

Original Article

Participatory management improves outpatient visiting speed and service satisfaction

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Abstract: Objective: To explore the application value of participatory management in the outpatient clinic and its impact on the outpatient visiting speed and doctor-patient disputes. Methods: Six thousand outpatients who had appointments from January 2018 to January 2019 were selected as subjects. All the outpatients were randomly divided into a study group (n=3000) using participatory management, or a control group (n=3000) using a traditional schedule. In the meantime, forty nurses serving these outpatients were selected and divided into the two groups. Every four months, the nurses' professional knowledge was assessed, and the satisfaction degree, visiting times (including the waiting and consultation times), as well as the outpatients' incidence of adverse events were recorded. Results: There were no significant differences in the results of the professional knowledge assessment between the two groups at the first time point ($P>0.050$). However, in the second and third tests, the study group showed significantly higher scores than the control group did ($P<0.001$). The results in the first test were the highest, followed by the tests at the second and third months ($P<0.001$). The outpatient satisfaction of the study group was 90.15%, which was significantly higher than that of the control group ($P<0.001$). The outpatient visiting time of the study group was significantly shorter than the control group's visiting time ($P<0.001$). The incidence of adverse events in the study group was significantly lower than it was in the control group ($P=0.002$). Conclusion: Participatory management can effectively improve the outpatient visiting speed and outpatient service satisfaction and can reduce the incidence of adverse events between doctors and patients. Participatory management has a great application potential in the outpatient clinic in the future.

Keywords: Participatory management, outpatient clinic, visiting speed, outpatient satisfaction, adverse events

Introduction

The outpatient clinic is a window into a hospital's service [1, 2]. More than 95.0% of the patients received by the hospital every day need to go through the outpatient clinic [3]. Only through the systematic examination of the outpatient doctors and the initial diagnosis of patients can outpatient doctors carry out the corresponding treatment [4]. The patients who are judged to be in a more acute or serious condition need to be transferred to the inpatient department through the outpatient department for further treatment [5]. Therefore, the outpatient service decides patients' first impression of the hospital and directly affects the patients' reliability in follow-up treatment [6]. The outpatient clinic is a place with the most types of patients and the largest workload in the hospital. Outpatient doctors and nurses need a very

short service cycle to complete the complex service content, which inevitably leads to accidents and deviations in the service process. Therefore, the outpatient clinic is also the place most prone to disputes in the hospital [7, 8]. Some data indicate that 60.0%-80.0% of the global disputes between doctors and patients occur in the outpatient clinic [9], disputes which also cause patient resistance to hospital treatment in the later stages, and which have a great negative impact on recovery. Therefore, determining how to effectively improve the efficiency and effectiveness of the outpatient clinic and reduce the incidence of disputes are particularly important.

The traditional management mode of the outpatient clinic is mainly the functional schedule, in which medical staff complete fixed work in fixed positions [10]. It also places the medical

Participatory management and outpatients

staff in a state of passive work, which has a great impact on the enthusiasm for work. At the same time, there is little communication between the medical staff and the patients in a fixed state, which can easily lead to patients' dissatisfaction in the course of treatment. It is also one of the main reasons for doctor-patient disputes [11]. The participatory management mode is a kind of work mode proposed by Carlson in 1989. The participatory management mode improves the managers' responsibility, the staff's role awareness, and the staff's work efficiency and enthusiasm by the way of everyone involved [12]. However, whether the implementation of participatory management in the outpatient clinics can improve the service of the medical staff has not been effectively determined. Therefore, this paper explores the application of participatory management in outpatient clinics through experiments, aiming to provide an effective reference and guidance for improving the efficiency of outpatient clinics and reducing doctor-patient disputes.

Materials and methods

Baseline data

Six thousand outpatients with appointments from January 2018 to January 2019 were selected as subjects. All the outpatients were randomly divided into a study group (n=3000) served by participatory management and a control group (n=3000) served using a traditional schedule. In the meantime, forty nurses serving these outpatients were selected and equally divided into the two groups. This study was approved by the Ethics Committee of our hospital, and all the above-mentioned subjects signed an informed consent.

Inclusion and exclusion criteria

The inclusion criteria included outpatients who received intravenous therapy; aged 20 to 70 years old; and who agreed to participate in the study. The exclusion criteria included patients with tumors, severe cardiovascular or cerebrovascular diseases; patients who were unable to take care of themselves; patients with a mental illness; and patients with physical disabilities.

Methods

The control group was served using a traditional schedule in which each nurse was given

assigned work content. For example, a nurse is responsible for patient registration, another nurse is responsible for blood collection, and another nurse is responsible for answering questions.

The study group adopted participatory management, which included: 1. The management team was established, common doctor-patient problems were summarized in the outpatient nursing work, and the corresponding solutions were formulated through discussions. 2. A specially assigned person was assigned to train the team members, including the outpatient service process, service courtesy, professional knowledge, communication skills, emergency handling skills and simple psychological counseling training. 3. The outpatient service process was improved to eliminate unnecessary links, and the outpatient process indicative diagram and guidance stages were placed in a prominent place to enable patients to complete outpatient treatment in the shortest amount of time. 4. The chairs and tea were set up in the outpatient clinics to encourage patients to rest. 5. A specially-assigned person was assigned to be responsible for order maintenance and giving patients directions, and the outpatients were investigated, and the treatment was modified and adjusted according to the patients' opinions.

Outcome measures

The professional knowledge assessment of the nurses took place every four months: The two groups of nurses were assessed on their professional knowledge before the start of the study, and at 4 and 8 months after training, including theoretical knowledge and nursing operations, with a total score of 100 points. The higher the score, the stronger one's professional knowledge ability. Outpatient satisfaction: an anonymous scoring survey was conducted after each outpatient treatment. The survey included questions on the patient's satisfaction with nursing staff, the nursing ability, and self-benefit. The total score was 100 points, and scores >90 indicated very satisfactory, scores 80-90 indicated satisfactory, and scores 60-79 indicated a need for improvement, and a score <60 indicated unsatisfactory. Satisfaction = (very satisfactory + satisfactory)/total * 100%. Outpatient visiting time: during the experiment, the time between the registration and the outpatient visiting was

Participatory management and outpatients

Table 1. Baseline data of the outpatients [n (%)]

	Study group (n=3000)	Control group (n=3000)	X ² or t	P
Age	36.24 l group	35.66 l group	1.405	0.160
BMI (KG/cm ²)	24.16 m group	24.37 m group	0.940	0.347
Marital status			0.693	0.405
Unmarried	1897 (63.23)	1928 (64.27)		
Single	1103 (36.77)	1072 (35.73)		
Education level			1.973	0.160
< High school	1654 (55.13)	1708 (56.93)		
≥ High school	1346 (44.87)	1292 (43.07)		
Living region			2.598	0.107
Urban	2084 (69.47)	2026 (67.53)		
Rural	916 (30.53)	974 (32.47)		
Outpatient department	727 (24.23)	716 (23.87)	0.856	0.991
Gastroenterology	622 (20.73)	631 (21.03)		
Respiratory	487 (16.23)	472 (15.73)		
Dermatology	405 (13.50)	408 (13.60)		
ENT	287 (9.57)	295 (9.83)		
Gynecology	348 (11.60)	360 (9.83)		
Pediatrics	124 (4.13)	118 (3.93)		
Gender			2.537	0.111
Male	1754 (58.47)	1693 (56.43)		
Female	1246 (41.53)	1307 (43.57)		
Nationality			1.757	1.326
Han	2884 (96.13)	2903 (96.77)		
Minority	116 (3.87)	97 (3.23)		
Smoking			2.636	0.104
Yes	1834 (61.13)	1895 (63.17)		
No	1166 (38.87)	1105 (36.83)		
Drinking			1.546	0.214
Yes	1354 (45.13)	1402 (46.73)		
No	1646 (54.87)	1598 (53.27)		

recorded, and the average outpatient visiting time of the patients was calculated. The outpatient visiting time was based on the time of medical card swiping. Incidence of risk accidents: Doctor-patient disputes were recorded during the experiment. The incidence of adverse events = number of adverse events/total number of cases * 100%.

Statistical methods

SPSS 24.0 statistical software was used to process the data results. GraphPad 8 software was used to draw all the graphs, and the results were checked twice. Measurement data, such as the professional knowledge assessment

results, were expressed in the form of (mean ± standard deviation). A repeated measurement analysis of variance was used for the comparisons between multiple time points, and a *t*-test was used for the comparisons between the two groups. Enumeration data, such as the incidence of risk accidents, were expressed in the form of (rate). A chi-squared test was used for the comparisons between the two groups. *P*<0.050 suggested that the difference was statistically significant.

Results

Baseline data of patients

In terms of their baseline data, there was no significant difference between the two groups of patients (*P*>0.050), which proved the comparability between the two groups (**Table 1**).

Professional knowledge assessment results

There was no significant difference in the results of professional knowledge assessment between the two groups in the first month (*P*>0.050). The results from the study group at the second and third time points were (85.62±4.96) and (96.33±3.84) respectively, which were both significantly higher than corresponding results in the control group (*P*<0.001). There was no significant difference in the results from the control group among the three times (*P*>0.050). The results from the third time point were the highest, followed by the second and third time points (*P*<0.001) (**Figure 1**).

Outpatient satisfaction results

The outpatient satisfaction score of the study group was (94.87±5.86), which was significantly higher than the control group's score (72.83±10.86). The outpatient satisfaction of the study group was 90.53%, which was signifi-

Participatory management and outpatients

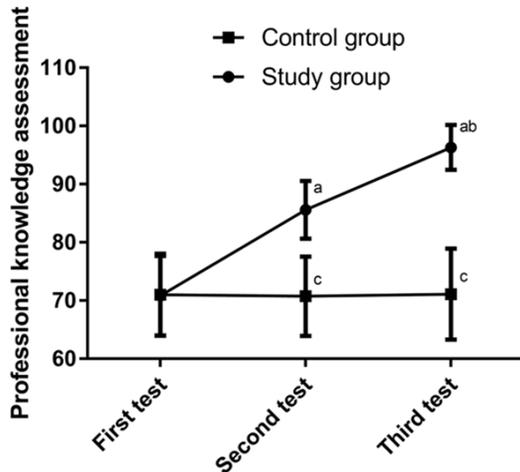


Figure 1. Comparison of the professional knowledge assessment results between the two groups. a represents that $P < 0.001$ by comparison with the assessment results in the first time. b represents that $P < 0.001$ by comparison with the assessment results in the second month of the same group. c represents that $P < 0.001$ by comparison with the assessment results in the same period of the study group.

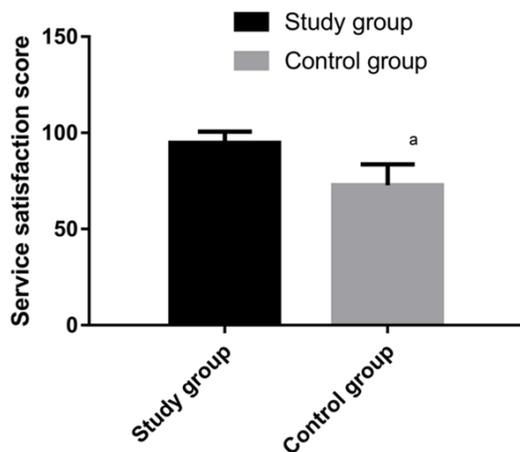


Figure 2. Satisfaction score survey of the nursing service between the two groups. a represents that $P < 0.001$ by comparison with the satisfaction score of the nursing service in the study group.

cantly higher than the 79.47% in the control group ($P < 0.001$) (Figure 2 and Table 2).

Outpatient visiting time

The outpatient visiting time of the study group was (12.87 ± 6.12) minutes, which was significantly shorter than the (21.88 ± 7.04) minutes of the control group ($P < 0.001$; Figure 3).

Incidence of adverse events

In the study group, only one complaint occurred, so the incidence of adverse events was 0.03%. In the control group, there were 3 doctor-patient disputes and 9 complaints, so the incidence of adverse events was 0.40%. The incidence of adverse events in the study group was significantly lower than it was in the control group ($P = 0.002$) (Table 3).

Discussion

As the forefront of hospital service, the outpatient clinic is not only the place that has the most contact with patients, it also is place that reflects the overall quality level of the hospital [13]. Therefore, the outpatient clinic is also a place where doctor-patient disputes and risk accidents occur frequently [14]. Determining how to effectively improve the level of outpatient service and reduce the incidence of doctor-patient disputes is the focus and challenge of clinical research. With the deepening of research in recent years, more and more domestic and foreign researchers believe that institutional departmental management is one of the important reasons to improve the service level [15-17]. Therefore, we believe it is feasible and effective to improve the quality of outpatient service by changing the traditional work distribution solutions. However, there is no relevant literature on the institutional management of the outpatient clinic for clinical reference. Therefore, through the application of participatory management in the outpatient clinic, this paper aims to verify our conjecture and provide an effective reference for the clinical reform of the outpatient system in the future.

According to the summary of past outpatient risk events, it was found that the main reasons for adverse events such as doctor-patient disputes are the following: 1. As the most complex hospital department, the outpatient clinic receives patients with great mobility and different qualities. Some patients have high expectations for the hospital. When the hospital services fail to meet the patients' expectations, they will have strong opinions [18]. 2. The nurses in our hospital are generally younger and have less work experience. They lack experience in dealing with emergencies, which may make the doctor-patient relationship worse

Participatory management and outpatients

Table 2. Outpatient patient satisfaction survey [n (%)]

	Study group (n=3000)	Control group (n=3000)	X ²	P
Very satisfied	2204 (73.47)	1487 (49.57)	361.923	<0.001
Satisfied	512 (17.07)	897 (29.90)	137.522	<0.001
Needs improvement	246 (8.20)	494 (16.47)	94.813	<0.001
Un satisfied	38 (1.27)	122 (4.07)	45.318	<0.001
Satisfaction degree (%)	90.53	79.47	144.127	<0.001

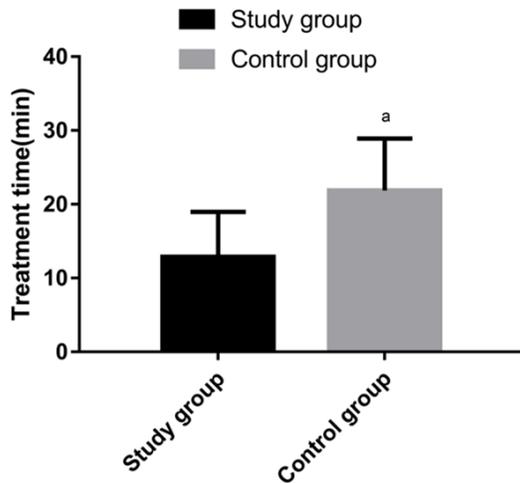


Figure 3. Comparison of the outpatient visiting time between the two groups. a represents that $P < 0.001$ by comparison with the outpatient visiting time of nursing service in the study group.

because of the wrong handling [19]. 3. The traditional distribution management system cannot effectively stimulate the enthusiasm of the medical staff. Without being people-oriented, the nurses are only satisfied with completing their own work and show a lack of active communication with the patients [20]. According to our experience, the corresponding management measures were formulated, and the nurses in the outpatient department of our hospital were divided into two groups, and the service quality of the two groups was compared in different management systems.

The results showed that the nurses in the study group who used participatory management performed better in terms of professional knowledge assessment than those in the control group who used the traditional management scheme. The nursing satisfaction given by the patients in the study group was higher than it was in the control group, and the outpa-

tient visiting time and the incidence of adverse events were significantly less than they were in the control group. It was suggested that the implementation of participatory management in the outpatient clinic can effectively reduce the incidence of adverse events and the outpatient visiting

time, and improve patient satisfaction. The main reason for the difference between the two groups is that the application of a participatory management system can change the staff's traditional inherent work ideas, use human resources rationally by optimizing the combination, and shift the focus of outpatient work from fixed and single to macro control [21]. It can make the medical staff have a stronger sense of work participation and work achievement. Participatory management can create a fair environment for nurses to explore and stimulate their potential in the work. It can also greatly stimulate nurses' sense of responsibility and team consciousness, and improve the cohesion of the outpatient medical staff by summarizing and discussing problems in the daily work. The work of nurses is transferred from working passively to working actively, so the work efficiency is greatly improved. In the process of summarizing and discussing, it is not only the exercise of team consciousness and responsible consciousness of the medical staff, but also the accumulation of professional knowledge. It is also the reason that there was no significant difference in the assessment results between the two groups at the first time point, while the study group was significantly higher than the control group at the second time point. It was found that the results of professional knowledge assessment in the study group were gradually increased, while there was no significant change in the control group. It was further proved that the nurses' professional skills were constantly rising, and the outpatient service self-confidence was stronger by a series of summary and training in the participatory management. The nurses were more experienced in how to take the best measures in dealing with emergencies. In the participatory management system, the relationship between the medical staff and patients is close, and the patients' trust in the medical staff is enhanced, which not only helps to

Participatory management and outpatients

Table 3. Incidence rate [n (%)]

	Study group (n=3000)	Control group (n=3000)	χ^2	P
Adverse event rate	1 (0.03)	12 (0.40)	9.243	0.002

improve the efficiency of medical treatment, but it also plays an important role in reducing the occurrence of adverse medical events.

This experiment compared the application of participatory management and traditional management in the outpatient clinic. There are still some shortcomings in the experimental conditions, such as the study subjects were all outpatients in our hospital, so it was not ruled out that there may be regional differences in the results of the study. The content of participatory management in this study was formulated by our hospital through summary and discussion, and there may be some omissions that affect the experimental results. We will continue to improve the experimental design, studying the application of participatory management in the outpatient clinic to obtain the best experimental results.

In summary, participatory management can effectively improve the outpatient visiting speed and outpatient service satisfaction and reduce the incidence of adverse events between doctors and patients. Participatory management has a great application potential in the outpatient clinic in the future.

Disclosure of conflict of interest

None.

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References

- [1] Waters S, Edmondston SJ, Yates PJ and Gucciardi DF. Identification of factors influencing patient satisfaction with orthopaedic outpatient clinic consultation: a qualitative study. *Man Ther* 2016; 25: 48-55.
- [2] Xie Z and Or C. Associations between waiting times, service times, and patient satisfaction in an endocrinology outpatient department: a time study and questionnaire survey. *Inquiry* 2017; 54: 46958017739527.
- [3] Shehab N, Lovegrove MC, Geller AI, Rose KO, Weidle NJ and Budnitz DS. US emergency department visits for outpatient adverse drug events, 2013-2014. *JAMA* 2016; 316: 2115-2125.
- [4] Viswanathan M, Kahwati LC, Golin CE, Blalock SJ, Coker-Schwimmer E, Posey R and Lohr KN. Medication therapy management interventions in outpatient settings: a systematic review and meta-analysis. *JAMA Intern Med* 2015; 175: 76-87.
- [5] Terplan M, Ramanadhan S, Locke A, Longinaker N and Lui S. Psychosocial interventions for pregnant women in outpatient illicit drug treatment programs compared to other interventions. *Cochrane Database Syst Rev* 2015; CD006037.
- [6] Pan C, Zhang D, Kon AW, Wai CS and Ang WB. Patient flow improvement for an ophthalmic specialist outpatient clinic with aid of discrete event simulation and design of experiment. *Health Care Manag Sci* 2015; 18: 137-155.
- [7] Moe J, Kirkland S, Ospina MB, Campbell S, Long R, Davidson A, Duke P, Tamura T, Trahan L and Rowe BH. Mortality, admission rates and outpatient use among frequent users of emergency departments: a systematic review. *Emerg Med J* 2016; 33: 230-236.
- [8] Schweiger M, Vanderpluym C, Jeewa A, Canter CE, Jansz P, Parrino PE, Miera O, Schmitto J, Mehegan M, Adachi I, Hübler M and Zimpfer D. Outpatient management of intra-corporeal left ventricular assist device system in children: a multi-center experience. *Am J Transplant* 2015; 15: 453-460.
- [9] Kim YD and Moon HS. Review of medical dispute cases in the pain management in Korea: a medical malpractice liability insurance database study. *Korean J Pain* 2015; 28: 254-264.
- [10] Pérez E, Ntaimo L, Malavé CO, Bailey C and McCormack P. Stochastic online appointment scheduling of multi-step sequential procedures in nuclear medicine. *Health Care Manag Sci* 2013; 16: 281-299.
- [11] He AJ and Qian J. Explaining medical disputes in Chinese public hospitals: the doctor-patient relationship and its implications for health policy reforms. *Health Econ Policy Law* 2016; 11: 359-378.
- [12] Dobbs BM and Schopflocher D. The introduction of a new screening tool for the identification of cognitively impaired medically at-risk drivers: the SIMARD a modification of the demtect. *J Prim Care Community Health* 2010; 1: 119-127.
- [13] Burchill F. The advisory conciliation and arbitration service. *Health Serv Manpow Rev* 1978; 4: 18-21.
- [14] Bao Y, Fan G, Zou D, Wang T and Xue D. Patient experience with outpatient encounters at pub-

Participatory management and outpatients

- lic hospitals in Shanghai: examining different aspects of physician services and implications of overcrowding. *PLoS One* 2017; 12: e0171684.
- [15] Shaw RJ, McDuffie JR, Hendrix CC, Edie A, Lindsey-Davis L, Nagi A, Kosinski AS and Williams JW Jr. Effects of nurse-managed protocols in the outpatient management of adults with chronic conditions: a systematic review and meta-analysis. *Ann Intern Med* 2014; 161: 113-121.
- [16] Mebazaa A, Yilmaz MB, Levy P, Ponikowski P, Peacock WF, Laribi S, Ristic AD, Lambrinou E, Masip J, Riley JP, McDonagh T, Mueller C, de-Filippi C, Harjola VP, Thiele H, Piepoli MF, Metra M, Maggioni A, McMurray J, Dickstein K, Damman K, Seferovic PM, Ruschitzka F, Leite-Moreira AF, Bellou A, Anker SD and Filippatos G. Recommendations on pre-hospital & early hospital management of acute heart failure: a consensus paper from the heart failure association of the European society of cardiology, the European society of emergency medicine and the society of academic emergency medicine. *Eur J Heart Fail* 2015; 17: 544-558.
- [17] Handford C, Buxton P, Russell K, Imray CE, McIntosh SE, Freer L, Cochran A and Imray CH. Frostbite: a practical approach to hospital management. *Extrem Physiol Med* 2014; 3: 7.
- [18] Li M, Huang C, Lu X, Chen S, Zhao P and Lu H. Evaluation of medical staff and patient satisfaction of Chinese hospitals and measures for improvement. *Biosci Trends* 2015; 9: 182-189.
- [19] Vila-Nova da Silva DB, Nahas FX and Ferreira LM. Factors influencing judicial decisions on medical disputes in plastic surgery. *Aesthet Surg J* 2015; 35: 477-483.
- [20] Chen PG, Nunez-Smith M, Berg D, Gozu A, Rulisa S and Curry LA. International medical graduates in the USA: a qualitative study on perceptions of physician migration. *BMJ Open* 2011; 1: e000138.
- [21] Li K, Muhetbaier M, Wang JW, Xie SM, Zhang K, Tang W and Chen F. Medical legal dispute in hospitals of different grades: a retrospective study on 206 cases. *Fa Yi Xue Za Zhi* 2014; 30: 355-356.