

1 The Application of Simulation Teaching Methods in Clinical 2 Teaching of Surgery of Chinese Medicine

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5 *Received: 8 July 2012 Accepted: 28 July 2012 Published: 7 August 2012*

6

7 **Abstract**

8 Objective : To evaluate the application effects of simulation teaching methods in clinical
9 teaching of surgery of Chinese medicine.Methods : Questionnaire surveys were conducted to
10 collect information about how teachers and students appraised different models of teaching;
11 then the students were randomly selected into two groups, one taught with simulation
12 teaching methods and the other with conventional teaching methods; the teaching quality was
13 evaluated when the teaching was over.Results : Students in the group taught with simulation
14 teaching methods got a better academic record than those in the group taught with
15 conventional teaching methods, the difference was significant ($P < 0.05$). Conclusion :In
16 clinical teaching of surgery of Chinese medicine, simulation teaching methods are significantly
17 better than conventional ones and worth spreading.

18

19 **Index terms**— Simulation teaching methods; Surgery of Chinese medicine; Clinical teaching.

20 **1 I. Introduction**

21 medical simulation teaching is a process in which real clinical situations are simulated and teaching methods
22 highly according to medical ethics are adopted; while it is performed, all simulative and virtual devices that
23 can be available are used to design teaching conditions, including patients, scenes, laboratories for subject skill
24 training and assessment, wards, operating rooms and hospitals, all of which are effective aids for theoretical
25 teaching and clinical practice; it can promote clinical diagnostic ability and clinical operation skills of medical
26 college students across-the-board, foster their quicken and correct clinical thinking, help reduce the occurrence of
27 medical negligence and tangle in clinical practice and enable the students to go smoothly through the following
28 three stages: study of theory, being permitted to become a doctor and clinical practice [1] . In addition, simulation
29 teaching methods can help the students learn a basic knowledge of clinical work and facilitate them learning the
30 ropes of their professions in the future [2] . In this study, we collected information about how teachers and
31 students appraised different models of teaching via questionnaire surveys, performed clinical simulation teaching
32 of surgery of Chinese medicine in hospitals and evaluated teaching quality by examinations.

33 **2 II. Methods**

34 a) Questionnaire surveys i. Questionnaire design Questionnaires were to be filled out by informants and fell into
35 two sorts, one for teachers and the other for students. We preserved the anonymity of all informants so as to
36 respect their privacies.

37 Questionnaires for students: Collecting information about how much students from Guangxi University of
38 Chinese Medicine were satisfied with teachers' teaching methods, the requirements for satisfaction including ?
39 If teachers used teaching methods flexibly; ? If teachers used simulation teaching methods; ?If teachers placed
40 emphases upon communication between themselves and students; ? If teachers offered students guidance on how
41 to study. The students were to be asked: How many teachers have met the requirements. The numbers of such
42 teachers were classified into five levels: all (100% teachers used a certain method), majority (75% teachers used

5 III. RESULTS

43 a certain method), half (50% teachers used a certain method), minority (25% teachers used a certain method)
44 and none (0% teachers used a certain method). a. Questionnaires for teachers (Part I) :

45 This part was to collect information about where teachers from Guangxi University of Chinese Medicine got
46 knowledge sources of simulation teaching. To explore the feasibility of simulation teaching, we needed to learn
47 about how much teachers were familiar with it and about what teachers thought if it were introduced. Only by
48 gathering this information could we do better in simulation teaching. We supplied solutions to every question
49 about simulation teaching trial put forward by teachers and tried to clear away obstacles to the trial. In this
50 part, we designed a question in which the knowledge sources of simulation teaching were M Domestic literature;
51 ? Others (broadcast, television, newspaper, oral message, etc.); ? I don't know. b. Questionnaires for teachers
52 (Part II) :

53 This part was to collect information about what attitude teachers from Guangxi University of Chinese Medicine
54 maintained towards the introduction of simulation teaching methods. For this purpose, we designed another
55 question: What's your attitude towards the introduction of simulation teaching methods? There were four
56 answer choices: completely agree; partially approve; I don't care; disagree.

57 3 ii. Informants

58 The informants of our surveys were teachers and students from Guangxi University of Chinese Medicine in 2009.
59 All the teachers were engaged in teaching, and all the students were undergraduates receiving a five-year education
60 program.

61 iii. Sampling methods ? Teachers should give priority to heuristic mode of teaching, and they should perform
62 teaching in various ways. They should guide students to teaching themselves the textbook, organize focus
63 discussions on cases, treatment and other related problems and hold simulative consultations in class so as to
64 bring students' enthusiasm into full play and optimize classroom atmosphere and promote students' ability.

65 ? Starting from subjective complaint of patients, students rehearsed diagnostic work following "analysis -
66 obtaining evidence -exclusionconfirmation" step by step. Then they received the following standard treatment
67 training: selection of developments -adjustment of measures -diagnosis confirmation -analysis of prognostic factors
68 -plan for recovery. By doing so, the students may develop a systematic structure of knowledge based on the
69 textbook.

70 ? Teachers should focus on the instruction of focal and doubtful points and try to reduce or avoid repetition
71 in content of the textbook so that the students could deepen cognition and comprehension of the knowledge they
72 have learnt and memorize them.

73 The control group was taught with conventional teaching methods -teachers played the lead and made
74 summaries at the end of class.

75 iii. Evaluation of teaching quality Examination : Both groups took closed-book examinations; examination
76 room and timetable and invigilation were arranged by the Section of Teaching Affairs.

77 Examination questions : Questions were selected from the question bank or set independently. They fell into
78 two types, namely objective and subjective. Objective questions accounted for 60% of all the questions in an
79 exam, including multiple-choice, gap-fill, true/false and matching questions; the design of these questions was to
80 measure how much students have understood and memorized the basic concepts and theory of surgery of Chinese
81 medicine. Subjective questions (40%) included essay questions and case analysis; they were designed to measure
82 students' ability to understand and make analysis and judgement and apply theory to practice. The reference
83 key to all questions was offered before both were sent to the Section of Teaching Affairs.

84 Marking : The examination papers were enveloped with paper bags by invigilators and submitted to paper
85 markers.

86 4 iv. Statistical analysis

87 Results of the questionnaire surveys were analyzed with Ridit test.

88 5 III. Results

89 a) About how much students were satisfied with teachers' teaching methods A total of 1477 questionnaires were
90 distributed, 1470 being valid. From them, we learnt that the students were more satisfied with that the teachers
91 attached importance to communication and taught in a flexible way, and less satisfied with the use of simulation
92 methods and guidance on how to study (Table ?? From the 256 questionnaires we distributed, we knew that
93 129 teachers were in full agreement with the introduction of simulation teaching methods, 86 teachers partially
94 approved it, 32 teachers were indifferent to it and 9 teachers were against it. That is to say, most teachers were in
95 favor of the introduction of simulation teaching methods. classified into four levels: ?85 -excellent; 70-84 -good;
96 60-69 -pass; <60 -fail. The result reveals that, students in the experiment group got a better academic record
97 than those in the control group, and the difference between both groups was significant ($P < 0.05$), indicating
98 that simulation teaching methods were better than the conventional ones and deserved to be spread clinically.
99 (Table 2).

100 **6 IV. Discussion**

101 Medical college students should receive as much basic clinical training as possible, and strengthen the ability
102 to do logical reasoning and integration by practice so as to know how to summarize all the information of
103 patients step by step and interpret patients' performances using relevant theory. However, teachers play the
104 lead and give instruction whereas students play a passive role as an audience during conventional teaching [3].
105 Moreover, the clinical teaching under a conventional teaching environment is hard to meet the demand of current
106 teaching characterized by being systematic, large-scale and comprehensive. So it is difficult for conventional
107 clinical teaching to produce Good teaching methods are a prerequisite to the promotion of teaching quality, and
108 the basis for ability enhancement as well [4]. As a new teaching model, simulation teaching is in essence a
109 teaching activity centering on patients and questions; it can to a great extent motivate the students, thoroughly
110 acquaint them with what they have learned, increase their capacity for problem analysis and solving, enhance
111 their awareness of that patients are the focus of clinical work and help them establish a relatively solid foundation
112 for clinical practice [5]. In the whole course of simulation teaching, students play the leading role and experience
113 the processes of hard reading, information searching, plan designing, discussion, simulated operation, Table ??
114 1 Evaluation of how much students were satisfied with teachers' teaching methods. All, majority, half, minority
115 and none are levels to show how many teachers apply a certain method.

116 **7 d) Evaluation of teaching quality of simulation teaching 117 methods**

118 The academic record of students in both groups (experiment group and control group) was results that reaching
119 the objective of current clinical teaching.

120 summing up and evaluation; they are in the state of active learning and exploration from beginning to end.
121 Practice is the basis on which traditional Chinese medicine came into being, and clinical teaching of traditional
122 Chinese medicine is an important part of the talent development in higher education of traditional Chinese
123 medicine and a key teaching stage in which students integrate the theory of traditional Chinese medicine
124 with clinical practice. In clinical teaching, many practices are arranged; students are generally organized to
125 learn by watching clinical practices after they have received a part of medical theoretical lessons and go on
126 a field trip to a hospital when all lessons are finished. In addition, clinical teaching is a significant step to
127 the cultivation of practical talents characteristic of high medical ethics, good work style, full grasp of basic
128 knowledge and strong hands-on capability; it conditions a smooth transition from medical student to junior
129 doctor and the development of high-quality practical clinical talents of surgery of Chinese medicine [6][7][8].
130 With the system reform and enrollment expansion in colleges and universities, change in medical environments,
131 increase in employment pressure and other similar factors, the traditional clinical teaching model has failed to
132 satisfy the need of the great majority of students and even has become an obstacle to intern doctors' learning.
133 Therefore, great importance must be attached to clinical teaching, and a new model suitable for clinical teaching
134 of surgery of Chinese medicine should be explored.

135 Our Questionnaire surveys show that students were dissatisfied with teachers employing the conventional
136 teaching model, and that the overwhelming majority of teachers were in favor of the introduction of a simulation
137 teaching model, so it is of significance to popularize simulation teaching methods. Based on the fact that the
138 conventional teaching methods have been out of date, we probed into the use of a new teaching model, and
139 introduced simulation teaching methods to clinical teaching of surgery of Chinese medicine. This may offers a
140 new idea for the reform of the traditional teaching model. From the results of our study, we know that simulation
141 teaching methods are significantly better than the conventional ones, and that simulation teaching methods
142 can help improve hands-on ability, facilitate grasp of autonomic learning ways, develop the ability to think in a
143 scientific way, broaden the ken, arouse students' interest in science and cultivate the spirit of scientific exploration
144 in students. Simulation teaching methods can also help build closer relations between teachers and students, make
145 the assessment of students simpler, reduce the cost of teaching with practice and promote teaching quality. They
146 are valuable methods for clinical teaching, and deserve to be popularized clinically. ¹ ²

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Figure 1:

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Group	Number	Evaluation level			
		Excellent	Good	Pass	Fail
Experiment group	52	18	26	7	1
Control group	68	12	32	21	3

Note?Analyzed with Radit test, $u=2.5739$? $P<0.05$.

Figure 2: Table 2 :

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