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Guidance of WeChat Applet for Hospitalization Improve Satisfaction and Shorten Preoperative Preparation Time for Advanced Gastric Cancer Patients: A Randomized Clinical Trial

Zhihao Yu, Jie Liang, Xintong Sun, Zhishuo Li, Miaosi Zhang, Xindi Zhang, Tian Lin, Yanfeng Hu, Liying Zhao, Xinhua Chen

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Zhihao Yu[1]; Jie Liang[1]; Xintong Sun[1]; Zhishuo Li[1]; Miaosi Zhang[1]; Xindi Zhang[1]; Tian Lin[1]; Yanfeng Hu[1]; Liying Zhao[1]; Xinhua Chen[1]

[1] Southern Medical University Guangzhou CN

Corresponding Author:
Xinhua Chen

Southern Medical University
xinhuachen03@163.com
Guangzhou
CN

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Abstract

Background: The improvement of patient experiences formulates essential for medical service enhancement. Our previous practices have revealed that the utility of the comprehensive hospitalization guidance via WeChat Applet improve satisfaction and shorten preoperative preparation time for advanced gastric cancer(AGC) patients. However, its efficiency have not yet been verified by randomised trial.

Objective: Thus, we conducted this open-label, randomized clinical superiority trial to compare the satisfaction and preoperative preparation efficiency of WeChat Applet gaidance and traditional verbal notification for hospitalization for AGC patients.

Methods: This was a superiority, open-label, randomized clinical trial. A total of 152 eligible patients with clinical AGC were enrolled from January 2024 to December 2024. Participants were randomized in a 1:1 ratio after stratification by simple randomization to hospitalization guidance via either WeChat Applet (experimental group, n=76) or traditional verbal notification(control group, n=76). The satisfaction and preoperative preparation efficiency were compared between two groups.

Results: The level of anxiety among caregivers handling the admission procedures demonstrated a marked decrease by WeChat Applet of guidance for hospitalization [pre-guidance 5.1±3.5 vs. post-guidance 2.7±2.7, exhibiting a pair difference of 2.368 (95% CI: 1.684 to 3.053), t=6.889, P<0.001]. There was no difference in the anxiety level of caregivers involved in the admission procedure prior to the guidance between the experimental group and the control group [5.1±3.5 vs 4.9±3.0, t=0.398, P=0.691], however, there was a significant difference after guidancing, with the anxiety level in experimental group notably lower than that in control group [2.7±2.7 vs. 4.2±2.9, t=3.254, P=0.001]. The experimental group consistently scored lower on the hospital registration difficulty scale compared to the control group (Z=4.272, P<0.001). The completeness score of the prepared materials upon admission was significantly higher in the experimental group (Z = 6.861, P < 0.001). The experimental group was more likely to express satisfaction with the hospitalization registration process than the control group (Z=8.307, P<0.001). The duration of the preoperative waiting workdays after hospitalization in the experimental group was noticeably reduced compared to the control group [4.3±1.4 vs. 5.2±2.3, t=2.954, P=0.004]; Similarly, the preoperative waiting days after hospitalization [6.4±3.2 vs. 6.4±2.0, t=2.208, P=0.029] in the experimental group were markedly less than those in the control group.

Conclusions: The comprehensive hospitalization guidance via WeChat Applet improve satisfaction and shorten preoperative preparation time for AGC patients. This model is worth learning and promoting in more surgical diseases. Clinical Trial: www.medicalresearch.org.cn:MR-44-24-009862

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Guidance of WeChat Applet for Hospitalization Improve Satisfaction and Shorten Preoperative Preparation Time for Advanced Gastric Cancer Patients: A Randomized Clinical Trial

Yu Zhihao[1#] B.D., Liang,Jie [2#] M.D., Xintong Sun[1#] B.D., Li Zhishuo[2] M.D., Zhang Miaosi [1] B.D., Xindi Zhang [1] B.D., Hu Yanfeng[2] M.D., Ph.D., Tian Lin[2] M.D., Zhao Liying[2] Ph.D., Chen Xinhua[2*] M.D., Ph.D.

1. Department of General Surgery, Southern Medical University Nanfang Hospital, Guangzhou, China;

2. The First Clinical Medical School, Southern Medical University, Guangzhou, 510515, Guangdong, China

#Z.Y. and J.L. and X.S contributed equally to this work.

*Correspondence: Xinhua Chen. E-mail: xinhuachen03@163.com

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Abstract

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Conclusions: The comprehensive hospitalization guidance via WeChat Applet improve satisfaction and shorten preoperative preparation time for AGC patients. This model is worth learning and promoting in more surgical diseases.

Keywords Hospitalization process, WeChat Applet, Medical services, Medical efficiency, Medical experience.

Introduction

Recently, the National Health Commission and the State Administration of Traditional Chinese Medicine have kindly issued a notice regarding the execution of a series of theme initiatives designed to elevate medical service quality and amplify patient satisfaction levels. Spanning from 2023 to 2025, these theme activities are set to rollout nation-wide, aiming to comprehensively address pressing medical issues, optimize the medical journey, enhance patient satisfaction, and ensure all individuals reap the benefits of superior public hospital development. Enhancing patient experience has become a critical component of improving healthcare services. Patients now demand not only clinical expertise but also convenience, comfort, and efficiency throughout their care.

However, traditionally, the process of guiding patients through the complexities of hospitalization and preoperative preparation has relied heavily on conventional methods. These include verbal explanations provided during clinic visits or telephone notification. While these methods have been the standard of care for decades, they are fraught with significant limitations. Information delivered orally is highly susceptible to being forgotten, misunderstood, or distorted due to the overwhelming stress and anxiety. The infamous "information overload" experienced by patients during a short consultation can lead to poor retention of crucial details. Paper documents, on the other hand, can be easily misplaced, become outdated quickly, and lack interactivity, making them passive and often ineffective tools for patient engagement[1]. This inefficient communication funnel frequently results in delayed appointments, missed preparations, and repeated clarifications, ultimately prolonging the preoperative waiting period. For patients, this delay translates into heightened psychological distress, increased financial burden, and a deterioration in the patient experience. For the hospital, it leads to operational inefficiencies, including suboptimal bed utilization and increased workload on nursing and administrative staff who must constantly re-educate and guide anxious patients and their families[2].

In recent years, the rapid advancement of digital health technologies has opened new avenues for enhancing patient care and streamlining clinical processes. Mobile health (mHealth) applications, in particular, have emerged as powerful tools for patient education, communication, and chronic disease management[3, 4]. They offer the potential to deliver standardized, accessible, and personalized information directly to patients' smartphones, thereby overcoming many of the barriers associated with traditional methods. Within the vast landscape of mHealth in China, the WeChat Applet platform represents a uniquely powerful and integrated solution. WeChat, with over a billion active users in the country, is deeply embedded in the daily fabric of society. WeChat Applets are lightweight applications that operate within the WeChat ecosystem without requiring separate download and installation, offering instant access and a seamless user experience. This platform provides an ideal framework for developing structured, interactive, and multimedia-rich guidance modules that can walk patients through every step of their hospital journey[5, 6, 7, 8].

Notably, gastric cancer—one of the most common and lethal malignancies—has entered an era of precision therapy [9, 10, 11]. Precise preoperative staging and molecular subtyping are essential for tailoring individualized treatment plans[12, 13]. For gastric cancer patients, admission requires not only general health and organ function assessments but also detailed evaluations of tumor location, TNM staging, and molecular subtypes to optimize therapeutic strategies[14, 15, 16].Yet significant challenges persist in clinical implementation. The acquisition of histopathological specimens for molecular characterization—particularly for locally advanced cases—frequently necessitates inter-institutional coordination to retrieve gastroscopy slides or repeat biopsy procedures at different centers[14, 15, 17]. This process often prolongs preoperative preparation,

creating systemic inefficiencies. Moreover, our clinical observations reveal that >60% of patients lack awareness of essential documentation requirements (including hematoxylin-eosin stained sections, unstained slides/paraffin blocks, and complete imaging studies) at initial consultation. This knowledge gap frequently compels patients to undertake redundant travel between local hospitals and specialist centers to procure missing materials, substantially delaying treatment initiation, extending hospitalization durations, and compromising healthcare experiences. Operational barriers further compound these challenges. The complex architecture of large medical institutions—characterized by multidisciplinary service distribution across multiple floors—often confounds patient navigation. Patients frequently report difficulties in locating specialized examination units, accessing rehabilitation resources, and coordinating post-discharge follow-ups, highlighting systemic way finding deficiencies.

To address these multidimensional challenges, the Department of General Surgery at Nanfang Hospital of Southern Medical University has developed "GastricCare Navigator"—a WeChat Applet designed to optimize the care continuum(Figure 1).This WeChat Applet was developed using the third-party no-code development platform "Zion," with each page created following the platform's instructional videos. This digital intervention provides stage-specific guidance spanning:(1)Pre-admission preparation (documentation checklist, external slide retrieval protocols);(2)Hospitalization workflow (real-time navigation, examination sequencing);(3)Postoperative rehabilitation (dietary guidance, complication monitoring);(4)Transitional care (insurance reimbursement pathways, follow-up scheduling). Our previous practices have revealed that the utility of the comprehensive hospitalization guidance via WeChat Applet improve satisfaction and shorten preoperative preparation time for AGC patients. However, its efficiency have not yet been verified by randomised trial. Thus, we conducted this open-label, randomized clinical superiority trial to compare the satisfaction and preoperative preparation efficiency of WeChat Applet gaidance and traditional verbal notification for hospitalization for AGC patients.

Methods

Study design and patients

This phase 2, randomized clinical superiority study was conducted (www.medicalresearch.org.cn:MR-44-24-009862), with the aim of investigating efficacy and satisfaction of of WeChat Applet gaidance and traditional verbal notification for hospitalization for AGC patients. Patients were enrolled from Nanfang hospital. Participants were randomly assigned in a 1:1 ratio to groups that hospitalization guidance via (experimental group, n=76) or traditional verbal notification(control group, n=76)(Figure 2). The enrollment period was from January, 2024 to September, 2024. The study protocol was approved by the Ethics Committee of Nanfang Hospital (NFEC-2024-066).

Inclusion and Exclusion Criteria

Inclusion Criteria

Patients were enrolled in the study if they met all of the following criteria:

(1)Aged between 18 and 75 years.

(2)Underwent preoperative gastroscopy at an external hospital, with a pathological diagnosis suggestive of gastric adenocarcinoma.

(3)Preoperative clinical staging assessed as cT2-4NxM0, with a planned laparoscopic gastric cancer surgery.

(4)Able to provide pathological slides (both stained and unstained) and/or paraffin blocks from the external hospital for centralized immunohistochemical analysis (including PD-L1, HER-2, PMS2, MLH1, MSH2, MSH6, EBER) at our institution.

(5)Underwent preoperative contrast-enhanced computed tomography (CT) of the entire abdomen or

positron emission tomography (PET) scan, either at an external hospital or our institution.
(6)Had an Eastern Cooperative Oncology Group (ECOG) performance status score of 0 or 1.
(7)Had an American Society of Anesthesiologists (ASA) physical status classification of I or II.

Exclusion Criteria

Patients were excluded from the study based on any of the following criteria:
(1)Refusal to undergo laparoscopic surgery (resection or exploration) after hospital admission.
(2)Pregnancy or lactation.
(3)Preoperative body temperature ≥38°C or concurrent infectious disease requiring systemic therapy.
(4)Severe respiratory system disease.
(5)Severe hepatic or renal dysfunction.
(6)History of unstable angina or myocardial infarction within the past 6 months.
(7)History of cerebral infarction or cerebral hemorrhage within the past 6 months.
(8)Requirement for emergency surgery due to complications of gastric cancer (e.g., bleeding, perforation, obstruction).
(9)Patient or family refusal to participate in the study or complete the questionnaires.

Questionnaire Distribution and Collection

The questionnaires were administered and collected by the same designated physician from the research team one day prior to the surgery. The physician communicated with the family members who handled the admission procedures, conducted the survey, and explained that the purpose of the questionnaire was to "collect objective and honest feedback based on the overall hospitalization experience of both the patient and family members, in order to improve the process and enhance the future experience and efficiency for patients and their families." Each question was explained in detail to ensure clarity. The survey content included: (1) Baseline characteristics of the family members who handled the admission procedures, including gender, age, and educational level; (2)The level of anxiety score of caregivers handling the admission procedures.(3) The level of difficulty scores of hospital registration process.(4) The level of satisfaction scores with the hospitalization registration process.

End Points

The primary end point was the duration of preoperative waiting workday after hospitalization. Secondary end points included : (1)The preoperative waiting period after hospitalization;(2)The level of anxiety of caregivers handling the admission procedures before and after receiving the guidance; (3) The level of completeness score of the prepared materials upon admission;(4) Difficulty scale of hospital registration process; (5)Satisfaction scale with the registration process

Evaluation Criteria

(1)The level of anxiety score of caregivers handling the admission procedures: Based on the respondent's perception. The anxiety score was rated on an 11-point scale from 0 to 10, with 0 indicating no anxiety at all and 10 indicating extreme anxiety.
(2) The level of difficulty scores of hospital registration process: Based on the respondent's perception. The difficulty level was rated on a 5-point scale from 0 to 4: 0 indicating no difficulty at all, 1 indicating almost no difficulty, 2 indicating slight difficulty, 3 indicating moderate difficulty, and 4 indicating extreme difficulty.
(3) The level of completeness score of the prepared materials upon admission: Key consultation materials, such as hematoxylin-eosin (HE) stained slides, unstained slides or paraffin blocks, and CT films, that were not brought initially and required borrowing from the local hospital for consultation at our institution. The completeness score was rated on a 5-point scale from 0 to 4: 0 indicating no documents brought, 1 indicating incompletely brought, 2 indicating basically complete, 3 indicating

relatively complete, and 4 indicating all documents brought.
(4) The level of satisfaction scores with the hospitalization registration process: Rated on a 5-point scale from 0 to 4: 0 indicating very dissatisfied, 1 indicating dissatisfied, 2 indicating basically satisfied, 3 indicating relatively satisfied, and 4 indicating very satisfied.
(4) Time to complete preoperative preparations after hospitalization: The day of admission was counted as the first day after hospitalization. The time taken from admission until the preoperative assessment was completed and surgery could be scheduled was defined as the time to complete preoperative preparations.
(5) Preoperative waiting time after hospitalization: The day of admission was counted as the first day after hospitalization. The duration from admission to the day of surgery was defined as the preoperative waiting time.

Statistical analysis

Statistical analysis was conducted using SPSS 22.0. Normality distributed measures are presented as x±s, with independent t-test for intergroup comparisons and paired t-test for intragroup ones. Counts were displayed as absolute values, tested with χ^2 test for intergroup comparison. For ordinal data, the Mann-Whitney U test was used. A P value <0.05 signifies statistical significance. We obtained institutional review board approval, according to local regulations. Patients provided written informed consent.

Results

Participant Characteristics

A total of 152 patients with AGC and their primary caregivers were enrolled, with 76 participants allocated to each group. The sex distribution of patients was identical between the two groups: 63.2% were male and 36.8% were female in both groups ($\chi^2 < 0.001$, $p = 1.000$). However, there was a statistically significant difference in the mean age of patients between the groups. The Control Group had a mean age of 61.8 ± 10.5 years, while the Experimental Group had a mean age of 57.2 ± 11.9 years ($t = 2.517$, $p = 0.013$).Regarding the caregivers who handled the admission procedures, no significant differences were observed in sex distribution between the groups ($\chi^2 = 0.027$, $p = 0.871$). The mean age of caregivers was also comparable between the two groups ($t = 1.175$, $p = 0.242$).

2. The level of anxiety score of caregivers handling the admission procedures

There was no statistically significant difference in the anxiety levels of caregivers handling the admission procedures before receiving process guidance between the experimental group (5.1 ± 3.5) and the control group (4.9 ± 3.0) ($t = 0.398$, $P = 0.691$). After receiving guidance, the anxiety score of family members in the experimental group significantly decreased to 2.7 ± 2.7, with a mean paired difference of 2.368 (95% CI: 1.684 to 3.053). This change before and after guidance was statistically significant ($t = 6.889$, $P < 0.001$). In the control group, the anxiety score after guidance was 4.2 ± 2.9, with a mean paired difference of 0.684 (95% CI: 0.431 to 0.938), which also represented a statistically significant reduction ($t = 5.373$ $P < 0.01$). However, the post-guidance anxiety score in the experimental group was significantly lower than that in the control group ($t = 3.254$, $P = 0.001$). See Table 2.

3. Efficiency and Satisfaction Scores of Hospital Registration Process

The level of difficulty scores of hospital registration process, was significantly lower in the experimental group than in the control group ($Z = 4.272$, $P < 0.001$). The completeness score of the prepared documentation upon admission was significantly higher in the experimental group ($Z = 6.861$, $P < 0.001$). Furthermore, the level of satisfaction scores with the hospitalization registration

process in the experimental group significantly higher than those in the control group (Z = 8.307, P < 0.001). See Table 2.

4. Efficiency of Preoperative Preparation

The experimental group demonstrated a shorter preoperative waiting time compared to the control group (6.3 ± 2.0 days vs. 7.3 ± 3.2 days; t = -2.208, P = 0.029). Consistently, preoperative waiting *workdays* (excluding weekends/holidays) were reduced in the intervention group (4.3 ± 1.4 vs. 5.2 ± 2.3; t = -2.954, P = 0.004).See Table 3.

Discussion

This randomized clinical trial demonstrates that a structured, digitalized guidance system delivered via a WeChat Applet significantly improves the hospitalization experience for patients with AGC and their caregivers. Specifically, the intervention reduced anxiety among caregivers, enhanced the completeness of prepared medical materials, lowered perceived difficulty of hospital registration, increased satisfaction with the admission process, and shortened both preoperative waiting days and workdays. These findings underscore the potential of mobile health technologies to optimize complex clinical pathways and improve healthcare delivery in resource-intensive settings.
The significant reduction in anxiety levels among caregivers in the experimental group highlights a critical emotional benefit of structured digital guidance. Anxiety often arises from uncertainty and lack of information, particularly in the context of cancer care where procedures are complex and outcomes are uncertain. Traditional verbal or paper-based instructions are prone to misinterpretation and forgetfulness, especially under stress. The WeChat Applet provided consistent, accessible, and repeatable information, which likely reduced cognitive load and enhanced emotional preparedness. This aligns with broader evidence that mHealth interventions can alleviate psychological distress by improving health literacy and situational control among patients and families. Multiple studies indicate that digital psychological interventions improve caregiver self-efficacy and reduce depression levels , with anxiety relief being one of the core benefits[18, 19, 20]. Similarly, a psychosocial digital application (BMT-CARE App) has been proven that it could lead to significantly improved QOL, caregiving burden, depression, and post-traumatic stress disorder (PTSD) symptoms among hematopoietic stem-cell transplantation caregivers[21].

Moreover, the higher completeness scores of documentation at admission in the experimental group reflect the Applet's efficacy in communicating precise pre-admission requirements. Missing or incomplete medical materials—such as histopathological slides or imaging records—are a common cause of treatment delays in oncology, often necessitating additional visits or inter-institutional coordination. By providing a clear, itemized checklist and contextual guidance, the Applet empowered patients and families to prepare more effectively, thereby reducing administrative bottlenecks and accelerating preoperative workflows. This is particularly relevant in China, where fragmented healthcare systems and large patient volumes often exacerbate coordination challenges.Consistently, A counseling intervention powered by ChatGPT significantly alleviated anxiety and depression in newly diagnosed cancer patients before initiating chemotherapy. Specifically, the ChatGPT group demonstrated markedly lower median HADS-Anxiety scores (6 [0–17] vs. 8 [1–17]; P = 0.002) and HADS-Depression scores (6 [0–20] vs. 9 [0–19]; P < 0.001) compared to the control group. Moreover, the use of ChatGPT emerged as the strongest predictor of anxiety reduction (OR = 18.684; 95% CI: 3.981–87.685; P < 0.001)[22]. Similarly, a randomized controlled trial to investigate the efficacy of Digital Therapeutic (Mika) , an app-based digital

therapeutic designed to reduce distress across the cancer trajectory,reported greater reductions in distress (P=.03; ηp^2=0.02), depression (P<.001; ηp^2=0.07), anxiety (P=.03; ηp^2=0.02), and fatigue (P=.04; ηp^2=0.02)[23].

The reduction in perceived difficulty and increase in satisfaction with the registration process further attest to the user-centered design of the digital tool. Large hospitals in China are often perceived as maze-like, with services dispersed across multiple departments and floors[24]. The Applet's real-time navigation and step-by-step guidance likely mitigated wayfinding challenges, reducing frustration and enhancing the overall experience[25]. Such improvements are not merely perceptual—they directly influence operational efficiency by decreasing the need for staff assistance and reducing repeated inquiries.

Most importantly, the shortening of preoperative waiting time—both in calendar days and workdays—represents a tangible clinical and operational benefit[26]. Prolonged preoperative stays are associated with increased healthcare costs, patient anxiety, and hospital-acquired infections, and can delay timely treatment initiation. By streamlining preparatory steps—such as completing required examinations, retrieving external specimens, and securing interdisciplinary consultations—the Applet helped minimize non-value-added time. This efficiency gain is especially significant for AGC patients, for whom timely surgery is a critical determinant of outcomes.

Our findings are consistent with a growing body of literature supporting the use of digital tools in perioperative care[27, 28, 29, 30, 31]. For instance, studies have shown that smartphone-based interventions can improve preoperative education, enhance adherence to fasting guidelines, and reduce last-minute cancellations[28, 30]. After implementing a WeChat-based life review program for patients with digestive system cancer, their psychospiritual well-being improved, indicating that the mini-program reduced the management burden[32]. In another study involving ovarian cancer patients undergoing chemotherapy, the WeChat platform was used for continuous follow-up and health monitoring, ensuring chemotherapy compliance and improving the survival rate[28]. Similarly, the utilizes of flowcharts allow a quick navigation of practical guideline on obesity care in patients with gastrointestinal and liver diseases[27]. This aligns perfectly with the design philosophy of the "GastricCare Navigator," which integrates clinical, nutritional, and metabolic management, particularly for gastrointestinal surgery patients who may have comorbid obesity. However, most existing applications focus on specific procedural aspects rather than holistic pathway support. The "GastricCare Navigator" Applet distinguishes itself by integrating multiple dimensions of care—administrative, clinical, emotional, and logistical—into a single platform, thereby addressing the multifaceted nature of the hospitalization journey.

Notably, the success of the WeChat Applet model is underpinned by the ubiquitous use of WeChat in China, which ensures high accessibility without the need for additional downloads or technical barriers[3, 33]. This stands in contrast to standalone medical apps, which often suffer from low uptake and engagement. The lightweight, integrated nature of WeChat Applets makes them particularly suitable for older or less tech-savvy populations, who represent a significant proportion of cancer patients and their caregivers.

Despite these promising results, several limitations should be acknowledged. First, this was a single-center study conducted at a high-volume tertiary hospital in China, which may limit the generalizability of findings to other settings or healthcare systems. Second, the study was open-label, which introduces the potential for performance and response bias. Although objective outcomes such as waiting time are less susceptible to bias, subjective measures like satisfaction and anxiety could be influenced by participants' awareness of group allocation. Third, the intervention involved not only digital information delivery but also structured content design; thus, the benefits may stem from both the medium and the message. Future studies could disentangle these effects through factorial designs.

Looking forward, the "GastricCare Navigator" model holds promise for extension to other surgical oncology domains, such as colorectal, hepatic, or pancreatic cancers, which similarly involve

complex preoperative pathways. Moreover, the principles of structured guidance, emotional support, and logistical coordination could be adapted to chronic disease management or postoperative follow-up, potentially reducing readmissions and improving continuity of care.

This randomized trial provides robust evidence that a WeChat Applet-based guidance system can significantly enhance the hospitalization experience and operational efficiency for AGC patients. By reducing anxiety, improving preparation, and shortening preoperative delays, this digital intervention addresses key pain points in modern surgical care. As healthcare systems worldwide strive to become more patient-centered and efficient, such technology-enabled solutions offer a scalable and effective means to bridge the gap between clinical excellence and patient experience.

Conclusions

This randomized trial provides robust evidence that a WeChat Applet-based guidance system can significantly enhance the hospitalization experience and operational efficiency for AGC patients. As healthcare systems worldwide strive to become more patient-centered and efficient, such technology-enabled solutions offer a scalable and effective means to bridge the gap between clinical excellence and patient experience. This model is worth learning and promoting in more surgical diseases.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study protocol was approved by the Ethics Committee of Nanfang Hospital (NFEC-2024-066).

Table 1 Baseline Characteristics of the Study Subjects

	Control Group（N=76）	Experimental Group（N=76）	Statistic	P-Values
Sex of Patients [n (%)]			X<0.001	1.000
Male	48(63.2)	48(63.2)		
Female	28(36.8)	28(36.8)		
Age of patients (mean ± SD, years)	61.8±10.5	57.2±11.9	t=2.517	0.013
Sex of caregivers			X=0.027	0.871

handling the admission procedures[n(%)]				
Male	42(55.3)	41(53.9)		
Female	34(44.7)	35(46.1)		
Age of caregivers handling the admission procedures	44.5±10.1	42.5±10.2	1.175	0.242
Education level of caregivers handling the admission procedures[n(%)]			Z=-0.622	0.534
High school or below	38(50.0)	41(53.9)		
Associate degree	17(22.4)	17(22.4)		
Bachelor’s degree	17(22.4)	16(21.1)		
Graduate degree	4(5.3)	2(2.6)		

Table 2 Questionnaire Survey Results of the Study Subjects

	Control Group（N=76）	Experimental Group（N=76）	Statistic	P-Values
Anxiety score before guidance (mean±SD)	4.9±3.0	5.1±3.5	t=-0.398	0.691
Anxiety score after guidance (mean±SD)	4.2±2.9	2.7±2.7	t=3.254	0.001
Difficulty level in hospitalization registration[n(%)]				
0: Not difficult at all	46(60.5)	67(88.2)	Z=-4.272	<0.001
1: Slightly difficult	10(13.2)	9(11.8)		
2: Moderately difficult	11(14.5)	0		
3: Quite difficult	3(3.9)	0		
4: Very difficult	6(7.9)	0		
Completeness of prepared materials [n (%)]			Z=-6.861	<0.001
0: None brought	15(19.7)	0		
1: Incomplete	7(9.2)	0		
2: Quite complete	20(26.3)	6(7.9)		
3: Mostly complete	11(14.5)	8(10.5)		
4: Fully complete	23(30.3)	62(81.6)		
Satisfaction level with hospitalization registration [n (%)]			Z=-8.307	<0.001
0: Very dissatisfied	1(1.3)	0		
1: Dissatisfied	10(13.2)	1(1.3)		
2: Neutral	21(27.6)	1(1.3)		
3: Satisfied	25(32.9)	3(3.9)		
4: Very satisfied	19(25.0)	71(93.4)		

Table 3 Preoperative Preparation Time

	Control Group（N=76）	Experimental Group（N=76）	Statistic	P-Values
Preoperative waiting time after hospitalization (mean ± SD, days)	7.3±3.2	6.4±2.0	t=-2.208	0.029

Preoperative waiting workdays after hospitalization (mean ± SD, days)		5.2±2.3	4.3±1.4	t=-2.954	0.004

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Figure Legends
Figure 1. QR code for "GastricCare Navigator"—a WeChat Apple
Figure 2. Flowchart of study

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