Research Article

The Application of Green Model in the Assessment and Practice of Pressure Injury for Junior Nurses

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Abstract

Objective: To improve the ability of junior nurses on pressure injury (PI) assessment and practice.

Methods: Under the guidance of Green Model, the problems related to PI assessment and practice of junior nurses were collected and understood through field observation, questionnaire survey and data statistics, the tendency, contributing and reinforcing factors were analyzed, and the comprehensive training of PI assessment and practice were organized and carried out, the reporting processes and system of PI electronic information were improved, the nursing manpower allocation were reasonably allocated, then scores and correct rates of PI assessment and practice by 62 junior nurses were compared before and after the training.

Results: Under the guidance of Green Model, the scores and correct rates of PI assessment and practice by 62 junior nurses were all improved compared before, and the differences were statistically significant, (all P < 0.05).

Conclusion: Under the guidance of Green Model, the ability of junior nurses on PI assessment and practice can be improved

Keywords: Green model; Junior nurse; Pressure injury; Assessment; Practice

Introduction

Pressure injury (PI), used to be called pressure ulcer, is derived from the redefinition of pressure ulcer by the National Pressure Ulcer Advisory Panel (NPUAP) in 2016 [1], points out that it is a localized injury that occurs in the skin and/or potential subcutaneous soft tissue, usually at the bone carina or where the skin comes into contact with medical equipment [2]. The formation of PI has caused burden and influence on patients and medical service resources, in 2014 the Chinese version of the prevention and treatment of pressure ulcers, a quick reference guide recommendations, points out that in terms of prevention, the nurses can through the study of the risk assessment of PI patients, find out the risk factors which influencing the PI's happening, so as to develop and implement individualized preventive measures; and in terms of treatment and effect observation, comprehensive assessment of PI patients and their wounds can be carried out to develop the most appropriate treatment plan and continuous monitoring of the states of wound healing [3]. Nurses' assessment of patients' risk of PI, assessment of PI wounds and monitoring of the states of wound healing should be based on scientific principles. Green Model, put forward by Green and Kreuter [4], mainly emphasized on "diagnostic analysis" of the influencing factors before interventions, which had been applied in social science research and other aspects, and achieved good

results [5]. In order to avoid wrong judgment or understanding, Green Model has been introduced since October 2018, the author tried to compare the effect of junior nurses on PI assessment and practical before and after the training, so as to provide references for clinical training for junior nurses. This study was approved by independent ethics committee of the hospital. The subjects gave informed consent and volunteered to participate in the study.

Data and Methods

General information

From October 2018 to February 2019, a total of 62 junior nurses (19.6% with bachelor's degree and 80.4% with college degree) working in the geriatric department, neurology department, wound repair department, oncology department and ICU department of our hospital were selected as the research subjects by using the intentional sampling method. Inclusion criteria are as follows: [1] Qualified as a nurse practitioner;[2] Working in a nursing profession for less than 5 years (level is N1and N2);[3] Attended and completed the Green Model training on time. Exclusion criteria are as follows: [1] Accepts other dispatched personnel during the training; [2] Leave for a long time due to illness or other reasons.

Methods

Intervention method

Develop a questionnaire for pi assessment and practice: Nurses "Questionnaire for PI assessment and practice "was designed by 5 nurses associated chief nurse or above, who referred to the prevention and treatment of pressure ulcers in 2014, a quick reference guide, and 2016 Guideline for Prevention and Management of Pressure Injuries. This questionnaire has been designed and used to evaluate ability of the nurses on PI assessment and practice. It is composed of 18 items, which are divided into three dimensions: PI risk assessment, PI wound assessment and PI healing and monitoring assessment, and for 6 items, 9 items, 3 items respectively, Likert rating was used and that evaluation is divided into 5 levels of "always do, most do, general do, few do and never do", and the scores are 5 points, 4 points, 3 points, 2 points and 1 point respectively , with a total score of 90 points. The designed questionnaire was reviewed and revised, and the CVI was 0.815, and the total Cronbach's alpha coefficient was 0.898. The higher the score of each dimension, and the higher the correct rate of PI evaluation, the stronger the ability of assessment and practical in PI for the junior nurses.

Intervention process under the guidance of green model

Those problems related to PI assessment and practice of junior nurses were collected and understood through field observation, questionnaire survey and data statistics. The research group first conducted assessment of behavioral and environment, educational and organization, and management strategies, second made and implemented those targeted plans and finally evaluate the intervention effect under the guidance of Green Modell. The specific intervention process under the guidance of Green Model (Table 1).

Table 1: The specific intervention process under the guidance of Green Model.

Procedure	Phases	Substance
1,2	Assessments of Sociological and Epidemiological	Determine the issues: There are some problems in PI assessment and practice for junior nurses, and scores and correct rates of PI assessment and practice by the nurses need to be improved.
3	Assessments of Behavior And Environment	The knowledge, beliefs, behaviors, training methods and frequency of junior nurses in PI assessment and practice were collected and understood through field observation, questionnaire survey and data statistics, and the applicability and rationality of the reporting process of PI electronic information and system were evaluated.
4	Assessments of Education and Organization	(1) Tendency factors: the knowledge of PI assessment and practice of junior nurses wasn't comprehensive, lacking relevant skills, insufficient belief and weak learning initiative. (2) Contributing factors: junior nurses haven't received systematic, comprehensive, standardized and up-to-date training of PI assessment and practice, the reporting process and system of PI electronic information weren't perfect, and the nursing manpower allocation wasn't reasonable. (3)Reinforcing factors: Hospital-wide, department-wide training, wound team-wide training were organized and carried out, as were nursing consultations and expert clinical counselling, junior nurses were provided with psychological supports, appropriate reward and punishment policies were formulated, the reporting process and system of electronic information in hospital were further improved, and the nursing manpower were reasonably allocated.
5	Evaluation of Management and Strategies	Green Model was introduced, and the scores and accuracy rates of PI assessment and practice by junior nurses were expected to be improved.

6	Implementation	(1) Targeted training on PI assessment and practice were carried out, training content including PI risk assessment, PI wound assessment and PI healing and monitoring assessment. Training methods including a series of lectures, cases analyses, demonstration and simulation exercise of clinical PI pictures, path display of PI staging, rolling broadcast of PPT, dynamic video data, etc. (2) Psychological support was provided; the enthusiasm of junior nurses was mobilized. ①The communication was strengthened, incentive and influence factors were analyzed; ②Psychological counseling was provided; ③the nurses were helped to resist fear of psychological difficulties, and their self-confidence were improved; ④Effective ways of regulating emotions were directed and applied, and their impatience curtailed. (3) The reporting processes and system of PI electronic information have been improved. (4) According to the specific situation of each department, the nursing manpower were reasonably allocated. (5) The examination of PI assessment and practice were conducted. (6) The effect of intervention under Green Model were analyzed and summarized.
7,8,9	Evaluation	All the 62 junior nurses have completed the training on time, and their scores and correct rates of PI assessment and practice were collected and evaluated.

The method of evaluation

The scores and correct rates of PI assessment and practice by 62 junior nurses in October 2018 (before the training) and February 2019 (after the training) were calculated and evaluated.

Statistical method

SPSS19.0 statistical software was used to process data. T-test and X^2 test were performed, and the threshold of significance for all comparisons was 0.05.

Results

Table 2: Comparison of scores of evaluation and practice of PI by junior nurses before and after the intervention process under the guidance of Green Model.

Items	Before (n=62)	After (n=62)	Statistics	P
PI risk assessment	24.15±1.73	28.00±1.25	14.226	0.000
PI wound assessment	28.98±4.58	41.29±2.87	25.380	0.000
PI healing and monitoring assessment	11.34±1.04	13.31±0.74	12.760	0.000

Table 3: Comparison of the correct rates of evaluation and practice of PI by junior nurses before and after the intervention process under the guidance of Green Model.

Items	Before (n=210)	After (n=215)	Statistics	P
Correct rate of PI risk assessment	174(82.86)	197(91.63)	7.37	0.007
Correct rate of PI wound assessment	162(77.14)	188(87.44)	7.75	0.005
Correct rate of PI healing and monitoring assessment	155(73.81)	183(85.12)	8.34	0.004
Total correct rate	491(77.94)	568(88.06)	23.22	0.000

Comparison of scores of evaluation and practice of PI by junior nurses before and after the intervention process under the guidance of Green Model (Table 2). Comparison of the correct rates of evaluation and practice of PI by junior nurses before (210 patients) and after (215 patients) the intervention process under the guidance of Green Model (Table 3).

Discussion

Connotation and application of green model

Green Model is to be analyzed and diagnosed before a plan is developed, with problems and causes are identified and a systematic evaluation is performed [4]. It includes nine continuous cycle steps of sociology, epidemiology, behavioral environment, management policy, educational ecological diagnosis, implementation, evaluation, impact evaluation and result evaluation, in which the evaluation is not only limited to the comprehensive evaluation of implementation and intervention results, but also includes the systematic evaluation before entering the next cycle [6]. Foreign researcher [7] used Green Model to evaluate the early screening work of adolescents with mental illness. In recent years, Green Model was gradually introduced into China, and many domestic scholars have studied and applied it [8], relying on Green Model, conducted safety assessment on empty nesters in China and proposed strategies [9] used Green Model to conduct intensive vocational protection education for nursing students, which improved their cognition and attitude of occupational protection and improved their occupational protection behavior [10] adopted Green Model to train junior nurses in pediatrics, which improved the success rate of one-time puncture [11] used Green Model to promote the self-management of esophageal cancer patients [12] applied Green Model in clinical practice of undergraduate nursing students to promote teaching management. Those researches proved that the intervention based on Green Model is comprehensive, holistic and effective, which opens up new ideas and perspectives for our intervention in the field of nursing and provides a more practical theoretical framework.

Influence of the intervention process under green model on pi assessment and practice for junior nurses

The results of this study showed that under the guidance of Green Model, the scores of junior nurses on PI risk assessment, PI wound assessment and PI healing and monitoring assessment were improved, and the differences were statistically significant compared with those before, all P<0.05. Given that Green Model focuses on the promotion of individual beliefs and behaviors, according to the theory of Knowledge - belief -behavior, knowledge is absorbed and transformed to influence behavior [13]. Based on Green Model, in this study the knowledge, beliefs, behaviors, training methods and frequency of junior nurses in PI assessment and practice were collected and understood, and those nurses were provided targeted professional knowledge training to help rebuild beliefs and to expect behavioral transformation. A detailed training content design mainly by reference to the Prevention and treatment of Pressure Ulcers in 2014: a quick reference guideline and 2016 Guideline for Prevention and Management of Pressure Injuries [14], including PI overview, staging, quantitative assessment of high risk factors and risk factors, the application of unavoidable PI , practices of PI wound and monitoring assessment. The training methods of this study include lecture series, case analysis, demonstration and simulated evaluation of clinical PI images in each phase, demonstration of PI staging path, illustrated PPT and dynamic video data display, etc. After the training, the scores of junior nurses in all dimensions of PI evaluation and practice were improved compared before. The results of this study also further confirmed that Green Model could achieve better results in training and health promotion, which was consistent with the results of [9,15] and other studies.

The results of this study at the same time showed that under the guidance of Green Model, the correct rate of PI risk assessment, wound assessment, PI healing and monitoring assessment and total correct rate of junior nurses were improved compared before, and the differences were statistically significant (P<0.05). Green Model is a kind of development and is widely applied in many fields of planned intervention model, which proposed in assessing system of plan was formulated, the problems existing in the present situation and influence factors are analyzed, and tendency, contributing factors and enhanced by induction, and behavioral changes is the comprehensive result of three factors, from the tendency of expectation result, facilitate and strengthen three intervention strategy, interventions were designed and the desired effect can be achieved more effectively [16,17]. In this study, we adopted Green Model, the problems existed in junior nurses in PI evaluation, the applicability and rationality of the reporting processes and system of PI electronic information, and the nursing manpower allocation all were evaluated, the tendency, contributing and reinforcing factors of junior nurses in the PI evaluation were analyzed, a targeted intervention was planned, including the system training, the psychological counseling, which provided psychological support, the reporting processes and system of PI electronic information were further improved , and the nursing manpower were reasonably allocated, etc. After the intervention process under the guidance of Green Model, the accuracy rate of junior nurses in PI evaluation practice were higher than before.

Conclusion

This study relied on the theoretical framework of Green Model, the tendency, contributing and reinforcing factors of junior nurses in PI assessment and practice were analyzed, and the corresponding strategies were developed. On the one hand, this comprehensive training of PI evaluation and practice was organized and carried out, combining theories with practices, psychological counseling for junior nurses were provided to help them resisting difficulties, improving their self-confidence, and mobilizing their enthusiasm, and so that they could get better psychological supports. On the other hand, in terms of management strategy, the reporting process and system of PI electronic information were further improved,

the nursing manpower were reasonably allocated, and finally good results that the scores and accuracy rate of PI evaluation and practice by junior nurses were achier. The intervention process guided by the theoretical framework of Green Model provides a theoretical basis for the standardized training of clinical junior nurses [18] which could be popularized and generalized.

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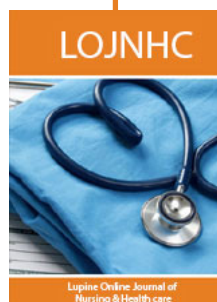
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