwappach, Frank, & Davis, 2013; Seale et al., 2016). The majority of HCPs had a positive attitude towards patient involvement and were willing to be reminded by patients to wash their hands (Pan et al., 2013).

TABLE 3 Total number of subthemes reported across the studies

Reference	Patients have mixed views about patient involvement	Healthcare professionals have mixed views about patient involvement	Patient involvement experienced as confrontation and embarrassing	Patient involvement as a potential threat to patient-provider relationships
Clare et al. (2013)	✓			
Davis et al. (2011)	✓			
Davis et al. (2012)	✓	✓		
Davis et al. (2014)		✓	✓	✓
Garcia-Williams et al. (2010)	✓	✓	✓	
Kim et al. (2015)	✓	✓		✓
Lent et al. (2009)	✓			
Longtin et al. (2009)	✓			
Michaelsen et al. (2013)	✓			
Pan et al. (2013)		✓	✓	
Pittet et al. (2011)	✓	✓	✓	✓
Schwappach et al. (2013)		✓	✓	✓
Seale et al. (2016)	✓	✓	✓	✓
Seale, Chughtai, et al. (2015)	✓			
Seale, Travaglia, et al. (2015)	✓			
von Lengerke et al. (2017)	✓			
Wu et al. (2013)	✓			
Zhang et al. (2012)	✓			
Lastinger et al. (2017)		✓	✓	✓
Total number of subthemes	15	9	7	6

However, this appeared to be dependent on the way in which the patient asked (Garcia-Williams et al., 2010). HCPs preferred to be prompted to prevent medication error than to perform hand hygiene (Davis et al., 2014; Schwappach et al., 2013). One study reported that doctors were less supportive than other HCPs regarding receiving a prompt from patients on hand hygiene compliance (Lastinger et al., 2017). In one study, HCPs stated that they had not been asked or prompted by their patients to perform hand hygiene in the last three months (Garcia-Williams et al., 2010).

HCPs were increasingly willing to be reminded of complete hand hygiene if institutional factors reinforced this. Reminders, such as a poster or badge stating: "Ask me if I've washed my hands" (Seale et al., 2016), or after having watched a video to encourage patient involvement (Davis et al., 2012). Factors that negatively impacted on HCPs' attitudes towards patient involvement in hand hygiene were as follows: lack of support from the hospital and busy workloads (Kim et al., 2015; Seale et al., 2016). Additionally, Kim et al. (2015) reported that HCPs do not want to be judged negatively by patients regarding their actions.

2.7.2 | Patient involvement experienced as confrontation and embarrassing

Many HCPs reported that they would feel irritated, embarrassed or insulted if asked to wash their hands by a patient (Garcia-Williams

et al., 2010; Lastinger et al., 2017; Seale et al., 2016) and were concerned that tension could develop as a result (Pittet et al., 2011). This was enhanced if the patient chose the wrong time or asked in the "wrong way" – one nurse described that she had "turned red in the face" after being asked by a patient to perform hand hygiene. Similarly, "asking at the wrong time while I am very busy, it would irritate me" (Garcia-Williams et al., 2010, p. 82). Nurses and doctors reported that they would feel ashamed if they were reminded by patients or their families (Pan et al., 2013). HCPs perceived patient involvement as a "slap on the face" (Seale et al., 2016, p. 266). Other HCPs reported feeling embarrassed, shy, shocked and uncomfortable by the strategy (Pittet et al., 2011; Seale et al., 2016). HCPs also reported that being asked by a patient to perform hand hygiene was frustrating and they interpreted the request as having patients question their professionalism (Seale et al., 2016). HCPs felt degraded, incompetent and annoyed to be frequently asked by patients about their hand hygiene activities (Seale et al., 2016).

2.7.3 | Patient involvement as a potential threat to patient-provider relationship

Many HCPs perceived patient involvement in promoting hand hygiene would damage their professional relationship with patients (Kim et al., 2015; Seale et al., 2016). Sometimes HCPs responded to patients in a discouraging way which had the potential to disrupt the

therapeutic patient-provider relationship (irrespective if an omission had occurred or not) (Davis et al., 2014). Due to the fact HCPs are concerned about the possible negative effects on their relationship with patients (Kim et al., 2015), family involvement has been suggested as a solution to avoid any possible tension between patients and HCPs (Kim et al., 2015). Therefore, helping both patients and families to understand the process of patient involvement in asking HCPs to wash their hands, and providing them with appropriate knowledge is identified as a prerequisite to developing a mutual partnership between patients, their families and HCPs (Kim et al., 2015).

However, not all HCPs felt that prompting hand hygiene was necessarily disruptive. Nurses who accepted prompts by patients to wash their hands, perceived this to have a positive effect on the patient-nurse relationship (Davis et al., 2014). Schwappach et al. (2013) found that healthcare professionals supported patient involvement in promoting hand hygiene compliance, if asked in an appropriate way (without causing any offence to the HCPs), believing this to have a positive effect on the therapeutic patient-provider relationship (Lastinger et al., 2017).

3 | DISCUSSION

This review aimed to provide an explicit understanding of the views of both patients and HCPs regarding involvement of patients in promoting hand hygiene compliance in the hospital setting. The studies included in this review are international in scope, and all identify the need for further research in this area.

The literature review supports the findings of Nacioglu's (2016) systematic review which concluded that enabling patients to speak up was critical to improve quality and safety in health care. This indicates that, although this strategy can be challenging to both patients and staff, it is one that should be explored further. This review also supports McGuckin and Govednik (2013) who concluded there was support from patients to involvement in promoting hand hygiene compliance and that was facilitated when institutional prompts were in place. Also, staff were receptive to patient involvement in promoting hand hygiene compliance, if they received training on how to communicate effectively with patients and respond to them (Schwappach et al., 2013); however, patients highlighted concerns about the effect on the therapeutic patient-provider relationship and the ongoing delivery of care (Longtin et al., 2010).

Wyer et al. (2015) emphasise that patient involvement depends on the quality of the therapeutic patient-provider relationship and conversations. Our findings highlight sensitivities of patients having reservations, and staff feeling discomfort and distress if prompted to perform hand hygiene by patients. Before involving patients in asking HCPs about hand hygiene, it is important to adequately prepare patients (McGuckin, Storr, Longtin, Allegranzi, & Pittet, 2011) and to take into consideration their knowledge (Kim et al., 2015), health conditions, beliefs and experiences (Vaismoradi et al., 2015). Interventions such as video and leaflets are effective to encourage

patient involvement in safety-related behaviours including hand hygiene (Davis, Sevdalis, Pinto, Darzi, & Vincent, 2013). As a result of this review and in line with other reviews (Davis et al., 2015; McGuckin & Govednik, 2013), it is evident that patients are more willing to prompt hand hygiene when they receive encouragement from HCPs both directly and indirectly through institutional prompts, such as wearing a badge with "It is OK to ask" (Pittet et al., 2011, p. 301) or the presence of posters (Seale et al., 2016).

Both patients and HCPs should jointly advocate the culture of patient involvement in reducing the burden of healthcare-associated infections, and nurses should play a vital role in encouraging and facilitating involvement as they spend more face-to-face time with the patient (Seale et al., 2016). Promoting hand hygiene compliance needs to be understood as a tool to enhance patient safety rather than a direct challenge to the care provided by healthcare staff. It is important that both nurses and patients build a strong personal relationship to better promote successful patient involvement in their care and safety (Bishop & Macdonald, 2017).

Patients can support safe care, but HCPs are ultimately responsible for patient safety, including hand hygiene (Davis et al., 2007; Duncanson & Pearson, 2005). More studies are needed to focus on the challenges involved in reminding HCPs to wash their hands and testing strategies to overcome these. There is currently "insufficient high-quality evidence informing real-world implementation" regarding patient involvement in safety, and this area is yet to be fully understood (Berger et al., 2013, p. 548). Current studies focus on what patients and staff "say they would do" rather than what actually happens in practice. Further qualitative and observational studies are needed to capture the realities of patient prompting handwashing in the clinical practice environment would shed further light in this area.

However, cultural factors might also affect patient involvement in promoting hand hygiene compliance (Butenko, Lockwood, & McArthur, 2017) which could also be explored. A systematic review by Vaismoradi et al. (2015) stresses the importance and the need for future research to cover the cultural differences at the point of care concerning patient involvement in safety. Limited research is currently available on patient involvement in promoting hand hygiene in the hospital setting exploring the impact of cultural differences.

4 | LIMITATIONS OF THIS REVIEW

A limitation of this review was the challenge to combine information on patient involvement in promoting hand hygiene compliance in the hospital setting due to several factors. Firstly, studies used different terms to describe "patients asking HCPs to wash their hands" such as "patient involvement," "patient participation," "patient engagement" and "patient empowerment." Secondly, there were variations in reporting the profession of HCP amongst the studies included in this review. It was also difficult to identify the views of nurses, doctors and allied health professionals independently, and therefore, we applied the term HCP.

5 | CONCLUSION

There is evidence that the seemingly simple request to ask patients to prompt HCPs to wash their hands is, in reality, far from simple. Some patients and staff are willing to be involved in promoting hand hygiene compliance, but that this is an area that is complex and warrants further study. Although patient involvement in their safety is a promising strategy for enhancing hand hygiene compliance among HCPs, successful implementation requires a deeper understanding of the different complex factors such as the therapeutic patient-provider relationship, patients' level of understanding and knowledge of their role in involvement and HCPs' acceptance of patient involvement. Therefore, to ensure high-quality and sustainable outcomes of the involvement, further collaborative work should be undertaken with patients and HCPs to facilitate the role of patients in prompting HCPs to wash their hands.

6 | RELEVANCE TO CLINICAL PRACTICE

The study's findings suggest that further evidence is required to support the patient's role in the promotion of hand hygiene compliance in a clinical setting and considers patients as active contributors to infection prevention and control. This review shows that there is a need for comprehensive practice guidelines to encourage improving patients' involvement in promoting hand hygiene compliance among HCPs in the hospital setting. We suggest the following for guiding the development of practical strategies:

- A more comprehensive understanding of patients and HCPs' experiences in reminding HCPs to wash their hands would provide robust evidence which will enable patients to speak up when they notice that HCPs are not performing effective hand hygiene.
- Recognising cross-cultural and cross-national differences among patients in the hospital setting, and its relativity to patients in asking HCPs to wash their hands, needs more work to reduce patient harm because of failure in performing hand hygiene.
- Understanding patients' experiences by listening to them would help to establish a comfortable environment for patients to ask questions about their safety without appearing to be confrontational or adversely affecting the patient-provider relationship.
- Mutual understanding of not only patients' acceptance of involvement but also the HCPs' acceptance that the patient will be involved would help shape future interventions and may cause patient involvement to be part of a multimodal strategy in improving compliance of hand hygiene in the hospital setting.

ACKNOWLEDGEMENTS

Writing of this paper was made possible with the support of colleagues at OxINMAHR, Oxford Brookes University. Special thanks to Health Education England Thames Valley (HEETV) for a place in their writing retreats.

CONFLICT OF INTEREST

We have no conflict of interests to disclose.

CONTRIBUTIONS

Study design: MA, DJ, JB, HA; data collection: MA, HA; data analysis: MA, DJ, JB, HA; and manuscript preparation: MA, DJ, JB, HA.

ORCID

Mamdooh Alzyood  <http://orcid.org/0000-0002-7329-4826>

Debra Jackson  <http://orcid.org/0000-0001-5252-5325>

Joanne Brooke  <http://orcid.org/0000-0003-0325-2142>

Helen Aveyard  <http://orcid.org/0000-0001-5133-3356>

REFERENCES

Allegranzi, B., Conway, L., Larson, E., & Pittet, D. (2014). Status of the implementation of the World Health Organization multimodal hand hygiene strategy in United States of America health care facilities. *American Journal of Infection Control*, 42, 224–230. <https://doi.org/10.1016/j.ajic.2013.11.015>

Berger, Z., Flickinger, T. E., Pfoh, E., Martinez, K. A., & Dy, S. M. (2013). Promoting engagement by patients and families to reduce adverse events in acute care settings: A systematic review. *BMJ Quality & Safety*, 23, 548–555.

Bishop, A. C., & Macdonald, M. (2017). Patient involvement in patient safety: A qualitative study of nursing staff and patient perceptions. *Journal of Patient Safety*, 13, 82–87. <https://doi.org/10.1097/PTS.0000000000000123>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp063oa>

Butenko, S., Lockwood, C., & McArthur, A. (2017). Patient experiences of partnering with healthcare professionals for hand hygiene compliance: A systematic review. *JBI Database of Systematic Reviews and Implementation Reports*, 15, 1645–1670. <https://doi.org/10.11124/JBISRIR-2016-003001>

Clare, C. A., Afzal, O., Knapp, K., & Viola, D. (2013). Determining a patient's comfort in inquiring about healthcare providers' hand-washing behavior. *Journal of Patient Safety*, 9, 68–74. <https://doi.org/10.1097/PTS.0b013e31827819d2>

Davis, R., Briggs, M., Arora, S., Moss, R., & Schwappach, D. (2014). Predictors of health care professionals' attitudes towards involvement in safety-relevant behaviours. *Journal of Evaluation in Clinical practice*, 20, 12–19. <https://doi.org/10.1111/jep.12073>

Davis, R. E., Jacklin, R., Sevdalis, N., & Vincent, C. A. (2007). Patient involvement in patient safety: What factors influence patient participation and engagement? *Health Expectations*, 10, 259–267. <https://doi.org/10.1111/j.1369-7625.2007.00450.x>

Davis, R., Parand, A., Pinto, A., & Buetow, S. (2015). Systematic review of the effectiveness of strategies to encourage patients to remind healthcare professionals about their hand hygiene. *Journal of Hospital Infection*, 89, 141–162. <https://doi.org/10.1016/j.jhin.2014.11.010>

Davis, R. E., Pinto, A., Sevdalis, N., Vincent, C., Massey, R., & Darzi, A. (2012). Patients' and health care professionals' attitudes towards the PINK patient safety video. *Journal of Evaluation in Clinical practice*, 18, 848–853. <https://doi.org/10.1111/j.1365-2753.2011.01688.x>

Davis, R. E., Sevdalis, N., Pinto, A., Darzi, A., & Vincent, C. A. (2013). Patients' attitudes towards patient involvement in safety interventions: Results of two exploratory studies. *Health Expectations*, 16, e164–e176. <https://doi.org/10.1111/j.1369-7625.2011.00725.x>

Davis, R., Sevdalis, N., & Vincent, C. (2011). Patient involvement in patient safety: How willing are patients to participate? *BMJ Quality & Safety*, 20, 108–114. <https://doi.org/10.1136/bmjq.2010.041871>

Duncanson, V., & Pearson, L. (2005). A study of the factors affecting the likelihood of patients participating in a campaign to improve staff hand hygiene. *British Journal of Infection Control*, 6, 26–30. <https://doi.org/10.1177/14690446050060041001>

Erasmus, V., Daha, T. J., Brug, H., Richardus, J. H., Behrendt, M. D., Vos, M. C., & van Beeck, E. F. (2010). Systematic review of studies on compliance with hand hygiene guidelines in hospital care. *Infection Control & Hospital Epidemiology*, 31, 283–294. <https://doi.org/10.1086/650451>

Garcia-Williams, A., Brinsley-Rainisch, K., Schillie, S., & Sinkowitz-Cochran, R. (2010). To ask or not to ask? The results of a formative assessment of a video empowering patients to ask their health care providers to perform hand hygiene. *Journal of Patient Safety*, 6, 80–85. <https://doi.org/10.1097/PTS.0b013e3181cb43c9>

Houghton, C., Murphy, K., Meehan, B., Thomas, J., Brooker, D., & Casey, D. (2017). From screening to synthesis: Using NVivo to enhance transparency in Qualitative Evidence Synthesis. *Journal of Clinical Nursing*, 26, 873–881. <https://doi.org/10.1111/jocn.13443>

Jones, D., Martello, M., Biron, A., & Lavoie-Tremblay, M. (2017). A systematic review on the effectiveness of interventions to improve hand hygiene compliance of nurses in the hospital setting. *Journal of Nursing Scholarship*, 49, 143–152.

Kim, M.-K., Nam, E. Y., Na, S. H., M-j, S., Lee, H. S., Kim, N.-H., ... Park, W. B. (2015). Discrepancy in perceptions regarding patient participation in hand hygiene between patients and health care workers. *American Journal of Infection Control*, 43, 510–515. <https://doi.org/10.1016/j.ajic.2015.01.018>

Lastinger, A., Gomez, K., Manegold, E., & Khakoo, R. (2017). Use of a patient empowerment tool for hand hygiene. *American Journal of Infection Control*, 45, 824–829. <https://doi.org/10.1016/j.ajic.2017.02.010>

Lawton, R., O'Hara, J. K., Sheard, L., Armitage, G., Cocks, K., Buckley, H., ... Moore, S. (2017). Can patient involvement improve patient safety? A cluster randomised control trial of the Patient Reporting and Action for a Safe Environment (PRASE) intervention. *BMJ Quality & Safety*, 26, 622–631. <https://doi.org/10.1136/bmjq.2016-005570>

Lent, V., Eckstein, E. C., Cameron, A. S., Budavich, R., Eckstein, B. C., & Donskey, C. J. (2009). Evaluation of patient participation in a patient empowerment initiative to improve hand hygiene practices in a Veterans Affairs medical center. *American Journal of Infection Control*, 37, 117–120. <https://doi.org/10.1016/j.ajic.2008.04.248>

Longtin, Y., Sax, H., Allegranzi, B., Hugonnet, S., & Pittet, D. (2009). Patients' beliefs and perceptions of their participation to increase healthcare worker compliance with hand hygiene. *Infection Control & Hospital Epidemiology*, 30, 830–839. <https://doi.org/10.1086/599118>

Longtin, Y., Sax, H., Leape, L. L., Sheridan, S. E., Donaldson, L., & Pittet, D. (2010). Patient participation: Current knowledge and applicability to patient safety. *Mayo Clinic Proceedings*, 85, 53–62. <https://doi.org/10.4065/mcp.2009.0248>

Luangasanatip, N., Hongswan, M., Limmathurotsakul, D., Lubell, Y., Lee, A. S., Harbarth, S., ... Cooper, B. S. (2015). Comparative efficacy of interventions to promote hand hygiene in hospital: Systematic review and network meta-analysis. *British Medical Journal*, 351, h3728. <https://doi.org/10.1136/bmj.h3728>

McGuckin, M., & Brown, J. (2003). Validation of a comprehensive infection control program in LTC. *Director (Cincinnati, Ohio)*, 12, 14–17.

McGuckin, M., & Govednik, J. (2013). Patient empowerment and hand hygiene, 1997–2012. *Journal of Hospital Infection*, 84, 191–199. <https://doi.org/10.1016/j.jhin.2013.01.014>

McGuckin, M., Storr, J., Longtin, Y., Allegranzi, B., & Pittet, D. (2011). Patient empowerment and multimodal hand hygiene promotion: A win-win strategy. *American Journal of Medical Quality*, 26, 10–17. <https://doi.org/10.1177/1062860610373138>

McGuckin, M., Waterman, R., Portena, L., Belloa, S., Caruso, M., Juzaitis, B., ... Ostrawski, S. (1999). Patient education model for increasing handwashing compliance. *American Journal of Infection Control*, 27, 309–314. [https://doi.org/10.1016/S0196-6553\(99\)70049-0](https://doi.org/10.1016/S0196-6553(99)70049-0)

McGuckin, M., Waterman, R., Storr, J., Bowler, I., Ashby, M., Topley, K., & Porten, L. (2001). Evaluation of a patient-empowering hand hygiene programme in the UK. *Journal of Hospital Infection*, 48, 222–227. <https://doi.org/10.1053/jhin.2001.0983>

Michaelsen, K., Sanders, J. L., Zimmer, S. M., & Bump, G. M. (2013). Overcoming patient barriers to discussing physician hand hygiene: Do patients prefer electronic reminders to other methods? *Infection Control & Hospital Epidemiology*, 34, 929–934. <https://doi.org/10.1086/671727>

Nacioglu, A. (2016). As a critical behavior to improve quality and patient safety in health care: Speaking up!. *Safety in Health*, 2, 10. <https://doi.org/10.1186/s40886-016-0021-x>

Pan, S.-C., Tien, K.-L., Hung, I.-C., Lin, Y.-J., Yang, Y.-L., Yang, M.-C., ... Chen, Y.-C. (2013). Patient empowerment in a hand hygiene program: Differing points of view between patients/family members and health care workers in Asian culture. *American Journal of Infection Control*, 41, 979–983. <https://doi.org/10.1016/j.ajic.2013.02.008>

Pittet, D. (2001). Compliance with hand disinfection and its impact on hospital-acquired infections. *Journal of Hospital Infection*, 48, S40–S46. [https://doi.org/10.1016/S0195-6701\(01\)90012-X](https://doi.org/10.1016/S0195-6701(01)90012-X)

Pittet, D., Panesar, S., Wilson, K., Longtin, Y., Morris, T., Allan, V., ... Donaldson, L. (2011). Involving the patient to ask about hospital hand hygiene: A National Patient Safety Agency feasibility study. *Journal of Hospital Infection*, 77, 299–303. <https://doi.org/10.1016/j.jhin.2010.10.013>

Prey, J. E., Woollen, J., Wilcox, L., Sackeim, A. D., Hripcak, G., Bakken, S., ... Vawdry, D. K. (2013). Patient engagement in the inpatient setting: A systematic review. *Journal of the American Medical Informatics Association*, 21, 742–750.

Rainey, H., Ehrlich, K., Mackintosh, N., & Sandall, J. (2015). The role of patients and their relatives in 'speaking up' about their own safety – A qualitative study of acute illness. *Health Expectations*, 18, 392–405. <https://doi.org/10.1111/hex.12044>

Richards, T., & Richards, L. (1991). The NUDIST qualitative data analysis system. *Qualitative Sociology*, 14, 307–324. <https://doi.org/10.1007/BF00989643>

Ridley, J., & Jones, L. (2002). *User and public involvement in health services: A literature review*. Edinburgh, UK: Health and Social Care Directories.

Sahlsten, M. J., Larsson, I. E., Sjöström, B., & Plos, K. A. (2008). An analysis of the concept of patient participation. *Nursing Forum*, 43, 2–11. <https://doi.org/10.1111/j.1744-6198.2008.00090.x>

Schwappach, D. L. (2010). Engaging patients as vigilant partners in safety: A systematic review. *Medical Care Research and Review*, 67, 119–148. <https://doi.org/10.1177/1077558709342254>

Schwappach, D. L., Frank, O., & Davis, R. E. (2013). A vignette study to examine health care professionals' attitudes towards patient involvement in error prevention. *Journal of Evaluation in Clinical practice*, 19, 840–848.

Seale, H., Chughtai, A. A., Kaur, R., Crowe, P., Phillipson, L., Novytska, Y., & Travaglia, J. (2015). Ask, speak up, and be proactive: Empowering patient infection control to prevent health care-acquired infections. *American Journal of Infection Control*, 43, 447–453. <https://doi.org/10.1016/j.ajic.2015.01.007>

Seale, H., Chughtai, A. A., Kaur, R., Phillipson, L., Novytska, Y., & Travaglia, J. (2016). Empowering patients in the hospital as a new approach to reducing the burden of health care-associated infections: The attitudes of hospital health care workers. *American Journal of Infection Control*, 44, 263–268. <https://doi.org/10.1016/j.ajic.2015.10.003>

Seale, H., Travaglia, J., Chughtai, A. A., Phillipson, L., Novytska, Y., & Kaur, R. (2015). 'I don't want to cause any trouble': The attitudes of hospital patients towards patient empowerment strategies to reduce healthcare-acquired infections. *Journal of Infection Prevention*, 16, 167–173. <https://doi.org/10.1177/1757177415588378>

Semmelweis, I. F. (1983). *The etiology, concept, and prophylaxis of childbed fever*. Madison, WI: University of Wisconsin Press.

Thompson, A. G. (2007). The meaning of patient involvement and participation in health care consultations: A taxonomy. *Social Science & Medicine*, 64, 1297–1310. <https://doi.org/10.1016/j.socscimed.2006.11.002>

Trampuz, A., & Widmer, A. F. (2004). Hand hygiene: A frequently missed lifesaving opportunity during patient care. *Mayo Clinic Proceedings*, 79, 109–116. <https://doi.org/10.4065/79.1.109>

Vahdat, S., Hamzehgardeshi, L., Hessam, S., & Hamzehgardeshi, Z. (2014). Patient involvement in health care decision making: A review. *Iranian Red Crescent Medical Journal*, 16, e12454.

Vaismoradi, M., Jordan, S., & Kangasniemi, M. (2015). Patient participation in patient safety and nursing input – A systematic review. *Journal of Clinical Nursing*, 24, 627–639. <https://doi.org/10.1111/jocn.12664>

Vincent, C. A., & Coulter, A. (2002). Patient safety: What about the patient? *Quality and Safety in Health Care*, 11, 76–80. <https://doi.org/10.1136/qhc.11.1.76>

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing*, 52, 546–553. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>

WHO. (2009). *WHO guidelines on hand hygiene in healthcare*. Geneva: World Health Organisation. Retrieved from <http://www.who.int/gpsc/5may/tools/9789241597906/en/> (accessed 30th July 2016).

WHO. (2013). *Patients for patient safety: Partnerships for safer health care*. Geneva: World Health Organisation. Retrieved from http://www.who.int/patientsafety/patients_for_patient/en/ (accessed 30th July 2016).

Wright, J., Lawton, R., O'Hara, J., Armitage, G., Sheard, L., Marsh, C., ... Thomson, R. (2016). Improving patient safety through the involvement of patients: Development and evaluation of novel interventions to engage patients in preventing patient safety incidents and protecting them against unintended harm. *Programme Grants for Applied Research*, 4, 1–296.

Wu, K.-S., Lee, S. S.-J., Chen, J.-K., Tsai, H.-C., Li, C.-H., Chao, H.-L., ... Huang, Y.-H. (2013). Hand hygiene among patients: Attitudes, perceptions, and willingness to participate. *American Journal of Infection Control*, 41, 327–331. <https://doi.org/10.1016/j.ajic.2012.03.033>

Wyer, M., Jackson, D., Iedema, R., Hor, S. Y., Gilbert, G. L., Jorm, C., ... Carroll, K. (2015). Involving patients in understanding hospital infection control using visual methods. *Journal of Clinical Nursing*, 24, 1718–1729. <https://doi.org/10.1111/jocn.12779>

von Lengerke, T., Lutze, B., Krauth, C., Lange, K., Theodor Stahmeyer, J., & Freya Chaberny, I. (2017) Promoting Hand Hygiene Compliance: PSYGIENE—a Cluster-Randomized Controlled Trial of Tailored Interventions. *Deutsches Ärzteblatt International* 114, 29–36. <http://doi.org/10.3238/arztebl.2017.0029>

Zhang, Q., Li, Y., Li, J., Mao, X., Zhang, L., Ying, Q., ... Zhang, M. (2012). Patients for patient safety in China: A cross sectional study. *Journal of Evidence-Based Medicine*, 5, 6–11. <https://doi.org/10.1111/j.1756-5391.2012.01164.x>

How to cite this article: Alzyood M, Jackson D, Brooke J, Aveyard H. An integrative review exploring the perceptions of patients and healthcare professionals towards patient involvement in promoting hand hygiene compliance in the hospital setting. *J Clin Nurs*. 2018;27:1329–1345.

<https://doi.org/10.1111/jocn.14305>