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## **Impact of ISBAR Communication Training on Interpersonal Communication and Teamwork of Residents in General Practice Standardized Training**

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**Abstract.** Interpersonal communication and teamwork is one of the training objectives of standardized training for residents. The ISBAR (Identify, Situation, Background, Assessment, Request) communication training model can effectively improve physicians' clinical communication skills and teamwork ability. Our research aims to explore the impact of the ISBAR communication training on the interpersonal communication and teamwork of residents in general practice standardized training. A total of 92 general practitioners (GP) who participated in the Standardized Residency Training in the First Affiliated Hospital of Xi'an Jiaotong University in September 2018 were randomly recruited and divided into observation group (n=46) and control group (n=46) using simple random grouping method. GP in the observation group was trained by the ISBAR communication training model, whereas GP in the control group was trained by the traditional clinical education model. Six different scales were used to assess the interpersonal communication ability and teamwork ability of the two groups at different time points. After two weeks of training, the scores of interpersonal communication ability and teamwork ability in the observation group were higher than those in the control group ( $P < 0.05$ ). ISBAR communication training model may significantly improve the interpersonal communication skills and teamwork ability of residents in general practice standardized training.

**Keywords.** General practitioners; ISBAR model; Interpersonal communication; Teamwork; Standardized residency training

### **Introduction**

Internationally, the standardized training for residents includes 4 aspects: professional dedication and sense of responsibility, teamwork and interpersonal communication, clinical ability, scientific research ability (2018). However, educational courses related to interpersonal communication and teamwork are scarce among medical intramural training in China. Residents who participate in the training often lack the ability of teamwork and interpersonal communication. And effective means and evaluation tools for this aspect of training are also insufficient. Thus it's significant to carry out the training and evaluation of interpersonal communication and teamwork for residents participating in the program.

ISBAR is a structured methodology of communication proposed firstly by the Newcastle University Medical Center in Australia. This tool was developed from the SBAR (Situation,

Background, Assessment, Recommendation) which was developed in the US Navy to standardize important and urgent communication in nuclear submarines, “I” for “Identify” for explicit identification of self, “S” for “Situation”, “B” for “Background”, “A” for “Assessment”, “R” for “Request” for help junior clinicians ask for help by minimizing any hierarchy gradient (Monica, Stuart, et al., 2010). ISBAR and its training model are widely used in the field of medical service practice and medical team cooperation training projects around the world and have been proven to effectively improve communication efficiency and enhance teamwork ability (Finnigan, Marshall, et al., 2010; Carey, O’Carroll, et al., 2015; Foronda, et al., 2015). Therefore, it is theoretically feasible to apply the ISBAR to train the interpersonal communication and teamwork skills of residents. Till now, the research was mainly about applying the ISBAR into nursing work, including a report to doctors, patient transfer, nursing shift, nursing education, and so on (Zhu, Mao, 2017). Research on applying it to Standardized training for resident doctors is rare. Our study applies the ISBAR to general practice training in our hospital and explores its impact on the interpersonal communication and teamwork skills of general practice training residents, so as to provide references for the further development of general practice training.

### **Materials and methods**

100 general practitioners who participated in the training in the First Affiliated Hospital of Xi’an Jiaotong University, were recruited. Recruitment criteria: (1) Graduated from a university in June 2018, and began training of this hospital in September 2018; (2) interested in this research, and participated voluntarily; (3) Having enough time to participate in the training and complete the corresponding survey. A simple random grouping method was used to divide the trainees into a control group and an observation group using an Excel table, with 46 cases in each group. In the control group, there were 20 males and 26 females, aged 23 to 25 years old, with an average age of (23.4±1.3) years; in the observation group, 18 males and 28 females, aged 22 to 26 years old, with an average age of (23.2±1.6) years old. There was no statistically significant difference in gender and age between the two groups ( $\chi^2$  (gender) = 0.16, t (age) = -0.88; P>0.05).

The control group accepts the traditional clinical teaching mainly by the teacher, without any communication training. The observation group conducts ISBAR communication-related training using role-playing, scenario simulation, and group discussions. The training is started by 5 teachers who have the rich clinical knowledge and teaching experience and have training experience of ISBAR communication, including 2 senior titles and 3 intermediate titles. The training content includes basic communication skills, ISBAR emergency call for help skills, ISBAR teamwork training, ISBAR check and repeat skills, ISBAR information consulting application skills, ISBAR skills comprehensive simulation training (Xue, Yin, 2015). Design the communication content according to the ISBAR structure and the communication characteristics of the hospital:

I, self-introduction and confirm the general information of the target patient;

S, patient’s situation or observed changes in the situation;

B, the patient’s main complaint, important medical history, current medication (especially special Medication) and treatment status;

A, current patient vital signs, inspection/test results, special pipelines and devices, current related inspection progress and inspection/test reports that need to be tracked;

R, follow-up treatment directions, problems to be resolved, potential problems Preventive, and predictive treatment measures.

Each observation group trainee adopts simulation training and clinical practice training. Each training content is set twice, which are conducted at two different times, to ensure that each trainee participates in the training at least once. After the observation group students have mastered the skills, they will apply the ISBAR method to clinical practice, such as handover, consultation, the rescue of critically ill patients, and transfer of critically ill patients (see Table 1).

**Table 1 Contents and periods of ISBAR training in the observation group**

model	contents	periods
ISBAR training	basic communication skills	3
	ISBAR emergency call for help skills	2
	ISBAR teamwork training	2
	ISBAR check and repeat skills	3
	ISBAR information consulting application skills	4
	Clinical thinking training (medical record analysis)	3
	ISBAR skills comprehensive simulation training	
	ISBAR communication application	7
Clinical practice training		10

**ISBAR stands for Identify/Introduction, Situation, Background, Assessment, Recommendation; 1 period is 40 minutes.**

After literature research (Wang, Yin, 2015; Tang, Long, et al., 2011; Zhang, Hu, et al., 2018; Hojit, Fields, et al., 1999), field investigations, and questionnaire survey, the evaluation tools needed for the research were designed by the research team, including the "Evaluation Scale for Interpersonal Communication Ability of Residents", "Evaluation Scale for Cooperative Ability of Residents", "Doctor-Nurse Cooperation Attitude Scale", " Doctor-Nurse Communication Ability Questionnaire", "Doctor -Doctor Cooperation Attitude Scale", and "Doctor-Doctor Communication Ability Questionnaire". The " Doctor-Nurse Communication Ability Questionnaire" and the " Doctor-Doctor Communication Ability Questionnaire" are his-rating scales, and the remaining 4 scales are self-rating scales. After the preliminary evaluation scale is developed, the relevant experts are invited to discuss and evaluate the suitability and representativeness of the items; then self-rating scales were distributed to 45 randomly selected residents in our hospital to check the popularity, ambiguity, fluent, clarity and understandability of the items when his-rating scales were sent to 15 randomly selected teachers.

(1) Evaluation Scale for Interpersonal Communication Ability of Residents: including 5 dimensions of verbal expression, non-verbal expression, listening, communication tendency, and communication cognition, with 18 items. Each item uses the Likert 5-level scoring, and "never" ~ "always" are respectively counted as 1~5 points. The higher the score, the better the communication skills. The Cronbach's  $\alpha$  coefficient of the scale was 0.93, and the content validity index was 0.91.

(2) Evaluation Scale for Cooperative Ability of Residents: including two dimensions of cooperation awareness and cooperation skills, with 36 items. Each item adopts the Likert 5-level scoring, "completely inconsistent" ~ "completely in line" are counted as 1 to 5 points respectively. The higher the score, the better the cooperation ability. The Cronbach's  $\alpha$  coefficient of the scale is 0.90, and the validity is 0.92.

(3) Doctor-Nurse Cooperation Attitude Scale: using The Jefferson Medical-Nursing Cooperative Attitudes Scale (Tang, Long, et al., 2011), including 4 dimensions of co-education

cooperation, nurse autonomy, comparison of care and treatment, with 15 items. Each item adopts the Likert 4-level scoring, "very disagree" ~ "very agree" are counted separately as 1~4. The higher the score, the more positive the attitude of medical care cooperation. The content validity index of the scale is 0.81, and the Cronbach's  $\alpha$  coefficient is 0.82.

(4) Doctor-Nurse Communication Ability Questionnaire: including 3 dimensions of medical and nursing communication ability, medical and nursing communication and cooperation tendency, medical and nursing communication cognition, with 21 items. Each item adopts the Likert 5-level scoring, and "never" ~ "always" are respectively counted as 1 to 5 points. The higher the score, the better the communication skills between doctors and nurses. The content validity index of the scale is 0.90, and the Cronbach's  $\alpha$  coefficient is 0.93.

(5) Doctor-Doctor Cooperation Attitude Scale: Including 3 dimensions of joint participation in patient treatment, doctor autonomy, mutual care and collaboration, with 11 items. Each item adopts the Likert 4-level scoring, and "strongly disagree" ~ "very agree" are counted as 1 to 4 points respectively. The higher the score, the more positive the doctor-doctor cooperation attitude. The content validity index of the scale was 0.81, and the Cronbach's  $\alpha$  coefficient was 0.87.

(6) Doctor-Doctor Communication Ability Questionnaire: Including 3 dimensions of communication ability, communication and cooperation, and communication cognition, with 18 items. Each item adopts Likert's 5-level scoring, "never" ~ "always" are respectively counted as 1 to 5 points. The higher the score, the better the communication skills between doctors and doctors. The content validity index of the scale was 0.86, and the Cronbach's  $\alpha$  coefficient was 0.91.

Before the training and 2 weeks after the training, the two groups of trainees were assessed on the "Evaluation Scale for Interpersonal Communication Ability of Residents" and "Evaluation Scale for Cooperative Ability of Residents". Before and after three and six months of training, the trainees were assessed by the " Doctor-Nurse Cooperation Attitude Scale" and the "Doctor-Doctor Cooperation Attitude Scale", and the medical staff cooperated with the trainees were surveyed by the " Doctor-Nurse communication ability questionnaire" and the "Doctor-doctor communication ability questionnaire" in a back-to-back manner.

The investigators were uniformly trained, and the investigation process and methods were unified before the investigation. When investigating cooperated staff, 2 cooperated doctors and 2 cooperated nurses were selected for evaluation at the same time (at least 1 doctor is the student's teacher, and 1 nurse has participated in duty with the student), and the score is averaged. The two groups of trainees were assigned to different wards for training, and those who participated in the ISBAR model training were assigned to the same ward.

SPSS 19.0 statistical software was used to analyze the data. Categorical variables are expressed as ( $x \pm s$ ), two independent samples t-test is used for comparison between groups, paired t-test is used for comparison before and after training in the same group, two-way repeated measurement analysis of variance is used for comparison of two groups of continuous measurement data. Count data are expressed as absolute numbers,  $\chi^2$  test is performed for the comparison between groups. The difference was statistically significant with  $P < 0.05$ .

## Results

Before the training, there was no significant difference in the scores of interpersonal communication and teamwork ability between the two groups ( $P > 0.05$ ). After 2 weeks of the train, the scores of the two groups were higher than those before the training, and the difference was statistically ( $P < 0.05$ ); and the scores of the observation group were higher significantly than those of the control group ( $P < 0.05$ ). (Table 2)

**Table 2 Comparison of scores of interpersonal communication ability and teamwork ability between the two groups before and after two weeks of training**

Group	Number	Interpersonal communication ability		teamwork ability	
		before training	2 weeks later	before training	2 weeks later
Controlgroup	46	72.8±3.1	75.9±2.2*	147.4±8.1	158.9±8.3*
observation group	46	73.1±2.9	83.1±2.4*	148.1±7.9	169.7±8.1*
t value		-0.21	13.19	-0.25	6.84
P value		0.753	<0.001	0.717	<0.001

**\*: Compared with the same group before training, P<0.05**

Before and after the training, there was a statistically significant difference in the scores of the two groups of medical and nursing cooperation attitude and communication ability (P<0.05); the difference between different time points was statistically significant (P<0.05); there is an interaction effect on the scores of different group and time points (P<0.05).(Table 3)

**Table 3 Comparison of scores of attitudes towards cooperation and communication ability between doctors and nurses in the two groups before and after three and six months of training**

Group	Number	Cooperation attitudes			Communication ability		
		before	3M later	6M later	Before	3M later	6M later
control group	46	41.9±4.7	45.6±3.0	49.7±4.7	75.8±6.2	80.3±5.4	83.0±4.8
observation group	46	42.2±3.8	51.8±4.6*	53.5±4.2*	77.6±5.4	89.6±4.9*	91.7±5.3*
F value		F group=23.387, F time =808.505,			F		
P value		F interaction =73.992			group=37.766, Ftime=808.505,		
		Pgroup <0.001, P time <0.001,			F interaction =113.359		
		P interaction <0.001			P group <0.001, P time <0.001		
					P interaction <0.001		

**\*: Compared with the control group, P<0.05**

Before and after the training, there was a statistically significant difference in the scores of the two groups of doctor-doctor cooperation attitude and the doctor-doctor communication ability (P<0.05); the difference between different time points was statistically significant (P<0.05); there is an interactive effect on the scores of different group and time points (P<0.05).(Table 4)

**Table 4 Comparison of scores of attitudes towards cooperation and communication ability among doctors in the two groups before and after three and six months of training**

Group	Number	Cooperation attitudes			Communication ability		
		before	3M later	6M later	Before	3M later	6M later
control group	46	31.4±3.1	32.6±2.7	33.5±3.1	73.9±6.7	76.4±4.6	78.6±5.5
observation group	46	31.2±3.0	38.1±3.7*	39.9±3.3*	74.8±5.9	81.8±5.4 *	82.7±4.6*

F value	F group=56.701, F time =554.102,	F group=21.267, Ftime=601.191,
P value	F interaction =231.653 P group <0.001, P time <0.001, P interaction <0.001	F interaction =74.610 P group <0.001, P time <0.001 P interaction <0.001

**\*: Compared with the control group, P<0.05**

## Discussion

General practitioners (GP) are a new type of doctor. New concepts and methods of training general practitioners and the corresponding medical education system should be established. GP needs to not only have medical knowledge and technical skills but also have interpersonal communication and cooperation skills. Previous studies have shown that although medical students have a positive attitude towards communication skills learning, their communication skills are not satisfactory (Xu, et al., 2017). Residents who participate in the training after college education often have insufficient interpersonal communication and teamwork skills. In our study, the scores of the interpersonal communication and teamwork skills of the two groups before training were low, which indicates that they have insufficient communication skills, communication cognition, cooperation awareness, and cooperation skills.

ISBAR is a structured communication method. Several studies have shown that the implementation of ISBAR communication mode can improve the accuracy and comprehensiveness of information transmission between doctors and doctors and nurses, and can improve the communication skills of doctors and nurses and doctors and patients (Thompson, et al., 2011; Xu, Yao, et al., 2012; Wang, 2016). Traditional clinical teaching usually only focuses on the improvement of clinical knowledge and skills, while ignoring the systematic training of interpersonal communication and teamwork abilities (Xiong, Liu, et al., 2012). ISBAR not only establishes standards for accurate information transmission and effective communication between individuals and teams, but also it can integrate clinical thinking training, consulting and application training, teamwork training, and humanistic care training. Therefore, ISBAR is not only training for communication, but also a comprehensive training of doctors' clinical thinking and teamwork. The results of this study show that after two weeks of ISBAR training, the interpersonal communication and cooperation skills of the observation group trainees have been improved, and they are significantly better than the control group.

The interpersonal relationship of doctors includes not only the doctor-patient relationship but also the relationship between doctors and doctors and between doctors and nurses. Doctors need not only master doctor-patient communication skills but also master doctor-doctor and doctor-nursing communication skills. In clinical practice, medical behaviors are often team cooperation behaviors presented in the form of medical teams, including medical-doctor cooperation, medical-nursing cooperation, and nursing-nursing cooperation. The accurate and smooth transmission of information requires good communication skills. Only when members of the medical team have good communication skills can they ensure that the team's actions are consistent and coordinated, and can the goal of consistency be achieved. Safe and effective medical care requires accurate and adequate communication among medical team members. Communication barriers are the main cause of medical injuries (Sutcliffe, et al., 2004), and poor communication between doctors and nurses is the main cause of unintentional injuries to patients. ISBAR has established standards for accurate information transmission and effective communication. It can improve the efficiency of teamwork between doctors and nurses, better

use the information, manpower, and resources, and help get so the best medical results (Finnigan, Marshall, et al., 2010).

At present, researches mostly focused on the effect of ISBAR communication training on nurses' cooperative attitudes and communication skills (He, Zhong, Lu, 2017; Lv, 2018; Zhang, Cao, 2017), and there is a lack of research on the impact of ISBAR communication training on doctors'. This research mainly studies the influence of ISBAR communication training on doctors' cooperative attitude and communication skills. The results fully show that the scores of the teamwork attitude and team communication skills of the GP who participated in the ISBAR communication training were significantly higher than those who did not participate in the train. And GP who participates in ISBAR training can cooperate better with doctors and nurses. It also indirectly shows that the ISBAR communication method can improve doctors' cooperative attitude and communication skills. In addition, half a year after the ISBAR communication training, the scores of cooperation and communication skills between doctors and nurses of the observation group were significantly higher than those of the control group, indicating that GP who participated in the ISBAR communication training can automatically apply the ISBAR to future clinical work.

### Conclusions

The ISBAR communication training can effectively improve the interpersonal communication and teamwork skills of the general practitioners. It may help save educational resources and have good social benefits.

### References

- [1] Notice of the General Office of the National Health and Family Planning Commission on Issuing the Contents and Standards of Standardized Training for Resident Doctors (Trial), (2018). Retrieved from <http://portal.smu.edu.cn/gpw/info/1004/1055.htm>.
- [2] Monica.A, Stuart.D, et al: ISBAR for clear communication: one hospital's experience spreading the message. *Australian Health Review*. **34**, 400–404 (2010).
- [3] FINNIGAN.M.A, MARSHALL.S.D, FLANAGAN.B.T: ISBAR for clear communication : one hospital's experience spreading the message. *Aust Health Rev*. **34**(4), 400-404 (2010).
- [4] CAREY.B, O'CARROLL-LOLAIT.C, DONLON.N.E, et al: In-hospital paging systems : an effective method of communication between hospital staff in 2015. *Ir Med J*. **108**(9), 267-270 (2015).
- [5] FORONDA.C.L, ALHUSEN.J, BUDHATHOKI.C, et al: A mixed-methods, international, multisite study to develop and validate a measure of nurse-to-physician communication in simulation. *Nurs Educ Perspect*. **36**(6), 383-388 (2015).
- [6] ZHU.X, MAO.P: Application status and prospect on SBAR communication pattern in daily nursing operation. *Chinese Nursing Management*. **17**(5), 712-716 (2017).
- [7] XUE.M, WANG.Q, CHEN.J, et al: Application of ISBAR communication style in training of junior medical officer. *Medicine & Philosophy*. **35**(12), 82-85 (2014).
- [8] WANG.W, YIN.W.Q: Development of interpersonal communication ability scale for medical students. *Chinese General Practice*. **18**(22), 2709-2712 (2015).
- [9] TANG.D.Y, LONG.Y.S, XIANG.W: Study on evaluating results of two assessment methods on interpersonal communication skill. *Lab Med Clin*. **8**(2), 137-139 (2011).
- [10] ZHANG.Y.P, HU.Y.Q, et al: Application and promotion of teamwork evaluation tool in pediatric simulation teaching. *J Clin Pediatr*. **36**(4), 319-320 (2018).

- [11] HOJAT.M, FIELDS.S.K, VELOSKI.J.J, et al: Psychometric properties of an attitude scale measuring physician-nurse collaboration. *Eval Health Prof.* **22**(2), 208-220 (1999).
- [12] XU.J, XIANG.Q, et al: Investigation and analysis of the status of medical students' doctor-patient communication ability. *Journal of Higher Education.* **3**(21), 63-66 (2017).
- [13] THOMPSON.J.E, COLLETT.L.W, LANGBART.M.J, et al: Using the ISBAR handover tool in junior medical officer handover : a study in an Australian tertiary hospital. *Postgrad Med J.* **87**(1027), 340-344 (2011).
- [14] XU.S.Y, YAO.M.Q, ZHOU.H.Y: Application of standardized SBAR communication style between surgeons and nurses. *Chinese Journal of Nursing.* **47**(1), 48-49 (2012).
- [15] WANG.Y.P: The importance of standardized communication mode training in cultivating clinical communication ability of interns. *Health Vocational Education.* **34**(19), 89-90 (2016).
- [16] XIONG.X, LIU.S.L, WU.H.X: Teamwork and patient safety in medical environment. *China Medical Devices.* **27**(10), 21-24 (2012).
- [17] SUTCLIFFE.K.M, LEWTON.E, ROSENTHAL.M.M: Communication failures : an insidious contributor to medical mishaps. *Acad Med.* **79**(2), 186-194 (2004).
- [18] HE.Z.C, ZHONG.L.L, LU.Q.F: Research progress on application of SBAR communication model in clinical nursing. *Chinese Nursing Research.* **31**(3), 271-274 (2017).
- [19] LV.D: Application Status of ISBAR Standard Communication Tool in the Handover between Hepatobiliary Surgery and Operating Theatre. *Journal of Shaoyang University(Natural Science Edition).* **15**(5), 111-116 (2018).
- [20] ZHANG.Q, CAO.Q, et al: Application of "Current Situation-Background-Evaluation-Recommendation" Communication Mode in Bedside Handover in Cardiology. *Chinese Nursing Education.* **14**(10), 753-757(2017).