

Evaluation of the Effectiveness of Joint Teaching Rounds between General Clinical Bases and Grassroots Practice Bases

Miao Li^{1,a}, Linian Huang^{2,b}, Changhong Sun^{3,c}, Yan Rui^{2,d,*}

¹Department of General Medicine, First Affiliated Hospital of Bengbu Medical University, Bengbu City, 233000, China

²Respiratory Department of the First Affiliated Hospital of Bengbu Medical University, Bengbu City, 233000, China

³Hubin Community Health Service Center in Bengbu City, Bengbu City, 233000, China

^alimiao0521@126.com, ^bhlnbbmc@163.com, ^c822076008@qq.com, ^druiyan0704@163.com

*Corresponding author

Abstract: To explore the effect evaluation of joint teaching ward rounds in general practice clinical bases and grass-roots practice bases in the standardized training of general practice residents, a total of 37 general practitioners in our hospital from grades 2017 and 2018 were selected as the research objects. During the 5 months of the rotation of the grassroots practice base in the third year, they were divided into a control group (simple grassroots practice base instructor teaching ward rounds) 18 and 19 in the observation group (joint teaching ward rounds between general clinical bases and grassroots practice bases). The teaching effects of the two groups were compared by General practice capacity (history collection, physical examination, case analysis, writing SOAP) and General Doctor Competency Questionnaire (GDCQ). There were four parts (history collection, physical examination, case analysis, SOAP writing) and their total scores in General practice capacity. The performance of the observation group was significantly better than that of the control group (t values were -3.021, -3.066, -3.658, -3.781, -6.708, p values were 0.003, 0.004, <0.001, <0.001, <0.001), and in terms of strength, the participation rate of the general practitioners in the resident training was 100%, and the scores of the observation group in a total of 9 items and the total average score were significantly better than those of the control group (both $p < 0.01$). The joint teaching ward rounds between general clinical bases and grassroots practice bases can significantly improve the general practice capacity and post competence of the general discipline of the general practice regular training students.

Keywords: General practice; Bases; Joint; Teaching ward rounds

1. Introduction

The standardized training of general practitioners has been carried out for many years, and the 3-year training program is divided into two stages: clinical training stage and grassroots practice stage. In the last year of general practitioner training, 5 months are arranged to study at grassroots practice bases or community health service institutions[1]. The teaching activities carried out in grassroots practice bases include entrance education, small lectures, case discussions, and teaching rounds. Teaching rounds are an important way to cultivate the clinical thinking of resident training physicians and improve their clinical abilities. However, according to the survey [2-4], the training of grassroots practice bases focuses on passive cooperation with large hospitals, allowing them to do whatever they want. There is a lack of effective interaction with large hospitals, making it difficult to cultivate the ability of resident training physicians to identify, analyze, and solve problems, and to improve the general practice reception ability and job competency of resident training trainees.

The joint teaching of general and specialized ward rounds has been proven to improve the clinical level of resident physicians [5]. However, there have been no research reports on the joint teaching rounds between general practice clinical bases and grassroots practice bases. As a national key professional housing and training base for general practitioners, our department regularly conducts joint teaching rounds between general practice clinical bases and grassroots practice bases during the rotation of general practitioners in grassroots practice bases. The effectiveness of this form of teaching rounds is further evaluated through clinical practice ability assessment and job competency survey

questionnaires, in order to provide reference methods for better training of general practitioners.

2. Object and Method

2.1. Research subjects

The research subjects were selected from 37 general medicine professional training students in our hospital from 2017 to 2018, including 19 males and 18 females.

2.2. Method

Before entering the grassroots practice base, general practitioners of residency and training will undergo theoretical tests. Based on the test results, even numbered students will be ranked as the control group (19 people), and odd numbered students will be ranked as the observation group (18 people). They will undergo simple teaching rounds at the grassroots practice base and joint teaching rounds at the clinical base and grassroots practice base, respectively. There was no significant statistical difference ($p > 0.05$) between the two groups in terms of gender, age, education level, and exam scores before entering grassroots practice bases. Both groups of resident training instructors have participated in the Anhui Province General Practitioner Training and obtained qualified certificates. Both groups of teaching rounds are scheduled twice a month, with a total of 10 rounds scheduled for 5 months.

(1) The specific implementation of joint teaching rounds. The supervising teacher shall determine the theme of ward rounds 3-5 days in advance, select 5-10 typical chronic disease cases, propose teaching objectives and requirements, key points and difficulties, require resident training physicians to familiarize themselves with medical history in advance, organize case data, and consult relevant books and literature to learn, discuss, and summarize around the teaching objectives and requirements. For example, taking the common disease "hypertension" in the community as an example, in the first part, the clinical base and grassroots practice base guide teachers jointly formulate teaching objectives and requirements. In the second part, the bedside part, the main investigator reports the medical history and targeted physical examinations of the resident and training physicians. The grassroots practice base and clinical base guide teachers supplement the medical history and demonstrate and correct the non-standard techniques used by the resident and training physicians in physical examinations. The clinical base guide teachers provide guidance to the grassroots practice base teachers from aspects such as patient medical history collection, doctor-patient communication, humanistic care, and confirmation of positive signs in physical examinations. The analysis and discussion stage of the third part: focusing on the purpose and requirements of this teaching ward round, combined with the analysis and discussion of this case, emphasizing bilingual teaching. The resident and training physician should propose the characteristics of this case, diagnosis, diagnostic basis, differential diagnosis, interpretation of auxiliary examinations, and standards for diagnosing hypertension using different measurement methods. The resident and attending physicians should supplement each other one by one. Next, the resident and training physician should answer what additional examinations are needed for this case, and what are the risk factors for hypertension? What are the risk factors for this patient? How should health management be carried out? The medication principles for hypertension? What is the next diagnosis and treatment plan for this patient? What medication should be used? Adverse reactions of drugs? Non pharmacological treatment? What are the discharge indications for hypertension? What are the discharge indications for this patient? How to conduct community follow-up for this patient after discharge? What situations require referral? During this period, the teachers of the grassroots practice base supplemented the answers of the resident training physicians, and together with the resident physicians, formulated diagnosis and treatment plans based on the relevant health issues of patients, reflecting the holistic concept. The clinical base faculty and resident physicians engage in interactive discussions, delving deeper into each layer, mobilizing resident physicians' general clinical thinking and interest in participation, and encouraging resident physicians to actively ask questions. Finally, the clinical base teachers summarized and summarized the content and achievements of teaching ward rounds, evaluated the performance of resident physicians in doctor-patient communication, collection of medical history, physical examination, and independent diagnosis and treatment of diseases, and proposed improvement suggestions. And assign thinking questions and recommend reference materials, listen to the feedback of the resident physician on this teaching ward round.

(2) Teaching rounds guided by teachers in simple grassroots practice bases. Based on the theme of ward rounds, the teaching staff at the grassroots practice base for general practice residency training

selected 1-2 typical cases and conducted teaching rounds in accordance with the standardized training of general practice resident physicians.

2.3. Evaluation of teaching effectiveness

(1) Assessment of General Practice Reception Ability: Strictly follow the third station of the Clinical Practice Ability Examination Outline for Residency Training Graduation to set questions for general practice reception, specifically including medical history collection, physical examination, case analysis, and soap (S (subjective data), O (objective data), A (assessment, clinical diagnosis, and analysis and evaluation of drug treatment process), P (treatment plan), with a total of 100 points, and each part is scored 25 points, 30 points, 25 points, and 20 points respectively.

(2) Survey questionnaire: After the 5-month joint teaching ward round, the participants were surveyed and given feedback using the General Practitioner Competency Questionnaire [6]. The questionnaire includes 9 dimensions and 59 items, using the Likert 5-level scoring method. The higher the score, the stronger the competency.

2.4. Statistical processing

Statistical analysis was conducted using SPSS 27.0 software. Quantitative data is expressed as mean \pm standard deviation, and t-test is used for comparison between two groups. $P < 0.05$ indicates a statistically significant difference.

3. Results

3.1. Evaluation of General Practice Reception Ability Results

After conducting a 5-month teaching ward round for two groups of resident physicians, a comprehensive assessment of their general practice reception ability was conducted [7-8]. The results are shown in Table 1: The overall score of the observation group's general practice reception ability was significantly higher than that of the control group ($p < 0.05$), and the specific scores in four aspects including medical history collection, physical examination, case analysis, and soap writing were also significantly higher than those of the control group ($p < 0.05$).

Table 1: Assessment Results of General Practice Reception Ability for Two Groups of General Practice Residential Training Students ($\bar{x} \pm s$, points)

Grouping	History taking	Physical examination	Case analysis	SOAP writing	Total score
Control group	16.11 \pm 1.97	21.06 \pm 2.86	16.17 \pm 2.07	14.17 \pm 1.34	67.50 \pm 4.67
Observation group	18.11 \pm 1.82	23.95 \pm 2.88	18.63 \pm 2.06	15.58 \pm 0.90	76.26 \pm 3.18
t-value	-3.021	-3.066	-3.658	-3.781	-6.708
p-value	0.003	0.004	<0.001	<0.001	<0.001

3.2. Results of the survey questionnaire

Table 2: Comparison results of job competency survey questionnaires between two groups of general housing training trainees ($\bar{x} \pm s$)

Grouping	Job competency									
	Basic public health service capacity	Basic clinical abilities	Interpersonal communication and collaboration skills	Professional ethics and abilities	Individuality	Non medical knowledge	Psychological adaptability	System analysis capability	Information management capability	Total average score
Control group	39.83 \pm 2.23	24.11 \pm 1.97	25.56 \pm 1.42	16.22 \pm 1.80	26.78 \pm 1.44	25.28 \pm 1.74	13.17 \pm 1.54	25.39 \pm 1.29	28.56 \pm 2.25	12.50 \pm 0.30
Observation group	42.42 \pm 2.17	26.00 \pm 1.15	28.00 \pm 1.20	17.63 \pm 1.21	28.21 \pm 1.08	27.05 \pm 1.18	14.95 \pm 1.27	27.11 \pm 0.89	30.58 \pm 1.46	12.73 \pm 1.97
t-value	-3.622	-3.586	-5.655	-2.807	-3.435	-3.648	-3.843	-4.877	-3.254	-2.873
p-value	<0.001	0.001	<0.001	0.008	0.002	<0.001	<0.001	<0.001	0.003	0.008

The survey results of two groups of resident training physicians on job competency questionnaires are shown in Table 2. It can be seen that compared with the control group, the observation group has significantly improved the job competency of general resident training physicians. In this study, 37 job

competency questionnaires were distributed and 37 were collected, with an effective rate of 100%.

4. Discussion

The purpose of the standardized training system for resident physicians is to cultivate medical graduates into qualified doctors. Only qualified general practitioners can promote the reform of the medical system with graded diagnosis and treatment, initial diagnosis at the grassroots level, differentiation of urgent and chronic cases, and linkage between upper and lower levels. Only then can we truly solve the problem of difficult and expensive medical treatment for residents. The workplace and environment of general practitioners are grassroots community health service centers, mainly engaged in basic medical and public health services [9]. The types of diseases in community health service center wards involve multiple systems and diseases, mainly geriatric and chronic diseases. General practitioners need to have extensive knowledge reserves and rich experience accumulation in these diseases, and also need to have good clinical thinking methods. Teaching ward rounds can improve clinical thinking ability, improve the ability to organize and analyze information, and thus improve their diagnosis and treatment level [10-12].

This article evaluates the teaching effectiveness of joint teaching rounds between general clinical bases and grassroots practice bases through outpatient assessments and a questionnaire survey on the competency of general practitioners. The results of the outpatient assessment indicate that in terms of general practice visits (medical history collection, physical examination, case analysis, and soap writing), the observation group performed significantly better than the control group. Specifically, in terms of medical history collection, our teaching group believes that the possible reason is that the guidance teacher of the joint teaching ward round can better guide resident physicians to collect medical history comprehensively and with emphasis. Among them, the guidance teacher of the grassroots practice base focuses on comprehensive collection of medical history for resident physicians, while the guidance teacher of the clinical base focuses on key points. In terms of physical examination, the resident training physicians of the joint teaching ward round group can conduct standardized and more effective physical examinations in a relatively short period of time under the joint guidance of clinical base guidance teachers and grassroots practice base guidance teachers. Not omitting positive and negative signs with discriminative significance. Specifically, during each joint teaching ward round, the guidance provided by the instructor for non-standard physical examinations by resident and training physicians is to inform them, ultimately significantly improving their physical examination abilities. In terms of case analysis, joint teaching rounds complement each other. On the one hand, it increases the understanding of resident physicians on the diagnosis, differential diagnosis, and treatment principles of common diseases. At the same time, it also enhances the updating of relevant new progress and knowledge. On the other hand, with the participation of guidance teachers from grassroots practice bases, resident physicians have further mastered the symptoms and characteristics of common diseases in the community, auxiliary examination characteristics, drug adjustment, and two-way referral. In terms of writing SOAPs medical records, the teaching staff at the general practice clinical base can guide resident physicians to write SOAPs health records from the perspective of general medical care. They should not only focus on drug treatment and non drug treatment, but also pay attention to lifestyle and psychological factors in non drug treatment, fully communicate with patients, use available resources, intervene in intervenable health problems, evaluate the health problems of patients, and regularly follow up with patients to re evaluate and intervene in their health problems, improving the resident physicians' ability to write SOAPs medical records. Through a questionnaire survey, it was found that joint teaching rounds can significantly improve the competency of general practitioners. This teaching group analyzes the possibility that the joint teaching ward round group can improve the ability of resident physicians to summarize medical history, standardize physical examinations, diagnose and differentiate through case resources, and propose diagnostic and treatment ideas for ward rounds, master follow-up points, and learn how to communicate well with patients. This has improved the diagnostic and treatment ability of general resident physicians, enabling them to understand, familiarize themselves with, and love the job position of general practitioners as early as possible.

Although this form of teaching ward rounds has good results, several issues still need to be noted. Firstly, joint teaching ward rounds require guidance teachers not only to be familiar with teaching methods, but also to have rich clinical experience and the ability to discover, analyze, and solve problems. Teachers need to study their skills, be good at identifying problems and consulting literature, in order to achieve the teaching goal of mutual benefit between teaching and learning. Second, due to the busy daily work of instructors, online mode can sometimes be used to carry out joint teaching rounds and discussions on the Internet platform and grass-roots practice bases to further improve work

efficiency. Thirdly, during the ward rounds, it is necessary to provide students with more basic knowledge about common and frequently occurring diseases, in order to increase their knowledge reserves and facilitate diagnosis.

In summary, the joint teaching rounds of general practice clinical bases and grassroots practice bases can improve the general practice reception ability of resident training physicians and also enhance their job competence. General practitioners are versatile professionals in the prevention and treatment of common diseases, serving as gatekeepers to the health of residents. They need to have the ability to diagnose and treat common diseases, correctly identify critical and critical illnesses, and promptly and correctly refer patients [13-14]. Through this form of joint teaching rounds, the teaching communication and interaction between the general practice clinical base of housing and training and the grassroots practice base have been driven, and the homogenization training process of general practice housing and training physicians has been deeply promoted, laying a good foundation for accelerating the development of the discipline of general medicine in our hospital.

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References

- [1] Du XP, Cheng MG. Suggestions for Supplementary Revision of Standardized Training Content and Standards for General Practitioner Residents (for the 2019 Revised Edition) [J]. *General Practice Clinical and Education*, 2021, 19 (2): 99-101107.
- [2] Yin DL. Grassroots Practice Base Should Be a Good Guide [N]. *Health Report*, 2017-11-09 (007)
- [3] Ren W, Liu Y, Qiu Y, et al. Reflection on Community Practice Base Training in Standardized Training for General Practitioners [J]. *Chinese Journal of General Practitioners*, 2017, 16 (11): 901-903.
- [4] Li ZH, Huang Y, Ji XZ, et al. Investigation and Analysis of the Current Situation of Standardized Training for General Medical Resident Doctors at Grassroots Bases in Liaoning Province [J]. *Chinese General Medicine*, 2021, 19 (1): 124-127149.
- [5] Ma LJ, Zhang JQ, Ren YL, Qin J, Wang Y. The impact of multidisciplinary joint diagnosis and treatment on the case analysis ability of general practice trainees [J]. *Chinese Medical Records*, 2019, 20 (09): 74-76.
- [6] Yang XM, Qi YL, Shen ZF, et al. Theoretical construction and empirical research on the competency model of rural general practitioners [J]. *Journal of Southern Medical University*, 2015, 35 (4): 516-521.
- [7] Tan Y, Liu SC, Zhang Y, et al. The application of competency based evaluation system in standardized training of resident physicians in general surgery [J]. *Journal of Bengbu Medical College*, 2021, 46 (10): 5.
- [8] State Council of the PRC. Guiding Opinions of the State Council and the General Office of the State Council on Promoting the Construction of a Graded Diagnosis and Treatment System [EB/OL.] (2015-09-11)[2020-09-25]. <http://www.gov.cn/index.htm>.
- [9] Leutgeb R, Frankenhauser-M J, Scheuer M, et al. Job satisfaction and stressors for working in out-of-hours care – a pilot study with general practitioners in a rural area of Germany[J]. *Bmc Family Practice*, 2018, 19(1):95.
- [10] Wang QY, Cai XH, Wang J, et al. Interpretation of the Guidelines for Standardized Training and Teaching of Resident Physicians (2021 Edition) [J]. *Postgraduate Medical Education in China*, 2022, 6 (1): 10-15.
- [11] Wang HM, Zhang LP, Zhao CF, et al. Practice of Standardized Design of Teaching Ward rounds in Clinical Medical Colleges [J]. *Chinese Medical Journal*, 2022, 23 (2): 84-86.
- [12] Dong MH, Li H, Wang YC, et al. The application effect of TBL combined with CTU teaching method in standardized training and ward rounds in general practice [J]. *Medical Education Research and Practice*, 2022, 30 (3): 401-405.
- [13] Wang JJ. The Important Value of General Practitioners in Grassroots Medical Institutions [J]. *Journal of Traditional Chinese Medicine Management* 2022, 30 (1): 152-153.
- [14] Chao Gq, Zhu Y, Fang ZG. Investigation and analysis of factors related to research requirements and effectiveness in general medicine [J]. *Chinese Higher Medical Education*, 2022, 2 (8): 7-8.