

The Impact of Creative Group Teaching and Educational Booklet Methods on Interpersonal Communications among Midwives in Clinical Setting

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How to cite this paper: Mandana, S., Mohammad, S., Maryam, M., Sadat, H.D.A. and Masud, Y. (2016) The Impact of Creative Group Teaching and Educational Booklet Methods on Interpersonal Communications among Midwives in Clinical Setting. *International Journal of Clinical Medicine*, 7, 698-711.

<http://dx.doi.org/10.4236/ijcm.2016.710076>

Received: September 28, 2016

Accepted: October 28, 2016

Published: October 31, 2016

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Abstract

Group discussion teaching technique for small groups and encouragement of critical but constructive and creative thinking for finding new and efficient solutions can lead to provision of better health and medical services that is defined in clinical setting, as the clinical psychology finds a way for curing and education. The present study was conducted with the aim to compare the effects of creative group teaching and educational booklet on interpersonal skills of midwives in a clinical setting. The present study was conducted on 97 midwifery graduates working in hospitals in Kerman Province, in two groups of educational booklet (49 midwives) and educational workshop (48 midwives) who participated in a 3-day creative teaching workshop in summer 2015. Creative problem-solving teaching intervention group was taught through educational workshop method, including small group and team working, group discussion and mini lectures. Midwifery 1 intervention group was provided with an educational booklet validated by professors of Nursing and Midwifery School for independent and individual study by midwives working in Kerman Province hospitals. The two groups were matched in terms of personal details. Hospitals were randomly selected, and midwives were selected by quota sampling. Inter-

personal communication skills of both groups were assessed before and after intervention, and two months later using Interpersonal Communication Skills Test. The results obtained were analyzed in SPSS-16 using descriptive statistics, including frequency and percentage, mean and standard deviation, and inferential statistics including U-Mann-Whitney, paired t, independent t, repeated measures ANOVA tests at significance level of $P < 0.05$. Mean changes in interpersonal communication scores in workshop group were significantly greater than those in educational booklet group after intervention, and educational workshop had caused a mean score change of 8.46 in every participant ($P < 0.001$). Two months after educational intervention, mean score change was 8.89 in workshop group, significantly different from 3.11 in educational booklet group ($P < 0.001$). According to paired t-test, mean scores of interpersonal communication significantly increased in both workshop (100.14 to 117.12) ($P < 0.001$) and booklet (96.56 to 99.8) groups ($P < 0.001$). Both teaching methods improved midwives' interpersonal communication skills. Therefore, standardized educational booklets which produce cost-effective similar results are recommended.

Keywords

Education, Interpersonal Communication, Clinical Psychology, Clinical Medicine, Problem-Solving

1. Introduction

Various educational methods, presenting real cases, reflection through debate and exchange of views, and immediate feedbacks will all help improve learning. As an active learning method, practical educational workshops utilize brainstorming, feedback and acquisition of knowledge and skills [1]. Educational workshops are one of the many common ways of transferring information and skills. When participation is poor and participants are not engaged in learning process, and questions and answers, debate and feedback are not provided, the workshop is not actually educational and lectures are wasted. An important point in learning through educational workshop is reflection on new subjects for in-depth learning, which happens in small groups [2]. Hamann *et al.* (2016), in their before/after assessment of an educational workshop on diagnosis and treatment of depression, concluded that the educational workshop provided a practical guide about mental health in a clinical setting [3].

Problem-solving is a cognitive-behavioral process and a coping skill associated with good personal adaptation, and involves five steps: self-concept, problem statement, listing various solutions, choosing the best solution, and testing the chosen solution [4]. Problem-solving, as the basis of care, needs to be addressed and developed [5]. Teaching problem-solving affects people's behaviors and boosts their self-efficacy [6]. Waugh *et al.* (2014) propose that nurses and midwives need training in addition to considering ethical and professional principles before being recruited. In their opinion survey of nurses and midwives, they concluded that at recruitment, seven key skills are necessary

for this profession, one of which is appropriate communication skills [7].

Emergency departments (such as midwifery) are highly complex settings with huge workloads, where tension is high, every second counts, events are unpredictable, and early diagnosis, treatment of patients and correct application of information are commonplace, which requires personnel to have adequate information, and sufficient problem-solving skills for every circumstance [8] [9]. In clinical settings and in dealing with real patients, students learn problem-solving skills, psychomotor ability, communication skills, critical thinking and time management skills, social behavior and self-esteem improvement [10]. Previous studies show that problem-solving training can positively affect critical thinking, self-concept, psychological health, mitigation of depression, and communication [4] [11] [12].

According to Gagne', problem-solving conditions include learner's inner conditions and learning setting, where learner combines simple rules to reach higher rules, and this leads to problem-solving. He therefore considers problem-solving as an essential learning skill, and believes that in problem-solving previous learning, especially rules, should be combined in a new way to create a higher rule [13].

In their workplace, midwives face with unpredictable and stressful events that affect their decision-making. They should therefore learn and apply problem-solving skills in any given situation. In today's complex healthcare, medical teams should be able to act quickly and correctly [14]. Calming the situation and avoiding tension is not only about interaction with patients, but also different aspects of work such as dealing with colleagues. It has been shown that problem-solving skills have a major role in people's dealing with adverse events and life stresses [15]. Shokohee-Yekta also showed that problem-solving training led to improvement in relationships and reduced negative behaviors among people [16].

In view of D'Zurilla and Goldfried, problem-solving stages include: General orientation, problem definition and formulation, generating creative solutions, decision making, and verification [17]. The main task in the third stage (decision making) is preparation of alternative solutions and selection of the most effective one [18]. Brainstorming technique can be used for finding creative solutions. The principle aim is separation of solution production process from evaluation process because production of alternative solutions is often suppressed by evaluation, which prevents creativity. Hence, solutions are not evaluated and judged at this stage [13].

To help mothers, midwives require the right decision making capacity for dealing with problems, and midwives with such a skill can easily deal with challenges in different situations [19]. Gaskell *et al.* (2015) argue that capabilities of midwives can be improved through training in advanced clinical skills, critical thinking, team work, innovative services and problem-solving skills, and thus, strengthening problem-solving skills is also effective in improving care [20]. Ivicsek *et al.* (2011) believe that given the complexities of the settings in which medical teams work, where reasoning, decision-making and creativity are required, problem-solving-based training is an appropriate method for coping with these settings [21].

In their systematic review, Choon-Huat Koh (2008) concluded that problem-solving

training positively affected doctors' capabilities after graduation, especially in social and cognitive areas [22]. Based on their mixed method study, McNeill *et al.* (2012) suggested that midwives should have greater involvement in promoting community health, and should be suitably trained to better understand their role in community health [23].

A good physician-patient relationship leads to better patient compliance, and therefore better patient recovery [24]. Thus, the present study was conducted with the aim to compare the effects of problem-solving training through educational workshops and educational booklets on interpersonal communications among graduate midwives in hospital settings based on D'Zurilla model.

2. Materials and Methods

The present quasi-experimental study was conducted on two groups of midwives working in maternity wards of hospitals in the city of Kerman in 2015. Two groups of hospitals were chosen by simple random method as the researcher wrote the names of hospital on small identical pieces of paper, put them in an envelope and drew them one by one. Every other hospital was assigned to intervention 1 or intervention 2 groups, thereby minimizing contact between them. Three hospitals were assigned to intervention 1 and three to intervention 2 groups. Because of the difference in numbers of midwives working in each hospital, midwives were selected per quota from each. To this end, quota was determined by the ratio of midwives per sample size in each group (50 midwives), which provided equal distribution of midwives and produced better quality of work. Once the researcher was sure of the cooperation of the six hospitals, she divided them randomly into two groups. Quota sampling from each hospital was conducted by knowing number of midwives in each and using equation $n = n NI/N$, which produced sample size needed from each hospital; where n = sample size needed in each intervention group; $N1$ = number of midwives working in each hospital; and N = total working population of midwives. The main aim in the present study was to compare mean scores of interpersonal communication in the two groups. Thus, sample size was determined according to comparison of means formula, with 95% confidence interval and 80% test power, where the difference in mean scores between the two groups will be significant when ≥ 13 . Given the range of variations in communication scores of 34 - 170, standard deviation was assumed 26. To overcome potential withdrawals, an extra 6% was added to samples, taking into account ratio of numbers in intervention groups 1 and 2 one-by-one. Hence, final total sample size was determined 100 midwives. Due to similarities in type of intervention with [25] titled "the effect of problem-solving training on decision making in students of medical emergencies, it was also used to determine the sample size. Therefore, according to the appropriate distribution of samples across hospitals, 50 midwives in intervention group 1 and 50 in intervention group 2 participated in the present study (2 midwives withdrew). Permissions were obtained from directors of hospitals and heads of maternity departments, and participants willingly consented to enter the study after they were briefed about study objectives by the

researcher.

The present study was conducted with pretest/posttest design, and participants from both groups were given interpersonal skills questionnaire before intervention. To this end, the researcher introduced herself to the deputy of treatment of Kerman University of Medical Sciences, and explained the study objectives, and obtained permission to enter and sample in hospitals. The researcher then made arrangement to find number of midwives working in hospitals with maternity wards.

Study inclusion criteria were minimum of one year's work experience, not being on obliged services, and not passing life skills workshops such as problem-solving and communication in the past six months. Study exclusion criteria were minimum of two sessions' absence for the intervention group, incomplete questionnaires, withdrawal while completing questionnaires, and failure to study educational booklet.

Data were collected using a two-part questionnaire. The first part consisted of demographic details, including age, education, marital status, employment status, work history, working shift, and history of participation in life skill workshops in the past six months, and the second part assessed interpersonal communications (completed by midwives) using the standard Interpersonal Communication Skills Test, with 34 items based on 5-point Likert scale (almost never, rarely, occasionally, often, and almost always), with scores ranging from 34 to 170. This questionnaire has been used in several studies including [26], and its validity and reliability were confirmed. To determine validity, the original questionnaire was translated into Persian, which was then compared to the original questionnaire by language experts, when initial modifications were made [27]. The questionnaire was made available to 10 university professors to edit ambiguities in items. The final version was completed by 8 university professors and confirmed with correlation coefficient of 0.75 [28]. After obtaining permission to sample from hospitals, two hospitals did not continue their cooperation due to potential problems associated with participation of their midwives in the educational program. Furthermore, two participants from educational workshop group were excluded due to absence of more than one day from workshop, but educational booklet group remained intact with no withdrawals.

In the first stage and after obtaining permission from the treatment deputy and hospital heads, and ethical consents from midwives, the researcher visited every hospital on different working shifts of midwives (from both groups) and distributed and then collected Interpersonal Skills questionnaires after completion. Intervention was performed in the second stage, and intervention group 2 was called to participate in educational workshop by attending a previously arranged (with university treatment deputy) education venue of one of the intervention hospitals at a previously notified time. Educational workshop intervention was performed over three 4-hour sessions (8am to 12 noon) held in three consecutive days using a variety of teaching methods according to learners' needs. To this end, based on previous studies and related preparatory classes (two private sessions with a psychologist) and acquiring problem-solving knowledge and skills, the researcher prepared educational contents in the form of a Power point

presentation and a pamphlet, which was qualitatively validated by four professors from Tehran School of Nursing and Midwifery; she then held educational sessions according to the contents thus prepared. Educational sessions were conducted by the researcher and supervised by a psychologist through lectures, group discussion, questions and answers, brainstorming, role-play, and critique and debate using D’Zurilla and Goldfried model.

In each session, a summary of the previous session was first presented by participants, followed by teaching new materials through interactive lectures involving participants and two presenters that moderated these sessions and displayed the already prepared Power point part of the educational content for half an hour in each session after conclusions were drawn from discussions. Group members participated in debates and then presented a summary of what they had learned in that session. Issues raised were resolved through questions and answers, and assignments were given for the next session in the form of a clinical scenario similar to experiences described by midwives to review and ponder to find individual solutions and practical strategies, so as to practice creative thinking individually as well as in groups. Timetable of creative problem-solving educational workshop is shown in **Table 1**.

Additional workshops were held for midwives that were absent for a day for whatever reason. Ultimately, 48 midwives were trained. Problem-solving educational pamphlets were made available to intervention group 2, so that they could be better introduced to educational points.

In intervention group with educational booklet, contents included definitions relating to problem-solving, dealing with problems, creative solutions and their stages and

Table 1. Timetable of creative problem-solving educational plan.

Day	workshop-participants’ activities	Duration
One	Free discussion about workplace communication problems encountered with colleagues and patients, and acceptance of the problem as a normal but modifiable phenomenon, and the belief in effectiveness of problem-solving in dealing with problems using small group discussion, performed by group leader and critiqued by other groups.	2 hours
	Participants’ task: problem statement at the end of group session by group leader. Problem definition and formulation and determination of goals, followed by collection of data and analysis of problem using small group and group discussion, and presentation by group leader, and critique by other groups. Problem analysis by group leader at the end of teamwork session	2 hours
	Generating a range of solutions that were critiqued by participating midwives	2 hours
Two	Participants’ task: choice of common problems of clinical midwives group by group leader at the end of sessions, and selection of decision-making solutions and prediction of possible outcomes for each solution. At this stage, consequences and problems associated with implementation of selected solutions and their weaknesses were assessed. Finally, decisions and prediction of consequence and weaknesses relating to the selected solution were explained by group leader at the end of each teamwork session.	2 hours
	Review of previous sessions and implementation of solutions to real workplace cases proposed by participants through open discussion and role play	2 hours
Three	Participants’ task: choosing the best solution for implementation within the existing context by group leader at the end of group sessions	2 hours
	Review and summation of outcomes Evaluation of workshop and opinion survey at the end of teamwork sessions	

effects on problem-solving. Qualitative content validity of the booklet was assessed by five nursing and midwifery professors and necessary modifications were made, and then confirmed by a clinical psychologist. The booklet was then made available to midwives to study and contact the researcher if they had any questions on the number already provided. Intervention ended in the knowledge that study of the booklet had completed in booklet group and creative teaching teamwork sessions had ended in workshop group. Then, the Standard Interpersonal Skills questionnaire was completed by participants immediately after intervention and two months later. Ethical considerations observed included obtaining permission from the ethics committee of Tehran School of Nursing and Midwifery, introductory letter for holding educational workshop from Medical Deputy to hospitals, explanations about study objectives given to participants, and their permission to receive questionnaires, rights to participate or withdraw, ethics permission, registration of study on clinical trials site, and receiving registration code.

One of the study limitations was midwives' shift rotation that made it impossible for all members of intervention group 2 to participate in workshop sessions, so additional sessions were held to overcome this limitation. Another limitation included initial non-cooperation of some hospital heads for facilitating midwives' participation in the teamwork, which was resolved through frequent visits and telephone contacts.

The results obtained were analyzed in SPSS-16, using U-Mann-Whitney, independent t, paired t and repeated measure ANOVA tests.

3. Results

The majority of participating midwives in booklet (42%) and creative problem-solving workshop (39.6%) groups were aged between 31 and 35 years, and also the majority in booklet (68%) and workshop (81.2%) groups were married. The majority of midwives in booklet (94%) and workshop (91.7%) groups had university degree education. Mann-Whitney test showed no significant difference between the two groups. Kolmogorov-Smirnov test confirmed normal distribution of main study variables before intervention and immediately and two months after intervention ($P < 0.05$). Paired t-test was therefore used to verify study hypotheses. Independent t-test showed no significant difference in mean scores of interpersonal communication between booklet (96.56) and workshop (100.14) groups before intervention ($P = 0.64$), but immediately after intervention, interpersonal communication score showed greater increase in workshop (117.12) compared to booklet (99.8) group. According to paired t-test, mean scores of interpersonal communication significantly increased in both workshop (100.14 to 117.12) ($P < 0.001$) and booklet (96.56 to 99.8) groups, with significant differences between before and immediately after intervention scores ($P < 0.001$) (Table 2).

Table 3 shows a significant increase in mean interpersonal communication score from before intervention to two months after in both groups. However, this increase was greater in creative teaching group. On these occasions, mean scores significantly changed in both groups ($P < 0.001$).

Table 2. Mean and standard deviation of scores of interpersonal communication before and immediately after intervention in groups 1 and 2.

Interpersonal communication before and immediately after	Intervention 1 (booklet study)		Intervention 2 (workshop)	
	Before intervention	Immediately after intervention	Before intervention	Immediately after intervention
Mean ± SD	96.56 ± 11.71	99.80 ± 12.40	100.14 ± 6.61	117.12 ± 10.19
Paired T-test results		$P < 0.001$ df = 49 t = -408.8		$P < 0.001$ df = 47 t = -808.13

Table 3. Mean and standard deviation of interpersonal communication scores before and two months after intervention in intervention groups.

Interpersonal communication before and two months after intervention	Intervention 1 (booklet study)		Intervention 2 (workshop)	
	Before intervention	Two months after intervention	Before intervention	Two months after intervention
Mean ± SD	96.56 ± 11.71	99.92 ± 12.43	100.14 ± 6.61	115.72 ± 10.92
Paired T-test results		$P < 0.001$ df = 49 t = -627.7		$P < 0.001$ df = 47 t = -110.12

The results also showed mean change of score in workshop and booklet groups of 8.46 and 3.24 respectively, with a significant difference between them, and significantly greater change in mean score of interpersonal communication in workshop group compared to booklet group. Thus, educational workshop was able to produce a change of score of 8.46 in participating midwives ($P < 0.001$). In the follow-up two months after intervention. Mean score change was 8.89 in workshop group and 3.11 in booklet group, with a significant difference between them. Thus, mean score change in interpersonal communication two months after intervention was significantly greater in intervention groups 2 compared to group 1, and intervention was able to cause mean score change of 8.89 in participants ($P < 0.001$).

Repeated measure ANOVA test showed significant differences in interpersonal communication scores in workshop group before intervention and immediately and two months after intervention ($P = 0.001$) (Table 4). A test criterion of 472.615 was obtained, which confirmed the significant differences in interpersonal communication scores before, immediately after and two months after intervention in workshop group ($P < 0.001$). This was also observed in booklet group ($P < 0.001$).

4. Discussion and Conclusion

The present study showed that teaching midwifery graduates in both educational workshop and educational booklet methods and according to D'Zurilla and Goldfried model positively affected and improved their interpersonal communications. The two groups were matched in terms of personal details before the study. Interpersonal communication score after three days of education was greater in educational workshop group compared to educational booklet group. Although this score also increased in

Table 4. Intra-group effect on interpersonal communication among graduate midwives in groups 1 and 2.

Repeated measure ANOVA	Mean	Standard deviation	Test criterion (F)	Significance
Educational booklet	181.68	2	450.734	$P < 0.001$
Educational workshop	292.81	1.50	472.615	$P < 0.001$

educational booklet group. In a randomized controlled study, Borhani *et al.* taught 25 nurses in a two-day workshop (8 hours per day), and conducted their follow-up over a two-month period through 24 text messages [29]. Their results showed an improvement in ethical sensitivity of nurses after this educational workshop. [30] used educational booklet and VCD to teach cardiac patients before their surgery, and succeeded to resolve their anxiety [31]. [32] studied the relationship between problem-solving and communication skills, and found a correlation between appropriate problem-solving and effective communication skills, which confirmed the fact that learning problem-solving skills per se leads to better interpersonal communications, such that higher problem-solving skill score increases communication score [24] ($P < 0.001$). To improve students' interpersonal communication skills, [33] studied communication method used by teachers, and found that physical activity, happy atmosphere, and respect for students encourage them to learn better and do their homework. When teaching method was changed and students had group exercises, their satisfaction peaked and quality of teaching also improved, which led to a friendlier relationship between teachers and students [34]. In a study by [35], communication skills were taught to general practitioners, which led to improvement in their attitude, confidence in diagnosis, and satisfaction with working relationships [26]. In a study conducted on nursing and midwifery students, [36] found a significant relationship between self-control and self-esteem as factors affecting communications and problem-solving [14]. This study is in agreement with the present study.

The present study showed that the effect of problem-solving skill teaching lasted for two months after intervention, which was in line with Moatari *et al.* study that was conducted to assess the effect of problem-solving skill training on self-concept in nursing students, and the results showed greater improvement in intervention group compared to control group a month after teaching problem-solving skills according to D'Zurilla and Goldfried model (due to time limitations, follow-up was conducted a month after intervention) [10]. In a study (2003) conducted on nursing students by Makoul, a significant difference was observed in communication skills between trained and untrained students, which agreed with the present study results [27].

In contrast to the present study, in Salimi *et al.* study (2011), participation of paramedical students in communication skills workshop made no significant difference in their scores in Interpersonal Skills Test, which may have been due to the difference in participants' academic discipline. Furthermore, participants in their study were students, compared to working midwives in the present study that were in contact with various medical teams, and improvement in their communication skills would give

them greater satisfaction with their profession, which encourages them to improve their behavior; whereas students may regard participation in educational workshop or reading as just another academic unit, and thus not very important. Another factor that affects participants' communication skills is the quality and method of teaching. In the present study, new and varied teaching methods were used in the educational workshop, including group discussion, questions and answers, feedback, reflection, real life scenarios proposed by participants, critique and debate, which may have affected behavior change. These techniques are much more effective than lecture method. However, the relationship between students' interpersonal communication skills and teaching method was not investigated in Salimi *et al.* study. In the present study, due to their desire for learning problem-solving skills, participants in booklet group scored higher on later occasions due to individual study of educational booklet, which shows the educational effect of individual study.

In a study by Hap (2011), poor verbal communication of nurses after intervention was highlighted that had led to dissatisfaction of service recipients, which disagrees with the present study [30]. Hemati-Maslak-Pak (2014) reported communication skills of ICU nurses favorable, and since ICU nurses deal with patients that are unable to communicate in a normal way, nurses use non-verbal communications for better understanding of patients' needs, which according to Hemati-Maslak-Pak is more effective than physical care. Thus, they have a high communication level [31].

Shahbazi *et al.* (2012) performed problem-solving educational intervention in the trial group in six two-hour sessions over eight weeks according to D'Zurilla and Goldfried social problem-solving model in the form of group discussion, brainstorming, and small group (3 people) debates supervised by two experienced teachers [17]. The results obtained confirmed effectiveness of learning, concluding that problem-solving education improves decision-making [29] and enhances emotional intelligence.

Asuero *et al.* conducted a randomized controlled innovative educational intervention for primary healthcare professionals, and reported post-intervention effect of 0.74, and thus recommended ongoing innovative education for prevention of burnout in these professionals [32]. In the present study, despite slight changes in midwives' interpersonal skills score in the second and third assessments in terms of learning through individual study, the increase in interpersonal skills score immediately after intervention and two months later showed an intervention effect of 1.77. It can be said that deductive or top-down education paradigm has changed. Most learning is now focused on reasoning and roots of the problem and related issues. Although there is still a challenge in the balance between what is taught and learnt or not learnt, learning through problem-solving can help improve people's capabilities [33].

In nursing and midwifery, effective interaction with patients and members of the medical team is essential, and given their career prospects and particular features of these disciplines, their desirable learning method is divergent, through which, a socially and holistically minded student will use his creativity and initiative in his communications, especially with patients, and offer creative solutions, and thus achieve high

levels of problem-solving [34]. Active and group participation of people in educational programs and their encouragement for critical but constructive and creative thinking in finding solutions will ultimately result in provision of better health services.

Despite the efficacy of educational workshops, problems encountered in holding these workshops in terms of coordination and gathering the personnel (given their huge workload and hospital directors reluctant agreements) to take part in these workshops were the main limitations in the present study.

Thus, despite the positive effects of educational workshops on participants' learning, due to personnel's work and coordination problems for participation in workshops, and also the high costs of holding these workshops; it is recommended that personnel be encouraged to enhance their interpersonal communication skills through content validated educational booklets, which are much more cost-effective and produce nearly the same results. Furthermore, given the importance of communications in medical professions, teaching problem-solving and communication skills to midwifery students can at least be expected to be included in their curriculum as an optional unit. It is further recommended that communication skills education through other globally practiced educational methods such as simulation be studied.

Acknowledgements

The authors wish to thank hospital directors, those in charge of maternity wards, and all midwives for their enthusiastic participation in educational sessions. We also thank the Research Deputy of Tehran University of Medical Sciences, the ethics committee, and Iran's clinical trials center for registration of the present study on their site (code: IRCT201410216284N8). We also thank hospital directors for certifying educational workshops. The present article is the result of a student thesis.

Competing Interests

The authors declare that they have no competing interest.

Authors' Contributions

All of research team participated in study design and coordination and helped to draft the manuscript. Dr. Modarres also collected the data and performed the paper writing. All authors read and approved the final manuscript.

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