

Improvement of Teamwork in Health Care Through Interprofessional Education

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SUMMARY

Introduction Collaboration, within and between healthcare teams, facilitates effective healthcare. Internationally, the development of interprofessional education, as a means to facilitate more effective teamwork in health care, has been recognized for over forty years.

Objective The aim of this paper is to evaluate students' attitudes toward the influence of interprofessional education on improvement of collaboration and teamwork.

Methods The research was conducted by interviewing students at the Medical Faculty in Novi Sad in the form of cross-sectional study. The study sample included students from two undergraduate programmes: School of Nursing (n=52) and Integrated Studies of Medicine (n=53). Students admitted to the research had to be exposed to clinical experience. The instrument used in this study was the Readiness for Interprofessional Learning Scale (RIPLS).

Results As many as 93.3% of students indicated that basics of teamwork skills should be obtained prior to graduation, whereas 96.2% considered that interprofessional education would enable them to improve mutual trust and respect. The majority of interviewees indicated that patients would ultimately benefit if healthcare students worked together to solve patient problems. Multivariate procedures MANOVA $p < 0.05$ and discriminative analysis $p < 0.05$ of students' attitudes toward teamwork and collaboration showed significant differences between the students of medicine and nursing.

Conclusion The students of the Integrated Studies of Medicine and School of Nursing had a positive attitude toward the influence of interprofessional education on the improvement of collaboration and teamwork.

Keywords: teamwork; interprofessional relations; medical students; health care students; attitudes

INTRODUCTION

The basic guidelines of effective health care emphasize collaboration and teamwork within and among health institutions, providing health care at community level and in health institutions. Health care teams are the combination of different number of members of various professions, who deliver care at different times, as well as in various settings, and accomplish different tasks [1]. Each team passes through certain stages in its development. Tuckman cites four stages of Team Development: forming, storming, norming and performing [2]. Interprofessional practice has two aspects: professional and interpersonal. Professional aspect reflects position structure and establishment of the roles of team members in relation to other team members, whereas interpersonal aspect reflects characteristics of interpersonal relationships among members of one team [1, 3].

Internationally, the advancement of teamwork through the development of interprofessional education has been a process lasting for almost forty years. The World Health Organization suggested the initiative for interprofessional education as a means of better and more comprehensive approach to patients' needs and enhance-

ment of job satisfaction of health care workers [4]. It has been also suggested as a supplementary method of learning to traditional models of education in health and social care [5].

The definition most widely used in the literature, according to El-Zubeir's citation, is the one given by the UK Centre for the Advancement of Interprofessional Education, which defines interprofessional education as occurring "when two or more professions learn with, from and about each other to improve collaboration and the quality of care" [6]. Interprofessional education implies learning in educational institutions and work-based learning in health and social care settings, prior to gaining qualifications and after acquiring qualifications [7].

Interprofessional education should be distinguished from multiprofessional education which relates to circumstances when learners from two or more different professions learn together without deliberate or systematic interaction (students from different study programmes sit side by side during lectures) [8]. In multiprofessional education there are opportunities to learn "something incidentally" about other professions. Shared lectures are frequently adopted for economic reasons rather than educational principles. In multiprofessional teaching arrange-

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ments students are typically passive recipients and interactive learning may be minimal. In contrast, interprofessional learning is an educational process through which students are provided with structured learning opportunities for shared learning. The goal of such learning is to enable learners to acquire knowledge, skills and professional attitudes. Thus, students of different health professions are helped to understand the complexities of working in the environment where teamwork is the basic method of work [8, 9].

With regard to initiatives for interprofessional learning in Europe, the majority come from Nordic countries and Great Britain [10, 11]. Already in its initial article the Munich Declaration (Article 4) proposes in the development of opportunities for nurses, midwives and physicians to learn together so as to ensure more cooperative and interdisciplinary work in the interests of better patient care. The more education is adjusted for interactive roles, the better are the opportunities for everyday cooperation, which is considered to be the factor contributing to a higher self-esteem among nurses and midwives, providing the opportunity to obtain a degree, as well as the opportunity to use research results in everyday practice. (Article 89) [12].

OBJECTIVE

The aim of this paper is to evaluate students' attitudes toward the influence of interprofessional education on the improvement of collaboration and teamwork.

METHODS

The research was conducted by interviewing students during the summer semester of the 2007/2008 school year in the form of cross-sectional study. The present study included students from the Integrated Studies of Medicine and School of Nursing, since doctors and nurses comprise most of health teams at all levels of health care. The inclusion criteria were exposure to clinical experience and attendance of introductory lecture on interprofessional learning. With the aim to offer students current basic information we gave an hour long lecture on interprofessional education, which was planned and realized through investigation. Out of total 120 students who met criteria, 105 (87.5%) accepted to participate in the study.

We used the Readiness for Interprofessional Learning Scale (RIPLS) developed by Parsell and Bligh from the Liverpool University, Great Britain (Department of Health Care Education) as the instrument of investigation. The original questionnaire consists of 19 statements measuring the strengths of students' beliefs concerning interprofessional learning by five-level Likert scale. The intensity of description ranges from 1 = I strongly disagree, 2 = I do not agree, over 3 = I neither agree nor disagree, 4 = I agree, and 5 = I strongly agree. The statements are represented by individual items and they are grouped into three subscales named "teamwork and collaboration", "professional identity" and "roles and responsibilities" [13].

Based on the recommendations by Guillemain et al., our questionnaire was adapted to meet cross-cultural adaptation. Accordingly, this adaptation involved translation by two independent translators (English teachers), as well as back-translation (translation from English into Serbian and vice versa).

In addition to the Readiness for Interprofessional Learning Scale, another questionnaire was developed, and adjusted to meet the needs of the present study, aiming at collecting sociodemographic data (gender, age, degree of current study, student group, previously completed school, i.e. profile).

The study was examined and approved by the Ethics Committee of the Medical Faculty in Novi Sad. In order to make the students anonymous, the interviews were conducted without taking students personal data, and all the data were treated in strict confidence.

Non-parametric procedures, according to the frequency of modalities, were used to analyze items of the subscales, since they had non-parametric characteristics. However, in order to preserve the information, finding the most subtle correlations and knowledge on non-parametric values, data scaling was done on contingency tables. In this procedure, based on the frequency rating, each class was labelled by a real number. Since the scaling of data did not exclude the use of non-parametric tests, the multivariate analysis of variance (MANOVA) for scaled data, discriminative and other parametric procedures and methods were possible [15].

The questionnaire was tested by checking the domain/scale internal consistency Cronbach's alpha.

RESULTS

Out of 105 students, 52 (49.5%) were the students of medicine, while 53 (50.5%) were students of the school of nursing. The majority of students (84.8%) were female. The mean age of the interviewed medical students was 24.4 ± 2.1 years, and the students of nursing 23.1 ± 4.3 years. The nursing students were mostly in their second-year of study, whereas every third medical student was a fourth-year student. The students of both study programmes had previously completed either grammar school or secondary medical school (Table 1). Overall, 35 students who previously completed grammar school mostly took course in science, while 70 students with secondary medical school degree comprised over half of those who took courses in nursing (medical nurse and paediatric nurse).

The reliability of the questionnaire was analyzed by applying Cronbach's alpha coefficient, with recommended minimal consistency value of 0.70 [16]. Cronbach's alpha of the whole questionnaire was 0.84. Mean scores of individual items and percentage of "agree" and "strongly agree" scores showed the students' positive attitude toward interprofessional education (Table 2). The subscale of "teamwork and cooperation" showed the highest mean score 4.2 ± 0.6 . The items in this subscale were clustered into two groups: "effective teamworking" (statements number 1, 2, 3, 5, 8, 9) and "relationships with other professionals" (statements number 4, 6, 7).

Table 1. Sociodemographic characteristics of students (sample characteristics)

Characteristic		Number of students		
		Nursing care	Medicine	Total
Gender	Female	50 (96.2%)	39 (26.4%)	89 (84.76%)
	Male	2 (3.8%)	14 (73.6%)	16 (15.24%)
	Total	52 (49.52%)	53 (50.48%)	105 (100%)
Current study	First	0	1 (1.9%)	1 (0.95%)
	Second	50 (96.2%)	1 (1.9%)	51 (48.57%)
	Fourth	2 (3.8%)	37 (69.8%)	39 (37.14%)
	Fifth	0	14 (26.4%)	14 (13.33%)
	Total	52 (49.52%)	53 (50.48%)	105 (100%)
Former education	Secondary Medical School	49 (94.2%)	21 (39.6%)	70 (66.67%)
	Grammar School	3 (5.8%)	32 (60.4%)	35 (33.33%)
	Total	52 (49.52%)	53 (50.48%)	105 (100%)

Table 2. Mean scores of students' attitudes and numerical and percentile responses for Team Work and Collaboration subscale

Statements	$\bar{X} \pm SD$	Number of students	
		Agree	Strongly agree
Learning with other students will help me become a more effective member of health care team (T1)	4.1±0.9	46 (43.81%)	36 (34.28%)
Patients will ultimately benefit if health-care students work together to solve patient's problems (T2)	4.4±0.7	46 (43.81%)	50 (47.62%)
Shared learning with other health care students will increase my ability to understand clinical problems (T3)	4.1±0.9	46 (43.81%)	38 (36.19%)
Learning with health care students before qualification will improve relationships after qualification (T4)	4.2±0.9	40 (38.09%)	44 (41.90%)
Communication skills should be learned with other health care students (T5)	4.2±0.8	46 (43.81%)	43 (40.95%)
Shared learning will help me to think positively about other professionals (T6)	3.9±1.1	34 (32.38%)	38 (36.19%)
For small group learning to work, students need to trust and respect each other (T7)	4.5±0.6	42 (40.00%)	59 (56.19%)
Team working skills are essential for all health care students to learn (T8)	4.5±0.7	32 (30.48%)	66 (62.86%)
Shared learning will help me to understand my own limitations (T9)	3.9±1.0	49 (46.66%)	30 (28.57%)

Effective teamworking

Overall, the responses to the items comprising the first subscale indicated that the majority of students considered interprofessional education to enhance their effectiveness in teamwork (T1:78.1%), and convey the students' recognition of the need to acquire knowledge and skills prior to their graduation (T8:93.3%). Responds were also positive about the benefits of teamworking, as the majority considered it a condition for a good health care quality. The majority of students agreed or strongly agreed that shared learning with students of other student group (nursing or medicine) would help them understand their own professional abili-

ties and limitations (T9:75.2%), while 10 % of students were neutral. Most of the respondents stated that patients would also benefit if students worked together in solving the problems during their training (T2:91.4%), and that shared learning with other health care students would increase their ability to understand clinical problems (T3:80%). This indicates that interprofessional education enhances not only teamwork, but also the competencies in future health care activities. However, it is interesting to note, that 15% of students of both groups were neutral or they did not agree with the statement. Most students agreed or strongly agreed that communication skills should be learned tutored by other health professionals (T5:84.8%).

Table 3. Characteristics of students from two study groups in relation to their attitudes toward team work and collaboration

Item	Discriminative coefficient	Attitudes of nursing care students	Attitudes of students of medicine
T6	0.057	Agree*, strongly agree	Strongly disagree, disagree, neither agree nor disagree*
T2	0.052	Strongly agree*	Disagree, neither agree nor disagree, agree*
T8	0.014	Neither agree nor disagree, agree	Strongly disagree, disagree, strongly agree
T4	0.012	Agree, strongly agree*	Strongly disagree, disagree, neither agree nor disagree
T3	0.008	Agree, strongly agree	Disagree*, neither agree nor disagree
T9	0.007	Disagree, agree	Strongly disagree, neither agree nor disagree, strongly agree
T5	0.007	Strongly agree*	Disagree, neither agree nor disagree, agree
T1	0.004	Agree, strongly agree	Strongly disagree, disagree, neither agree nor disagree
T7	0.001	Neither agree nor disagree, strongly agree	Disagree, agree

* p<0.05

Relationships with other health professionals

A greater proportion of students agreed or strongly agreed that learning in small groups requires mutual trust and respect (T7:96.2%), and that learning between health care students before acquiring qualification would improve working relationships after being qualified; however, 15% of the students neither agreed nor disagreed with the statement. The respondents agreed that shared learning would help them think positively about other health care professionals (T6:68.6%), whereas 19 (18.1%) students neither agreed nor disagreed and 14 (13.3%) did not agree with this statement.

Multivariate procedures MANOVA $p < 0.05$ and discriminative analysis $p < 0.05$ of the students' attitudes related to team-work and collaboration, indicated the presence of difference between nursing and medical students for T2 (shared learning of nursing and medical students will help to clarify the nature of patient problems), T3 (shared learning with other health care students will increase my ability to understand clinical problems) and T6 (shared learning will help me think positively about other health care professionals). The discriminative coefficient gave the highest contribution to the difference between students' attitudes (with starting point at highest difference) for the following items: T6 (0.057), T2 (0.052), T8 (0.014) and T4 (0.012). Other items showed lower discriminative coefficient.

The findings from this study provided characteristics of students' attitudes from both student groups and their recognition of the benefits of interprofessional learning for their future teamwork and collaboration (Table 3).

DISCUSSION

Internationally, the call for interprofessional education, as a means of enhancing interprofessional teamwork and collaboration, is considered as an essential feature of professional practice aimed at achieving a more effective system of health care. There are increasing number of initiatives and new approaches to the assessment of this kind of educational strategy [17]. The RIPLS questionnaire, used by some authors, proved to be reliable in the assessment of students' attitudes toward interprofessional learning [18], which is, in addition to organizational and structural changes, most important for the introduction of interprofessional education. In the present study the questionnaire demonstrated a high reliability in regard to internal consistency ($\alpha = 0.84$), identically to the original questionnaire in English language.

With regard to the analysis of the studied groups, the question arose whether the sample of 105 students, namely 50 examinees per group, was sufficient to come to relevant conclusion. Some authors have recently performed similar studies on larger number of students, for example Horburgh et al. [9] on 180 students, El-Zubeir et al. [6] on 178 students, whereas Parsell and Bligh [13], the authors of the questionnaire The Readiness for Interprofessional Learning Scale (RIPLS), had the sample of 120 students. The research conducted on our sample was sufficient for reaching preliminary conclusions, which could be directed

toward longer and more comprehensive investigation of the methods of interprofessional education and its influence on teamwork improvement.

Despite interpersonal differences, the students' attitudes indicated that shared learning would enhance their teamwork. The literature reveals similar results of other authors [6, 18, 19]. For example, Healey, addresses and evaluates the complexity of measuring interprofessional surgical teamwork, emphasizing that the model of interprofessional education contributes to the development of interprofessional collaboration in the operating theatre, to team performance, and to increased patients' safety [20].

Zwarenstein and Reeves [21] demonstrate a positive impact of nurse/doctor interprofessional collaboration on the treatment outcome of patients. According to the findings of the present study, both students of medicine and nursing considered that their shared learning would be beneficiary for patients. Such attitude has been also supported by students of the Auckland University, who consider that acquiring teamwork skills during studies is useful for their future professional activities, for better patients' health care, and their future interprofessional work relationships [18].

Over two-thirds of respondents agreed that shared learning with other health professional groups, enhanced effectiveness in work, and increased their ability to understand clinical problem-solving. However, the present research study, as well as the Horsburgh's study, revealed differences between nursing and medical students' responses: nursing students expressed more positive attitude toward this statement, in relation to medical students. In his paper Stone emphasizes the advantages of interprofessional education as compared to traditional educational systems, showing that knowledge, skills and attitudes gained within team-based work, enhance job satisfaction. Benefits are particularly evident and are of great significance in the management of the continual health care of chronic patients, as well as of emergency patients [22].

The results of the present study showed that almost all students ($n = 101$) agreed or strongly agreed that small-group learning requires students' mutual trust and respect. Such a result can be explained by the fact that students already had experience with working in small groups. Although, on the national level, primary and secondary school curriculums are based on traditional principles, group work actually exists in classes. Also, practical training in pre-clinical subjects is conducted in small groups; however, these are mainly single-profile-professional groups of 10, 15, or more students. The findings confirm one of the principles which is the basis of adult-learning theory, according to which students are capable of working together and in a dialogue with others based on respect and trust among both their peers and lecturers [5].

According to the research of the present study, the majority of students agreed that learning together with students of other educational programmes before acquiring qualification/diploma i.e. after graduation, as well as learning with students doing different courses would stimulate them to develop a positive point-of-view about other professions. However, responses revealed that nursing students had a

more positive attitude than medical students, among whom one-third had either neutral or expressed disagreement with these statements. This can be the stereotype, still also present in our society that nurses are as physician's assistants. The available literature supports the view of the medical students that their future professional role enables them to have power over other health care professionals. While multiprofessional learning provides opportunity for alteration of such stereotypes, Davies [23] reports that if we truly want to improve the efficiency of working collaboration, both professions must be changed.

In Munich Declaration the benefits of good cooperation between two or more professions are suggested as multiple. The notion of multiple is especially important for patients. They receive "the path without obstacles" through complex health system due to improved quality of services, resulting from adequately planned and delivered interventions. Those who provide health services are professionally satisfied since their services are of good quality, economical and performed at high level. Each profession can provide the desired standard. This implies that different professionals know and understand that each profession adds something different, but still they have a common perception of the general task, and not only of their own contribution. Although technology is increasingly advancing and enhancing specialization, we should bear in mind that no profes-

sion can singly "serve" the patient. Only partnership among and within professions can provide comprehensive and integrated services in health care [12].

CONCLUSION

The present study showed that students of both study programmes consider the following:

- basic skills of teamwork and communication skills should be obtained during studies through interprofessional education;
- work in small groups teaching students to study together as the basic element of interprofessional education develops mutual trust and respect as a precondition of successful teamwork;
- interprofessional learning with students from other study programmes enhances their efficiency in work and solution of clinical problems.

Interprofessional education is not easy to introduce in the present curriculums of undergraduate studies of nursing and integrated medical studies, but if we take into account that both study groups exist at almost all medical universities in Serbia, we consider that their implementation should be one of the priorities for managers at the mentioned health care institutions.

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Унапређење тимског рада у здравственој заштити кроз међупрофесионално образовање

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КРАТАК САДРЖАЈ

Увод Сарадњом унутар и између тимова здравствених радника обезбеђује се ефективна здравствена заштита. Унапређење тимског рада кроз развој међупрофесионалног образовања јесте процес који траје већ четрдесет година на међународном нивоу.

Циљ рада Циљ рада је био да се процене ставови студената о утицају међупрофесионалног образовања на унапређење сарадње и тимског рада.

Методе рада Студија пресека је изведена на Медицинском факултету Универзитета у Новом Саду анкетирањем студената. Обухваћена су 52 студента основних академских студија здравствене неге и 53 студента интегрисаних студија медицине, а услов за њихово укључивање у истраживање био је да су започели наставу на клиничким предметима и одслушали предавање о међупрофесионалном учењу. У истраживању је коришћена Скала спремности за међупрофесионално учење (енгл. *Readiness for Interprofessional Learning Scale – RIPLS*).

Резултати Став 93,3% студената је да основне вештине тимског рада треба да науче пре дипломирања, док 96,2% студената сматра да би им међупрофесионално образовање омогућило да развију међусобно поверење и поштовање. Већина њих сматра да би и болесници имали користи ако би током наставе радили заједно на решавању проблема. Вредност *p* мања од 0,05 добијена мултиваријантним поступцима (*MANOVA*) и дискриминативном анализом ставова студената који се односе на тимски рад и сарадњу указује на то да постоји разлика између две групе испитаних студената.

Закључак Студенти медицине и здравствене неге имају позитиван став о утицају међупрофесионалног образовања на унапређење сарадње и тимског рада здравствених радника.

Кључне речи: тимски рад; међупрофесионални односи; студенти медицине; студенти здравствене неге; ставови

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