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Organization of Nursing Care for the Prevention of Pressure Ulcer at the Level of Primary Health Care

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Abstract

Background: Pressure ulcers are common complications that often lead to serious health problems, long hospital stays, and frequent hospitalizations. (Low, Vasanwala & Tay 2014). Reducing adverse health events are two key international priorities for improving the quality and safety of primary health care (OECD, 2017; WHO et al, 2018). Health care systems in many countries describes that the care of severe chronic wounds is expensive and time-consuming, and in Kazakhstan the situation is similar. (Akhmetova, Saliev, Kulsharova, Nurgozhin & Mikhalovsky 2015). Productive preventive activities include the formation and transfer of treatment effectiveness and success of experienced personnel for the prevention of pressure ulcers. (Payne & Maisano 2016.)

Objective: Determine the level of awareness of the knowledge and practical skills of nurses in the prevention of pressure ulcers at the primary health care level.

Methods: A quantitative descriptive study was conducted. Data was collected using a questionnaire defining the knowledge and practical skills of nurses in the prevention of pressure ulcers in the Webropol online survey. The sample consisted of 108 primary health care nurses from Almaty, Kazakhstan.

Results: The results show that the level of knowledge and attitude to the practical skills of nurses in the prevention of pressure ulcers is good. Of the respondents, 50% always performed early detection of pressure ulcers at the PHC level, 62% always used preventive nutrition, and 55.5% always used skin protection products. However, in contrast, more than 85.19% of respondents said that they know the risk group, preventive care, and preventive measures. This is due to the fact that the knowledge and practice of nurses do not often overlap in their daily work, and an empty study of the names of regulatory documents and manuals without knowledge of the content itself is not effective in the work.

Conclusion: This study was conducted to assess the level of knowledge and practical skills of nurses in the prevention of pressure ulcers. Overall, the study found that the level of awareness of nurses' knowledge and practice was good in relation to the prevention of pressure ulcers. Still, the lack of integration of knowledge and practice is a concern, since outpatient nurses conduct independent appointments and visiting patients at home

Keywords/tags (subjects)

Pressure ulcers, prevention, knowledge, nurse, nursing care, PHC.

Miscellaneous (Confidential information)

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1 Introduction

Pressure ulcers are common complications, which often lead to serious health problems, long hospital stays, and frequent hospitalizations. For example, in Singapore, due to the rapidly aging population and the growing burden of chronic diseases, pressure ulcers are a very common medical complication, and the prevalence is estimated to increase even further. (Low, Vasanwala & Tay 2014.)

Payne and Maisano (2016) describe that to compensate for the treatment of pressure ulcers, in addition to the omission of the patient's condition, many other indicators are reduced, such as the duration of hospitalization and expensive treatment due to complications of pressure ulcers. On this basis, it is better to devote time to prevention and patient training in the care of relatives with pressure ulcers. Also, due to this, the patient's relatives will be responsible for their health condition. Productive preventive activities include the formation and transfer of treatment effectiveness and success of experienced staff. Patients have the right to care and deserve quality care and services. (Payne & Maisano 2016.)

An article by Newham and Hudgell (2015) also considers the prevention of pressure ulcers as an advanced option to combat them. Their research points to a number of actions that nurses and managers can take to improve the management and prevention of pressure ulcer. Nurses must first adopt political and administrative input to continue the preventive care even after the political priority of the issue has abated. This suggests that nursing interventions should not stop until its possible priority problems are resolved and a further care plan is determined. In addition, the article notes that despite the prevention of pressure ulcers, it is not it possible to avoid them all, and the number of patients is not always a good indicator of staffing levels, especially when patients need frequent rotation. However, strong emphasis on the prevention of pressure ulcers by senior managers and nursing staff has a notable effect on quality in prevention of new pressure ulcers and their complications. (Newham & Hudgell 2015.)

Therefore, many studies have determined nurses' knowledge, attitudes, and practices regarding the prevention (Nuru et al. 2015.; Tulek, Polat, Ozkan, Theofanidis & Togrol 2016.; Ebi, Hiroko & Mijena 2019) and treatment of pressure

ulcers (Muhammad, Ahmad, Khan, Ali, and Muhammad 2017.; Al Kharabsheh, Alrimawi, Al Assaf & Saleh 2014) and the perceived barrier to pressure ulcers prevention (Ebi, Menji & Hunde 2017). Most nurses knew the main contributing factors and critical factors for the development of pressure ulcers, as well as the prerequisites that determine their development. Nurses knew enough about pressure ulcer prevention, but the lack of proper policies and guidelines based on evidence and internships led to poor attitudes and practices among nurses, and the reasons for this result were lack of time, lack of staff, the condition of patients, lack of resources, and lack of equipment (Nuru et al. 2015.; Tulek et al. 2016.; Ebi, Hiroko & Mijena 2019.; Muhammad et al. 2017.; Al Kharabsheh et al. 2014.; Ebi et al. 2017.)

In Kazakhstan, there is no information about the definition of knowledge and practice of nurses for the prevention of pressure ulcers.

2 Background

2.1 Definition and Concept of Pressure Ulcers

A violation that is caused by pressure, shear, or friction, or a combination of them that results in damage to the skin and tissue is called pressure ulcers, also known as pressure sores, bed sores, and decubitus ulcers (European Pressure Ulcer Advisory Panel [EPUAP] 2003, according to Riordan & Voegeli 2009.)

Usually, pressure ulcers are associated with poor health and limited mobility of a person, which means that as a result, in the place of prolonged pressure and damage due to shear, frequent skin and tissue disorders are formed in the places of the bone protrusion (Coleman, Nixon, Keen, Wilson, McGinnis, Dealey, Nelson 2014.)

In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) suggested calling pressure ulcers “pressure injuries" in order to more accurately describe the state of harm caused to health. Following the new changes, it was necessary to introduce guidelines on pressure injuries associated with medical devices that lead to local disruption by medical devices that damage the mucous membranes (Schroeder & Sitzer 2019.)

The definition of pressure ulcer (PU) given by the European Pressure Ulcer Advisory Panel (EPUAP), the National Pressure Injury Advisory Panel (NPIAP), formerly and National Pressure Ulcer Advisory Panel (NPUAP), and the Pan Pacific Pressure Injury Alliance (PPPIA) is:

> *Localized damage to the skin and underlying soft tissue usually over a bony prominence or related to a medical or other device. Injury can present as intact skin or an open ulcer and may be painful. Injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. Tolerance of soft tissue for pressure and shear may also be affected by microclimate, nutrition, perfusion, comorbidities and condition of the soft tissue. (Gefen, Alves, Ciprandi, et al. 2020).*

NPIAP expands the definition with medical device-related injuries and later adding items, such as glasses and other devices that do not have a medical purpose, to the definition. To differentiate a device-related pressure ulcer (DRPU) from PU that occurs due to body mass forces, the panel suggests defining a DRPU as follows:

> *A DRPU involves interaction with a device or object that is in direct or indirect contact with skin … or implanted under the skin, causing focal and localized forces that deform the superficial and deep underlying tissues. A DRPU, which is caused by a device or object, is distinct from a PU, which is caused primarily by body weight forces. The localized nature of device forces results in the appearance of skin and deeper tissue damage that mimics that of the device in shape and distribution.*

The distinction between these terms is needed to emphasize the importance that PU can relate to medical or non-medical devices. (Gefen et al. 2020.)

Therefore, various terminology is used to refer to pressure ulcers (PU):

- pressure injury (PI) is currently used by the National Advisory group on pressure injuries;

- "deformation injury" and "pressure damage";

- pressure injury (PI) is used in Australia, but not entirely in the US, Canada, and Europe. Terminology as essential for use in hospitals or universities. (Gefen et al. 2020.)

- In Kazakhstan, the term ”bedsore” is used (Clinical protocols of Ministry of Health of the Republic of Kazakhstan – 2013.)

Pressure ulcers pass from one stage to another depending on the degree of violation of the integrity of the tissues. At stage one, the integrity of the skin is preserved, without shiny redness or discoloration, sensitivity, temperature, or elasticity changes. At the second stage, the integrity of the skin is partially violated, there is a tissue with a partially open thickness, but with a viable dermis. At stage three, bright full-thickness wounds appear that are not extended on the muscles, bones, or tendons. At stage four, full-sized wounds appear, extending on muscles, bones, or tendons (Alderden, Zhao, Thomas, Butcher, Gulliver & Cummins 2019.)

2.2 Risk Factors and Risk Group

Healthy people have the ability to be in constant motion, and they are able to control their body to prevent overpressure and shear forces. With active dynamics, the body does not lend itself to the formation of pressure ulcers. Limited mobility or well-being interrupts this natural reaction, and against this background, there is individual (local) damage to vulnerable tissues. This process can attract pathogenic changes in the skin, influenced by the internal risk factors of the person, which reflects their tolerance to tissues. (Bonomini 2003, according to Elliott 2010.)

Unconsciousness—a state of rest without movement—worsens people's health. In addition, factors that increase the risk include limited mobility, senile status, old age, patients with certain medical indications or equipment that form the necessary position in bed or on the surface, and because of this, discomfort is felt and this leads to prolonged mechanical stress, which as a result can lead to pressure ulcers. (Clark 2013, according to Johnstone & McGown 2013). Patients admitted to the intensive care unit are often at risk of developing pressure ulcers. (Johnstone & McGown 2013.)

The increase in the number of surgical patients who are at high risk of developing pressure ulcers in recent years does not respond to traditional preventive measures for the care of pressure ulcers. For surgical patients, a multi-step process for assessing the risk of pressure ulcers was recommended, including preoperative, intraoperative, and postoperative assessment. (Byers et al. 2000, according to Sewchuk et al. 2006). For the early detection of pressure ulcers, postoperative evaluation should begin immediately after surgery and continue for several days after surgery (Scott 2000, according to Sewchuk et al. 2006). Taking into account the

trend of changes in the transformation of pressure ulcers and the features of the patient-oriented approach, a comprehensive approach is needed, which includes a focus on the initial and current risk assessment, strict adherence to preventive strategies. (Sewchuk et al. 2006.)

According to Qaseem and his colleagues (2015), risk factors for pressure ulcers are often associated with physical disorders and other comorbidities that affect the integrity and healing of soft tissues, such as fecal or urinary incontinence, diabetes, edema, microcirculation pressure ulcers, hypoalbuminemia, and malnutrition. Other identified risk factors include old age, black race or Hispanic ethnicity, low body weight, and cognitive impairment (Qaseem, Mir, Tanveer, Starkey, Denberg 2015.)

The risk factors for pressure ulcer associated with medical devices (DRPU) are often the use of medical devices such as endotracheal and nasogastric tubes, oxygen tubes, non-invasive ventilation masks, urinary catheters, neck collars, and castings that have changed little in recent decades. Devices or objects associated with PU that do not have a specific medical purpose may include the patient's property and items left on the patient's bed or support surface, such as cell phones and jewelry. Paediatric patients are very vulnerable to this problem. (Gefen, Alves, Ciprandi, et al., 2020.)

2.3 Nurses' Knowledge of Pressure Ulcers

Primary care nurses are required to improve the quality and safety of care provided, such as end-of-life skin care to prevent pressure ulcers, as they are local nurses. Therefore, local nurses should be aware of how to provide safe primary skin care, being able to assess the condition of the skin and potential ulcers, and plan sufficient care and medical care based on the patient's wishes and needs. (Samuriwo 2019.)

Since 1989, the International Pressure Ulcer Prevalence (IPUP) survey has been conducted. It is a survey on the prevalence of Pressure injuries (PIs) (Kayser, VanGilder, Ayello & Lachenbruch 2018). In 2007, "medical device-related pressure ulcers" was added to the survey. Then in 2016, a line was added to the field to indicate the type of device that caused the pressure injury (PI). Pressure injuries (IP) arising from medical devices are a clinical phenomenon that deserves the attention of medical professionals. Medical devices are an integral part of the care of people in

all health care settings. The National Pressure Ulcer Advisory Panel (NPUAP) in 2016 defined medical device-related pressure injuries as injuries caused by the use of devices designed and applied for diagnostic or therapeutic purposes, and a pressure injury that is caused by the device is usually consistent with the circuit or shape of the device. In 2017, The Wound, Ostomy and Continence Nurses Society included in their position papers recommendations for the avoidance of pressure ulcers (injuries). (Kayser et al. 2018.)

Home care professionals, especially medical professionals, are responsible for the prevention, early detection, and treatment of pressure ulcers, and patient care requires time and resources. It also requires certain skills of family members and/or caregivers. This represents the need of a unified home health care system and strategies that reduce risks and complications. (Ferreira et al. 2012.)

A lot of research has been conducted on nurses' knowledge, attitudes, and practices regarding the prevention and treatment of pressure ulcer. For example, in 2016, a research was conducted at the Khyber training hospital in Peshawar to assess knowledge, attitudes, and practices in the field of pressure ulcers prevention. Most nurses knew the main contributing factors and critical factors for the development of pressure ulcers, as well as the prerequisites that determine their development. Nurses knew enough about pressure ulcers prevention, but the lack of proper policies and guidelines based on evidence and internships led to poor attitudes and practices among nurses. (Muhammad, Ahmad, Khan, Ali & Muhammad 2017). In a 2012 research, Jordanian nurses gave insufficient knowledge to assess the level of nurses' knowledge about the prevention and treatment of pressure ulcers, as well as to identify perceived obstacles to their prevention. The reasons for this result were lack of time, lack of staff, the condition of patients, lack of resources, and lack of equipment. (Al Kharabsheh, Alrimawi, Al Assaf & Saleh 2014). Research conducted in Ethiopia on the identification of knowledge and perceived barrier on the prevention of pressure ulcers showed inadequate knowledge of nurses about pressure ulcer prevention. The reason for the unsatisfactory result was the lack of training resources for updating the knowledge of nurses and the lack of nurses. (Ebi, Menji & Hunde 2017.)

2.4 Pressure Ulcer Prevention and Its Implementation in Practice

Pressure ulcers are a serious disease with undesirable chronic complications, especially in hospitals or at home, and have high monetary costs. As a result, families and the healthcare system face new challenges in patient care, such as physical stress, emotional, financial, and social factors. Nurses who provide home care often encounter patients in bed or wheelchairs who have pressure ulcers or are at risk of developing them. Thus, pressure ulcers are a public health problem that needs to be addressed with preventive measures. (Ferreira et al. 2012.)

Reducing adverse health-related events are two key international priorities for improving the quality and safety of primary health care (OECD, 2017; WHO et al, 2018), and this direction is also repeated in the Astana Declaration (2018). Primary health care is an integral part of health systems that contributes to the health and well-being of people. Against this background, the international standard was to improve the quality and safety of primary care. (Declaration of Astana 2018.)

Pressure ulcer prevention is considered a key global indicator of the quality of medical care in the health system (Samuriwo 2019), being largely preventable and financially burdensome adverse health events that lead to increased morbidity and mortality of patients. (National Pressure Ulcer Advisory Panel [NPUAP] et al., 2014; Slawomirski et al. 2017, according to Samuriwo 2019).

There is a great deal of information and evidence on end-of-life skin and wound care at the secondary care level. (Sibbald et al. 2010; Beldon 2011; Maida 2013, according to Samuriwo 2019). However, the functions of primary health care differ compared to other health sectors. For example, when providing medical care, length of episodes, infrastructure, and the level of patient engagement are different. (Makeham eta. 2015, according to Samuriwo 2019). These differences are worth considering in connection with efforts to improve the quality of primary care. (Samuriwo 2019).

Fulbrook, Lawrence, and Miles (2019) also describe that pressure injuries which increases the length of hospital stay and the cost of medical care can be prevented. Pressure injuries reduce the quality of life and increase the risk of complications of comorbidities and pain, leading to an increased risk of mortality. (Fulbrook, Lawrence

& Miles 2019). Pressure ulcer disease is a medical complication that is provoked by immobility and is preventable, and also affects the psychological, economic, and social aspects of a person's life and family. Therefore, prevention is twice as cheap as treatment for both the patient and the state. (Ebi, Hiroko & Mijena 2019.)

A 2008 study by Mäkelä, Annanmäki, Koivunen, Jyvälahti, Mattsson & Iso-Aho (2010) described the condition and estimated the number of patients suffering from ongoing chronic wounds in the Finnish capital region, including the cities of Helsinki, Espoo, and Vantaa, in medical organizations at various levels (primary, secondary). The authors discussed that the treatment of chronic wounds in Finland is fragmented and management of care is shown to be insufficient. It was noted that patients with chronic wounds are often treated without a proper diagnosis or treatment plan, and wound prevention is largely ignored. There are no vacancies for experienced nurses or podiatrists in primary health care. The results of the cross-sectional survey reflected, that of the chronic wounds, 23% were pressure ulcers, 13% venous, 11% diabetic, 11% unhealed postoperative wounds, 7% ischemic, 21% multifactorial, and 14% wounds with unknown etiology. Of chronic wounds, 36% were located on the feet or at the level of the ankle joint, 27% on the legs, and 19% on the back, hips, or buttocks. Treatment paths did not work or were inadequate at the time due to fragmented care. In general, there was an increase in chronic wounds by 29 % in 10 years, but the number of pressure ulcers had decreased. This was explained by an increase in the level of education and correct information, as well as the frequent repetition of preventive measures and treatment of wounds. (Mäkelä, Annanmäki, Koivunen, Jyvälahti, Mattsson & Iso-Aho 2010.)

Pressure ulcer prevention programs consist of various components, such as risk assessment, training and education, repositioning, use of preventive measures and support surfaces, and skin assessment. (Saleh, Al-Hussami & Anthony 2013). Continuous pressure ulcer prevention programs, including thorough skin assessment and care, frequent repositioning and careful selection of support surfaces have shown significant reductions in the incidence of pressure ulcers and time spent on treatment, as well as significant cost savings. (Day et al. 1977, according to Saleh et al. 2013). In addition, training and education on pressure ulcers is considered a fundamental component of programs for the treatment of pressure ulcers, which

contribute to raising awareness about pressure ulcer prevention and best practices. (Day et al. 1977; Banks, 1988; Panagiotopoulou & Kerr 2002, according to Saleh et al. 2013)

The Protocol for the prevention of pressure injuries developed by Yilmazer and Bulut (2017) contains the following aspects: skin assessment; assessment of the risk of pressure injuries using a valid rating scale (Braden, Norton, etc.); assessment of daily risk using holistic factors; stage identification; and preventive care. Aspect preventive care for pressure injuries included five sub-aspects: (1) skin care; (2) activity management; (3) power management; (4) moisture/urinary incontinence management; and (5) control of the reference surface (see Table 1) (Yilmazer & Bulut 2017, according toYilmazer, Inkaya & Tuzer 2019.)

Table 1. Pressure injury prevention activites by aspect of care (Yilmazer & Bulut 2017, according to Yilmazer, Inkaya & Tuzer 2019.)

№	Preventive aspects of care for pressure injuries.	Measures to prevent injuries under pressure
1	**Skin care**	■ Keep the skin clean and ensure moisturise levels are normal ■ Clean the skin with a pH-stabilising product ■ Protect the skin with a barrier product ■ Do not massage the skin ■ Evaluate pressure regions in contact with the medical device at least twice a day ■ Ensure that sheets are kept clean, stretched and dry
2	**Activity management**	■ Change the patient's position at least every 2 hours ■ Move the patient 30° to the right, back and left ■ If the patient agrees, place them in the supine position ■ Do not rotate over areas of redness ■ Avoid rubbing the skin while positioning ■ Avoid positioning medical devices such that they exert pressure ■ Provide support for regions of the body where medical devices are located

		■ Do not place the patient in the semi-seated position ■ Support the extremities
3	**Nutrition management**	■ Work with a nutrition nurse to organise the patient's daily diet ■ Provide individual nutrition (first enteral, then parenteral) ■ Evaluate the daily nutritional status ■ Monitor albumin/C-reactive protein values weekly ■ Evaluate the state of hydration daily
4	**Moisture/ incontinence management**	■ Minimise skin contact with urine/faeces ■ Avoid excessive skin moisture ■ Use barrier products
5	**Support surface management**	■ Use a support surface for older adults in need ■ Use a support surface that suits the individual, in terms of their risk factors

In their article, Källman and Suserud (2008) refer to the guidelines issued by European Pressure Ulcer Advisory Panel (1998). These guidelines state that the prevention of ulcers should include:

1. Identification of patients at risk. Risk assessment should include the patient's general health, skin assessment, mobility, degree of moisture and incontinence, nutrition, and pain. The evaluation should be performed each time patients are assisted, and then continuously or when the condition of the patients is changing;

2. Maintain and improve tissue tolerance through daily skin evaluation, skin care, nutrition measurement, and mobilization;

3. Correct position in the bed and chair with regular changes of position in at risk patients and use support surfaces that relieve pressure;

4. Improve the outcome for patients at risk of pressure damage through educational programs for health care workers, patients, and family or caregivers. (Källman & Suserud 2009.)

In recent years, recommendations on pressure injuries have been developed at the national and international levels to prevent these injuries. (Yilmazer, Inkaya & Tuzer

2019). The practical application of these recommendations has been shown to be effective in preventing and improving the quality of care for patients with pressure-related injuries. (Ayello & Sibbald 2008, according to Yilmazer et al 2019.)

2.5 The State of Pressure Ulcers in Kazakhstan

In health care in many countries, it is described that the care of severe chronic wounds is expensive and time-consuming, and in Kazakhstan the situation is similar. Due to the lack of statistical data and registration of such patients in the health care system of Kazakhstan, there is not much information about this case. Studies show different types of treatment used in the country, in particular treatment of diabetic foot. As a result, there are no statistics on wound care. (Akhmetova, Saliev, Kulsharova, Nurgozhin & Mikhalovsky 2015.)

With spinal cord injuries, pressure ulcers are often a severe complication of soft tissues. Most patients with such disorders are subjected to pressure ulcers, this is almost 90%. Pressure ulcers make it difficult to carry out early rehabilitation measures, and often because of them, extremely necessary surgical interventions on the spinal cord are postponed. (Chernov, Rebrov, Chernov & Galiev 2012).

Kazakhstan authors Aldeshevsky, Juraeva, Iskakova, Asylbekova, Tagabayeva, and Asilbekova (2013) also pointed to prevention and supported international and local recommendations such as:

- personal hygiene, indicating that it is not separable from frequent care and maintenance of the skin;
- nutrition, with a balanced composition of proteins, vitamins, trace elements considering the importance of food for maintaining and normalizing qualities of the skin, namely firmness and elasticity;
- reduce friction, shear, or crushing of the skin to maintain the integrity of the surface layer of the skin and protection of vessels, which promotes blood circulation;
- minimize the effect of skin irritants, reduce skin moisture;

- monitor the regularity and proper emptying of the intestines and bladder to maintain cleanliness and prevent infection. (Aldeshevsky, Juraeva, Iskakova, Asylbekova, Tagabayeva, Asilbekova 2013).

3 Purpose, Aims, and Research Questions

Purpose

Determine the level of awareness of pressure ulcer prevention among nurses at the primary health care level.

Aims

- Determine nurses' level of knowledge of pressure ulcers at the primary health care level.

- To examine the practical skills of nurses in the prevention of pressure ulcers at the primary health care level.

Research questions

1. What is the nurses' level of knowledge of pressure ulcers at the primary health care level?

2. What are the nurses' practical skills in the prevention of pressure ulcers at the primary health care level?

4 Methodology

4.1 Quantitative Research

Quantitative research makes it possible to process the data obtained using statistical processing. Further, the final result confirms or refutes the original hypothesis or research question. Quantitative research is a very broad deployed term for research that uses methods of collecting evidence for possible conversion to numerical data based on verified results. Using the output results, you can make forecasts or determine trends. To explain the results obtained between events and variables, information about formal, objective, and systematic processes is needed. This

information will make it clear to interested authorities or individuals, as well as to the researcher, that any results are reliable. Quantitative methods include classical experimental design, surveys, analysis of official statistics, and structured or non-participatory observation. (Topping 2015, 163-165.)

4.2 Survey as a Data Collection Method

Questionnaires provide an opportunity to collect data in a standardized way and draw conclusions for a broader population when this data is obtained from a corresponding sample of that population. Questionnaires are convenient because data is collected very easily and quickly for self-reporting compared to other methods. It is also convenient because in a short time and inexpensively you can collect voluminous information from a large sample of people. The data encoding system also ensures the reliability and anonymity of participants, since the researcher records and securely stores the code book with the participants' data. This prevents information about the identity of participants merging with other secondary data. After preparing the questionnaire and coding, the cover letter, consent form and contact information is prepared. (Jones & Rattray 2015, 413–414.) The purpose of the survey is to measure attitudes, knowledge, and how to collect information accurately. A descriptive survey is conducted to describe the population, and to examine relationships between variables. (Bowling 2014, 215.)

In order to find a suitable tool to answer all the research questions, various tools related to the knowledge and practical skills of nurses in the prevention of pressure ulcers were analyzed. A literature search was conducted using the CINAHL database to determine the appropriate tool. There are many studies that evaluated the knowledge and skills of nurses in the field of pressure ulcers prevention hospitals in Istanbul, Turkey (Tulek, Polat, Ozkan, Theofanidis & Togrol 2016), in the University hospital of Gondar, North-West Ethiopia (Nuru et al. 2015), in the Central hospital of Australia (Fulbrook et al. 2019), and 2018 in the state hospital of Vollega (Ebi et al. 2019).

The use of a ready-made questionnaire or the creation of a new questionnaire is important for methodological rigor. Mastering the questionnaire development

process is important so that the researcher can understand the quality of the survey, so that the questionnaire is reliable. It is important for participants to understand the theoretical questions involved in developing the questionnaire so that researchers can interpret the results. The widely used questionnaire has good psychometric characteristics. The questionnaire should measure what the researcher is going to measure. This is called a statement. (Jones & Rattray 2015, 417).

The questionnaire has been translated and adapted so that the tool is understandable and suitable for performing similar functions. Emphasis was also placed on compliance with socio-demographic characteristics. In order for the questionnaire of knowledge and attitudes to bedsore prevention to be an effective and useful tool for international research, it should be suitable for each cultural, linguistic and ethnic group studied; it should take into account the same concepts in other languages and demonstrate conceptual and content equivalence, cultural significance, acceptability, and psychometric characteristics.

4.3 Data Collection

The data was collected using a structured and pre-compiled questionnaire for self-completion. The questionnaire and consent form were prepared in English, Russian, and Kazakh. Participants were asked 19 knowledge-based questions and 18 practice-based questions to assess their level of knowledge and practical skills on pressure ulcers prevention.

4.4 Data Analysis

Questionnaires completed by nurses in the Webropol online program. Descriptive statistics were used to describe the study population in relation to relevant variables. The frequency and percentage distributions are used to describe the socio-demographic issue.

4.5 Research Ethics and Participants

The study was accepted by the KazMUCE Ethical Committee. Participants were given cover letters and informed consent forms. In addition, a letter was sent to the chief

doctors of the district PHC in Almaty Auyezovsky, Alatau, Medeu, Bostandyk, Nauryzbay, Turksib, Zhetisu, and Almalinsky of the Republic of Kazakhstan. When the scientific plan was accepted by the supervisor and the Ethics Committee, cover letters were sent to these organizations to get permission to conduct research and get the email addresses of nurses. After confirming the medical organization's cooperation in the study, the nurses got acquainted with the information consent about their participation in the study. Participation in this study was voluntary and anonymity was guaranteed. Nurses could refuse to participate in the study at any time. The data was stored in the researcher's own computers to which the researcher has an individual password. The researcher can guarantee the safety of the data. After the research was completed, the data was destroyed.

4.6 Validity and Reliability

Conducting a quantitative study reveals the reliability and validity of the results of the research, as well as well-collected data determines the reliability of the tool used. Therefore, standardized questionnaires with proven reliability and validity should be used. Using a specific tool with a questionnaire is very difficult to show the reliability and validity of the questionnaire. (Jones & Rattray 2015, 413–415.) The questionnaire has been translated and adapted in such a way that the tool is equally natural and acceptable for similar functions. The translation was done in accordance with the WHO Guidelines for the Translation and Adaptation Process (2019).

To distribute the questionnaire and return the results of this study, the questionnaires were sent via the WhatsApp app. Due to the fact that many nurses did not have an email address, and Kazakh nurses have little experience in participating in research, the most convenient and fastest way to distribute the electronic questionnaire was chosen. During the distribution of the questionnaire and the response to the questionnaire, nurses faced problems with the Webropol electronic platform, they asked if the questionnaire was short, if there were any options in the questionnaire that they should write, were afraid to answer the question, and some nurses did not answer during the reception of patients until the end due to lack of time. After these problems, the researcher sent reminders about

the questionnaire, which was eventually answered by the required number of nurses to collect the data.

5 Results

The questionnaire was filled out by 108 people from different polyclinics in Almaty. The majority of respondents (97.22%) were women. The majority of respondents were between 41 and 50 years old. The main part of respondents (25%; n = 27)) were from one polyclinic located in the Medeu district, 15 respondents (13.89%) answered from polyclinic 3 located in the Almaty district and from polyclinic 17 located in Bostandyk district regional hospital, and 10 (9.26%) respondents answered the questionnaire from polyclinic 36 located in the Nuryzbay district. There were only a few respondents from polyclinics 4, 9, and 22, and no respondents from polyclinics 25 and 29. Of the respondents, one in third (33.33%) were working nurses in the General practitioner's Department (See Table 2).

Table 2. Sociodemographic characteristics of respondents (n=108)

№	Variable	Frequency (n)	Percent (%)
1	**Specify your gender.**		
	Man	3	2.78%
	Woman	105	97.22%
2	**Enter your age.**		
	20–30	25	23.15%
	31–40	19	17.59%
	≥41–50	64	59.26%
3	**Marital status.**		
	Not married	19	17.59%
	Is married	70	64.81%
	In divorce	8	7.41%
	Widow/widower	5	4.63%
	Live in a civil marriage	6	5.56%
4	**Where do you work?**		
	Polyclinic № 1	27	25%
	Polyclinic № 3	15	13.89%
	Polyclinic № 4	8	7.41%
	Polyclinic № 5	4	3.7%
	Polyclinic № 8	3	2.78%
	Polyclinic № 9	5	4.63%
	Polyclinic № 10	2	1.85%
	Polyclinic № 11	4	3.7%
	Polyclinic № 16	4	3.7%
	Polyclinic № 17	15	13.89%
	Polyclinic № 19	2	1.85%
	Polyclinic № 22	6	5.56%
	Polyclinic № 25	0	0%

	Polyclinic № 29	0	0%
	Polyclinic № 33	3	2.78%
	Polyclinic № 36	10	9.26%
5	**What Department do you work in?**		
	Pediatric,	27	25%
	OSMP (Department of specialized medical care-cardiologist, urologist, neurologist, ENT, optometrist, surgeon, endocrinologist, etc.),	26	24.08%
	GP (General practitioner),	36	33.33%
	Women's consultation,	4	3.7%
	Prevention Department,	8	7.41%

Of the respondents, the majority (63.89%) had specialized secondary education, 33.33% and applied bachelor's degree, 1.85% academic bachelor's degree, and one respondent a master's degree. Thirty-nine respondents (36.11%) had more than 21 years of general experience as a nurse. Twenty-nine nurses (26.85%) had a work experience in the polyclinic service of 4 to 7 years. Among the respondents, 58.33% had the highest professional category while 15.74% did not have a professional category. The majority of nurses (94.44%) worked full-time (see Table 3).

Table 3. Job characteristics of respondents (n=108)

№	Variable	Frequency (n)	Percent (%)
6	**What is your level of education?**		
	General practice nurse	69	63.89%
	Applied bachelor's degree	36	33.33%
	Academic bachelor	2	1.85%
	Master's degree	1	0.93%
	Nurse doctoral student	0	0%
7	**How long have you been a nurse (total work experience in years)?**		
	1–3	16	14.81%
	4–7	18	16.67%
	8–11	13	12.04%
	11–14	11	10.18%
	15–20	11	10.19%
	≥21	39	36.11%
8	**How long have you worked in primary health care (PHC)?**		
	1–3	21	19.45%
	4–7	29	26.85%
	8–11	14	12.96%
	11–14	8	7.41%
	15–20	9	8.33%
	≥21	27	25%
9	**Do you have a professional category?**		
	The second category	15	13.89%
	The first category	13	12.04%
	The highest category	63	58.33%
	No	17	15.74%
10	**Employment status.**		
	Full employment	102	94.44%

Partial employment	5	4.63%
Irregular employment	1	0.93%

Table 4 shows the results of nurses ' knowledge in relation to the prevention of pressure ulcers. The majority (92.59 %) of respondents knew that clean skin is the key to a healthy skin condition, as well as (90.74%) of respondents knew that diabetic patients and the population of patients with spinal cord injuries and patients who are immobilized or restricted in movement are at risk of developing pressure ulcers, knew appropriate measures to prevent pressure ulcres, such as changing the patient's position, moving the patient from bed to bed, using pillows, of respondents (85.19 %) knew that preventive skin care significantly reduces the risk of developing pressure ulcers, this was indicated by the correct choice of answers to questions such as skin care, taking into account the risks associated with the patient's health, the content of clean skin, as well as the correct Norton scale for assessing the risk of developing pressure ulcers. More than (97%) of the respondents knew about the name of the guidelines for the prevention of pressure ulcers, but did not know the theoretical parts, since (77.78%) of the respondents chose the answer "True" to the question that the correct reaction to the sign of stage III pressure ulcers is partial skin loss with blisters and abrasions. Although this is stage II. More than half of the respondents knew about specialized care (71.3%), answering the question that patients with respiratory apparatus, difficulty swallowing and chronic heart failure should be at an altitude above 30 degrees. Half of the respondents were aware (68.52%) of the patients ' diet planning for the risk group. Of the respondents (50%) did not know about the early detection of pressure ulcers at the PHC level, answering the question that the prevention of pressure ulcers is carried out only in the hospital after the patient is admitted. Although more than (85.19%) of respondents answered that they know the risk group, prevention care and preventive measures.

Table 4. Nurses knowledge of pressure ulcers (correct, incorrect) (n=108)

№	Nurses ' knowledge of pressure ulcers	Correct		Incorrect	
		n	%	n	%
1.	Preventive skin care is carried out taking into account the risks	92	85.19	16	14.81

	associated with the patient's health. **(Correct)**				
2.	You always have to put people with pressure ulcers on the support surface to redistribute pressure. **(Correct)**	87	80.56	21	19.44
3.	High load pressure is a contributing factor to the formation of pressure sores. **(Correct)**	68	62.96	40	37.04
4.	Patients with diabetes are more susceptible to the formation of pressure sores on the heels. **(Correct)**	98	90.74	10	9.26
5.	Norton scale - a scale for assessing the risk of developing pressure ulcers. **(Correct)**	92	85.19	16	14.81
6.	Partial skin loss with blisters and abrasions is the correct response to the sign of stage III pressure ulcers. **(Incorrect)**	84	77.78	24	22.22
7.	Keeping the skin clean is a suitable skin care method. **(Correct)**	100	92.59	8	7.41
8.	Every 2 hours, the patient's position changes to prevent pressure ulcers. **(Correct)**	98	90.74	10	9.26
9.	The population at risk of pressure ulcers includes patients with spinal cord injuries and patients who are immobilized or restricted in movement. **(Correct)**	97	89.81	11	10.19
10.	Moving the patient from bed to bed requires balanced lifting. **(Correct)**	93	86.11	15	13.89

11.	To prevent the formation of ulcers on the heel, use pillows under the patient's foot. **(Correct)**	94	87.04	14	12.96
12.	Vitamins C and E are essential for maintaining healthy skin. **(Correct)**	97	89.81	11	10.19
13.	Patients with a BMI above 35 and below 20 should be offered a high protein and calorie content. **(Correct)**	79	73.15	29	26.85
14.	Diet planning the patient can start with a laboratory test for serum albumin. **(Incorrect)**	74	68.52	34	31.48
15.	Patients with respiratory apparatus, difficulty swallowing and chronic heart failure should be at a height above 30 degrees, which puts more pressure on the bone protrusions. **(Correct)**	77	71.3	31	28.7
16.	Organization of continuous training of nurses from production increases knowledge and practical skills in the field of pressure ulcers prevention. **(Correct)**	98	90.74	10	9.26
17.	Prevention of pressure ulcers is carried out only in the hospital after admission of the patient. **(Incorrect)**	54	50	54	50
18.	The national consultative Commission on issues of pressure ulcers/The-European Advisory Commission on pressure ulcers (NPUAP/EPUAP) in 2014 proposed classifying stages I, II, III, IV and unclassifiable, as well as deep pressure ulcers. **(Correct)**	97	89.81	11	10.19

19.	Nurses working with pressure ulcers in Kazakhstan can apply the following documents: "Clinical Protocol palliative care for patients with chronic progressive diseases in the incurable stage, accompanied by skin lesions " from 2013, "Prevention and treatment of pressure ulcers" adapted clinical nursing guidelines from 2020. **(Correct)**	98	90.74	10	9.26

From table 5 it can be seen that (90.74%) of respondents always at home and in the clinic record all the data received about pressure ulcers, the majority of respondents (87.04%) always evaluated the skin condition, determined the group and risk factors, (10.18%) sometimes and (2.78%) never when determining the effectiveness of medical practice for the prevention of pressure ulcers. And when asked whether skin care is included as a permanent job during an appointment or when visiting a patient at home (67.59%) of respondents answered "always", (22.2%) of respondents answered "Sometimes", (10.19%) "never".

As a preventive measure, more than half of the respondents (from 55.5%) to (65.04%) always use a pillow under the patient's leg to prevent pressure ulcers, cream or oil on the skin, protein, high-calorie and enriched food, while (27.78%) to (32.41%) are sometimes used, and (0.93%) to (12.04%) are never used.

According to educational guidelines for the prevention of pressure ulcers, of the respondents (75.93%) always held consultations on the prevention of bedsores with patients and their relatives, (20.37%) - sometimes, (3.7%) - never, (37.04%) nurses always participated in trainings and seminars on the prevention of pressure ulcers, (54.63%) - sometimes, (8.33) - never.

There is very little specialized long-term home care for nurses in practice, as evidenced by the answers to questions about the use of special mattresses and

functional beds for the prevention of pressure ulcers. The responses were the same (45.37%), used always, (40.74%) sometimes, (13.89%) never. (See Table 5.)

Table 5. Practice of nurses for the prevention of pressure ulcers (always, sometimes, never) (n=108)

№	Practice of nurses for the prevention of pressure ulcers	Always		Sometimes		Never	
		N	%	n	%	n	%
1.	During your appointment or when visiting a patient at home, identify the risk group.	83	76.85	23	21.3	2	1.85
2.	Conduct risk factor assessments during your appointment or when visiting a patient at home.	89	82.41	15	13.89	4	3.7
3.	During your appointment or when visiting patients at home, identify common and contributing factors.	85	78.7	20	18.52	3	2.78
4.	During an appointment or when visiting a patient at home, you assess the condition of the skin.	94	87.04	11	10.18	3	2.78
5.	Do you use a risk assessment scale during your appointment or when visiting a patient at home?	84	77.78	19	17.59	5	4.63
6.	During your appointment or when visiting patients at home, do you document all the data?	98	90.74	8	7.41	2	1.85

7.	Do you perform a pain assessment during your appointment or when visiting a patient at home?	97	89.81	10	9.26	1	0.93
8.	Whether skin care is included as a permanent job during an appointment or when visiting a patient at home.	73	67.59	24	22.22	11	10.19
9.	Do you use a pillow under the patient's foot to prevent pressure ulcers?	67	62.04	30	27.78	11	10.18
10	Do you use cream or oil on the skin?	60	55.55	35	32.41	13	12.04
11	Do you teach patients and their relatives where the pressure points are located during your appointment or when visiting a patient at home?	80	74.07	23	21.3	5	4.63
12	Do you eat protein, high-calorie, and fortified foods? *(about the patient)*	67	62.04	40	37.04	1	0.93
13	Do you use safe patient movements without rubbing the skin?	85	78.71	14	12.96	9	8.33
14	Do you use a special mattress?	50	46.3	43	39.81	15	13.89
15	Whether to avoid massage to preserve the integrity of the skin.	36	33.33	61	56.48	11	10.19

16	Do you participate in trainings and seminars on the prevention of pressure ulcers?	40	37.04	59	54.63	9	8.33
17	Do you provide consultations or trainings on the prevention of pressure ulcers to patients and relatives?	82	75.93	22	20.37	4	3.7
18	Do you use special universal (functional) beds?	49	45.37	44	40.74	15	13.89

6 Discussion

The purpose of this study was to determine the level of awareness about the prevention of pressure ulcers among nurses in Almaty at the level of primary health care in order to improve the quality of nursing care and conduct preventive measures for pressure ulcers. The goal was achieved by studying the tasks set: first, to determine the level of knowledge of nurses about pressure ulcers at the primary health care level, and second, to study the practical skills of nurses in the prevention of pressure ulcers at the primary health care level. To achieve this goal, a quantitative method was chosen, and data collection was carried out using questionnaires. This study was the first to determine the knowledge and practical skills of nurses in the field of pressure ulcer prevention at the primary health care level in the city of Almaty and in Kazakhstan as a whole. Similar studies have been conducted in many foreign countries: Australia, Norway, Ethiopia, Nigeria, Sweden, Jordan, Turkey, etc. (Nuru et al., 2015.)

As for the first question of the study, it was found that Kazakhstan PHC nurses showed good knowledge about the prevention of pressure ulcers. A good result of knowledge is associated with the fact that one third of the respondents had a total work experience of more than 21 years, then an academic bachelor's degree, and

more than half of the respondents (58.33%) had a higher category degree. At the level of theoretical knowledge, nurses showed a good result of knowledge on pressure ulcers. Similar results were obtained in the Sawant & Shinde (2017) study, in which they conducted a descriptive cross-sectional study to assess the knowledge and practice of staff nurses in the prevention of pressure ulcers at Karada tertiary care hospital, Maharashtra. The study involved 193 full-time nurses, of whom the majority (52.8%; n = 102) had good knowledge. (Sawant & Shinde 2017.) Many studies show a similar level of knowledge of nurses; 54.4% in North-Western Ethiopia, 48.85% Turkey, 49.7% Belgium, and 57.79% Bangladesh. (Nuru et al., 2015.)

The current study found that 85.19 % of respondents knew appropriate measures to prevent pressure ulcers, such as changing the patient's position, moving the patient from bed to bed, and using pillows, in contrast to a study by Nasreen, Afzal & Sarwar (2017) in which the results showed that nurses had poor knowledge (35.2%) of peptic ulcer risk factors and of changing the patient's position every two hours (49%). Another study conducted in Bangladesh showed that nurses' knowledge of factors related to pressure ulcers was at a very low level (Islam, Sae-Sia & Khupantavee 2010). In the current study, half of the respondents (50%) did not know about the early detection of pressure ulcers at the PHC level, answering the question that the prevention of pressure ulcers is carried out only in the hospital after the patient is admitted, although more than 85.19% of respondents answered that they know the risk group, prevention care, and preventive measures. This is due to the fact that the knowledge and practice of nurses do not often overlap in their daily work, and the empty study of the names of regulatory documents and manuals without knowledge of the content itself is not enough since early detection of a risk group was answered "always" by 50%, preventive nutrition 62% of respondents, and the use of skin protectors 55.5%.

On the second question, the study also shows that the majority of employees had a positive attitude to the prevention of pressure ulcers, which also shows a good result on the practical skills of nurses in the prevention of pressure ulcers. This indicator is related to the fact that the more work experience, frequent attendance of seminars and trainings (37% always attended, 56.6% sometimes), and routine consultation at the reception of patients and their relatives (75.9% of respondents always consulted)

increases the practical skills of nurses in the prevention of pressure ulcers. In a 2015 study, the authors also describe participants' positive attitudes to the practice. (Zeb, Ilyas, Kashif, Compal, Darain, And Bahadar 2015).

But at the same time, nurses' opinions differ on some issues. In this study, less than half of the respondents always avoided massage, slightly more than half sometimes used massage, and only 10.19% of respondents never used massage as a prevention of pressure ulcers. Another study conducted in Ethiopia describes that nurses considered massage an important part of pressure ulcer prevention (Werku, 2015). However, participants explained massage as a preventative intervention, although the facts speak against massage. (Abyu, Panerio, Selassie & Molla 2016.)

7 Conclusion

This study was conducted to assess the level of knowledge and practical skills of nurses in the prevention of pressure ulcers. Overall, the study found that the level of awareness of nurses' knowledge and practice was good in relation to the prevention of pressure ulcers. However, the lack of integration of knowledge and practice is a concern since outpatient nurses conduct independent appointments and visiting patients at home requires higher competence since at this time, they are alone without a doctor's escort. These results are consistent with previously published studies that highlight the significant lack of knowledge and poor attitude of nurses to the practice of preventing pressure ulcers. Research contributes to our understanding that there is a gap in the application of knowledge in the practice of nurses in Kazakhstan. Therefore, these results should be taken into account in nursing education and continuing professional development in order to improve the knowledge and attitude of nurses on the prevention of pressure ulcers, namely on the early detection of pressure ulcers at the PHC level. Further research is needed to prevent pressure ulcers.

8 Recommendations

After the study is completed, the results of the study should be distributed and brought to the attention of the administration, including the nurse administration,

the PHC administration, and the knowledge improvement centers. Should also conduct integration training programmes for the prevention of pressure ulcers for nurses. However, gaps in the relationship between nursing knowledge and practice need to be identified in order to include strategic planning in nursing education. It is also recommended to conduct step-by-step research, a hands-on training program, and defining skills before and after a bedsore prevention event.

References

Akhmetova, A., Saliev, T., Kulsharova, G., Nurgozhin, T., & Mikhalovsky, S. 2015. Current state of chronic wound care in Kazakhstan: focus on topical treatments. *Russian Open Medical Journal*, 4(1), e0104. doi:10.15275/rusomj.2015.0104

Al Kharabsheh, M. S. A. R., Alrimawi, R. F. A. R., Al Assaf, R., & Saleh, M. 2014. Exploring nurses' knowledge and perceived barriers to carry out pressure ulcer prevention and treatment, documentation, and risk assessment. *American International Journal of Contemporary Research*, 4(4), 112-119. Retrieved from http://www.aijcrnet.com/journals/Vol_4_No_4_April_2014/15.pdf

Alderden, J., Zhao, Y. L., Thomas, D., Butcher, R., Gulliver, B., & Cummins, M. 2019. Outcomes Associated With Stage 2 Pressure Injuries Among Surgical Critical Care Patients: A Retrospective Cohort Study. *Critical Care Nurse*, 39(4), 13–19. https://doi-org.ezproxy.jamk.fi:2443/10.4037/ccn2019598

Aldeshevsky, A., Juraeva, G. R., Iskakova, I. O., Asylbekova A. M., Tagabayeva L. M., Asilbekova, G. B. 2013. Problems of prevention and reduction of pressure ulcers in patients with motor disorders after stroke. *South Kazakhstan state pharmaceutical Academy KHABARSHY* Appendix 2 (63) p. 16

Bowling, A. 2014. Research Methods in health: Investigating health and health services. 4th edition. Open university press.

Chernov, V. F., Rebrov, M. V., Chernov, D. V., & Galiev, I. Zh. 2012. Surgical treatment of bedsores in patients with spinal trauma. *Journal of Neurosurgery and neurology of Kazakhstan,* (2-3 (27-28)).

Clinical protocols of Ministry of Health of the Republic of Kazakhstan. 2013 "Palliative care for patients with chronic progressive disease in the terminal stage, accompanied by skin lesions. Retrieved from https://diseases.medelement.com/search?searched_data=diseases&diseases_filter_type=section_medicine&section_medicine=186846211495977958

Coleman, S., Nixon, J., Keen, J., Wilson, L., McGinnis, E., Dealey, C., … Nelson, E. A. 2014. A new pressure ulcer conceptual framework. *Journal of Advanced Nursing*, 70(10), 2222–2234. doi:10.1111/jan.12405

Ebi, W. E., Hirko, G. F., & Mijena, D. A. 2019. Nurses' knowledge to pressure ulcer prevention in public hospitals in Wollega: a cross-sectional study design. *BMC Nursing,* 18(1). Doi:10.1186/s12912-019-0346-y

Ebi, W. E., Menji, Z. A., & Hunde, B. M. 2017. Nurses' knowledge and Perceived Barriers About Pressure Ulcer Prevention for Admitted Patients in Public Hospitals in Addis Ababa, Ethiopia. *American Journal of Internal Medicine*, 5(4-1), 1-6. Retrieved from https://www.researchgate.net/profile/Belachew_Hunde/publication/324602012_Nurses'_knowledge_and_Perceived_Barriers_About_Pressure_Ulcer_Prevention_for_Admitted_Patients_in_Public_Hospitals_in_Addis_Ababa_Ethiopia/links/5d427eab92851cd04696f84c/Nurses-knowledge-and-Perceived-Barriers-About-Pressure-Ulcer-Prevention-for-Admitted-Patients-in-Public-Hospitals-in-Addis-Ababa-Ethiopia.pdf

El Enein, N. Y. A., & Zaghloul, A. A. 2011. Nurses' knowledge of prevention and management of pressure ulcer at a Health Insurance Hospital in Alexandria. *International journal of nursing practice*, 17(3), 262-268.

Elliott, J. 2010. Strategies to improve the prevention of pressure ulcers. *Nursing Older People.* 22(9), 31–36. doi:10.7748/nop2010.11.22.9.31.c8062

European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Ulcer Advisory Panel (NPUAP), Pan Pacific Pressure Injury Alliance (PPPIA). Prevention and treatment of pressure ulcers: quick reference guide. Haesler E (ed). Cambridge Media: Perth, Australia, 2014

European Pressure Ulcer Advisory Panel (EPUAP), Pan Pacific Pressure Injury Alliance (PPPIA). Prevention and treatment of pressure ulcers: quick reference guide. Haesler E (ed). Cambridge Media, 2014

European Pressure Ulcer Advisory Panel. Pressure ulcer prevention guidelines. EPUAP Rev 1998; 1: 7-8.

Ferreira, J. D. L., Aguiar, E. S. S., Soares, M. J. G. O., Silva, M. A. D., & Oliveira, S. H. S. 2012. Prevalence and risk of pressure ulcer by users in basic health network. *Journal of Nursing UFPE on line [JNUOL*/DOI: 10.5205/01012007], 6(9), 2045-2051.

Fulbrook, P., Lawrence, P., & Miles, S. 2019. Australian Nurses' Knowledge of Pressure Injury Prevention and Management. *Journal of Wound, Ostomy and Continence Nursing*, 46(2), 106–112. doi:10.1097/won.0000000000000508

Gefen, A., Alves, P., Ciprandi, G., et al. 2020. Device-related pressure ulcers: SECURE prevention. *J Wound Care*. 2020;29(Sup2a):S1-S52. doi:10.12968/jowc.2020.29.Sup2a.S1

Ghosh, D., Nida, Y., & Yadav, U. 2019. A Study to Assess the Knowledge on Decubitus Ulcer and its Management among the Staff Nurses in Selected Tertiary Care Hospital of Moradabad, Uttar Pradesh: A Original Study. *International Journal of Nursing Education*, 11(4), 203-206.

Islam, S., Sae-Sia, W., & Khupantavee, N. 2010, April. Knowledge, attitude, and practice on pressure ulcer prevention among nurses in Bangladesh. *In The 2nd international conference on humanities and social sciences* (pp. 1-10). http://fs.libarts.psu.ac.th/research/conference/proceedings-2/6pdf/011.pdf

Johnstone, A. & McGown, K. 2013. Innovations in the reduction of pressure ulceration and pain in critical care. *Wounds UK,* 9(3), 80–84. http://search.ebscohost.com.ezproxy.jamk.fi:2048/login.aspx?direct=true&db=rzh&AN=104159434&site=ehost-live

Jones, M. & Rattray, J. 2015. Questionnaire Design. In: The Research Process in Nursing. Edit. Lathlean, J. & Gerrish, K. Chichester, UK: John Wiley & Sons, Ltd. 412 - 425. Accessed 16 September 2017. Retrieved from https://www.wiley.com/enus/The+Research+Process+in+Nursing%2C+7th+Edition-p-9781118522585

Källman, U., & Suserud, B.O. 2009. Knowledge, attitudes and practice among nursing staff concerning pressure ulcer prevention and treatment - a survey in a Swedish

healthcare setting. *Scandinavian Journal of Caring Sciences,* 23 (2), 334-341.doi: 10.1111 / j.1471-6712.2008.00627.x

Kayser, S. A., VanGilder, C. A., Ayello, E. A., & Lachenbruch, C. 2018. Prevalence and Analysis of Medical Device-Related Pressure Injuries. *Advances in Skin & Wound Care,* 31(6), 276–285. doi:10.1097/01.asw.0000532475.11971.aa

Low, LL., Vasanwala, F.F. & Tay, A.C. 2014. Pressure Ulcer Risk Assessment and Prevention for the Family Physician. *Proceedings of Singapore Healthcare*, 23 (2), 142-148. https://doi.org/10.1177/201010581402300208

Makela, A. 2010. Cross-sectional survey of the occurrence of chronic wounds within capital region in Finland. *EWMA Journal*, 10(1), 24–26.

Makela, A., Annanmäki, L., Koivunen, E., Jyvälahti, A., Mattsson, K., Iso-Aho, M., the Working Group for Treatment of Chronic Wounds within the Capital Region in Finland. 2010. Cross-sectional Survey of the Occurrence of Chronic Wounds within Capital Region in Finland. *EWMA Journal*, *10*(1), 24-26.

Muhammad, D., Ahmad, I. W., Khan, M. N., Ali, F., & Muhammad, G. (2017). Knowledge, attitude and practices of nurses regarding pressure ulcers prevention at a tertiary care hospital of peshawar, khyber pakhtunkhwa. Cell, 333, 9482238. https://www.researchgate.net/publication/322041143_KNOWLEDGE_ATTITUDE_AND_PRACTICES_OF_NURSES_REGARDING_PRESSURE_ULCERS_PREVENTION_AT_A_TERTIARY_CARE_HOSPITAL_OF_PESHAWAR_KHYBER_PAKHTUNKHWA

Nasreen, S., Afzal, M., & Sarwar, H. 2017. Nurses knowledge and practices toward pressure ulcer prevention in general hospital Lahore. Age, 87(166), 34-4. DOI: 10.21276/sjmps

National Pressure Ulcer Advisory Panel (NPUAP). Presuure Injury stages. 2016. https://tinyurl.com/tu3kjwh (accessed February 5, 2020)

National Pressure Ulcer Advisory Panel and the European Advisory Group on Pressure Ulcer (NPUAP / EPUAP) 2009. Prevention and lechenieprolezhney: A Guide to Clinical Practice NPUAP, Washington, DC (2009) pp 16-20.

Newman, R & Hudgell, L. 2015. Management of pressure ulcers and prevention of acute and primary care. *British Journal of Nursing*, 2015 Supplement 6, 24, S4-S11, 1p.

Nuru, N., Zewdu, F., Amsalu, S., & Mehretie, Y. (2015). Knowledge and practice of nurses towards prevention of pressure ulcer and associated factors in Gondar University Hospital, Northwest Ethiopia. *BMC nursing,* 14(1), 34. https://doi.org/10.1186/s12912-015-0076-8

Organisation for Economic Co-operation and Development, OECD (2017) Caring for quality in Health. Lessons learnt from 15 reviews of healthcare quality. OEPD, Paris, France

Pancorbo-Hidalgo, P. L., García-Fernández, F. P., López-Medina, I. M., & López-Ortega, J. (2007). Pressure ulcer care in Spain: nurses? knowledge and clinical practice. *Journal of Advanced Nursing,* 58(4), 327–338. doi:10.1111/j.1365-2648.2007.04236.x

Payne, D., & Maisano, P. 2016. Reducing Hospital-Acquired Pressure Ulcers. *Oklahoma Nurse,* 61(2), 8–9.

Payne, Drew. 2016. Prevention strategies to support, detection and treatment of pressure ulcers in the community*. British Journal of Nursing,* 2016 Appendix 6; 21 (Sup6): S10-S18. 6p.

Process of translation and adaptation of instruments. N.d. Page on the World Health Organization's website. Accessed on 27 February. Retrieved from https://www.who.int/substance_abuse/research_tools/translation/en/

Qaseem, Amir., Mir, Tanveer P. Starkey, Melissa., Denberg, Thomas D. 2015. Risk assessment and prevention of pressure ulcers: Clinical Practical Guide From the American College of Physicians, Clinical Guidelines Committee of the American College of Physicians Annals of Internal Medicine, March 3, 2015, 162 (5), 359-369, 11p.

Riordan, J., & Voegeli, D. 2009. Prevention and treatment of pressure ulcers. *British Journal of Nursing,* 18(Sup7), S20–S27. doi:10.12968/bjon.2009.18.sup7.45132

Saleh, M. Y. N., Al-Hussami, M., & Anthony, D. 2013. Pressure ulcer prevention and treatment knowledge of Jordanian nurses. *Journal of Tissue Viability.* 22(1), 1–11. doi:10.1016/j.jtv.2013.01.003

Samuriwo, R. 2019. Enhancing end-of-life skin care to prevent pressure ulcers in primary care: key considerations for nurses. *Journal of Community Nursing* 33 (3) , pp. 56-60.

Sawant, N., Shinde, M. 2017. Nurses Knowledge and Practices towards Prevention of Pressure Ulcer in Tertiary Care Hospital. 6(5):739–45.

Schroeder, J., & Sitzer, V. 2019. Nursing Care Guidelines for Reducing Hospital-Acquired Nasogastric Tube--Related Pressure Injuries. *Critical Care Nurse*, 39(6), 54–63. https://doi-org.ezproxy.jamk.fi:2443/10.4037/ccn2019872

Sewchuk D., S. Padula, Osborne, E. 2006. Prevention and early detection of pressure ulcers in patients undergoing cardiac surgery. *AORN Journal,* July; 84 (1), 75-88, 12p

Topping, A. 2015. The Quantitative-Qualitative Continuum. In: The Research Process in Nursing. Edit. Lathlean, J. & Gerrish, K. Chichester, UK: John Wiley & Sons, Ltd. 159-171. Accessed 16 September 2017. Retrieved from https://www.wiley.com/enus/The+Research+Process+in+Nursing%2C+7th+Edition-p-9781118522585

Tulek, Z., Polat, C., Ozkan, I., Theofanidis, D., & Togrol, R. E. 2016. Validity and reliability of the Turkish version of the pressure ulcer prevention knowledge assessment instrument. *Journal of Tissue Viability*, 25(4), 201–208. doi:10.1016/j.jtv.2016.09.001

World Health Organization, Organisation for Economic Co-operation and Development (2017), World Bank Group (2018) Delivering quality health services. A global imperative for universal health coverage. WHO, OECD, World Bank Group, Geneva, Switzerland.

https://apps.who.int/iris/bitstream/handle/10665/272465/9789241513906-eng.pdf?sequence=1&isAllowed=y

World Health Organization, UNICEF (2018) Declaration on Primary Health Care, Astana, 2018. Global Conference on Primary Health Care, Astana, Kazakhastan, 25–26 October 2018. Available online: https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration-ru.pdf

Yilmazer, T., Inkaya, B., & Tuzer, H. 2019. Care under the guidance of pressure injury prevention protocol: a nursing home sample. *British Journal of Community Nursing.* 24(Sup12), S26–S33. https://doi-org.ezproxy.jamk.fi:2443/10.12968/bjcn.2019.24.Sup12.S26

Zeb, A., Ilyas, S. M., Kashif, M., Kompal, R., Darain, H., & Bahadar, S. 2015. Knowledge And Attitudes On Pressure Ulcer Prevention Among Nurses Working In Neurological Departments In Tertiary Care Hospitals Of Peshawar: A Multicenter Study. *Annals of Allied Health Sciences,* 1(2), 49-53.

Appendices

Appendix 1. Cover letter for participation in the research

Dear Nurses!

The purpose of this study is to identify patients at an early stage who are at risk for pressure ulcers by the method of preventive work in order to influence the decrease in hospitalization of pressure ulcers in a nursing hospital. Also for this purpose, to identify the amount of work being done by primary health care nurses to prevent pressure ulcers.

Aim of this study is to define consent for an awareness check and determine the amount of work on the prevention of pressure ulcers at the primary health care level in your organization. Participation in the study is completely voluntary, and the refusal to provide the nurse with interview information does not affect your work that you do. Information obtained on the basis of interviews from nurses who agreed to participate in the study will be used on the basis of evidence and anonymously.

The research material will be supplemented by an interview for the selection of a small part of the participants (nurses, senior nurses and practical nurses), who works in polyclinic. In the interview, the researcher will ask from you information on the ongoing preventive procedures for pressure ulcers at the PHC level. Selection of interviewed nurses who agreed to this interview, which the researcher will personally contact during the study period until the end of the second quarter of 2020. The interview is conducted in the form of individual and general interviewing, which takes about an hour or more. The interview is recorded on your request paper or audio.

The research materials collected from interviews from nurses working in the organization information about a single nurse is not visible at any time, and nurses cannot be identified. The research material is kept in a closed cabinet, only the researcher has the key. The researcher undertakes to comply with the current guidelines for the preservation of research material and data protection legislation. The results of the research will be master's theses, and articles will be published in

international scientific journals. Research material will be lost by appropriate cutting after research is completed.

Sincerely,

Tamasha Zhavyaskhan, RN, Researcher
e-mail:

Supervisors:
PhD Ospanova D.A.
KazMUCE

PhD Johanna Heikkilä, Senior Advisor
JAMK University of Applied Sciences

Agreement on Master's thesis cooperation

Dear, the full name!

I am Zhavyaskhan Tamasha, work as a teacher of Higher Medical College Almaty. Currently, I am a second-year undergraduate student in a general two-level scientific and pedagogical master's program in nursing at the University of Applied Sciences (JAMK), Finland (Jyväskylä) and the Kazakh Medical University of Continuing Education (KAZMUCE), Kazakhstan (Almaty).

In the master's program I spend collecting data for the writing of the thesis the guidance of the chair of the dissertation committee Dinara Ospanova, associate professor, Phd., (KAZMUCE) and Johanna Heikkilä, PhD., (JAMK) which the conditional title **"Assessment of knowledge and attitudes of nurses on the prevention of pressure ulcers"**

Administration of JSC "Kazakh medical University of Continuing Education" requests:

You can assist in carrying out the repeated master's thesis on the report: "**Organization of nursing care for the prevention of pressure ulcers at the level of primary health care**" based on your medical organization.

Objective: the purpose of this research is to determine the level of awareness of nurses about the prevention of pressure ulcers at the primary health care level in order to improve the quality of medical care.

The acquired knowledge can be used to improve the quality of medical care at the outpatient level in order to prevent the spread of pressure ulcers.

To conduct the research, you will need an online survey of PHC nurses of your medical organization, which will be conducted by a master's student.

The research is conducted on several databases, processing the data obtained without specifying the medical organization. The results of the research will be available in advance.

Sincerely,
Zhavyaskhan Tamasha, Master Degree student
e-mail:

Supervisors:
PhD Ospanova D.A.
KazMUCE

PhD Johanna Heikkilä, Senior Advisor
JAMK University of Applied Sciences

Signatures

Representative of the Host Company _____
Place and Date (dd.mm.yyy) _____

Appendix 2. Questionnaire

1. Specify your gender.

Man

Woman

2. Enter your age.

20-30

31-40

41-50

≥51

3. Marital status

Not married

Is married

In divorce

Widow/ widower

Live in a civil marriage

4. Where do you work?

Polyclinic № 1

Polyclinic № 3

Polyclinic № 4

Polyclinic № 5

Polyclinic № 8

Polyclinic № 9

Polyclinic № 10

Polyclinic № 11

Polyclinic № 16

Polyclinic № 17

Polyclinic № 19

Polyclinic № 22

Polyclinic № 25

Polyclinic № 29

Polyclinic № 33

Polyclinic № 36

5. What Department do you work in?

Pediatric,

OSMP (Department of specialized medical care-cardiologist, urologist, neurologist, ENT, optometrist, surgeon, endocrinologist, etc.),

GP (General practitioner),

Women’s consultation,

Rehabilitation center,

Prevention Department,

6. What is your level of education?

General practice nurse

Applied bachelor's degree

Academic bachelor

Master’s degree

Nurse doctoral student

7. How long have you been a nurse (total work experience in years)?

1-3

4-7

8-11

11-14

15-20

≥21

8. How long have you worked in primary health care (PHC)?

1-3

4-7

8-11

11-14

15-20

≥21

9. Do you have a professional category?

No

The second category

The first category

The highest category

10. Employment status.

Partial employmen

Irregular employment

Full employment

Nurses knowledge of pressure ulcers (correct, incorrect)

11. Preventive skin care is carried out taking into account the risks associated with the patient's health. **(Correct)**

12. You always have to put people with pressure ulcers on the support surface to redistribute pressure. **(Correct)**

13. High load pressure is a contributing factor to the formation of pressure sores. **(Correct)**

14. Patients with diabetes are more susceptible to the formation of pressure sores on the heels. **(Correct)**

15. Norton scale - a scale for assessing the risk of developing pressure ulcers. **(Correct)**

16. Partial skin loss with blisters and abrasions is the correct response to the sign of stage III pressure ulcers. **(Incorrect)**

17. Keeping the skin clean is a suitable skin care method. **(Correct)**

18. Every 2 hours, the patient's position changes to prevent pressure ulcers. **(Correct)**

19. The population at risk of pressure ulcers includes patients with spinal cord injuries and patients who are immobilized or restricted in movement. **(Correct)**

20. Moving the patient from bed to bed requires balanced lifting. **(Correct)**

21. To prevent the formation of ulcers on the heel, use pillows under the patient's foot. **(Correct)**

22. Vitamins C and E are essential for maintaining healthy skin. **(Correct)**

23. Patients with a BMI above 35 and below 20 should be offered a high protein and calorie content. **(Correct)**

24. Diet planning the patient can start with a laboratory test for serum albumin. **(Incorrect)**

25. Patients with respiratory apparatus, difficulty swallowing and chronic heart failure should be at a height above 30 degrees, which puts more pressure on the bone protrusions. **(Correct)**

26. Organization of continuous training of nurses from production increases knowledge and practical skills in the field of pressure ulcers prevention. **(Correct)**

27. Prevention of pressure ulcers is carried out only in the hospital after admission of the patient. **(Incorrect)**

28. The national consultative Commission on issues of pressure ulcers/The-European Advisory Commission on pressure ulcers (NPUAP/EPUAP) in 2014 proposed classifying stages I, II, III, IV and unclassifiable, as well as deep pressure ulcers. **(Correct)**

29. Nurses working with pressure ulcers in Kazakhstan can apply the following documents: "Clinical Protocol palliative care for patients with chronic progressive diseases in the incurable stage, accompanied by skin lesions " from 2013, "Prevention and treatment of pressure ulcers" adapted clinical nursing guidelines from 2020. **(Correct)**

Practice of nurses for the prevention of pressure ulcers (always, sometimes, never)

30. During your appointment or when visiting a patient at home, identify the risk group.

31. Conduct risk factor assessments during your appointment or when visiting a patient at home.

32. During your appointment or when visiting patients at home, identify common and contributing factors.

33. During an appointment or when visiting a patient at home, you assess the condition of the skin.

34. Do you use a risk assessment scale during your appointment or when visiting a patient at home?

35. During your appointment or when visiting patients at home, do you document all the data?

36. Do you perform a pain assessment during your appointment or when visiting a patient at home?

37. Whether skin care is included as a permanent job during an appointment or when visiting a patient at home.

38. Do you use a pillow under the patient's foot to prevent pressure ulcers?

39. Do you use cream or oil on the skin?

40. Do you teach patients and their relatives where the pressure points are located during your appointment or when visiting a patient at home?

41. Do you eat protein, high-calorie, and fortified foods? (about the patient)

42. Do you use safe patient movements without rubbing the skin?

43. Do you use a special mattress?

44. Whether to avoid massage to preserve the integrity of the skin.

45. Do you participate in trainings and seminars on the prevention of pressure ulcers?

46. Do you provide consultations or trainings on the prevention of pressure ulcers to patients and relatives?

47. Do you use special universal (functional) beds?