Development of Clinical Nursing Practice Guideline for Pregnant Women with Risk of Gestational Diabetes Mellitus

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Abstract

This research aimed to develop clinical nursing practice guideline for pregnant women with risk of gestational diabetes mellitus (CNPG-RGDM) by evidence-based practice and also aimed to apply CNPG-RGDM for pregnant women with risk of gestational diabetes mellitus. The results could divide into 2 phases. First phase was the development of CNPG-RGDM, which one hundred and seven articles had been searched, and yet twenty articles had relevant to nursing care for pregnant women with risk of GDM and GDM, which articles were in between 2013 to 2018. This development of CNPG-RGDM was composed of two processes, which were screening process for risk of GDM group by using assessment form for screening risk, and the process of nursing care relevant to level of risk of GDM and continuing follow up. Second phase was to apply this CNPG-RGDM. The samples were twenty-eight pregnant women with risk of GDM, who came to receive service for the first time to twenty-eight weeks of gestational age. The study found that most pregnant women were in the high risk of GDM with 96. 43 percentage. The low risk was 3.57 percentage. These pregnant women with risk of GDM had received the consultation, adjusted lifestyle behaviors, and received handbook in order to record food consumption per day and record calories and suitable exercise. Final results after 1 week of applying CNPG-RGDM and follow up found that they had body weight not over 0. 5 gram per week with 89. 29 percentage and not found sugar in the urine last ANC visit at all case.

Keywords: Clinical Nursing Practice Guideline; Pregnant Women with Risk; Gestational Diabetes Mellitus

Introduction

Gestational Diabetes Mellitus (GDM)occurs in pregnant women with impaired glucose tolerance because while pregnant, the levels of the hormones that the placenta produces have an anti-insulin effect, resulting in a higher blood glucose level of [1,2]. According to international diabetes confederation statistics [3]. It is estimated that 16 percent of babies born in 21 2017. In Asia, the incidence of diabetes was observed in pregnant women by 11 percent. For Thailand, it was found in 2 percent. The incidence of diabetes in pregnant women has increased dramatically over the past two decades, as well. In other words, in 2012, Bhumibol Adulyadej Hospital found 2 percent. Phramongkutklao Hospital found 21. Gestational diabetes can be found all over the world and in all regions of Thailand with increasing trends respectively.

Risk factors for developing gestational diabetes include a direct family history of diabetes, with a BMI greater than or equal to 30 kg per square meter [8]. The history of birth of an adult baby, weighing more than 4,500 grams, the previous history of pregnancy was diabetes [3,10]. Age, number of births History of hypertension, smoking, substance abuse Have a normal obstetric history of [9]. Obstetric factors

were also found. In newborns, it contributes to gestational diabetes, such as babies born lifeless. Congenital disability Premature babies There is a birth jam due to an adult baby. There was a history of newborns having hypoglycemia. The baby has a blood clot with respiratory failure history of [11] Screening and methods of confirming gestational diabetes can be carried out according to the basic criteria of the risk of diabetes [10]. But at 24 - 28 weeks gestation, the hormones from the overgrown resist insulin, causing gestational diabetes 3. Therefore, it is advisable for pregnant women to check during this period since 2009. In 2001, the researchers, as community GP nurses who were responsible for providing direct nursing care, managing in promoting health, disease prevention, caring for people, families and communities with health problems or at risk of health problems [11], intended to develop guidelines for nursing pregnant women at risk of developing gestational diabetes. This is a proactive nursing practice to promote and prevent gestational diabetes. Reduces the rate of gestational diabetes Reduce complications for both pregnant women and fetuses. Reduces the rate of type 2 diabetes and increases the efficiency of nursing pregnant women at risk of developing gestational diabetes.

Research Questions

1. Nursing practices for pregnant women at risk of gestational diabetes How has it evolved?

2. Implementation of nursing practices for pregnant women at risk of becoming pregnant diabetes How does it affect pregnant women's weight gain and urine sugar during pregnancy?

Research Objectives

1. To develop guidelines for nursing pregnant women at risk of developing gestational diabetes.

2. To study the effects of using nursing practices for pregnant women at risk of developing gestational diabetes.

Research Hypothesis

Pregnant women at risk of gestational diabetes Nursing in accordance with the guidelines nursing pregnant women who are at risk of developing gestational diabetes have a detrimental effect. The normal benchmark weight gain is no more than 0.5 kg per week and no glucose levels are detected in the urine.

Methodology

How to conduct research

This research is descriptive research aimed at developing guidelines for nurses of pregnant women at risk of gestational diabetes who are receiving pregnancy care at obstetrics and gynecology departments in secondary hospitals. In Suan Luang District There are two phases of research. As follows: Phase 1 develops guidelines for nursing pregnant women at risk of developing gestational diabetes, setting criteria for selection using criteria. PICO [12] and keyword determination for research queries and other available evidence to obtain the most accurate and reliable evidence. Here's what I got. The guidelines for nursing pregnant women at risk of developing gestational diabetes result in pregnant women at risk of developing gestational diabetes. Yes, weight gain accordingly. The benchmark was not more than 0.5 kg per week and no glucose levels were found in the urine in the last test when research was conducted based on the summary of empirical evidence. 20 subjects assessed the reliability level of empirical evidence using criteria [1] to divide the level of reliability of empirical evidence. 7 levels It is classified as a level of reliability as empirical evidence obtained. Level 5 at most 50 percent Second only to Level 2, 20 percent is Level 3: 3 subjects, 15.50% later, 2 levels 4 research, 10 percent, and In Phase 2, the result of the implementation of the practice of nursing pregnant women at risk of developing gestational diabetes. The researchers used empirical evidence compliance model [13]. The development of nursing practices is applied to pregnant women at risk of developing gestational diabetes. There are risk

group screenings. Nursing at risk level, monitoring self-care in terms of eating Exercise and follow-up implementation of nursing practices with urine sugar test results and benchmark weight gain of no more than 0.5 kg per week. The population and samples were pregnant women at risk of developing gestational diabetes from their first deposit to 28 weeks, who were assessed to find one of the factors in the first pregnancy of the above risks between May and June 2019, based on Cregesy and Morgan's schedule of confidence of 0.95, set the test power to 0.80, amounting to 30. The researchers selected a specific sample (purposive sampling) with a selection according to the criteria as follows: 1) Pregnant women with the risk of gestational diabetes who came to the first pregnancy until the age of 28 weeks of pregnancy who were assessed to find one of the factors of the above risk, which came to receive pregnancy at a secondary hospital in Suan Luang District 2), Thai nationality. 3) No obstetric complications 4) Pregnant women who have never been diagnosed with heart disease, kidney disease, diabetes before pregnancy, 5) welcomed and voluntarily participated throughout the research process, and exclusion criteria as follows: 1) During the research, pregnant women had other obstetric complications such as obstetric complications, 2) Pregnant women wished to leave the program early.

Tools used to research and monitor the quality of tools

The questionnaire for pregnant women at risk of developing gestational diabetes included two questionnaires. Set 1) is a questionnaire consisting of three parts: Part 1: a general record of pregnant women at risk of developing gestational diabetes. Part 2: Assessment of risk factors for gestational diabetes Part 3 is the laboratory and tracking form of weight and urine glucose levels each time they come and set 2) Self-care guide to reduce the risk of gestational diabetes, consisting of 2 parts: Part 1: knowledge of gestational diabetes, risk factors, impact on pregnant women and fetuses. Symptoms and symptoms and part 2 is self-care to reduce the risk of gestational diabetes, which includes: Self-care of food by explaining how much energy should be given per day. And working out. The researchers adopted nursing practices and self-care manuals to reduce the risk of gestational diabetes to record the amount of food received each day and workout records to qualified persons to verify the accuracy of language and content validity for IOC = 0.95. The researchers returned to make recommendation improvements and tested reliability before applying it, experimenting with 30 pregnant women at risk of becoming pregnant and analyzing the tool's confidence value of 0.78.

Protecting sample rights

This research was considered and approved by the Research Ethics Committee of Huaqiao Chalermprakiat University No.825/ 2019 dated May 1, 2019. By clarifying the samples of the purpose of the research. The sample has the right to participate in or refuse to participate in the research. If the sample is willing to participate in the research, they will be happy to participate in the researchers had the sample sign a consent form to participate in the research. The sample has the right to terminate data at any time. If the sample refuses to participate in the research, even at what stage of the research, the samples will not be able to participate in the research. Vigilantes are willing to end the research without any effect on the medical treatments the samples will receive. The information provided by the researcher samples is kept confidential and used only for research.
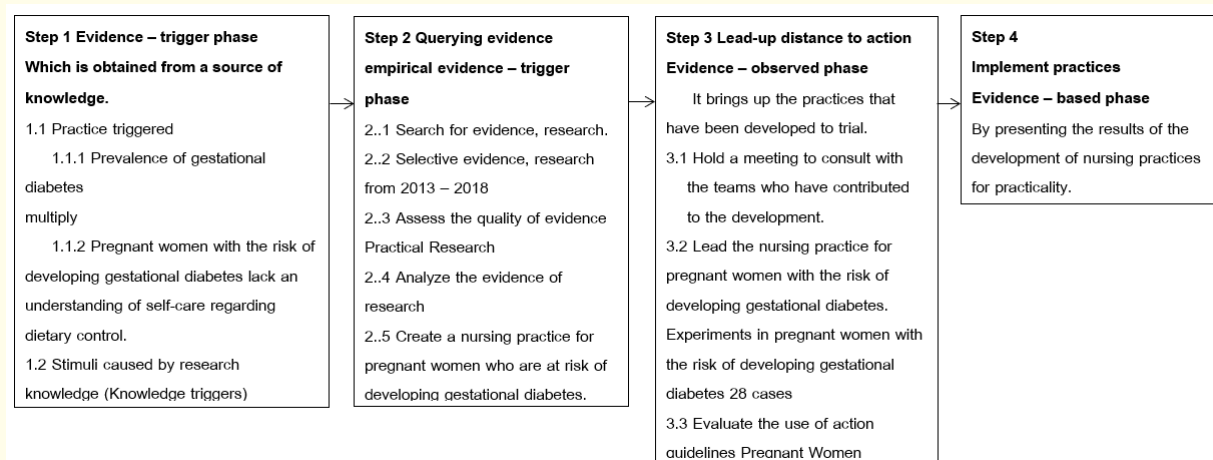

Chart 1: *Conceptual framework.*

Findings and Discussion

1. Development of nursing practices It found that there are 20 subjects that can be developed into nursing practices consisting of: 2 steps: 1) Screening stages for gestational diabetes, classified using pregnancy risk factor assessment, and 2) nursing stage based on risk of gestational diabetes and continuous monitoring using social media, including line apps and Facebook, as shown in chart 2.

2. The effect of applying the nursing practices of pregnant women at risk of developing gestational diabetes is based on analysis of weight differences based on internal comparative criteria of pregnant women. Prior to the use of nursing practices after using nursing practices and follow-up using Wilcoxon Signed Ranks Test statistics, the analysis showed that when comparing post-trials with pre-use of nursing practices, pregnant women who received nursing practices gained statistically significant weight at .05 when comparing follow-ups with prior use of nursing practices, finding that pregnant women who received nursing practices gained a statistically significant weight of .05 as shown in table 1.
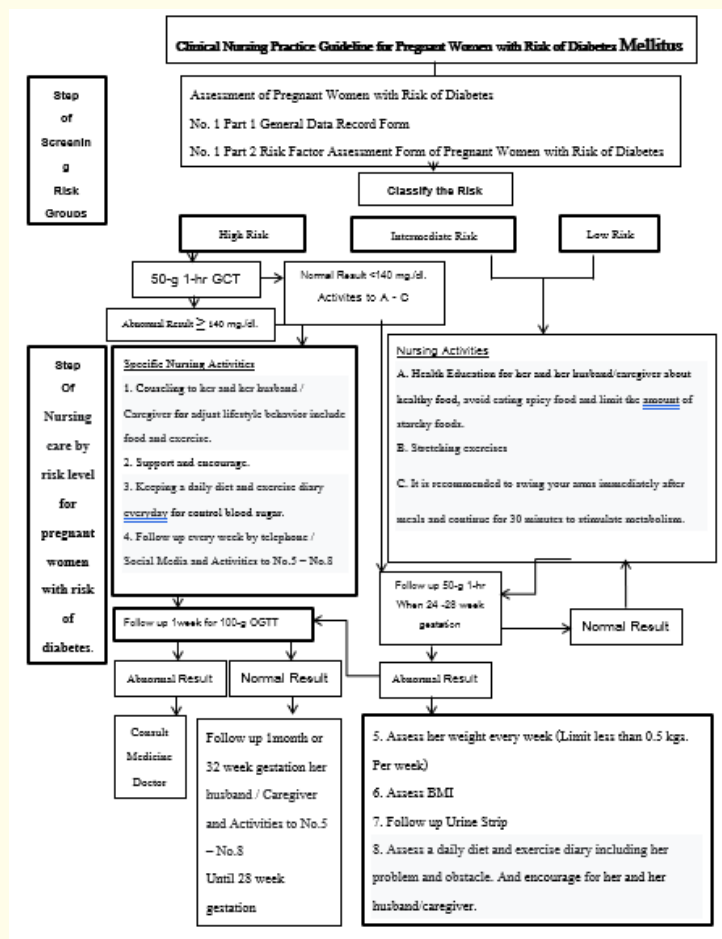

Chart 2: *Clinical nursing practice guideline for pregnant women with risk of diabetes mellitus.*

The weight of the sample is up according to the criteria		n	Mean Rank	Sum of Ranks	Itself. (2-tailed)
After the trial- before the trial	Negative Ranks	3[a]	27.00	81.00	.005
	Positive Ranks	25[b]	13.00	325.00	
	Ties	0[c]			
	Total	28			
Follow-up-Before-Trial	Negative Ranks	3[d]	27.00	81.00	.005
	Positive Ranks	25[e]	13.00	325.00	
	Ties	0[f]			
	Total	28			
Follow-up-after-trial	Negative Ranks	3[g]	27.00	81.00	.005
	Positive Ranks	3[h]	13.00	325.00	
	Ties	0[i]			
	Total	28			

Table 1: Analysis comparing body weight differences based on internal comparative criteria of Group of pregnant women before the trial After trial and follow-up using Wilcoxon Signed statistics. Ranks Test Wilcoxon Signed Ranks Test.
a: After first means after gaining weight more than the threshold, < b: After first means after gaining weight according to the criteria of .05 kg/ week, > c: After = first means weight change, d: Follow-up first means after weight gain exceeds the threshold, <e: Follow-up first means after weight gain according to the .05 kg/threshold. Week, > f: Follow-up = first means unchanged weight, g: Follow-up Afterwards means after weight gain exceeds the threshold, < h: Follow-up. Afterwards, weight gain according to the criteria of .05 kg/week, > i: Follow-up = after means weight change.

From table 1 It was found that when comparing after the trial to the before the trial, it found that pregnant women who underwined nursing practices gained statistically significant weight at .05 when comparing follow-up to pre-trials. It was found that pregnant women who received nursing practices gained statistically significant weight at .05, and when comparing follow-ups to post-trials, pregnant women who received nursing practices gained statistically significant weight at .05.

From chart 2 results of the implementation of the Nursing Practice (CNPG-RGDM)[1]. Among the samples, 28 pregnant women at risk of developing gestational diabetes who came to the pregnancy until 28 weeks gestation were found to be mostly pregnant women at high risk of developing gestational diabetes. 96%and 3.57% lower risk, with pregnant women at risk will receive counseling to adjust their lifestyle habits. Self-care guide to reduce the risk of gestational diabetes with a recorded dietary list Calories received per day and proper exercise are safe when evaluating the implementation of nursing practices as shown in table 2.

Evaluation	1st Time (First Pick Up)		2nd Time (7 Days (After First Pickup)		3rd Time (24 Weeks Gestation)	
	Amount	Percent	Amount	Percent	Amount	Percent
1. Sugar in the urine						
Meet	3	10.71	0	0.00	0	0.00
Not Found	25	89.29	28	100.00	28	100.00
2. Weight gain according to criteria 0.5 kg per week						
By Criteria	22	78.57	25	89.29	25	89.29
No criteria are met.	6	21.43	3	10.71	3	10.71

Table 2: Results of the implementation of nursing practices (n = 28).

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[1]Clinical Nursing Practice Guideline for Pregnant Women with Risk of Gestational Diabetes Mellitus (CNPG-RGDM)

From table 2, it was found that after receiving the Nursing Guidelines (2nd) and when following up (the 3rd time), Pregnant women at risk of developing gestational diabetes. In addition, researchers surveyed nurses' satisfaction with the implementation of nursing practices. It found that nurses who perform nurses for pregnant women who are at risk of developing gestational diabetes are at good satisfaction.

Discussion of results

Development of the nursing practices for pregnant women at risk of gestational diabetes, created by analyzing 20 empirical evidence, which is empirical evidence with the highest level 5 reliability of 50 percent. Second only to level 2 reliability, 20.00 percent, and next to that. The trust level of 15. 0 percent later is a level of research of 4 percent, 10.00 and a level of 1 research of 5. 00. It is evident that the process of creating a nursing practice for pregnant women at risk of gestational diabetes is a reliable process of creating screening for the risk of gestational diabetes. This is because the empirical evidence is mostly at levels 5, 2, and 3, respectively. Moreover, 14 explained that nursing practices for screening health problems or those at risk are often a step in the evolving practice.

Applying the medical guidelines developed to pregnant women at risk of developing gestational diabetes and receiving pregnancy services in obstetrics and gynecology. Secondary Hospital in Suan Luang District 28 cases by screening risk groups and nursing based on risk of gestational diabetes and continuous monitoring. In terms of eating Exercise, weight gain according to the criteria Pregnant women found at high risk It was 96percent.

57% after consulting to adjust lifestyle habits Ready to hand out manuals to record food items. After using nursing practices, the sample was found to not have gestational diabetes, 92.86 percent and gained weight according to the benchmark of no more than 0.5 kg. Per week, 89%. After 1 week Laboratory follow-ups did not find glucose levels in the urine. This is consistent with the [15,16] research described as Providing a dietary knowledge guide Exercise and counseling to adjust lifestyle habits to promote nutrition, it is an important component of care and nursing pregnant women who are at risk of developing diabetes while setting up and are consistent with studies with research [17]. Study the effectiveness of self-directing programs on eating habits Exercise and blood glucose levels after 2 hours of eating in Thai women with gestational diabetes The sample of 90 people was divided into 45 trial groups and 45 control groups, both taught about diet. However, the trial group was joined by a self-directing program with a dietary record. Workout Log Form The results showed that the experimental group had the ability to control diet, exercise and blood glucose levels after eating. 2 hours effectively for Only 7 percent of pregnant women were at high risk and diagnosed with gestational diabetes.

Pregnancy diabetes of pregnant women found can be explained that both pregnant women who undergo pregnancy services over 12 weeks of pregnancy have a sweet dietary habit and can exercise only twice a week.

It takes 30 minutes, according to the nurse practice consultation, to offer to exercise 7 days a week. 30 minutes a day Pregnant woman at risk of developing gestational diabetes who are overweight exceed the benchmark, exceeding 0.5 kg. This is because of the habit of being addicted to iced coffee and not exercising every day.

Nurses who perform nurses for pregnant women who are satisfied with adopting nursing practices are good because they can provide continuous monitoring of pregnant women, reduce the risk of gestational diabetes, and have a system that has a less likely form of mistakes. In connection with [18] studies that looked at the effects of the use of nursing practices to move critical emergency patients within the hospital. Found to adopt guidelines for moving critically crisis emergency patients within hospitals. Developed from empirical evidence to use. In addition to making nurses in the trauma testing unit guided to the operation, there are also guidelines for the operation. The most important benefit is to ensure that the patient is transported safely. The giver and the service provider are satisfied. Towards further excellent service, which is consistent with [19] findings that showed clear nursing practices in patient care. This makes nurses more confident and satisfied with their operations. And it is consistent with [20] T-finding findings that the effects of clinical nurs-

ing practices are used for diabetics with hypoglycemia. The Royal Hospital of Chiang Mai found that the outcome for the patient was the proportion of times the patient had the appropriate blood glucose after providing nursing care. Between trial groups, more practices were applied than the control groups that were normally nursed due to the management of hypoglycemia in research with a chart of nursing care as a clear, simple and convenient procedure for nursing practice users.

Recommendations for Applying the Findings

Nursing practice

The developed CNPG-RGDM can be referred to a community GP nurse for further care from hospital to home and should encourage husbands to participate in the care of pregnant women who are at risk of developing gestational diabetes. To promote and encourage pregnant women to continue to behave appropriately.

Management

There should be a support policy to implement the guidelines for nursing pregnant women at risk of developing gestational diabetes and continuously monitoring nursing outcomes to lead.

Hospital accreditation

Strong network links in the community should be linked by monitoring home visits in high-risk cases to provide ongoing care. Reduce the risk of gestational diabetes.

Recommendations for your next research

There should be a Quasi-experimental study to test the nursing results of the use of nursing practices for pregnant women at risk of developing gestational diabetes in other hospitals, increasing the number of samples, and conducting comparative research between control groups and trial groups. Randomly entered into groups to confirm reliability and be able to implement them effectively.

Bibliography

1. Kungtumneam K. "Promotion of Family Care for Pregnant Women with Gestational Diabetes Mellitus". *Journal of Phrapokklao Nursing College* 27.1 (2016): 189-195.

2. Melchior H., *et al.* "The Prevalence of Gestational Diabetes". *Deutches Arzteblatt International* 114 (2017): 412-418.

3. International Diabetes Federation. "Management of gestational diabetes in the community". Eight Edition (2017): 1-16.

4. Lee Wei Kai., *et al.* "Prevalence and risk factors of gestational diabetes mellitus in Asia: a systematic review and meta-analysis". *BMC Pregnancy and Childbirth* 18 (2018): e494.

5. Diabetes Association of Thailand. Clinical Practice Guideline. Second Edition. National Health Security Office. Bangkok (2014).

6. Phothisat S. "Thailand Medical Services Profile 2011-2014 First Edition. 2557.6 (2014): 1-20.

7. Soonthorn Rachawit. "The Prevalence of Gestational Diabetes Mellitus by IADPSG Criteria at Phramongkutklao Hospital 23.3 (2015): 144-150.

8. Hayes L., *et al.* "Universal Screening to Identify Gestational Diabetes: A Multi-Center Study in The North of England". *Diabetics Research and Clinical Practice* (2013): e74-e77.

9. McCane R David. "Diabetes in Prenancy". *Best Practice and Research Clinical Obstetrics and Gynaecology* 29 (2015): 685-699.

10. American Diabetes Association. Management of Diabetes in Pregnancy: Standards of medical care in diabetes-2018". *Diabetic Care* 42 (2019): s1-s194.

11. Thai Nursing and Midwifery Council. Announce of Nursing and Midwifery Council; Scope and Competency of Advance Practice Nurse 126 (2008): 29-33.

12. Diroksakulchai F. "Evidence-based nursing: principle and method". Faculty of Nursing, Mahidol University. Nakornpratom (2012): 10-21.

13. Soukup M. "Evidence-based nursing practice". *Nursing Clinics of North America* 35.2 (2000): 301-309.

14. Namjuntra R. "A Review of Evidence-Based Nursing Practice Guideline Development for Community Nurse Pratrtioner". *Thai Journal of Nursing Council* 25.4 (2010): 109-125.

15. Garnweindner ML. "Experience with nutrition-related information during antenatal care of pregnant women of different ethnic backgrounds in the area of Oslo, Norway". *Midwifery* 29 (2013): e130-e137.

16. Srisawat K. "Management for Gestational Diabetes Mellitus". *Journal of The Royal Thai Army Nurses* 15.2 (2014): 50-59.

17. Limruengrong P., *et al*. "Effectiveness of a Self-regulation Program on Diet Control, Exercise, and Two-Hour Postprandial Blood Glucose Levels in Thais with Gestational Diabetes Mellitus". *Pacific Rim International Journal of Nursing Research* 5.3 (2011): 173-187.

18. Krisbunchoo M. "The Effectiveness of Using Clinical Nursing Practice Guideline for Intrahospital Transportration of Critcally Ill Patients in Traumatic Department, Siriraj Hospital: Academic Conference 2019. Bangkok (2019): 410-419.

19. Thaiudom A. "Development and Evaluation of Evidence-based Nursing Protocol for Patients with Moderate to Severe Traumatic Brain Injury". *Journal of The Royal Thai Army Nurses* 19.3 (2018): 107-116.

20. Saengrut B. "The Effect of Using Clinic Nursing Practice Guideline for Diabetic Patients with Hypoglycemia, Maharaj Nakorn Chiang Mai Hospital". *Journal of The Royal Thai Army Nurses* 17.1 (2018): 124-131.