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The Effect of the Integrated Healthcare Working Model on Compliance Behaviour and Complications in Children with Inguinal Hernia in the Perioperative Laparoscopic Period

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Abstract: This study aimed to explore the application effect of the medical and nursing integration working mode in children with inguinal hernia undergoing laparoscopic surgery and to provide a basis for its clinical promotion. A total of 70 children with inguinal hernia admitted to our hospital from July 2023 to June 2024 and treated with laparoscopic surgery were selected as study subjects and randomly divided into an observation group and a control group, with 35 cases in each. Both groups received routine nursing care, while the observation group additionally adopted the integrated medical and nursing working mode, including systematic health education, psychological interventions, and postoperative follow-up from admission to discharge. The anxiety and depression scores of the two groups before and after surgery, medical compliance index, and incidence of complications during hospitalization were compared. Results showed that the preoperative anxiety scores of the observation and control groups were (14.01 ± 1.07) and (14.62 ± 2.31), respectively, with no statistically significant difference ($P > 0.05$); however, postoperative anxiety scores were significantly lower in the observation group (4.01 ± 0.77) compared to the control group (6.62 ± 0.31) ($P < 0.05$). Similarly, preoperative depression scores were (15.11 ± 1.22) in the observation group and (15.41 ± 2.01) in the control group ($P > 0.05$), but postoperative depression scores were significantly reduced in the observation group (4.24 ± 0.61) compared to the control group (7.12 ± 0.54) ($P < 0.05$). After intervention, the medical compliance behavior index in the observation group was (83.31 ± 5.92), significantly higher than (75.34 ± 6.73) in the control group ($P < 0.05$). Regarding postoperative complications, only 1 case (2.86%) occurred in the observation group, while 8 cases (22.86%) were reported in the control group, showing a statistically significant difference ($P < 0.05$). In conclusion, the medical and nursing integration working mode effectively improves the perioperative psychological state of children, enhances medical compliance, reduces postoperative complications, and is worthy of widespread clinical application.

Keywords: Healthcare integration; Inguinal hernia; Laparoscopy; Compliance behaviour; Complications

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1. Introduction

Inguinal hernia is one of the common surgical diseases in children, and laparoscopic surgery has become the main treatment modality due to its advantages of less trauma and faster recovery. However, surgery, as a stressor, is prone to trigger negative emotions such as anxiety and depression in children, affecting their perioperative psychological status and postoperative recovery. In addition, the level of children's compliance and the incidence of postoperative complications are also important factors affecting treatment outcomes. In recent years, the healthcare integration working model has been gradually applied in clinical practice because of its emphasis on healthcare coordination and whole process management. However, its specific effects on children undergoing laparoscopic surgery for inguinal hernia still need to be further explored.

The medical and nursing integration work mode refers to a work mode in which medical and nursing personnel to carry out planned medical and nursing care services for patients according to the changes and needs of the patient's condition and needs during the entire diagnosis and treatment process, so that the patient can obtain the best treatment effect through medical and nursing collaboration. Its main contents include: (1) patient-centred, improve service quality; (2) adhere to the people-oriented, establish a new concept of nurse-patient relationship; (3) give full play to the role of nurses and doctors, improve the patient experience; (4) establish a communication platform between doctors and patients, strengthen the exchange of information and feedback, and promote health education; (5) strict implementation of laws and regulations, improve the quality of nursing care and safety, and to do a good job in health knowledge propaganda and education [1]. At present, the hospital has carried out the integrated work model of health care, which has been successfully applied to paediatric orthopaedics, neonatology and other departments, all with good results.

In this study, approximately 70 children with inguinal hernia who underwent laparoscopic surgery from July 2023 to June 2024 at the Affiliated Hospital of Hebei University were selected as research subjects. The study aimed to explore the application effect of the healthcare integration work model in children undergoing laparoscopic surgery for inguinal hernia. By comparing anxiety and depression scores, treatment compliance indices, and postoperative complication rates between two groups, the study assessed the impact of this model on the children's perioperative psychological status, adherence to medical treatment, and incidence of postoperative complications. By comparing the anxiety and depression scores and the incidence of postoperative complications between the two groups, we assessed the effect of this model on the perioperative psychological state, treatment compliance and postoperative recovery of the children, and provided a scientific basis for the popularization and application of the healthcare integration model in clinical practice.

2. Information and methodology

2.1. Selection of general information

Seventy children with inguinal hernia admitted to our hospital from July 2023 to June 2024 and treated with laparoscopic surgery were selected as study subjects. Among them, 35 children were assigned to the observation group, including 25 males and 10 females, with ages ranging from 3 to 16 years, an average age of 8.36 ± 1.24 years, and an average disease duration of 3.69 ± 1.04 months. The control group also included 35 children, consisting of 20 males and 15 females, aged between 4 and 15 years, with an average age of 8.64 ± 1.39 years and an average disease duration of 3.12 ± 1.06 months. There was no statistically significant difference between the two groups in terms of gender, age, disease duration and other general conditions ($P > 0.05$). All children met

the requirements of the Diagnostic and Efficacy Criteria for Paediatric Surgical Diseases regarding the indications for laparoscopic surgery for inguinal hernia [2]. Children with severe dysfunction of the heart, liver, lungs, or other organs; those with concurrent endocrine or hematological system diseases; those suffering from severe anxiety, depression, schizophrenia, or other psychiatric disorders; those who explicitly refused surgical treatment prior to the operation; and those unable to cooperate with the surgical procedure were excluded from the study.

2.2. Methodology

The control group adopts routine nursing measures, including basic nursing care (such as regular feeding, sleep monitoring, defecation and urination guidance, skin cleaning, condition observation, turning and patting the back, language comfort, pain management), psychological counselling (such as explaining the knowledge of the disease, describing the surgical process, introducing the precautions for postoperative life, understanding the needs of the children, etc.), and health education (such as dietary contraindications, exercise modalities, preventing colds and flu, avoiding infections, prevention of constipation, etc.).

The observation group received care based on the healthcare integration model, in which medical and nursing staff jointly participated in the entire perioperative treatment and care process from the day of the child's admission to the day of discharge. This included: (1) providing psychological counseling and health education before surgery, covering preoperative preparation, surgical procedures, postoperative precautions, and guidance on self-care after discharge; (2) during hospitalization, enhancing ward rounds, closely monitoring the child's condition, and offering training to family members on relevant knowledge and basic nursing skills to ensure they are equipped to assist in care; (3) conducting postoperative follow-up, where detailed explanations were given to the parents regarding the follow-up schedule, location, and necessary information to improve compliance; (4) during hospitalization, strengthen the rounds, keep an eye on the child's condition, and train the family members to master the basic nursing skills; (5) postoperative follow-up, explaining in detail to the parents of the child the time and place of the follow-up visit and the information they need to provide, to improve their compliance [3].

2.3. Observation indicators

Observation and analysis of compliance (higher scores represent better compliance) and complications, as well as the psychological state of the children in both groups, including depression and anxiety using the Self-Depression Scale (SDS) and the Self-Anxiety Scale (SAS), respectively, with lower scores representing a better psychological state.

2.4. Statistical methods

SPSS 23.0 software was used for statistical analysis. Measurement data were expressed as mean ± standard deviation ($\bar{x} \pm s$), and comparisons between groups were conducted using the t-test. Count data were expressed as rates (%), and comparisons were performed using the chi-square (χ^2) test. A P-value of less than 0.05 was considered to indicate a statistically significant difference.

3. Results

3.1. Comparison of preoperative and postoperative psychological status of children in two groups

The preoperative anxiety score in the observation group was (14.01 ± 1.07), and in the control group was (14.62

± 2.31), with no statistically significant difference between the two groups ($P > 0.05$). The postoperative anxiety score was (4.01 ± 0.77) in the observation group and (6.62 ± 0.31) in the control group, showing a statistically significant difference ($P < 0.05$). The preoperative depression score was (15.11 ± 1.22) in the observation group and (15.41 ± 2.01) in the control group, with no statistically significant difference ($P > 0.05$). However, the postoperative depression score was (4.24 ± 0.61) in the observation group and (7.12 ± 0.54) in the control group, and the difference was statistically significant ($P < 0.05$). The results are shown in **Table 1**.

Table 1. Comparison of preoperative and postoperative psychological status of children in the two groups [($\bar{x}$ ± s), points]

Groups	Anxiety		Depression	
	Preoperative	Postoperative	Preoperative	Postoperative
Observation group (n = 35)	14.01 ± 1.07	4.01 ± 0.77	15.11 ± 1.22	4.24 ± 0.61
Control group (n = 35)	14.62 ± 2.31	6.62 ± 0.31	15.41 ± 2.01	7.12 ± 0.54
t	1.418	18.602	0.755	20.914
P	> 0.05	0.000	> 0.05	0.000

3.2. Comparison of complication rate and compliance behaviour index of children after surgery in two groups

Based on **Table 2**, after the intervention of healthcare professionals, the index of compliance behaviour was (83.31 ± 5.92) in the observation group and (75.34 ± 6.73) in the control group, and the difference was statistically significant ($P < 0.05$). Among the 35 children in the observation group, there was 1 case of postoperative complications, accounting for 2.86%, while in the control group, 8 cases of postoperative complications were observed among 35 children, accounting for 22.86%. The difference between the two groups was statistically significant ($P < 0.05$).

Table 2. Comparison of complication rate and compliance behaviour index of children after surgery in two groups

Groups	Compliance behaviour index [($\bar{x}$ ± s), score]	Complication rate [n (%)]
Observation group (n = 35)	83.31 ± 5.92	1 (2.86)
Control group (n = 35)	75.34 ± 6.73	8 (22.86)
t/x^2	6.581	4.590
P	0.000	0.032

4. Discussion

In recent years, with the advancement of surgical techniques, especially the widespread application of laparoscopic technology, children with inguinal hernia have become the primary candidates for laparoscopic surgery. This approach offers significant advantages, including minimal postoperative pain and rapid recovery. However, challenges remain, such as children's inability to fully cooperate during the treatment process and heightened fear or anxiety related to surgery. Therefore, the implementation of effective psychological interventions can improve the compliance of the children so that they can better adapt to life after surgery.

In this study, the observation group adopted the healthcare integration model, wherein the responsible

nurse registered the children's information prior to admission and established a dedicated medical file. During hospitalization, healthcare staff provided detailed explanations of the children's condition and treatment process, while conducting health education and psychological interventions to address any concerns. Before discharge, the responsible nurse offered feedback to the parents regarding the children's condition and recovery status and provided comprehensive guidance on postoperative follow-up to ensure continuity of care. Through this whole process of health management mode, not only the children's understanding of the disease is enhanced, but also their fear of surgery is reduced.

This study demonstrates that following the implementation of the healthcare integration model, children's anxiety and depression levels were significantly reduced ($P < 0.05$), and compliance behavior was markedly improved ($P < 0.05$), indicating that the healthcare integration model effectively alleviates perioperative anxiety, enhances treatment compliance, and facilitates postoperative recovery. Furthermore, the incidence of complications during hospitalization was significantly lower after adopting the healthcare integration model ($P < 0.05$), which may be attributed to the ability of healthcare providers and caregivers to promptly identify abnormalities and implement timely interventions, thereby reducing the occurrence of postoperative complications. These findings are consistent with previous reports in the literature [4, 5].

The reason for this may be that under the integrated healthcare working model, healthcare professionals can provide professional and caring nursing services to children and their families from the patient's perspective and to solve practical problems, thus helping children to overcome anxiety in the process of medical treatment, reduce stress reactions, and improve compliance behaviours. Under this model, the medical staff will formulate personalized care measures according to the specific conditions of the child, to alleviate the discomfort of the child after surgery and reduce the incidence of complications. The integrated care model emphasizes multidisciplinary cooperation, such as anaesthesiologists, operating theatre nurses, rehabilitation physicians, etc., to participate in postoperative management of children, which ensures that all care measures are fully implemented [6, 7]. The integrated medical and nursing model gives full play to the spirit of teamwork, prompting each medical and nursing staff to actively participate in the process of diagnosis and treatment of children, which is conducive to the early recovery of children.

In this study, we adopted a model of healthcare integration, changing the role of nurses from "passive implementation of medical advice" to "active intervention", which can effectively reduce children's anxiety and depression, improve children's and parents' compliance with medical treatment, and reduce the occurrence of postoperative complications [8–10]. In the author's opinion, the implementation of the integrated work model of health care should pay attention to the following points:

(1) The training of health care personnel should be strengthen so that health care personnel have an in-depth understanding of the psychological characteristics of children, master the relevant medical knowledge, and have strong psychological counselling ability and communication skills.

(2) For some special diseases such as childhood malignant tumours and other children, due to the long treatment cycle, it is often easy to give up the treatment due to the family's financial difficulties. Therefore, hospitals can actively seek assistance from society. For example, the Shanghai Charity Foundation and other units have set up special assistance programmes for such children, to effectively help children and their families to solve practical difficulties.

(3) In the specific operation, it can also be combined with the technology of "Internet + Healthcare", using micro letter, public number, APP, etc. to provide online assistance to children. Public number, APP and other

online follow-up, timely access to the progress of the child's recovery, to facilitate medical staff to grasp the psychological condition of the child, but also to allow the child's family to better understand the child's recovery, thereby enhancing mutual trust between doctors and patients, and improving patient satisfaction [11].

The incidence of paediatric inguinal hernia is high, and complications are prone to occur during treatment. The previous clinical care model can no longer meet the needs of modern paediatric disease diagnosis and treatment and patient services, and the establishment of a patient-centred, healthcare-led integrated working model can improve the doctor-patient relationship and enhance the quality and efficiency of medical care.

5. Conclusion

In conclusion, the integrated working model of health care can effectively improve the perioperative psychological state of children undergoing laparoscopic surgery for inguinal hernia, improve the level of medical compliance, and reduce the incidence of postoperative complications, which has significant clinical promotion value. However, there are some limitations in this study, such as a small sample size and no prospective study, so the relevant conclusions need to be further verified. In the future, the promotion of the integrated medical and nursing work model should be strengthened and further explore its specific application and effect in paediatric surgery, to give full play to its role and provide more high-quality and efficient services for the majority of children.

Disclosure statement

The authors declare no conflict of interest.

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