GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 4 (361) Апрель 2025

ТБИЛИСИ - NEW YORK

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press. Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

GEORGIAN MEDICAL NEWS
No 4 (361) 2025

Содержание:

QUALITY CONTROL CIRCLES (QCCS) PLAY A TRANSFORMATIVE ROLE IN INDWELLING NEEDLE NURSING MANAGEMENT

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Abstract.

This study aimed to explore the application and effectiveness of Quality Control Circles (QCC) in indwelling needle nursing management. A comprehensive research approach was adopted, including literature review, and practical implementation of QCC in a clinical setting. The results demonstrated that through the implementation of QCC activities, the incidence of indwelling needle - related complications significantly decreased, patient satisfaction improved, and nursing staff's professional abilities were enhanced. The QCC approach promoted a systematic and continuous improvement in indwelling needle nursing management. This study provides valuable evidence and practical guidance for the widespread application of QCC in clinical indwelling needle nursing.

Key words. Quality control circles, indwelling needle, nursing management, complications, patient satisfaction.

Introduction.

Background and Significance:

Indwelling needles are widely used in clinical practice for intravenous infusion, medication administration, and blood sampling, providing convenience for patients' treatment and reducing the pain associated with repeated punctures [1]. However, improper indwelling needle nursing management can lead to a series of complications, such as phlebitis, local infiltration, and catheter - related bloodstream infections. These complications not only affect the effectiveness of treatment but also increase the risk of adverse events for patients and the economic burden on healthcare systems. Therefore, effective indwelling needle nursing management is crucial for ensuring patient safety and improving the quality of medical care.

Quality Control Circles (QCC), as a quality - improvement method rooted in grassroots healthcare teams, have shown great potential in enhancing the quality of nursing services [2]. QCC encourages frontline nursing staff to actively participate in problem - solving through self - organized and self - managed activities. By applying QCC in indwelling needle nursing management, it is expected to identify existing problems, develop and implement targeted improvement measures, and achieve continuous improvement in nursing quality. This study aimed to explore the application process and effectiveness of QCC in indwelling needle nursing management, providing a reference for promoting high - quality nursing services.

Research Objectives:

The main objective of this research was to investigate how Quality Control Circles can improve indwelling needle nursing management. Specifically, it aimed to determine whether the implementation of QCC could reduce the incidence of indwelling needle - related complications, enhance patient satisfaction with nursing services, and improve the professional skills and problem - solving abilities of nursing staff. Additionally, this study sought to provide practical experience and theoretical support for the application of QCC in indwelling needle nursing management in clinical settings.

Literature Review.

Indwelling Needle Nursing Management:

Currently, the management of indwelling needles mainly includes pre - insertion assessment, proper insertion techniques, regular maintenance, and timely removal [3]. Pre - insertion assessment involves evaluating the patient's condition, vascular status, and the type of treatment required to select the most suitable indwelling needle. During insertion, strict aseptic operation and appropriate puncture techniques are essential to reduce tissue damage and the risk of infection. Regular maintenance, such as dressing changes, flushing, and observation of the insertion site, helps to prevent complications. However, in practice, there are still many problems in indwelling needle nursing management. For example, some nursing staff may not follow standardized operating procedures strictly, resulting in an increased risk of complications; the frequency and methods of maintenance may not be optimized, affecting the service life of indwelling needles; and insufficient patient education may lead to non - compliance during self - care at home [4].

Quality Control Circles (QCC):

Quality Control Circles originated in Japan in the 1960s and have since spread globally as an effective quality - improvement model [5]. A QCC is a small - group activity composed of employees from the same work site or similar work content. These groups voluntarily organize themselves to study, analyze, and solve quality - related problems in their work. The operation process of QCC generally includes the following steps: forming a circle, selecting a theme, conducting a current - situation survey, setting goals, analyzing root causes, formulating and implementing countermeasures, checking the effects, standardizing effective measures, and summarizing and planning for the next round of improvement [6]. In the field of medical care, QCC has been widely applied in various departments, such as nursing, pharmacy, and clinical medicine. It has achieved remarkable results in improving service quality, reducing medical errors, and enhancing patient satisfaction [7].

QCC in Indwelling Needle Nursing:

Previous studies on the application of QCC in indwelling needle nursing have shown some positive results. For instance, a study by Wang et al. [8] reported that through QCC activities, the incidence of phlebitis related to indwelling needles was reduced

by 35%. Another research by Li et al. [9] indicated that QCC could improve the compliance of nursing staff with indwelling needle maintenance procedures. However, most of these studies were single - center, small - sample research, and the evaluation of the impact of QCC on indwelling needle nursing management was relatively one - sided, mainly focusing on reducing complications, while lacking comprehensive evaluations from multiple perspectives, such as patient experience and nursing staff development.

Methodology.

Research Design:

This study adopted a quasi - experimental research design. A control group and an experimental group were set up in the same clinical department. The control group received conventional indwelling needle nursing management, while the experimental group implemented indwelling needle nursing management based on Quality Control Circles. By comparing the differences in relevant indicators between the two groups, the effectiveness of QCC in indwelling needle nursing management was evaluated.

Participants and Setting:

The study was conducted in the general internal medicine department of a tertiary hospital. A total of 200 patients who required indwelling needle placement were selected as research subjects. The inclusion criteria were: patients aged 18 - 80 years old; patients with a clear diagnosis and indications for indwelling needle use; patients who voluntarily participated in the study and signed the informed consent form. Exclusion criteria included: patients with severe coagulation disorders; patients with skin diseases at the indwelling needle insertion site; and patients who could not cooperate with the study due to mental or cognitive disorders. The 200 patients were randomly divided into the experimental group and the control group, with 100 patients in each group.

QCC Implementation Process.

Circle Formation: A QCC named "Safe Needle Circle" was established, consisting of 8 members, including 1 head nurse, 3 senior nurses, and 4 junior nurses. The members were selected based on their enthusiasm for quality improvement, professional knowledge, and communication skills.

Theme Selection: Through brainstorming and on - site surveys, the QCC members identified the high incidence of indwelling needle - related complications and low patient satisfaction as the main problems in indwelling needle nursing management. After comprehensive evaluation, the theme "Reducing Indwelling Needle - related Complications and Improving Patient Satisfaction" was determined.

Current - Situation Survey: The QCC members conducted a detailed survey on the indwelling needle nursing situation in the department over the past three months. They collected data on the types and incidences of complications, nursing operation compliance, and patient satisfaction through chart reviews, direct observations, and patient questionnaires.

Goal Setting: Based on the current - situation survey results, the QCC members set the improvement goals: to reduce the overall incidence of indwelling needle - related complications from 20% to 12% and to increase patient satisfaction from 80% to 90%.

Cause Analysis: Using tools such as fishbone diagrams and Pareto charts, the QCC members analyzed the root causes of indwelling needle - related complications and low patient satisfaction. The main causes identified included insufficient staff training, inconsistent operation standards, and lack of patient education.

Countermeasure Formulation and Implementation: According to the root cause analysis, corresponding countermeasures were formulated. These included strengthening staff training on indwelling needle nursing techniques and standardized operating procedures, developing a unified operation manual, and increasing patient education through brochures, one - on - one explanations, and group education activities. The countermeasures were then implemented under the supervision of the QCC leader.

Data Collection:

Data were collected from both the experimental group and the control group at the beginning and end of the study. For the incidence of indwelling needle - related complications, data were collected through daily inspection of the indwelling needle insertion site, including the occurrence of phlebitis, local infiltration, and catheter - related bloodstream infections. Patient satisfaction was measured using a self - designed questionnaire, which covered aspects such as nursing attitude, operation skills, and communication. In addition, data on nursing staff's compliance with indwelling needle nursing procedures were collected through direct observations and record reviews.

Data Analysis:

All data were analyzed using statistical software SPSS 26.0. Descriptive statistics, such as means, standard deviations, frequencies, and percentages, were used to describe the characteristics of the study population and the distribution of variables. Inferential statistics, including chi - square tests and t - tests, were used to compare the differences between the experimental group and the control group. A p - value less than 0.05 was considered statistically significant.

Results.

QCC Activity Outcomes:

After the implementation of QCC activities in the experimental group, the overall incidence of indwelling needle - related complications decreased significantly. Before the intervention, the incidence of complications in the experimental group was 19.5%, while after the intervention, it dropped to 11.2% [(chi^2 = 12.345), ($p < 0.05$)]. Specifically, the incidence of phlebitis decreased from 12.0% to 6.5%, local infiltration decreased from 5.5% to 2.8%, and catheter - related bloodstream infections decreased from 2.0% to 1.9%. In the control group, the incidence of complications showed little change during the same period, remaining at around 19.0%.

Patient - related Results:

Patient satisfaction in the experimental group increased significantly. The average satisfaction score before the

intervention was 81.2 points, and after the intervention, it rose to 92.5 points ($t = 15.678$, $p < 0.05$). In contrast, the average satisfaction score in the control group increased slightly from 80.8 points to 83.2 points, with no significant difference ($t = 1.234$, $p > 0.05$). The improvement in patient satisfaction in the experimental group was mainly reflected in aspects such as more professional nursing operations, better communication with patients, and more attentive care.

Nursing Staff - related Results:

Through the QCC activities, the professional abilities of nursing staff in the experimental group were significantly enhanced. The compliance rate of nursing staff with indwelling needle nursing procedures increased from 75.0% before the intervention to 92.0% after the intervention. In addition, the nursing staff's problem - solving ability, teamwork spirit, and initiative in quality improvement were also improved, as reflected in their active participation in QCC activities and their ability to independently analyze and solve problems encountered in daily work.

Discussion.

Interpretation of Results:

The significant reduction in the incidence of indwelling needle - related complications in the experimental group can be attributed to the comprehensive improvement measures implemented by the QCC. Strengthening staff training improved the nursing staff's professional skills and awareness of standardized operations, reducing the occurrence of errors during indwelling needle placement and maintenance [10]. The development of a unified operation manual provided clear guidelines for nursing operations, ensuring consistency and standardization. Increased patient education enabled patients to better understand the importance of indwelling needle care and actively cooperate, reducing the risk of complications caused by improper self - care.

The improvement in patient satisfaction was the result of multiple factors. In addition to the reduced incidence of complications, which directly improved the patient experience, better communication and more attentive care also played important roles. The QCC activities emphasized communication skills training for nursing staff, enabling them to establish better relationships with patients and meet their needs more effectively [11].

The enhancement of nursing staff's professional abilities was an important by - product of QCC activities. By participating in problem - solving processes, nursing staff had the opportunity to learn new knowledge and skills, and their practical abilities were continuously improved. The QCC also promoted teamwork among nursing staff, creating a positive learning and working atmosphere.

Comparison with Previous Studies:

Compared with previous studies on the application of QCC in indwelling needle nursing, this study achieved more significant results in terms of reducing complications and improving patient satisfaction. This may be due to the more comprehensive and systematic improvement measures adopted in this study. Previous studies often focused on a single aspect, such as only strengthening staff training or improving patient education. In contrast, this study comprehensively considered multiple influencing factors and formulated corresponding countermeasures, achieving a synergistic effect.

Implications for Nursing Practice:

The results of this study have important implications for clinical indwelling needle nursing practice. First, it is recommended that more healthcare institutions introduce Quality Control Circles into indwelling needle nursing management. QCC can effectively mobilize the enthusiasm and initiative of frontline nursing staff, promoting continuous quality improvement. Second, continuous staff training and education should be emphasized to ensure that nursing staff master the latest indwelling needle nursing techniques and standardized operating procedures. Third, patient education should be strengthened to improve patients' self - care ability and compliance. Finally, it is necessary to establish a long - term quality - monitoring and improvement mechanism to ensure the sustainable improvement of indwelling needle nursing quality.

Limitations and Future Research Directions.

This study also has some limitations. First, the sample size was relatively small, and the study was only conducted in a single department of one hospital, which may limit the generalizability of the results. Second, the study period was relatively short, and the long - term effectiveness of QCC in indwelling needle nursing management needs further verification. In future research, larger - scale, multi - center studies should be carried out to more comprehensively evaluate the application effect of QCC. Long - term follow - up research should also be conducted to observe the long - term impact of QCC on indwelling needle nursing management. In addition, the application of new technologies, such as information technology, in QCC for indwelling needle nursing management can be explored to improve the efficiency and accuracy of quality improvement.

Conclusion.

Summary of the Study:

This study explored the application of Quality Control Circles in indwelling needle nursing management. Through the implementation of QCC activities, the incidence of indwelling needle - related complications was significantly reduced, patient satisfaction was improved, and the professional abilities of nursing staff were enhanced. The results demonstrated the effectiveness of QCC in promoting the improvement of indwelling needle nursing management.

Significance of the Research:

The research results provide practical experience and theoretical support for the application of QCC in clinical indwelling needle nursing management. It shows that QCC can be an effective quality - improvement method in indwelling needle nursing, which is conducive to ensuring patient safety, improving the quality of nursing services, and promoting the professional development of nursing staff.

Future Outlook:

It is expected that more healthcare institutions will pay attention to and apply Quality Control Circles in indwelling needle nursing management in the future. With continuous

exploration and improvement, QCC will play an even more important role in promoting high - quality nursing services and improving the overall level of healthcare.

Funding.

No funding was received for this research.

Conflict of Interest.

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Ethical approval.

Not application.

Data Availability.

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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