

PERCEIVED BARRIERS OF HEALTHCARE PROVIDERS' ADHERENCE TO CLINICAL PRACTICE GUIDELINES OF HYPERTENSIVE DISORDERS OF PREGNANCY IN JORDAN: A DESCRIPTIVE, CROSS-SECTIONAL STUDY

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ABSTRACT

Rationale, Aims, and Objectives

A better understanding of the potential determinants of health care providers' adherence to clinical practice guideline (CPG) of Hypertensive Disorders of Pregnancy (HDPs) is vitally important for guiding the development of effective strategies to improve the local acceptance and actual implementation of HDPs' guidelines in clinical practice. Therefore, the purpose of the current study was to assess the barriers to implementing CPG of HDPs amongst healthcare providers (including obstetricians, midwives, and nurses) in their clinical practice in Jordanian hospitals.

Method

A quantitative, cross-sectional design was used, guided by Cabana et al., (1999) framework of Knowledge, Attitude, and Behavior. The study was conducted in four hospitals: two governmental, one military, and one private, thus representing the main healthcare sectors in Jordan. Using convenience sampling, all HCPs including obstetricians, nurses, and registered midwives (n= 284) employed in these hospitals were approached. A self-reported questionnaire titled "Attitudes Regarding Practice Guidelines" (Larson, 2004) was used.

Results

The questionnaire was returned by 270 (70.3% response rate) of health care providers. About thirty-five percent (n=93) of the respondents were not familiar with the clinical guidelines in their practice, and 31.9% (n=86) were not aware of a guideline's existence in their practice. Generally, respondents held favorable attitudes toward clinical practice guidelines. Up to 35% of respondents felt incompetent to provide care in accordance with guidelines. Approximately 55% (n=147) of the respondents indicated that neither they don't have enough time nor do they have access to the necessary resources and equipment to use the HDPs' guideline (25%, n=66). In relation to patient preferences, a significant percentage of the respondents (28.9%, n=78) disagreed that patients preferred to see them providing care in accordance with the HDPs' guidelines.

Conclusion

A number of factors that may facilitate or hinder the adoption and implementation of CPGs amongst healthcare providers were identified. Effectual strategies with active participation of healthcare stakeholders, health care providers, and patients are needful to enhance adherence to CPGs, and so improve patient outcomes.

KEYWORDS: HDPs, Clinical Practice, CPGs, Patient

INTRODUCTION

Globally, about 830 women and 7,700 newborn die every day due to largely preventable complications that occur at any time during pregnancy, childbirth, and postpartum periods (WHO, 2016). Moreover, for every woman who dies; around 20 others suffer from severe morbidities such as injuries, infections, or disabilities (UNICEF, 2015; WHO, 2015). Although maternal deaths have substantially declined by nearly 37% since 1990, Ending Preventable Maternal Mortality (EPMM) is still a major global challenge (Bustreo et al., 2013).

One of the most common leading causes of preventable Severe Acute Maternal Morbidity (SAMM) cases is Hypertensive Disorders of Pregnancy (HDPs) (particularly; pre-eclampsia and eclampsia) (Lawton et al., 2014; Ghazal-Aswad et al., 2013; Yelikar et al., 2015). HDPs affect approximately 8-10% of all pregnancies globally (Duley, 2009; Jim et al., 2010). It is the second direct cause of maternal deaths; representing around 16% of the estimated global maternal deaths (Say et al., 2014).

However, about 40% - 50% of all maternal deaths and severe morbidities were deemed “potentially preventable” and necessitate improvement of maternity care provision (Lawton et al., 2014; Saleem et al., 2014; Berg et al., 2005). In developing countries, the prevalence of appropriate and beneficial practices to improve maternal and perinatal health outcomes is low, wherein unnecessary and harmful maternity practices are still used; that in turn will result in poor maternal and perinatal health outcomes, inappropriate use of limited resources, and waste of time and money (Villar et al., 2001; Martis & Crowther, 2008; Karolinski et al., 2009; Shaban et al., 2011).

To promote a highly structured, efficient maternal healthcare services and reduce inappropriate variations in clinical practice, a number of national and international Clinical Practice Guidelines (CPGs) have been developed and endorsed to provide evidence-based recommendations for the screening, diagnosis, management, and referral of women with HDPs (WHO, 2014; National Institute for Health and Care Excellence (NICE), 2015; ACOG, 2013; Royal College of Obstetricians and Gynecologists (RCOG), 2010; the National Partnership for Maternal Safety, 2014; USAID, 2014). CPGs which are based solely on a critical appraisal of scientific evidence have been acknowledged as a helpful tool for reducing the gap between policy, best practice, local contexts, and patients' needs and preferences (Kredo et al., 2016).

Clinical Practice Guidelines have a range of potential benefits for patients, healthcare providers, and healthcare system in terms of clinical outcomes, hospitalization and outpatient visits, referrals, frequency of laboratory monitoring, and healthcare expenditure (Woolf et al., 1999; Mazrou, 2013). Despite the widely documented likelihood of clinical guidelines to standardize and improve the quality of care and strengthen health care system, previous studies regarding CPGs have reported low adherence rates amongst healthcare providers (Lugtenberg et al., 2011; Sharif et al., 2013, Ebben et al., 2014; Jun et al., 2016, Adedeji et al., 2015, Heins et al., 2016, Gustafsson et al., 2016, Jackson et al., 2017).

A variety of studies have focused on identifying multifaceted factors that have a significant impact on adherence of CPGs amongst healthcare providers and most of these were organized as a framework by many researchers (Cabana et al., 1999; Gruses et al., 2010, Cahill et al., 2010, Gifford et al., 2013). These were chiefly related to healthcare provider characteristics (e.g., knowledge, skills, attitudes, age, clinical experience), patient characteristics (e.g., resistance to nurses' suggestion, inability to access healthcare services, co-morbidities, or non-compliance), guideline characteristics (e.g., complexity, level of scientific evidence underlying recommendations), and system / organizational

characteristics (e.g., lack of equipment and resources, limited time, not in providers' scope of practice, workload or understaffing) (Lugtenberg et al., 2011, Francke et al., 2008, Heins et al., 2016, Buu et al., 2014, Koh et al., 2008, Ebben et al., 2015, Williams et al., 2015, Gifford et al., 2013, Keiffer, 2015).

Estimations regarding MMR in Jordan are 58 per 100,000 live births, with an annual rate of reduction from 2005 to 2015 at 0.8% (WHO & UNICEF, 2015). About 61% of Jordanian women suffered from one or more high-risk conditions during pregnancy, childbirth, and the postpartum period. The highest rate of maternal and perinatal morbidity is during pregnancy (41.3%), followed by labor and delivery (34.5%), and 18.7% during the postpartum period. HDPs ranks in third place as a cause of maternal morbidities and mortalities directly after hemorrhage and sepsis (Jordanian Higher Population Council, 2009). As attested by the Jordan National Maternal Mortality Study, 52.6% of preventable maternal deaths were due to substandard care provided by HCPs (JHPC, 2009).

Jordan Health Systems Strengthening II (HSS II) is a USAID-funded project work jointly with different healthcare sectors in Jordan to improve access to and quality of maternal health care services. One of its major purposes is to support the development of clinical practice guidelines, nursing procedures, and service standards for maternal, neonatal, and family planning services. Since 2009, an HSS II CPGs of HDP have been published till this time. However, an analysis of the Health Systems Strengthening II (HSS II) project with the Ministry of Health (MOH) revealed that Jordan lacked standardized evidence-based guidelines and clinical performance checklists to monitor and manage women who experience, or at risk of developing, Pre-eclampsia, Eclampsia, and other hypertensive disorders (HSS II Project, 2014).

A better understanding of the potential determinants of health care providers' adherence to CPGs of HDPs is vitally important for guiding the development of effective strategies to improve the local acceptance and actual implementation of HDPs' guidelines in clinical practice. Therefore, the purpose of the current study was to assess the barriers to implementing CPGs of HDPs (HSS II) amongst HCPs (including obstetricians, midwives, and nurses) in their clinical practice in Jordanian hospitals.

METHODS AND MATERIALS

Study Design and Conceptual Framework

A quantitative, cross-sectional design was used, guided by Cabana et al., (1999) framework of Knowledge, Attitude, and Behavior. As claimed by this framework, for clinical guidelines to affect patient outcomes, multilateral factors need to be addressed. These factors were organized in respect of a cognitive component, an affective component, and an ability component. A cognitive component was related to determinants affecting providers' knowledge, including lack of familiarity and awareness of clinical guidelines (e.g., volume of information, time needed to stay informed, and guideline accessibility). An affective component was related to determinants affecting providers' attitude such as lack of agreement, lack of outcome expectancy, lack of self-efficacy, and lack of motivation. Patient factors (e.g., non-compliance or co-morbidities), guideline factors (e.g., complexity and plausibility), and environmental factors (e.g., time pressure, limited resources, organizational constraints, lack of reimbursement, and malpractice liability) were determinants affecting providers' behavior in relation to the ability component.

Sample and Setting

The study was conducted in four hospitals: two governmental, one military, and one private, thus representing the main healthcare sectors in Jordan. Using convenience sampling, all HCPs including obstetricians, nurses, and registered

midwives (n= 284) employed in these hospitals were approached. HCPs were eligible for this study if they provide direct care for women diagnosed with HDPs and have a willingness to participate in the study.

Data Collection Procedure

Data were collected for a 3-month period from May to July 2017. A self-reported questionnaire titled "Attitudes Regarding Practice Guidelines" (Larson, 2004) was used to assess the determinants of adherence to CPGs amongst nurses and midwives. It's composed of 36 statements / items in two sections: section A (18 statements) investigated health care providers' perceived determinants of adherence to CPGs in general, whereas section B (18 statements) investigated health care providers' perceived determinants of adherence to a particular guideline. Each statement is rated on a six-point Likert scale ranging from strongly disagrees to strongly agree. Most statements were positively formulated and some were reversely phrased. The WHO guidelines for the translation and adaptation of the instrument (WHO, 2007) were followed to translate the questionnaire to Arabic language. The questionnaire showed a good test-retest reliability (0.86) and internal consistency (0.80) (Larson, 2004). The demographic data collected were: age, professional degree, and years of clinical experience, professional discipline, and sector of employment.

The questionnaire was reviewed and adapted by a panel of three experts: two Maternal and Child Health Nursing Professors and one Biostatistician for face and content validity. They were asked to rate each item in terms of its readability, layout, style, and clarity of wording, equivalence/correctness of the translation, and relevance to the underlying construct (Yaghmal, 2003; Polit & Beck, 2006; Oluwatayo, 2012). The questionnaire was protested for internal validity on a group of 20 healthcare providers (5 nurses, 10 midwives, and 5 obstetricians) who did not participate in the study (Burns et al., 2012). Necessary modifications were made and health care providers were able to fill the questionnaire in 15 minutes. The questionnaire had a Cronbach's α value of 0.71.

Data Analysis

The data were analyzed by the SPSS statistical package (SPSS) version 21 and coded in accordance with the variable's level of measurement. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to describe the participants' demographics and their perceived determinants of adherence to HDPs' clinical guidelines. Inferential statistics including Pearson correlation and Kruskal Wallis test were used to assess the differences in health care providers' perceived determinants of adherence to HDPs' clinical guidelines in terms of their age, years of clinical experience, professional degree, professional discipline, and sector of employment. Level of significance was set at a *P* - value less than 0.05.

Ethical Considerations

The study procedure was approved by the Institutional Review Boards of the School of Nursing/University of Jordan and the selected hospitals. Nurses and midwives who agreed to participate in the study were fully informed of the nature and objectives of the study, data collection procedure, their right to voluntary participation, self-determination, and withdrawal without any threat or penalty, and the researcher's roles and responsibilities. Anonymity and confidentiality of the information yielded by the questionnaires were respected and assured. Identifying data were kept in an appropriate way, and entered into locked computer files with a security code. Only the researcher had access to the data. Hard copies of data were maintained in a locked cabinet and destroyed as quickly as practical.

RESULTS

Demographics and Professional Characteristics

The questionnaire was returned by 270 (70.3% response rate) of healthcare providers, including 58 obstetricians (21.5%), 36 nurses (13.3%), 158 Midwives (58.5%), and 18 nurse / midwife (6.7%). The majority of respondents (77.4%, n=209) were aged between 25 and 45 years, had less than 10 years of clinical experience (68.9%, n=186), and were employed at the governmental sector (58.9%, n=159).

Determinants of Adherence to Clinical Practice Guidelines - in General

Knowledge - Related Determinants

About thirty-five percent (n=93) of the respondents were not familiar with the clinical guidelines in their practice, and 31.9% (n=86) were not aware of a guideline's existence in their practice.

Attitude - Related Determinants

Respondents generally held favorable attitudes toward clinical practice guidelines (Figure 1). 72.2% (n=195) believed that clinical guidelines improve patient outcomes, 78.5% (n=212) believed they helps to standardize care and assure that patients are treated in a consistent way, and more than half of the respondents 55.6% (n=150) believed that they are practicable. Less than 12% believed they are too "cookbook" and prescriptive (11.1%), are difficult to apply and adapt to their area of clinical practice (10.4%), their cost outweighs the benefits (9.6%), or limited their professional autonomy (11.1%). Yet, 91 respondents (33.7%) preferred to continue their routines and habits rather than to change.

Behaviour - Related Determinants

Of the 270 respondents, approximately 72% (n=195) indicated that clinical guidelines are important in their practice setting, 56.3% (n=152) indicated they minimizes the risk of practice, liability, and 49.6% reported that they were expected to follow guidelines in their practice setting. Only 3.3% and 10.7% of the respondents indicated that clinical guidelines are inconvenient or contradictory, respectively.

However, almost half of the respondents reported that there is inadequate organizational support and resources (42.2%) or time to stay informed (46.3%) to facilitate the implementation of clinical practice guidelines. Further, most of the respondents strongly agreed (49.3%, n=133) or agreed (27.8%, n=75) that patients are generally unaware of clinical guidelines related to their condition.

Determinants of Health Care Providers' Adherence to CPGs of Hypertensive Disorders of Pregnancy (HDPs)

Knowledge - Related Determinants

Only forty-nine (49.3%, n=133) of respondents were familiar with the HDPs' guideline and its evidence-based recommendations.

Attitude - Related Determinants

Scores on attitudinal statements varied between 51.5% of respondents believed that HDPs' guideline is based on sound scientific evidence, more than half of the respondents believed that following HDPs' clinical guideline will result in a reduction in maternal and neonatal morbidity and mortality rates (61.1%, n=165) and an improvement in the quality of maternal health care provision (51.1%, n=138), and about 65.3% (n=152) reported that HDPs' guideline are relevant to

their patient population. The vast majority of respondents (83%, n= 224) believed that the developer of the guideline is well qualified and knowledgeable about HDPs. Only 10.4% and 8.1% of the respondents believed that the cost of HDPs' guideline outweighs the benefits or it is not practical to follow.

However, 17% (n= 45) of the respondents felt incompetent to provide care in accordance with the HDPs' Guideline recommendations and around 28.1% (n=76) didn't wish to change their HDPs' practices, regardless of what the guideline recommends.

Behavior - Related Determinants

In relation to guideline characteristics, Only 8.5% of the respondents indicated that there are other guidelines regarding HDPs that contradict with the available one and less than 5% of the respondents described the HDPs' guideline as cumbersome and inconvenient (4.8%, n=13). But, only 36% (n= 97) reported that HDPs' guideline is readily accessible to them.

In their practice setting, around two third of the respondents (66.7%, n=180) reported that they were expected to use the HDPs' guideline and 48% (n=128) agreed that if they don't follow the HDPs' guideline, they might be liable for malpractice. However, approximately 55% (n=147) of the respondents indicated that neither they don't have enough time nor do they have access to the necessary resources and equipment to use the HDPs' guideline (25%, n=66).

In relation to patient preferences, a significant percentage of the respondents (28.9%, n=78) disagreed that patients preferred to see them providing care in accordance with the HDPs' guidelines.

DISCUSSIONS

To our knowledge, this is the first study to assess perceived barriers to implementing clinical guidelines of Hypertensive Disorders of Pregnancy (HDPs) amongst healthcare providers (including obstetricians, midwives, and nurses) in their clinical practice in Jordanian hospitals. Our findings showed that a significant percentage of respondents were not familiar with the clinical guidelines in their practice, and even were unaware of a guideline's existence of their practice. These findings are consistent with a multicenter study based on self-reported data among 455 ICU health care providers from four provinces of China, showing that only 16.3% believed they fully mastered the guidelines, whereas 65.6% knew a little about the guidelines, and (n=78) knew nothing about the guidelines (Chen et al., 2015). This finding is significant, since effective implementation of clinical practice guidelines is undermined by the lucid fact that healthcare providers are either incapable of acknowledging the existence of guidelines or answering questions about their content (Iqbal et al., 2014; Gustafsson et al., 2016; Fischer et al., 2016; Farokhzadian et al., 2015).

In our study, the majority of healthcare providers had positive attitudes toward clinical practice guidelines in general and of HDPs in specific. This is in line with results from previous studies in which the majority of healthcare providers believed that clinical guidelines are based on a sound scientific evidence, help to standardize and improve the quality and consistency of care, reduce morbidity and mortality rates, and were appreciated as valid and useful tools to assist healthcare providers in clinical judgments (Lugtenberg et al., 2011, Buu et al., 2014). Although they have favorable attitudes toward clinical guidelines in general and HDPs in specific, up to 35% of respondents felt incompetent to provide care in accordance with these guidelines. This is congruent with the findings of Perez et al (2012) who surveyed 154 clinicians to identify barriers of adherence to clinical guidelines and found that more than half of the respondents were less

than confident for implementing guidelines and was significantly associated with low adherence rates. Further, about one-third of respondents preferred to continue their daily practices, rather than to change. This finding is supported by other studies which pointed out that despite having appropriate knowledge and positive attitudes toward clinical practice guidelines, there is no warranty that health care providers will change their routines and habits (de Vos et al., 2010; Lugtenberg et al., 2011).

Our results indicate that nearly all respondents agreed that clinical guidelines in general and HDPs' guideline in specific are convenient, easy to use, and consistent. In contrast, a qualitative study using six focus groups conducted with 30 Dutch general practitioners (GPs) showed that guideline's recommendations were unclear or confusing (32%), irrelevant or not being up to date (14%), or too complex or not easy to use in practice (5%) (Lugtenberg et al., 2009). Yet, only 36% of respondents indicated that HDPs' guideline is readily accessible to them. Similarly, Birrenbach et al (2016) found that 43% of Swiss physicians identified poor accessibility to clinical practice guidelines as an important barrier to their adherence.

Environmental and organizational contexts are central determinants to capacitate and reinforce health care providers' adherence to clinical practice guidelines. The majority of respondents in our study have acknowledged the importance of CPGs in their practice setting, however, more than half of them reported that neither they don't have enough time nor do they have access to the necessary resources and equipment to use clinical guidelines in general and HDPs' guideline in specific. This is comparable to previous studies which highlighted a lack of time and inadequate organizational support, resources, and equipment as the main barriers to clinical guideline adherence (Ploeg, et al., 2007; Birrenbach et al., 2016; Kiyoshi et al., 2014; Forberg et al., 2014).

A plenty of literature has recognized the need for active patient involvement in the development of a more patient-centered and preference-sensitive healthcare decisions as an integral part of clinical practice guidelines (van der et al., 2010; Loudon et al., 2014; Armstrong et al., 2017). In this study, a high percentage of respondents have considered patients' awareness of and preferences in clinical guidelines in general and HDPs' guideline in specific were as main barriers to their adherence.

CONCLUSIONS

The findings of the current study demonstrated that, there are a number of factors that may facilitate or hinder the adoption and implementation of CPGs, amongst health care providers. Thus, effectual strategies at different levels (health care providers, organization, and environment) are needful to enhance adherence to CPGs and so, improve patient outcomes. Nonetheless, we suggested further studies with more in-depth approach (e.g., qualitative using focus group sessions or observational studies).

REFERENCES

1. World Health Organization. (2015). Strategies towards ending preventable maternal mortality (EPMM).
2. Unicef. (2015). Trends in maternal mortality: 1990 to 2015. Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division.
3. Bustreo, F., Say, L., Koblinsky, M., Pullum, T.W., Temmerman, M., and Pablos - Mendez, A. (2013), Ending preventable maternal deaths: the time is now. *Lancet Global Health*, 1 (4), E176-E177.

4. Lawton, B., MacDonald, E. J., Brown, S. A., Wilson, L., Stanley, J., Tait, J. D.,... and Geller, S. E. (2014), Preventability of severe acute maternal morbidity. *American journal of obstetrics and gynecology*, 210 (6), 557-e1.
5. Ghazal-Aswad, S., Badrinath, P., Sidky, I., Safi, T. H., Gargash, H., Abdul-Razak, Y., and Mirghani, H. (2013), Severe acute maternal morbidity in a high-income developing multiethnic country. *Maternal and child health journal*, 17 (3), 399-404.
6. Yelikar, K. A., Deshpande, S. S., and Deshmukh, S. F. (2015), Severe Acute Maternal Morbidity in a Tertiary Care Centre with Basic Intermediate Respiratory Care Units Setup. *International journal of scientific study*, 5 (3), 36-40.
7. Duley, L. (2009), The global impact of pre-eclampsia and eclampsia. In *Seminars in Perinatology*, 33 (3): 130-137. WB Saunders.
8. Jim, B., Sharma, S., Kebede, T., and Acharya, A. (2010), Hypertension in pregnancy: a comprehensive update. *Cardiology in Review*, 18 (4), 178-189.
9. Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A. B., Daniels, J.,... and Alkema, L. (2014), Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health*, 2 (6), e323-e333.
10. Souza, J. P., Cecatti, J. G., Faundes, A., Morais, S. S., Villar, J., Carroli, G.,... and Velazco, A. (2010), Maternal near miss and maternal death in the World Health Organization's 2005 global survey on maternal and perinatal health. *Bulletin of the World Health Organization*, 88 (2), 113-119.
11. Priyadarshini. T et al., Effectiveness of Health Care Package on Knowledge and Attitude Regarding Minor Ailments during Postnatal Period, *TJPRC:International Journal of Obstetric, Gynecologic & Neonatal Nursing (TJPRC: IJOGNN)*, Volume 1, Issue 1, January-June 2017, pp. 1-4
12. Abalos, E., Cuesta, C., Carroli, G., Qureshi, Z., Widmer, M., Vogel, J. P., and Souza, J. P. (2014), Pre-eclampsia, eclampsia and adverse maternal and perinatal outcomes: a secondary analysis of the World Health Organization Multicountry Survey on Maternal and Newborn Health. *International Journal of Obstetrics & Gynaecology*, 121 (s1), 14-24.
13. Zanette, E., Parpinelli, M. A., Surita, F. G., Costa, M. L., Haddad, S. M., Sousa, M. H., and Cecatti, J. G. (2014), Maternal near miss and death among women with severe hypertensive disorders: a Brazilian multicenter surveillance study. *Reproductive health*, 11 (1), 1.
14. Saleem, S., McClure, E. M., Goudar, S. S., Patel, A., Esamai, F., Garces, A., and Pasha, O. (2014), A prospective study of maternal, fetal and neonatal deaths in low-and middle-income countries. *Bulletin of the World Health Organization*, 92 (8), 605-61.
15. Berg, C. J., Harper, M. A., Atkinson, S. M., Bell, E. A., Brown, H. L., Hage, M. L., and Callaghan, W. M. (2005), Preventability of pregnancy-related deaths: results of a statewide review. *Obstetrics & Gynecology*, 106(6), 1228-1234.

16. Villar, J., Carroli, G., and Gülmezoglu, A. M. (2001), The gap between evidence and practice in maternal healthcare. *International Journal of Gynecology & Obstetrics*, 75, S47-S54.
17. Martis, R., Ho, J. J., & Crowther, C. A. (2008). Survey of knowledge and perception on the access to evidence-based practice and clinical practice change among maternal and infant health practitioners in South East Asia. *BMC pregnancy and childbirth*, 8 (1), 34.
18. Shaban, I. A., Hatamleh, R., Khresheh, R., & Homer, C. (2011). Childbirth practices in Jordanian public hospitals: consistency with evidence-based maternity care?. *International Journal of Evidence-Based Healthcare*, 9 (1), 25-31
19. Kredo, T., Bernhardsson, S., Machingaidze, S., Young, T., Louw, Q., Ochodo, E., & Grimmer, K. (2016). Guide to clinical practice guidelines: the current state of play. *International Journal for Quality in Health Care*, 28 (1), 122-128.
20. Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Clinical guidelines: potential benefits, limitations, and harms of clinical guidelines. *BMJ: British Medical Journal*, 318 (7182), 527.
21. Mazrou, S. H. A. (2013). Expected benefits of clinical practice guidelines: Factors affecting their adherence and methods of implementation and dissemination. *Journal of Health Specialties*, 1 (3), 141.
22. Lugtenberg, M., Burgers, J. S., Besters, C. F., Han, D., and Westert, G. P. (2011). Perceived barriers to guideline adherence: a survey among general practitioners. *BMC family practice*, 12 (1), 1.
23. Ebben, R. H., Vloet, L. C., Schalk, D. M., Mintjes-de Groot, J. A., and van Achterberg, T. (2014). An exploration of factors influencing ambulance and emergency nurses' protocol adherence in the Netherlands. *Journal of Emergency Nursing*, 40 (2), 124-130.
24. Adedeji, A. R., Tumbo, J., & Govender, I. (2015). Adherence of doctors to a clinical guideline for hypertension in Bojanala district, North-West Province, South Africa. *African journal of primary health care & family medicine*, 7 (1), 1-6.
25. Heins, M. J., de Jong, J. D., Spronk, I., Ho, V. K., Brink, M., & Korevaar, J. C. (2016). Adherence to cancer treatment guidelines: influence of general and cancer-specific guideline characteristics. *European Journal of Public Health*, ckw234.
26. Sharif, R., Cuevas, C. R., Wang, Y., Arora, M., & Sharma, G. (2013). Guideline adherence in management of stable chronic obstructive pulmonary disease. *Respiratory medicine*, 107 (7), 1046-1052
27. Jackson, B. D., Con, D., Liew, D., & De Cruz, P. (2017). Clinicians' adherence to international guidelines in the clinical care of adults with inflammatory bowel disease. *Scandinavian Journal of Gastroenterology*, 52 (5), 536-542
28. Gustafsson, I. L., Elmqvist, C., From-Attebring, M., Johansson, I., & Rask, M. (2016). The Nurse Anesthetists' Adherence to Swedish National Recommendations to Maintain Normothermia in Patients During Surgery. *Journal of PeriAnesthesia Nursing*.

29. Gurses, A. P., Marsteller, J. A., Ozok, A. A., Xiao, Y., Owens, S., & Pronovost, P. J. (2010). Using an interdisciplinary approach to identify factors that affect clinicians' compliance with evidence-based guidelines. *Critical care medicine*, 38, S282-S291.
30. Cahill, N. E., Suurdt, J., Ouellette-Kuntz, H., & Heyland, D. K. (2010). Understanding adherence to guidelines in the intensive care unit: development of a comprehensive framework. *Journal of parenteral and Enteral Nutrition*, 34 (6), 616-624.
31. Gifford, W. A., Graham, I. D., & Davies, B. L. (2013). Multi-level barriers analysis to promote guideline based nursing care: a leadership strategy from home health care. *Journal of nursing management*, 21 (5), 762-770.
32. Yaghmale, F. (2003). Content validity and its estimation. *Journal of Medical Education*, 3 (1).
33. Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in nursing & health*, 29 (5), 489-497.
34. Oluwatayo, J. A. (2012). Validity and reliability issues in educational research. *Journal of Educational and Social Research*, 2 (2), 391-400.
35. World Health Organization. The process of translation and adaptation of instruments [Internet]. Geneva: WHO; 2007 [cited 2013 Jan 20]. Available from: http://www.who.int/substance_abuse/research_tools/translation/en/
36. Grove, S. K., Burns, N., & Gray, J. (2012). *The practice of nursing research: Appraisal, synthesis, and generation of evidence*. Elsevier Health Sciences
37. de Vos, M. L., van der Veer, S. N., Graafmans, W. C., de Keizer, N. F., Jager, K. J., Westert, G. P., & van der Voort, P. H. (2010). Implementing quality indicators in intensive care units: exploring barriers to and facilitators of behaviour change. *Implementation Science*, 5 (1), 52.
38. Birrenbach, T., Kraehenmann, S., Perrig, M., Berendonk, C., & Huwendiek, S. (2016). Physicians' attitudes toward, use of, and perceived barriers to clinical guidelines: a survey among swiss physicians. *Advances in medical education and practice*, 7, 673.
39. Kiyoshi-Teo, H., Cabana, M. D., Froelicher, E. S., & Blegen, M. A. (2014). Adherence to institution-specific ventilator-associated pneumonia prevention guidelines. *American Journal of Critical Care*, 23 (3), 201-215.
40. van der Weijden, T., Légaré, F., Boivin, A., Burgers, J. S., van Veenendaal, H., Stiggelbout, A. M., & Elwyn, G. (2010). How to integrate individual patient values and preferences in clinical practice guidelines? A research protocol. *Implementation Science*, 5 (1), 10.
41. Loudon, K., Santesso, N., Callaghan, M., Thornton, J., Harbour, J., Graham, K., & Ritchie, K. (2014). Patient and public attitudes to and awareness of clinical practice guidelines: a systematic review with thematic and narrative syntheses. *BMC health services research*, 14 (1), 321.
42. Armstrong, M. J., Mullins, C. D., Gronseth, G. S., & Gagliardi, A. R. (2017). Recommendations for patient engagement in guideline development panels: A qualitative focus group study of guideline-naïve patients. *PloS one*, 12 (3), e0174329.

43. Förberg, U., Wallin, L., Johansson, E., Ygge, B. M., Backheden, M., & Ehrenberg, A. (2014). Relationship between work context and adherence to a clinical practice guideline for peripheral venous catheters among registered nurses in pediatric care. *Worldviews on Evidence-Based Nursing*, 11(4), 227-239.
44. Ploeg, J., Davies, B., Edwards, N., Gifford, W., & Miller, P. E. (2007). Factors influencing best-practice guideline implementation: Lessons learned from administrators, nursing staff, and project leaders. *Worldviews on Evidence-Based Nursing*, 4 (4), 210-219.

