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Case report

Application of nursing process in community health to patient with pressure injury

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Abstract

Introduction: Nursing is a science whose main objective is the care process. From preventive approach viewpoint as well as in health promotion, nurse's main task is to guide and execute the care practice as means to reduce the prevalence of pressure injuries (PI). Objective: To report the implementation of the nursing process in the phases of history, nursing diagnoses, planning, and educational interventions towards a patient with pressure injury bedridden and assisted by the primary health care team. Method: This is a clinical case study, using nursing process in the phases of history, nursing diagnosis, planning, intervention, and results evaluation. Patient was chosen during a home visit. Data were collected through data collection and interview phase while forms were filled up via "check list". Nursing diagnosis was later elaborated using NANDA-1 taxonomy while interventions followed NIC and NOC taxonomies in order to meet human basic needs in line with Wanda Horta. Results: After data collection, NANDA-1 diagnoses were found as follows: pressure ulcer risk, tissue integrity impaired, feeding self-care deficit, infection risk, fall risk and acute pain. Related factors analyses and defining characteristics outlined NOC objectives and interventions (NIC) for patient care and for caregivers guidance. It was observed that well-oriented caregivers can promote injury prevention actions while improving life quality of a bedridden patient with self-care limitations related to aging process. Final considerations: Application of nursing process promotes effectiveness as well as quality in care and guidance towards the patient, while nursing role should be emphasized when guiding, teaching and raising awareness among elderly patients as well as their caregivers in home care.

Keywords: Pressure injury; Nursing process; Nursing; Community health nursing; Wounds.

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Introduction

Nursing is a science whose main objective is the care process. From preventive approach viewpoint as well as in health promotion, nurse's main task is to guide and execute the care practice as means to reduce the prevalence of pressure injuries (PI). Unlike other skin changes, PI's have been main sources of concerns towards primary care nurses' performance as they represent a public health problem leading to either physical problems or emotional disorders that directly affect health problems epidemiology.[1-2]

The American National Pressure Ulcer Advisory Panel (NPUAP) has changed the term "pressure ulcer" to PI, a skin damage potentially affecting underlying soft tissues, usually bony prominences, e.g. occipital, scapula, elbow, sacral region, malleolus and calcaneus.[3]. Occurrence of this type of injury causes various physical and psychological disorders in patients such as discomfort, pain, suffering, and emotional attachment to injury, which hinders PI healing process and increases complications risk.[1]

In the international scenario, death incidence related to PI varies from 4.5% to 25.2% in the United Kingdom, from 2.9% to 8.34% in Spain, about 14.8% in England and 19.1% in USA, as described by home care teams.[4] In Brazil, studies on PI prevalence and incidence are scarce; however, in relation to home care, there are studies showing that the risk of developing PI varies between 41.2% and 59% while prevalence varies from 8% to 23%. This fact is distressing, as PI can be prevented in up to 95% of cases, as determined by the Ibero-American Society of ulcers and wounds.[5]

Caring for people with PI should occur in all health care levels as well as Primary Health Care, where care is mainly performed by the nursing team. In turn, the nurse is the health team member in charge of health

promotion actions and nursing care specific protocols towards PI care.[2,6]

Nurse seeks to integrate health sciences knowledge by the use of conceptual and theorist models to assess basic human needs in a holistic and integral way. Among all the theoretical references, Maslow's Theory on Basic Human Needs (BHN) was used to support the elaboration of the clinical case study herein presented.

BHN theory encompasses Maslow's Human Motivation Theory (1970), whereas João Mohana's (1964) theory classifies human needs into psychobiological, psychosocial and psychospiritual. According to this theory, human needs obey a priority order and whenever a person fulfils a given need, another one takes in its place, demanding constant satisfaction of listed needs.[7]

According to Horta,[7] humans belong to a dynamic universe, where they undergo an imbalance whenever their basic needs are not met or are partially met for a long period, which can cause illness. A case study assessed patient's needs in order to enable efficient interventions to be implemented to treat and prevent possible subsequent problems.[7]

The clinical case study shows the development of skills and knowledge in a nursing process, in which nurses must have the ability to implement efficient actions towards holistic and organized nursing care. The use of nursing process in daily life of this this profession is of paramount importance in planning care, evaluating proposed actions, and to measuring quality of provided care and effectiveness of educational actions proposed by the nurse.

In view of that, the present study aims at reporting the experience of implementing nursing process in the phases of history, nursing diagnoses, planning and educational interventions when caring a patient with PI bedridden and assisted by the primary care health team.

Method

This is a descriptive exploratory study of an experience report, using nursing process in its phases of history, nursing diagnosis, planning, intervention, and results evaluation in line with Wanda Horta's theory on BHN. This experience took place in August, 2018 as home visit under Brazilian federal government program "the best program at home", which assists and monitors patients unable to attend a health unit.

The case study is an empirical investigation that deeply evaluates it in its real-world context, especially when boundaries separating phenomenon and context are elusive.[8,9] For this purpose, aforesaid investigation tool was used in the present study.

The patient was selected during a home visit aiming at elaborating care plan and guidelines for family caregivers of a PI patient. Study development used clinical case study model, which relies on nursing process and its sequential phases. It was possible to assess both patient's and his family's needs while proposing educational actions, by respecting legal references from the Brazilian Federal Nursing Council (COFEN) through resolution number 358/2009, which provides systematization for nursing as well as nursing process.[8]

As data collection technique involved nurses used Field Diaries to register clinical findings and addressed nursing diagnoses, especially those conceivably having benefits to patient and viable home execution. Notes were organized into five parts, namely: history, nursing diagnosis, planning, intervention, and evaluation of results.

Data were collected through data survey and interview with form completion under check-list style to include information on family history, age, sex, sanitation, housing, and pharmacotherapy as well as to record information collected on physical examination. When filling up the history, data were collected through physical examination and consultation of medical record in order to identify nursing diagnoses. In history implementation, physical examination was performed to assess patient while listing nursing interventions.

As methodological tool towards assistance guideline, Nursing Process includes the following steps: data collection, nursing diagnosis, nursing planning, implementation, and nursing evaluation.

For nursing diagnosis, NANDA International taxonomy (NANDA-1) was used.[10] It is a basis for objectives and interventions according to Nursing Interventions Classification (NIC)[11] and Nursing Outcomes Classification (NOC)[12] taxonomies to meet specific needs of humans.

BHN theoretical framework was used to analyze patient's needs in line with Wanda Horta[7] as based on MASLOW's theory of human motivation, which relies on basic human needs. Nursing is an applied science divided into two phases, with empirical phase evolving to scientific one by means of theory development, knowledge systematization, research to scientifically materialize nursing assistance as well as planned and executed actions along with respective effectiveness of care.[7]

Patient was informed about the proposed research, including its goals and involved procedures. The autho-

rization term was signed as recommended by Resolution 466/2012 of the Brazilian National Health Council.

Case report

Male, 84 years old, brown skin, complete elementary school, retired, catholic, born in Três Corações (MG). Married; 2 grown-up children; living with one of them accompanied by the daughter-in-law and two grandchildren, aged 15 and 19; own house provided with sanitation, electricity and internet access.

Diagnosed with initial condition of senile dementia in May 2017, hypertensive and with PI as identified in nursing consultation on September 13, 2018 via "Melhor em Casa" (in English," Best at Home") program. During nursing consultation, patient was observed to have PI and, when assessed, patient's vital signs were measured as: BP = 130 x 60 mmHg, axillary temperature = 36.5 ºC, HR = 80 bpm, R = 20 irpm, capillary glucose = 98 mg/dL, pain = +/4 through visual analogue numeric pain scale.

Table 1 describes the PI with its characteristics, namely: lesion at right malleolus resulting from PI, stage III according to the National Pressure Ulcer Advisory Panel (NPUAP, 2016), with tissue loss of unknown depth, partially obscured by necrotic tissue in wound bed center and edges with granulation tissue. Lesion had rounded shape without exudate, granulation tissue at the edges and necrotic tissue at the center, measuring 2 x 2 cm and showing inflammation. His daughter-in-law requested his inclusion into the program through an 'UBS' in the metropolitan region of São Paulo city while reporting the difficulty in taking him to a health unit.

During the home visit, patient was bedridden with decreased visual acuity, lethargic, drowsy, confused, unresponsive, with decreased overall strength and reduced flexion, and lateralization movements of Lower Limbs, with PI grade 3 in right malleolus, dehydrated and with ecchymosis in right upper limb and left upper limb. Caregiver reported that patient had difficulty in eating (probable dysphagia) as well as little daily fluid intake, aggressive episodes of mental confusion, memory loss and pain at injury site. She also reported that patient suffered a fall two days before but he had not been taken to the emergency room.

Table 1. Features - right malleolus IP

Odor	Absent
Necrosis	Present at injury center
Fibrin	Absent
Exudate	Small presence
Edema	++ / ++++
Pain	When handling, pain was classified as 4 in visual analog scale
Dimension	Diameter = 2 cm, depth = 7 mm

Authorship: The authors (2020).

With no protection bars on the bed and no support to reduce the risk of new falls, patient's home had inadequate lighting while it lacked stairs. Caregiver also reported that patient was taking the following medications: Risperidone 12/12 hours, Captopril 25 mg once a day, and Omeprazol 20 mg.

Results

Patient findings were identified from physical examination and nursing interventions as indicated in Table 2 and Table 3, respectively. They include: dysphagia, inappetence, dehydration due to low water intake, impaired skin integrity due to long stay in bed, falling risk due to mental confusion crises and psychomotor agitation concomitant with decreased lower limb motor strength, apathy, anguish, PI presence in right malleolus, pain and difficulty in communication.

Discussion

In order to seek effective alternatives to meet population's health needs, aging process, epidemiological transition and health care model crisis have required efforts from health managers and professionals.

Bearing in mind its high incidence and decreased quality of patient's life in several areas (e.g. physical, emotional and social), PI is a public health problem.[13] PI can be related to internal and external factors to patient, while it results from pressure exerted on bony prominences, due to increased surface tension and/or shear stress.[14]

The National Pressure Ulcer Advisory Panel (NPUAP)[15] reports PI prevalence as 15% in USA while its incidence reaches up to 59.5% in Brazil according to the literature.[17] It is also worth recalling that the Ministry of Health aims at reducing PI risk as part of the six International Goals for Patient Safety.[17]

In view of this problem, home care can be defined as actions related to health promotion, disease prevention, and treatment and rehabilitation provided at home by a multiprofessional network, which mainly includes nursing. It aims at ensuring continuity to care by acting cohesively to Health Care Networks.[18,19] Ministry of Health Ordinance N. 963[20] of 2013 defined the National Home Care Policy and the scope of "Best at Home" program. This health program includes bedridden elderly so that they can be assisted, as long

Table 2. Clinical findings based on physical examination by systems

Physical examination by systems	Clinical findings
Neurological and Mental State	Sleepy, confused, little communicative. Decreased visual acuity, preserved hearing without the presence of cerumen in ear cavities, isophoto-reactive pupils, partially incomplete dentition, without the presence of lesions in oro-pharyngeal cavity. Neck: Absence of palpable nodes.
Cardiopulmonary	Thorax: symmetrical, with good expandability with irregular hair distribution. Pulmonary auscultation: well-distributed breath sounds, percussion - clear lung sound. Cardiac auscultation: BRNF2T, with no noticeable changes.
Gastrointestinal	Abdomen: Flaccid Auscultation: tympanic sound in the inguinal region D, flank D, Hypochondrium D, Epigastric, Hypochondrium E, RHA +; percussion: massive sound in Flank E and Inguinal E.
Genitourinary	Unevaluated genitalia.
Skeletal muscle	Lesion by grade-2 pressure in malleolus D Effective. Decreased overall strength and reduced flexion and lateralization movements of upper limbs, peripheral perfusion.
Tegument	Intense scalp without dirt presence, decreased skin Turgor, presence of ecchymosis in Right Upper Limb (RUL) and Left Upper Limb (LUL) with irregular distribution.

Authorship: The authors (2020).

as patient is bedridden and bears a home caregiver, whether family member and/or service provider.

A chronic injury is a pathology that tends to be progressive and cause several complications if not treated properly. Chronic injuries burden public spending, jeopardize patients' life quality, hinders rehabilitation, delays return to work and leisure activities, besides exposing them to death risk.[19]

It is up to nurses to develop both care and prevention routines towards PI, seeking theoretical bases to reduce factors leading to this pathology, thus promoting safe and quality care to the patient.[21] According to Soares et al.[22], in order to control and reduce PI indices, nurses must be knowledge multipliers, carrying out continuing education (especially health education) not only to their teams but to everyone directly linked to patient management as means to promote patient safety and thus reducing PI incidence and/or worsening.

Along with nursing students, the team of "Best at Home" assisted the case-selected elderly. It was then possible to confirm the effectiveness of model indicated in Health Care Protocol,[23, 24] which states that guidance to patients and companions is essential despite measures to PI prevention and care.

The patient safety guide for home care[25] points out for the care to be performed not only by caregivers but also patients themselves such as hydrating skin, changing patient position, and monitoring bed head height, which are important modifying factors. It was a posteriori assessed that guidelines on those factors provided by nursing students to caregivers indeed prevented the incidence of new PI in the patient.

The Systematization of Nursing Assistance (SAE) is the support instrument whose main function is to ensure a scientific efficient basis to propose both techniques towards PI patients care and decision-making/preparation of health care plan to the patient with quality and responsibility. However, most of the studies found in a related bibliographic survey refer to PI epidemiology, costs, time, and treatment types.[23]

It was possible to observe that nurses have a fundamental role in guiding caregivers with respect to good prognosis of PI as they are able to promote injury prevention actions whenever well-oriented. Consequently, it is possible to improve the life quality of bedridden patients with self-care limitations resulting from changes related to the aging process.

Study limitations

Limitations in the present case report referred to scarcity of articles on the topic with the desired focus as well as to limited contact time with patient and caregiver.

Table 3. Assistance planning: diagnosis, intervention, and results

Nursing diagnoses – NANDA-I [10]	Basic Human Needs [7]	Nursing goals – NOC [11]	Nursing Interventions – NIC [12]	Nursing Activities – NIC[12]
Risk of pressure injury Risk factors: • Caregiver's insufficient knowledge on pressure ulcer prevention • Dehydration • Altered nutrition • Extended period of immobility on hard surface • Dry skin • Inadequate nutrition At-risk population: • Score on the Braden scale < 17 • Extremely old • History of pressure injury	**Psychobiological need** Skin integrity	**Skin integrity preserved**	**Prevention of pressure ulcers**	• Use a recognized risk assessment tool to monitor patient's risk factors (e.g. Braden scale) • Register any previous incidence of pressure ulcer formation • Register weight and weight changes • Register skin condition at admission and daily • Intensively monitor reddish areas • Remove excessive moisture from skin • Apply protective barriers (e.g. creams or moisture-absorbing materials) to remove excess moisture when appropriate • Rotate every 1 to 2 hours, as appropriate • Inspect skin for bony prominences and other pressure points at least once a day during repositioning • Position with pillows to raise bed pressure points • Keep sheets clean, dry and free from wrinkles • Use specialized beds and mattresses, where appropriate • Avoid "donut" type equipment in sacral area • Moisturize dry skin, still healthy • Avoid hot water and use mild soap during baths • Ensure adequate dietary intake • Instruct family or caregiver about signs of skin damage
Impaired tissue integrity Characterized by: • Tissue damage Related to: • Insufficient knowledge on protection of tissue integrity • Imbalanced nutritional status Associated with: • Impaired mobility At-risk populations: • Age extremes	**Psychobiological need** Skin-mucosa integrity	**Tissue Integrity**	**Pressure ulcer care**	• Describe ulcer characteristics at regular intervals, including size (length × width × depth), stage, location, exudate, granulation or necrotic tissue, and epithelialization • Monitor color, temperature, edema, humidity, and appearance of neighboring skin • Keep ulcer moist to aid healing • Apply moist heat to ulcer to improve blood perfusion and oxygen supply to area • Clean skin around ulcer with mild soap and water • Debride ulcer when necessary • Clean ulcer with proper non-toxic solution • Use 19-gauge needle and 35-cc syringe to clean deep ulcers • Apply permeable adhesive membrane over ulcer, when appropriate • Apply ointments and dressings when suitable • Administer oral medications when appropriate • Monitor for signs and symptoms of wound infection • Guide family member / caregiver about skin breakdown signs • Guide patient or family member about wound care procedures

Table 3. Assistance planning: diagnosis, intervention, and results. (continued)

Fragile elderly syndrome Characterized by: • Deficit in self-care for food, bath, intimate hygiene and dressing. • Impaired physical mobility • Imbalanced nutrition: less than body needs Related to: • Decreased muscle strength • Impaired mobility Associated with: • Change in cognitive function • Chronic disease At-risk populations: • History of falls • Age > 70 years	**Psychobiological needs** Hydration Nutrition Locomotion Environment **Psychosocial needs:** Safety	**Self-Care: Activities of Daily Living** **Fall prevention behavior** **Nutritional status: Food and liquid intake**	**Self-Care Assistance: Essential Activities of Daily Living** **Fall prevention** **Nutritional Monitoring**	• Monitor patient's need for adapting devices for personal hygiene, dressing, grooming, intimate hygiene, and food • Provide desired personal items (e.g. deodorant, toothbrush, and soap) • Use consistent repetition of health routines as means to establish them • Teach family members to foster independence, interfering only when patient is unable • Identify environment features increasing fall potential (e.g. slippery floors and open stairs) • Assist unstable patient during walking • Provide assistive devices (e.g. cane and walker) for stable walking • Easily place accessories within patient's reach • Provide dependent patient with means to call for help (e.g. light or bell) when caregivers are not present • Educate family members about risk factors contributing to falls and how to reduce them • Suggest house adaptations to increase safety • Weigh patient regularly • Obtain anthropometric measurements of body composition (e.g. body mass index, waist measurement, and skinfold measurements) • Monitor skin turgor and mobility • Identify skin abnormalities (e.g. excessive bruising, poor wound healing, and bleeding) • Monitor connective tissue through reddening pallor and dryness • Perform swallowing assessment • Determine factors affecting nutritional intake • Review other data sources on nutritional status (e.g. patient's food diary and written records)
Acute pain Characterized by: Self-reported intensity using standardized pain scale Related to: Biological harmful agent	**Psychobiological needs** Perception/Painful	**Pain control**	**Pain control**	• Carry out comprehensive pain assessment to include location, characteristics, onset/duration, frequency, quality, pain intensity or severity, and precipitating factors • Observe non-verbal cues of discomfort • Ensuring analgesic care for patient • Determine impact of pain experience life quality • Explore (together with patient) factors improving/worsening pain • Control environmental factors possibly affecting patient's response to discomfort • Guide using non-pharmacological techniques • Use multidisciplinary approach to pain management, where appropriate

Authorship: The authors (2020).

Conclusions

As addressed in this study, the application of the nursing process demonstrated that evidence-based nursing along with scientifically supported actions lead to effectiveness and quality in both care and guidance provided to patient/caregiver. This overcomes empirical and retrograde nursing care concepts, thus prioritizing focus on the patient as complex and complete human being, who needs holistic view of bio-psycho-social-spiritual needs, moving towards health in terms of whole well-being of body, mind and spirit in total harmony.

The present study pointed to the importance of health education by home care nurses through "Best at Home" program for caregivers-dependent patients, who are outside hospital environment. Nursing has transcended the simple provision of direct patient care towards guidance, teaching, and awareness. This report evidences that, as health educators, nurses play a key role in preventing risk exposure to either elderly patients or patients depending on home care from lay people lacking necessary knowledge to meet patients' needs as demanded by their degraded health condition.

During practical activities related to disciplines such as "Health of the Elderly", "Adult Health" and "Nursing Care Processes", implementation of the Nursing Care Systematization (SAE) provided knowledge on NANDA-I, NIC and NOC taxonomies to develop care plans to PI patients. Among other concomitant diagnoses, aforesaid nursing experience favors early improvement prospect in patients while reinforcing nursing work credibility.

Finally, the need to expand scientific production in this knowledge area becomes evident so that nurses may rely on scientific evidence to perform their role with excellence.

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