Knowledge, attitudes, practices and perceived barriers of evidence-based practice among Registered Nurses in a Ghanaian Teaching Hospital

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ABSTRACT

Objective: This study aimed at investigating knowledge, attitudes, practices and perceived barriers of evidence-based practice among Registered Nurses in a Ghanaian Teaching Hospital.

Methods: The study utilised mixed methods. Self-completion questionnaire and individual semi-structured interviews were used in collecting data. One hundred and two nurses were involved in survey whilst twenty nurses were interviewed. Survey data were analysed with SPSS version 20 whilst qualitative data were analysed through content analysis to generate categories.

Results: The response rate in this study was 68%. Almost all participants (91.2%) were below the age of 35. Majority of Registered Nurses demonstrated a generally high levels of knowledge, attitude and practice of EBP. However, almost half of participating nurses (47.7%) thought that their workload was too high to keep up to date with current evidence. Qualitative results identified training, institutional and nursing job related barriers that impeded full implementation of evidence-based practice among registered nurses within the teaching hospital setting in Ghana.

Conclusion: This study identified areas that need improving in order to have nurses fully practice evidence-based practice within Ghanaian hospitals. Managers of Ghanaian hospitals should take steps to provide resources needed for evidence-based practice and collaborate with academia in addressing training related barriers of evidence-based practice noted by nurses.

1. Introduction

Evidence-based practice (EBP) is the process of using evidence, drawn from research, clinical experience and patients' and carers' preferences, in consideration with local context and environment (Disler, White, Franklin, Armari, & Jackson, 2019; Hoffman, Bennett, & Del Mar, 2017). The EBP process involves asking clinical questions, collecting relevant best evidence, appraising the evidence, and integrating it with clinical expertise, preferences of patients and evaluating outcomes (Disler et al., 2019). Implementation of EBP has been found to lead to safe and quality health care, improved health outcomes, team work among health professionals and job satisfaction

(Carrier, 2016; Kim et al., 2017).

Recent studies have found differences in EBP training, knowledge and skills among health professionals in lower income countries and developed countries (Abdulwadud et al., 2019; Higgins et al., 2019; Melnyk et al., 2018; Sanchez-Garcia, Urena Molina, Lopez-Medina, & Pancorbo-Hidalgo, 2019). Whilst EBP is rapidly progressing in many developed economies (Harvey et al., 2019; Higgins et al., 2019; Sanchez-Garcia et al., 2019), its implementation in many African countries has been found to be slow (Abdulwadud et al., 2019). The difference in progress has been attributed to barriers that confront health professionals including nurses in less developed countries (Abdulwadud et al., 2019; Lizarondo, Lockwood, & McArthur, 2019). Lizarondo et al. (2019) grouped these barriers into organisational level barriers and practitioner level barriers. Organisational level barriers include inadequate policies, interdisciplinary issues, lack of incentives for research and advanced education, weak leadership roles, inadequate information resources and inadequate human and material resources (Abdulwadud et al., 2019; Lizarondo et al., 2019). Practitioner level barriers include inadequate knowledge and skills in research and statistics needed for the practice of EBP (Abdulwadud et al., 2019; Lizarondo et al., 2019; Shayan, Kiwanuka, & Nakaye, 2019).

Increasing expectations of higher quality nursing care in hospitals make it necessary for nurses to provide care based on current evidence (Zou, Hao, Guo, & Liu, 2016). The increasing calls for nurses to employ EBP in the performance of their duties is justified because they are the largest group of healthcare professionals in most healthcare systems across the globe (Correa-de-Araujo, 2016; Shayan et al., 2019; Zou et al., 2016). Nurses are expected to be part of multidisciplinary teams and contribute to evidence-based decision making within hospital settings (Zou et al., 2016). Nurses are required to use their clinical experience and systematic reviews as well as appraise evidence for nursing care (Munn, Stern, Aromataris, Lockwood, & Jordan, 2018). The utilisation of EBP by nurses in hospitals is in conformity with the World Health Organisation's recommendation that nursing practice should be based on the best evidence (World Health Organisation, 2017).

Teaching hospitals in Ghana have been established to provide quality health care, medical education and research in Ghana (Government of Ghana, 1996). These teaching hospitals are the last referrals points for many patients with advanced illnesses in Ghana (Government of Ghana, 1996). Registered Nurses (RNs) make up the majority of clinical staff in Ghanaian teaching hospitals. Registered Nurses are trained to have general nursing skills to nurse clients with various medical and surgical conditions. Nurses within these hospitals are expected to engage in practice and teaching of student nurses, and newly RNs with the best available practice evidence. However, there is dearth of research information on knowledge, attitudes, practice and barriers of EBP among RNs in these teaching hospitals. This study investigated knowledge, attitude, practice and perceived barriers of EBP among RNs in a Ghanaian teaching hospital. It is expected that findings in this work will help inform policy and practice to support EBP in Ghanaian hospitals.

2. Materials and methods

2.1. Study design

This study utilised quantitative and qualitative approaches to investigate knowledge, attitudes, practices and perceived barriers of EBP among RNs in a teaching hospital in Ghana from January to March 2017. A quantitative method allowed researchers to identify the level of knowledge, attitudes and practices of RNs whilst the qualitative method allowed the researchers to have an understanding into the barriers that led to inability of RNs to fully practice EBP.

2.2. Study setting

This study was conducted in a teaching hospital in Ghana. Teaching hospitals in Ghana were established to provide quality health care, medical education and research to all categories of health practitioners including nurses (Government of Ghana, 1996). The study was conducted in the selected teaching hospital because it serves as the referral centres for all other health facilities in the region. Majority of nurses working in the selected teaching hospital were RNs.

2.3. Population and sampling

The population of study was RNs working within selected units in the teaching hospital. Registered Nurses were randomly selected from the medical, oncology, dialysis, critical care, chest, psychiatry, intensive care, surgical, stroke, and diabetic clinic of the selected teaching hospital. The units selected for data collection were units that had higher numbers of RNs in the selected teaching hospital. The total population of RNs in selected units was 240. The lists of all RNs were requested from nurse managers of selected units. An invitation was sent to every even numbered person on the list provided by nurse managers.

A sample size of 150 was found adequate based on sample size calculation using Slovin's formula (Tejada & Punzalan, 2012).

Formula: $n = N/(1 + Ne2)$

Where N is size of population and e is margin of error.

$$n = \frac{240}{1 + 240 \times 0.05^2}$$

$$n = \frac{240}{1 + 0.6}$$

$$n = 150$$

2.4. Data collection instrument

Evidence-based Practice Questionnaire (EBPQ) (Upton & Upton, 2006) was adapted and used in collecting quantitative data. The EBPQ is a self-completion questionnaire and had three subscales: knowledge, attitude and practice. Several studies have utilised and assessed Cronbach's alpha coefficient of the EBPQ as 0.87 for the entire questionnaire: 0.79 for the attitude scale, 0.85 for the practice scale, and 0.91 for the knowledge scale. The modified instrument had four parts. Part 1 assessed demographic data of participants. Part 2 assessed knowledge of RNs and consisted of 8 questions. Part 3 assessed attitudes of RNs and consisted of 10 questions whilst part 4 assessed practices of RNs in EBP and consisted of 7 questions. The questionnaire was modified into a Likert-scale for easy response and pretested on 20 RNs in a similar teaching hospital in Ghana. Results were used in modifying the questionnaire for a better clarity. Cronbach's alpha coefficient of the modified EBPQ was 0.85 for the entire questionnaire: 0.79 for the attitude scale, 0.83 for the practice scale, and 0.87 for the knowledge scale.

Semi-structured interviews were used in collecting qualitative data. Interviews focused on EBP barriers experienced by RNs. Interview questions were formulated by research team headed by a nursing professor. Questions asked during interview sessions included the following: 1. In your opinion what are the disadvantages or advantages of EBP in nursing care. 2. Describe why you agree or disagree about implementation of EBP in your hospital. 3. Describe any feelings or perceptions you have about EBP in nursing care. 4. Describe any barriers to the implementation of EBP in your day-to-day nursing practice in this health facility.

2.5. Data collection procedures

Only RNs who worked in selected wards and could speak English were selected for the study. Nurses who were not RNs and RNs who did not have valid Personal Identification Numbers (PINs) were excluded from study. Participants were informed that this study would assess their knowledge, attitudes, practices, attitudes in EBP as well as explore barriers they experienced regarding the implementation of EBP. The list of all RNs in selected units was requested from nurse managers of the units. Participants were invited to participate in study through nurse managers of various units selected for study. Data collection occurred between January and March 2017.

Quantitative data were collected through a self-completion questionnaire. A list of RNs in selected units was requested from unit managers. Every even numbered RN on the list was contacted through the nurse manager to take survey. One-hundred and seventy questionnaire were printed and distributed to RNs in the selected units of the Teaching Hospital. However, 102 were completed and returned. The RNs who completed survey were also invited take part in individual semi-structured interviews. Thirty-five RNs agreed to take part in individual semi-structured interviews. Date, time and venue of interviews were at the convenience of participants. Interviews were mostly done in nurses rest rooms. All interviews were conducted in English by researchers. Interviews lasted between 60 and 120 min. Qualitative data saturation was determined after interviewing 20 RNs. Probes were used to elicit further understanding into perceived barriers of EBP among RNs within the teaching hospital. Consent was granted by participants to audio record interviews. Nonverbal behaviours were observed during interviews. Verbatim transcriptions were done by researchers.

2.6. Data analysis

Quantitative data were coded and analysed by SPSS version 20 (Corp, 2015). Data collected with modified EBPQ was entered into SPSS to generate descriptive statistics. Analysis of various variables within the EBPQ was done to generate frequencies and percentages. These statistics are presented in Table 2.

Holloway and Wheeler (2010) data analysis process was used in analysing qualitative data. This process took the following form; validating, transcribing, cleaning, coding and categorising data (Holloway & Wheeler, 2010). Data validation was performed by listening to audio recordings of interviews to confirm whether interviews were consistent with the objectives of the study. Researchers then transcribed data by typing the information from recordings. Data cleaning was done by detecting and removing errors in data collected by the research team. Personal identifiers such as street names, phone numbers and duplicate records were taken out. Qualitative data in this study were coded by connecting concepts identified in the data. Coding was carried out collectively by the research team. Coding was done collectively to ensure trustworthiness and agreements on findings. The codes were then put together as sub-categories and major category and reported as findings of the study. The data analysis was manually done by research team which included a professor of nursing who supervised study.

2.7. Validity and reliability

Validity and reliability were ensured through a number of processes in this study. A sample size calculation ensured that a substantially high number of RNs were selected for generalisability of study. Pretesting of questionnaire ensured clarity of questions asked in this study. The EBPQ was modified for easy understanding of participants. Cronbach Alpha was also calculated for the modified EBPQ and was found to be fairly adequate. Qualitative findings in this study complemented quantitative results in the study.

2.8. Ethical consideration

Data collection commenced after ethical clearance was given by the Committee on Human Research Publication and Ethics at the Kwame Nkrumah University of Science and Technology (KNUST) with reference number CHRPE/AP/358/17. An introductory letter was submitted to authorities of the selected teaching hospital. Individual informed consent was obtained from all RNs who participated in study. Participants were informed that they could withdraw from participating in study at any point in the study without fear of any penalty. Participants were identified with codes to ensure anonymity: P1 (1st RN involved in semi-structured interview), P 3 (3rd RN involved in semi-structured interview). Participants were assured that information collected will not be disclosed to any third party. Transcripts were password protected to ensure protection of data and confidentiality. The name of the teaching hospitals was concealed for purposes of anonymity.

3. Results

The majority of study participants (77.5%) were females and most of them (49%) were staff nurses (Table 1). Almost all participants (91.2%) were below the age of 35. Majority (36%) of RNs were working at the medical/surgical units (Table 1). Sixty-five percent of RNs had

Table 1
Demographic characteristics of respondents.

	Demographic variables	Frequency	Percentage
Gender	Male	23	22.5
	Female	79	77.5
	Total	**102**	**100.0**
Marital Status	Married	45	44.1
	Single	57	55.9
	Total	**102**	**100.0**
Age	20–24	26	25.5
	25–29	36	35.3
	30–34	31	30.4
	35–39	4	3.9
	45–49	2	2.0
	50–54	1	1.0
	55–59	2	2.0
	Total	**102**	**100.0**
Rank of participant	Staff Nurse	50	49.0
	Senior Staff Nurse	32	31.4
	Nursing Officer	10	9.8
	Senior Nursing Officer	6	5.9
	Principal Nursing Officer	.	2.9
	Other	1	1.0
	Total	102	**100.0**
Units/Dept.	Diabetic Clinic	7	6.9
	Dialysis	5	4.9
	Critical Care	5	4.9
	Chest Clinic	5	4.9
	Psychiatry	9	8.8
	Intensive Care	7	6.9
	Oncology	18	17.6
	Stroke	9	8.8
	Surgical/Medical	37	36.3
	Total	**102**	**100.0**
Years of work experience as a registered nurse	1–5	66	64.7
	6–10	27	26.5
	11–15	5	4.9
	16–20	1	1.0
	26–30	3	2.9
	Total	**102**	**100.0**

Table 2
Knowledge, attitude and practice of EBP among RNs.

Items *Knowledge about EBP*	Agree No %	Disagree No %
I am aware of information data sources such as EBSCO, COCHRANE and CINAHL	54 (63.5%)	31 (36.5%)
Nurses can gather research evidence from experience	88 (88.0%)	12 (12%)
EBP ensures patient's preferences when making professional decisions	81 (85.2%)	14 (14.7%)
EBP increases working efficiency and reduces overtime cost	90 (90.0%)	10 (10%)
The application of EBP can improves patient care and nurse's satisfaction	90 (91.8%)	8 (8.1%)
The application of EBP ensures that clinical interventions and decision-making processes are safe	87 (89.7%)	10 (10.4%)
The practice of EBP will help to have a better definition of the nurse's role	87 (87.0%)	13 (13%)
EBP is a problem-solving approach		
Attitude of EBP		
The nursing contract should include time to read scientific papers and make critical appraisal of them.	82 (83.0%)	16 (16.3%)
I would like to have better access to published nursing scientific evidences	79 (82.3%)	17 (17.8%)
Application of EBP improves patient's healthcare outcomes	89 (94.7%)	5 (5.3%)
I wish to and will contribute to EBP in nursing	88 (91.7%)	8 (8.3%)
I do not like reading scientific articles because it takes much of my time	88 (91.6%)	8 (8.3%)
If I have the opportunity, I would assist in implementing EBP	23 (23.7%)	74 (76.3%)
I prefer using more traditional methods	87 (88.8%)	11 (11.3%)
rather than changing to new approaches in carrying out nursing activities	15 (15.6%)	81 (84.4%)
I don't like people questioning my clinical practices	16 (16.7%)	80 (83.3%)
EBP has only limited utility	38 (39.6%)	58 (60.4%)
My workload is too high to keep up to date with all new evidence	46 (47.5%)	51 (52.6%)
Practice		
I apply an intervention based on the applicable evidence from experience	81 (85.2%)	14 (14.7%)
I evaluate the application of intervention and identify areas for improvement	78 (82.1%)	17 (17.9%)
I conduct online searches for available relevant literatures for my practice	75 (78.2%)	21 (21.9%)
I make time to search for scientific evidence	76 (80.0%)	19 (20%)
I analyse the practical utility of a scientific study	75 (79.8%)	19 (20.3%)
I evaluate critically the quality of scientific articles and use them in my practice	69 (72.6%)	6 (27.4%)
I share information on EBP with colleagues	77 (80.2%)	19 (19.8%)

1–5 years of working experience (Table 1).

3.1. Results of survey

3.1.1. Knowledge

Majority of RNs demonstrated high level of knowledge in EBP (Table 2). However, a substantially high percentage of RNs (36.5%) were unaware of databases that could be used in searching for evidence for practice (Table 2).

3.1.2. Attitude

Majority of participants agreed with statements that showed positive attitude towards EBP (Table 2). Almost 95% of RNs indicated that they wanted better access to published literature (Table 2). Consequently 82.3% of these nurses wanted their nursing contracts to include time to read scientific papers and make critical appraisal of them (Table 2). Whilst 47.5% of RNs were of the view that workload was too high to keep up to date with evidence needed for their practice, 52.6% disagreed (Table 2). Almost 40% of RNs were of the view that EBP has limited utility (Table 2).

3.1.3. Practice

Majority of RNs agreed with statements in the practice questionnaire that showed high level of practice of EBP (Table 2). Twenty-seven percent of RNs indicated their inability to critically evaluate the quality of scientific articles and use them for practice (Table 2).

As shown in Table 3, one main category of barriers of EBP was extracted from data collected. This category had three sub-categories: Perceived training related barriers of EBP; Perceived institutional related barriers of EBP; Perceived nursing job-related barriers of EBP.

4. Discussion

The results of this study showed a generally high level of knowledge, attitudes and practices of EBP among RNs in the teaching hospital. This finding agrees with a recent study of EBP knowledge, attitude and practice among nursing students in Chile, Colombia and Spain which found students scoring high on all competency levels of EBP (Sanchez-Garcia et al., 2019). The high scores were attributed to more hours of teaching research methods and reading nursing journal articles (Sanchez-Garcia et al., 2019). However, more than a third of participating RNs (36.5%) in this study had no knowledge of databases that could be used in the search for evidence for practice (Table 2) and many of them practiced EBP mainly by learning from senior colleagues who may not have had a good knowledge of EBP during their school days, since EBP is mostly traced back to Cochrane in the 1970s (Mackey & Bassendowski, 2017). Given the majority of respondents were less than 30 years (Table 1), their knowledge level of EBP would be expected to be higher than their seniors who may have not had much information presented to them in school. These young nurses may be relying on seniors because majority of them have only 1–5 years experience on the job (Table 1). Reliance on senior colleagues for learning the practice of EBP may also be due to a number of barriers that nurses thought were mitigating against the implementation of EBP in their hospital. These barriers included lack of libraries in various units, lack of internet facilities for searching for evidence and inadequate guidelines for the practice of EBP. Almost all nurses in this study (95%) wanted better access to published literature (Table 2). A recent systematic review of barriers of EBP among nurses in low- and middle-income countries, identified limited access to information as one of the main barriers that confronted nurses (Shayan et al., 2019). Managers of Ghanaian hospitals could take steps to attach library facilities to units as well as provide internet access to enable nurses search for evidence that could help them deliver quality nursing care to clients.

Although quantitative results showed that majority of RNs demonstrated a generally high levels of knowledge, attitude and practice of EBP, qualitative results showed that RNs experienced several difficulties that impeded the implementation of EBP. Registered nurses in this study mentioned workload, inadequate time, lack of library and internet facilities, inadequate human resources and inadequate policy

Table 3
Thematic results.

Barriers of EBP	Sub-categories	Supporting statements from participants
Main Category	Perceived training related barriers of EBP	**P 2**: I wish we could practice EBP very well but to be honest, it will be a bit difficult right now to fully practice EBP. We did not take our time to understand the research we did when we were in school. In fact, many of us found it a bit difficult to make the link between research that we were taught and EBP. **P 10**: We don't usually have workshops on EBP. I wished that we can have workshops here on EBP to sharpen our brains for the practice of EBP. I think without the workshops, it will be very difficult to have effective skills for EBP. **P 12**: We don't hear of workshops for EBP. I think it will help us. We are willing to practice with evidence if we know how to do it well, with the help of training or workshops here.
	Perceived institutional related barriers of EBP	**P 19**: Under the current situation, I am not sure we can fully practice EBP. We do not have library facilities in this unit or internet facility. I usually use my own bundle on my phone, but it is expensive to download documents to read. Even the personnel to really help, we do not have currently. Any good nurse who goes out for PhD does not come back here. They prefer to go into the classroom. **P 20**: To be honest with you the research facilities for EBP are not enough for us. I wish we had free internet 24/7 to help us research and look for current evidence that can help us. I also think there should be a good library here with current books. We need the research nurses like the PhD trained ones here. Although we do EBP based on our experience, the management should employ some of the PhD nurses to help us better understand the link between research and EBP **P 15**: Well, for now there is no policy guidelines for us in terms of EBP. I think there should be one for us to follow in the way we practice EBP. As at now everyone tries to do what he or she thinks is EBP. But I think there is more to it. I am not sure that just any form of practicing EBP is appropriate. Management should provide some guidelines for us to follow. It will be good. **P 12**: To be on the same page, there should be some guidelines for us. Just like the steps of a nursing process, EBP could also have steps that we can follow. We are trying our best in our own ways, but a guideline will help for some consensus on EBP in our hospital.
	Perceived nursing job-related barriers of EBP	**P 11**: We don't really have the time for practicing EBP. We should be given some time for the purposes of research for EBP when we are at work. But I am not sure it can really happen now, because even now it is extremely difficult to take breaks at work here. There is not enough time to even finish your job for the day shift. We are not moving forward fast enough for EBP because of the issues. **P 9**: There is little time here for extra stuff like research for EBP. Even though it is important, the time is not there. May be in the future when we have some time at work, we can engage more in research activities for EBP. For now, we use more of experience which is also EBP. We learn from the seniors to have experience. **P 7**: You see, here we do not have a lot of nurses, so the workload is high. We are usually too busy trying to address issues of our patients and do all the routine work before the next shift nurse appears. Researching daily for EBP will be nice but the workload won't allow. For now, we can depend on our experience for EBP and continue learning from fellow nurses. **P 3**: The issue is our busy schedule. There is so much work, it is usually difficult to do something else. That is one problem we have here. I wish we had more nurses so we can be able to look for new evidence every day. This will make us progress faster in practicing EBP fully.

guidelines for EBP as constraints they faced in the implementation of EBP. Nurses said their skills development for EBP was slower than expected as a result of these institutional and nursing job-related challenges. Similar institutional and nursing job related barriers have been reported in previous studies in other countries (Harvey et al., 2019; Shayan et al., 2019). These identified barriers towards EBP are not surprising because EBP is considered as a process and usually viewed as complex and challenging (Harvey et al., 2019). Some hospital managers themselves may have inadequate knowledge on EBP and may not be aware of the processes of implementing EBP in their hospitals (Barends et al., 2017). Hospital managers may also benefit from some workshops in EBP to be able to champion the implementation of EBP in their hospitals.

Registered Nurses had positive attitudes because they were aware that EBP will help them provide safe care to their patients as well as lead to job-satisfaction. Positive attitudes are necessary for a successful implementation of EBP among nurses. This finding is consistent with previous studies of a number of professional healthcare groups (Ammouri et al., 2014; Schneider et al., 2015; Weng et al., 2013). Having a positive attitude towards EBP and being able to realise the value of EBP for patients are important considerations for the implementation of EBP among nurses (Stokke, Olsen, Espehaug, & Nortvedt, 2014). In spite of the positive attitudes about EBP, RNs in this study stated training barriers that limited knowledge acquisition and practice of EBP. Although significant increases in EBP knowledge and databases utilisation were found among nursing students after an evidence-based education program (Oh & Yang, 2019), a substantially high number of participating nurses in this study (40%) were of the opinion that EBP had limited utility (Table 2). Inadequate education on

EBP in nursing school and inadequate EBP workshops within teaching hospitals were training barriers stated by nurses. In a study into evidence-based public health in Ghana, participants indicated that they did not have enough education into searching for evidence in journals or databases (Owusu-Addo, Cross, & Sarfo-Mensah, 2016). Nursing training institutions in Ghana could allocate extra hours to EBP and identify effective teaching methodologies within nursing programs for teaching EBP since such measures have been found to increase nurses' competencies in EBP (Oh & Yang, 2019; Sanchez-Garcia et al., 2019).

Research shows that measures for implementing EBP are likely to be successful if hospital managers overcome identified barriers (Baker et al., 2010). Although some researchers have said it is difficult to implement EBP due to barriers such as limited resources, inadequate time, lack of training and inadequate supervision, advocates of EBP argue that these problems can be managed within the framework of EBP by means of various adjustments and adaptations (Leming-Lee & Watters, 2019; Polykarpou et al., 2018; Tahan et al., 2016). Although nurses said workload was too high to keep up to date with current evidence for nursing practice and also stated that EBP has limited utility, they may show more positive attitude in this areas if they are made to understand the importance of EBP in their daily work. Nurses could use some of their off-duty time to read current literature if they realise the value of EBP to the care of their clients. Other strategies have been suggested in literature for the implementation of EBP in hospitals. These include formation of journal clubs, adopting a framework for EBP such as the PEACE framework, investment in health information technology, and engaging in multi-disciplinary approach of EBP (Leming-Lee & Watters, 2019; Polykarpou et al., 2018; Tahan et al., 2016). Nurses, nurse mangers and hospital managers could adopt some of

these suggested strategies in the implementation of EBP in Ghanaian teaching hospitals. Hospital managers may collaborate with academics from Ghanaian universities in the implementation of EBP in their hospitals. These collaborations could result in the development of EBP policy guidelines for the implementation of EBP in Ghanaian hospitals. Patients views are also important in the development of policy guidelines for EBP because many have argued that countries in sub-Saharan Africa can improve health outcomes if measures to improve health outcomes take into consideration local conditions (Nevo & Slonim-Nevo, 2011).

Several frameworks for teaching and including EBP in nursing programs are suggested in literature to improve knowledge of nurses and nursing students in EBP (Culyer, Jatulis, Cannistraci, & Brownell, 2018; Sin & Bliquez, 2017; Smith & Kennedy, 2019). These studies have recommended blended and active learning teaching strategies in teaching three main competencies needed for EBP knowledge in nursing: understanding EBP and its processes; synthesising evidence whilst integrating patients concerns and clinical experience in decision making; critically judging evidence appropriate to management of patients' disease conditions and issues (Culyer et al., 2018; Sin & Bliquez, 2017; Smith & Kennedy, 2019). Stake-holders of the nursing profession such as the Nursing and Midwifery Council (NMC) of Ghana, Ghana College of Nursing and Midwifery (GCNM) and hospital managers should take advantage of the positive attitudes of nurses towards EBP to improve EBP in Ghana through curricula modifications and EBP workshops respectively.

5. Limitations and strengths

This study only included RNs in one teaching hospital in Ghana. More hospitals with a larger sample size could be studied in the future in order to better generalise findings. The views of other health care professionals and mangers within the teaching hospital can also be studied to provide a much more holistic view of EBP within the teaching hospital environment in Ghana. An observational participatory study could provide details on the actual practice of EBP among RNs.

However, this study has some advantages. It seems to be the first study in Ghana to explore the knowledge, attitudes, practices and barriers of EBP implementation among RNs in Ghanaian teaching hospitals. Findings in this work will help inform policy and practice to support EBP in Ghanaian hospitals. Curricula modifications are also suggested for EBP education in Ghana.

6. Clinical implications of study

Findings in this study identified the level of knowledge, attitudes and practices as well as challenges of EBP in a Ghanaian hospital. These findings provide various stake-holders such as hospital managers and policy makers insight into EBP practice within Ghanaian hospitals. Stake-holders can use this information to provide the needed resources, training and guidelines for EBP practice among nurses in Ghanaian hospitals.

7. Conclusion

Findings in this study generally showed a high level of knowledge, attitudes and practice of EBP among RNs in the teaching hospital. However, institutional and job-related barriers such as lack of library facilities, internet, policy guidelines on the practice of EBP and workload were stated by participants as challenges that hampered the full implementation of EBP among RNs in the teaching hospital. Collaborations between nursing researchers from academia and practicing nurses are necessary to improve EBP knowledge and practice. Improved educational methods in EBP must take place alongside provision of adequate infrastructure for EBP.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijans.2020.100204.

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