

Dental and Nurse Practitioner Student Attitudes About Collaboration Before and After Interprofessional Clinical Experiences

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Abstract: The aim of this study was to investigate the effect that an interprofessional clinical experience (IPCE) had on dental and adult-gerontology primary care nurse practitioner (NP) students' attitudes towards health care collaboration. A survey study was conducted with dental and NP students before and after completing IPCE rotations in a dental clinic and a tertiary care setting in the 2016-17 academic year. All dental students (N=159) and all NP students enrolled in the adult-gerontology primary care program (N=37) participated in the IPCE. Students were asked to complete the Readiness for Interprofessional Learning Scale (RIPLS) survey anonymously prior to and immediately after the experience. All 37 NP students completed both pretest and posttest, for a 100% response rate on both. Among the dental students, 120 completed the pretest, for a 75% response rate, and 106 completed the posttest, for a 67% response rate. The results showed a significant increase in total RIPLS score for both the dental and NP students following the experience ($p < 0.001$). Attitudes about teamwork and collaboration and about roles and responsibilities improved for both the dental and NP students ($p < 0.001$) following the IPCE. There was a difference between dental students' and NP students' teamwork and collaboration subscale scores before IPCE ($p = 0.006$), but it diminished after the intervention ($p = 0.09$). These results suggest the IPCE succeeded in building positive attitudes about interprofessional collaboration between dental and NP students. Clinical rotations should be considered to enhance the scope of students' experiences with interprofessional patient care.

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Interprofessional education (IPE) is formative training to prepare students for future patient care in conjunction with other health care professionals.¹ IPE takes place when students from two or more health care professions learn about, from, and with each other to develop effective collaboration and improve patient care outcomes.² A subcategory of IPE can be termed "interprofessional clinical experience" (IPCE) in that it specifically incorporates student collaboration in clinical settings while providing care to patients. Onsite clinical training such as IPCE allows students to interact in person, learn together in real time, and practice their skills in interprofessional collaboration while caring for patients. Among its many values, interprofessional practice is essential for addressing the needs of an aging population.³

Collaboration among health professionals has many positive attributable outcomes. Communicating and partnering with other health professionals to provide care has been shown to improve nursing students' self-reported competence and collaborative learning experiences, and training health professions students together has been found to improve attitudes about collaboration.⁴⁻⁸ Attitudes may translate to behaviors, so that exposing students to IPE opportunities fosters acquisition of valuable collaborative skills. However, the ability to work in multidisciplinary team is not usually intuitive, but must be learned.⁹ Therefore, dental students should be trained to effectively communicate with other health care providers including nurse practitioner (NP) students.¹⁰ Since there is a bidirectional relationship

between oral health and systemic disease, both dentists and NPs need to recognize oral manifestations of systemic disease as well as understand the implications oral health can have for overall well-being. Dental-NP collaboration may improve efficiencies in the delivery of patient care, leading to better patient outcomes, but such collaboration requires effective communication between dentists and NPs.¹¹⁻¹³ IPCE can help dental and NP students learn to provide such collaborative and comprehensive care.

Most U.S. dental schools have successfully incorporated some form of IPE into their predoctoral dental curricula, enabling collaboration across health care disciplines.¹²⁻¹⁴ IPE is often integrated in classroom or simulation student activities.¹¹⁻¹⁵ However, incorporating IPCE into dental and NP curricula may provide students with opportunities to develop skills in professional collaboration, enhancing their attitudes toward collaboration and potentially improving patient health outcomes. Simulation experiences have already been shown to improve attitudes of both dental/dental hygiene and NP students.^{10,16} In addition, service-learning experiences exposing students to patients who lack dental care and have severe oral health problems were found to impact developing nursing and dental professionals in their future willingness to provide care in settings that serve patients with health and oral health inequities.¹⁷ There is a dearth of published research assessing IPCE collaborations between NP and dental students while providing patient care. The aim of this study was to investigate the effect that an IPCE had on dental and adult-gerontology primary care nurse practitioner students' attitudes towards health care collaboration. We also assessed the students' perceptions of professional identity and their roles and responsibilities before and after a real-time experience in providing care to patients with general and oral health inequities.

Methods

This study was approved by the Columbia University Institutional Review Board (#AAAR1851). An initial pilot study was developed to go beyond traditional IPE and create an IPCE for dental and NP students. The IPCE built on previous IPE efforts between the dental and NP schools. The collaboration between the Columbia University College of Dental Medicine and School of Nursing began in

2014. The associate deans of academic affairs in the two programs collaborated as part of a larger effort in IPE. Faculty from the School of Nursing in the adult-gerontology primary care advanced nursing practice program and faculty from the College of Dental Medicine were approached in each school. Between 2014 and 2015, the comprehensive care director at the dental school recruited 12-15 students as volunteers to participate in the pilot study exploring the effect of dental and NP students working together. The IPE began with classroom activities and simulations and evolved into IPCE by year three of the collaboration.

A faculty-driven project emerged from this collaboration in 2016-17. In addition to simulations and classroom activities previously offered to interested faculty members, we developed a clinical rotation. Faculty team members collaborated for a pilot program in which NP students in the adult gerontology primary care program received some of their clinical training in managing patients with multiple comorbid conditions presenting at the dental school's emergency clinic; at the same time, dental students received some of their training in managing patients who presented for emergencies and patients presenting at a tertiary adult rehabilitation and geriatric facility in collaboration with NP students. All NP students enrolled in the adult gerontology primary care program (n=37) rotated through the emergency clinic. All third- and fourth-year dental students (n=159) interacted with NP students: third-year students at both the dental clinic and tertiary care facility, and fourth-year students at the dental clinic on multiple occasions.

A mandatory orientation was held for all NP and dental students (n=196) by the dental and NP faculty. Orientation included a program overview including objectives of IPE and IPCE. Additionally, the roles of dental providers and NPs in chronic care management were defined using interactive activities such as pairing to review clinical vignettes.

The clinical sites for this study were a tertiary care center and a dental clinic. Student teams evaluated patients at a comprehensive community subacute rehabilitation center in Northern Manhattan that provides care to a diverse population of geriatric residents and patients in rehabilitation. This tertiary care facility has a dental clinic and a medical clinic staffed, respectively, by postgraduate dental residents and NP students. The tertiary care facility is part of a nursing home that provides care for low-income and disabled individuals. Residents of the facility are

evaluated at its care center for wellness and on an as-needed basis. During their rotation at the tertiary care site, NP and dental students worked together in ascertaining patients' medical and dental history, performed oral screenings of soft and hard tissues, made recommendations, and provided appropriate referrals. For example, all patients received a complete extra- and intraoral examination by the student teams, and if a patient was found to have oral lesions, a referral to pathology or oral surgery was provided. This rotation was the first opportunity for the dental students to participate in collaborative practice in taking care of an adult rehabilitation/geriatric population.

Students also rotated through a dental clinic that provides emergency dental services to a diverse local community in Northern Manhattan with many adult patients facing health inequities and disparities. The emergency dental clinic treats an average of 15 patients per day, and all 196 students had multiple opportunities for collaboration during this one-day rotation. Typically, patients seeking emergency dental care at the clinic also are not routine users of primary health care services and present with multiple co-morbid conditions.

During their rotations at the dental clinic, dental and NP students were partnered and trained to collaboratively report patient medical histories and physical assessments to dental faculty members. Each student discussed preliminary diagnoses of the patient's medical and oral presentation, need for radiographs and further exams, definitive diagnosis, treatment plan, and need for referral. Similarly, at the tertiary care facility, dental and NP students evaluated patients as a team, collected patient data including a medical and dental history, performed comprehensive physical and oral exams, and discussed recommendations for treatment with the attending faculty.

Goals of this IPCE included co-professional engagement and identifying the overlap of care. Dental and NP students completed reflections/evaluations of the experience. There were more dental students (159) than NP students (37) in the cohort. NP students had more experiences in interprofessional practice than did the dental students as the NP students were present for every tertiary care facility clinical, whereas the third-year dental students had only one interaction at the dental clinic and one at the tertiary care facility and the fourth-year dental students had only two experiences at the dental clinic. Despite this, both dental and NP students did have at least two IPCE experiences for a minimum of 16 hours.

Scheduling issues presented the biggest challenge to this co-curricular experience and limited the number of IPCE experiences. Not all dental students were able to participate in the tertiary site because of scheduling difficulties, but all were required to complete a total of 16 hours (two clinical days). As a result, the third-year dental students completed eight hours of IPCE at the dental site and eight hours of IPCE at the tertiary care site, whereas the fourth-year students completed all 16 hours of IPCE at the dental site.

We used the Readiness for Interprofessional Learning Scale (RIPLS) survey to measure the students' attitudes towards collaboration prior to IPCE and immediately after. The RIPLS is a 19-item tool with a five-point response scale (1=strongly disagree to 5=strongly agree), designed to assess attitudes towards collaboration with other health care professionals.¹⁸⁻²⁰ RIPLS total scores can range from 19 to 95 with higher scores associated with more positive opinions of collaboration. The RIPLS is subdivided into three categories: teamwork and collaboration, professional identity, and roles and responsibilities. The teamwork and collaboration subscale has nine items, with scores ranging from 9 to 45, that assess value for cooperative learning and respect for other health care professionals. The professional identity subscale has seven items, with scores ranging from 7 to 35, that appraise value and benefit of collaborative relationships with other health care professionals. The roles and responsibilities subscale consists of three items, with scores ranging from 3 to 15; it measures practical application of interprofessional skills with other health care professionals.¹⁸⁻²¹ The teamwork and collaboration subscale measures knowledge and skills; the professional identity subscale evaluates values and beliefs; and the roles and responsibilities subscale assesses actual collaborative behavior. The RIPLS has been found to have good internal consistency ($\alpha=0.90$ to 0.91).^{18-20,22}

All 196 students were required to attend the IPCE and were recruited to voluntarily and anonymously complete a self-administered RIPLS at two time points. A baseline paper questionnaire was administered on orientation day prior to starting IPCE experiences. An online anonymous version of the RIPLS questionnaire was administered to all students following completion of IPCE.

Means and standard deviations of RIPLS scores were calculated. All analyses were conducted using SPSS version 22 (IBM Corp., Armonk, NY, USA).

Differences between baseline and endpoint survey scores were analyzed using paired samples t-tests and between groups using independent t-tests. Internal consistency of the RIPLS instrument was determined by computing Cronbach's α for the tool and each of the three subscales.

Results

A total of 196 students (37 NP and 159 dental students) participated in the required IPCE rotations. All 37 NP students completed both pretest and posttest, for a 100% response rate on both. Among the dental students, 120 completed the pretest, for a 75% response rate, and 106 completed the posttest, for a 67% response rate. The mean age for both the dental and NP students was 26 years (Table 1).

The students' RIPLS scores were high at both time points, demonstrating that they had strong positive opinions of collaboration. Means and standard deviations for total RIPLS scores and the three subscales are shown in Table 2. The combined cohort of dental and NP students had increased RIPLS scores

from pretest to posttest. The greatest change was on the teamwork and collaboration subscale: the students' mean scores increased to 45.0 following completion of IPCE rotations from 40.5 at baseline. Their roles and responsibilities subscale mean scores increased from 9.7 to 10.1, and their professional identity subscale mean scores increased from 23.8 to 24.2. When we examined the scores by separate groups of NP and dental students, we found the greatest change from pre- to posttest was also in the teamwork and collaboration subscale (Table 3). The NP students' mean subscale score increased from 42.2 (SD=3.7) to 45 (SD=0.0), and the dental students' mean subscale score increased from 39.9 (SD=4.5) to 44.9 (SD=0.01).

Independent t-tests were run to compare the NP and dental students' attitudes towards collaboration before IPCE (baseline), and no statistically significant difference was found on the total scores (Table 4). There was a statistically significant difference in teamwork and collaboration subscale scores before IPCE between the dental students (M=39.9, SD=4.5) and NP students (M=42.2, SD=3.7) ($t_{151}=-2.8$; $p<0.01$), with the NP students' having higher scores.

Table 1. Nurse practitioner (NP) and dental students' gender, age, and response rates, for before and after interprofessional clinical experience (IPCE)

	NP Students (n=37)		Dental Students (n=159)	
	Total	Responded	Total	Responded
Before IPCE				
Men (n)	4	4	82	71
Women (n)	33	33	75	49
Response rate		100%		75%
Mean age (SD)		26.3 (2.1)		26.4 (1.8)
After IPCE				
Men (n)	4	4	82	62
Women (n)	33	33	75	44
Response rate		100%		67%
Mean age (SD)		26.3 (2.1)		26.4 (1.8)

Table 2. Combined nurse practitioner and dental students' scores on Readiness for Interprofessional Learning Scale total and subscales, before (pretest) and after (posttest) interprofessional clinical experiences

Total/Subscale	Pretest			Posttest			p-value
	n	Mean	SD	n	Mean	SD	
Total	157	74.5/95	7.6	143	78.3/95	2.0	<0.0001*
Teamwork	157	40.5/45	4.4	143	45.0/45	0.1	<0.0001*
Professional identity	157	23.8/35	2.9	143	24.2/35	0.8	0.161
Roles and responsibilities	157	9.7/15	1.2	143	10.1/15	2.1	<0.0001*

Note: In Mean columns, number to right of slash is maximum possible score for that measure.

*Significant at $p<0.05$

Table 3. Nurse practitioner (NP) and dental students' scores on Readiness for Interprofessional Learning Scale before (pretest) and after (posttest) interprofessional clinical experiences

Total/Subscale	Pretest			Posttest		
	n	Mean	SD	n	Mean	SD
NP students						
Total	37	77.2	5.2	37	79.9	1.7
Teamwork and collaboration	37	42.2	3.7	37	45.0	0.0
Professional identity	37	23.5	2.1	37	24.1	1.1
Roles and responsibilities	37	10.1	1.8	37	10.7	1.8
Dental students						
Total	120	73.5	8.7	106	77.7	3.1
Teamwork and collaboration	120	39.9	4.5	106	44.9	0.1
Professional identity	120	23.9	2.9	106	24.2	1.2
Roles and responsibilities	120	9.6	2.1	106	9.9	2.3

Note: Maximum scores were as follows: total=95, teamwork and collaboration=45, professional identity=35, roles and responsibilities=15.

Table 4. Comparison of nurse practitioner (NP) and dental students' scores on Readiness for Interprofessional Learning Scale on pretest and posttest

	NP Students			Dental Students			p-value
	n	Mean	SD	n	Mean	SD	
Pretest							
Total	37	77.2/95	5.2	120	73.5/95	8.7	0.120
Teamwork and collaboration	37	42.2/45	3.7	120	39.9/45	4.5	0.006*
Professional identity	37	23.5/35	3.0	120	24.0/35	4.0	0.041*
Roles and responsibilities	37	10.1/15	1.8	120	9.6/15	2.1	0.491
Posttest							
Total	37	79.9/95	1.7	106	77.7/95	3.1	0.144
Teamwork and collaboration	37	45.0/45	0.4	106	44.7/45	0.1	0.090
Professional identity	37	24.0/35	0.2	106	24.4/35	1.3	0.019*
Roles and responsibilities	37	10.7/15	1.8	106	9.9/15	2.3	0.009*

Note: In Mean columns, number to right of slash is maximum possible score for that measure.

*Significant at $p < 0.05$

There was also a statistically significant difference in professional identity subscale scores before IPCE between the dental students ($M=24.0$, $SD=4.0$) and NP students ($M=23.5$, $SD=3.0$) ($t_{151}=0.7$; $p < 0.05$), with the dental students' having higher scores. There was no significant difference on roles and responsibilities subscale scores ($p=0.491$) between the dental and NP students.

When we also ran independent t-tests to compare the NP and dental students' attitudes towards collaboration after IPCE (endpoint), no statistically significant difference was found on the total RIPLS scores. There was also no significant difference in the teamwork and collaboration subscale scores after IPCE between the dental and NP students. However, there was a statistically significant difference in

professional identity subscale scores after IPCE between the dental students ($M=24.4$, $SD=1.3$) and NP students ($M=24.0$, $SD=0.2$) ($t_{151}=0.7$, $p < 0.05$), with the dental students' having higher scores. There was also a statistically significant difference in roles and responsibilities subscale scores after IPCE between dental students ($M=9.9$, $SD=2.3$) and NP students ($M=10.7$, $SD=1.8$) ($t_{151}=0.7$, $p < 0.01$), with the NP students' having higher scores.

Cronbach's α was computed for the RIPLS and the three subscales. The RIPLS instrument exhibited good internal consistency ($\alpha=0.81$). The subscales teamwork and collaboration ($\alpha=0.94$) and professional identity ($\alpha=0.91$) also demonstrated good reliability. The roles and responsibilities subscale did not have good reliability ($\alpha=0.45$).

Discussion

In this study, total RIPLS scores overall improved following the completion of IPCE for both the dental and NP students. The mean RIPLS scores improved after clinical rotations in the teamwork and collaboration subscale, professional identity subscale, and roles and responsibilities subscale (Tables 2 and 3). These results indicate that an increasingly positive attitude towards collaborative practice developed following the interprofessional clinical interaction during the assigned rotations. We also noted that both the dental and NP students had high mean RIPLS scores in teamwork and collaboration before IPCE took place, suggesting that the students may have already been sensitized to the value of interprofessional practice within the culture of their schools, a finding supported by others.²³

Prior to IPCE, the NP students had higher scores than the dental students on the teamwork and collaboration subscale, indicating the NP students had adopted the value of cooperative learning and respect for other health care professionals. This finding could be explained by the fact that NP students routinely collaborate with other professions during their training and practice. Zaudke et al. found that nursing professionals also reported high levels of respect for collaboration and hypothesized that this attitude may be due to their professional culture.⁸ It is worth noting that, even with prior interprofessional practice experience, the collaboration of NP students with dental students in our study further improved the NP students' attitudes regarding teamwork and collaboration.

This study found that, following IPCE, the teamwork and collaboration subscale scores were similar between the two student groups, which indicates that both groups valued cooperative learning similarly. It is worth noting that IPCE training of students in this study took place in facilities that treat a population with health and oral health inequities. The fact that both NP and dental students reached near-perfect scores on the RIPLS scale in teamwork and collaboration after IPCE training suggests that students in this university's culture are being sensitized to the needs of patients. The findings are also similar to Nierenberg et al.'s recent study, which found that exposure of students to patients in areas with health inequities increased the students' appreciation of the need for interprofessional practice in meeting patient needs.¹⁷

The dental students in our study had higher professional identity subscale scores than their NP

counterparts both before and after the collaborative experience. This finding may suggest that students valued shared learning communication and its benefits for patient care (examples of teamwork and collaboration subscale), while at the same time they valued that shared learning may be helpful to their own profession (items in the professional identity scale). However, there is a paucity of evidence indicating the effect professional identity has on attitudes towards collaboration and patient care. Therefore, this area merits further investigation.

There was no significant difference between the dental and NP students' roles and responsibilities subscale scores before the collaborative experience, although when evaluated individually, both the NP and dental students had improved scores in the scale. There are only three items in this subscale, so the results should be interpreted with caution as two previous studies found the roles and responsibilities subscale had poor internal consistency.^{6,20} Instruments such as the Student Perceptions of Interprofessional Clinical Education (SPICE) survey have been recently used to assess teamwork, roles and responsibilities, and patient outcomes factors.²³ Future studies can assess the reliability of such instruments in evaluating improvements in IPE practice and whether they lead to better patient care outcomes.

Our study was limited by the relatively small sample size. Moreover, regarding the time period allotted for IPCE rotation, there is no established guidance as to how the length of such training affects students' attitudes towards interprofessional collaboration. Our protocol allowed for students to be exposed to IPE during two IPCE rotations, for a total of 16 hours. Also, not all student participants in IPCE had similar experiences. The third-year but not the fourth-year dental students participated in IPCE at the tertiary care site, and our anonymous questionnaires did not elucidate whether the students had attended the tertiary site or had their entire experience in the dental school emergency clinic. Perhaps offering increased hours of rotations will more positively affect the IPCE and should be further explored. Finally, since this study took place at one academic institution, its results may not be generalizable to NP or dental students at other institutions.

Conclusion

This study's findings support the use of IPCE as an IPE modality to help develop positive attitudes towards interprofessional collaboration between

dental and NP students. These dental and NP students at Columbia University reported positive attitudes towards shared learning and collaboration prior to IPCE, and their attitudes towards collaborative practice improved after IPCE for both groups of students. Educating these future health care providers in an interprofessional, real-time clinical environment promoted interprofessional and teamwork attitudes. Collaboration is essential to improving health care outcomes for patients with complex medical and oral health needs and especially so for individuals and communities with health and dental care inequities.

REFERENCES

1. Interprofessional Education Collaborative. Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative, 2016.
2. World Health Organization Department of Human Resources for Health. Framework for action on interprofessional education and collaborative practice. Geneva: World Health Organization, 2010.
3. Formicola AJ, Andrieu SC, Buchanan JA, et al. Interprofessional education in U.S. and Canadian dental schools: an ADEA team study group report. *J Dent Educ* 2012;76(9):1250-68.
4. Castrèn M, Mäkinen M, Nilsson J, Lindström V. The effects of interprofessional education: self-reported professional competence among prehospital emergency care nursing students on the point of graduation, a cross-sectional study. *Int Emerg Nurs* 2017;32(1):50-5.
5. Seaman K, Williams E, Harrup-Gregory J, et al. An examination of students' perceptions of their interprofessional placements in residential aged care. *J Interprof Care* 2017;31(2):147-53.
6. Salazar FC, Andiappan M, Radford D, Gallagher J. Attitudes of the first cohort of student groups trained together at the University of Portsmouth Dental Academy towards dental interprofessional education. *Eur J Dent Educ* 2017;21(2):91-100.
7. Young G, Cohen M, Blanchfield B, et al. Assessing interprofessional education in a student-faculty collaborative practice network. *Educ Prim Care* 2017;28(4):223-31.
8. Zaudke J, Chestnut C, Paolo A, Shrader S. The impact of an interprofessional practice experience on student behaviors related to interprofessional communication and teamwork. *J Interprof Educ Pract* 2016;4(1):9-13.
9. Tamayo M, Besoain-Saladana A, Aguirre M, Leiva J. Teamwork: relevance and interdependence of interprofessional education. *Rev Saude Publica* 2017;51:39.
10. Czarnecki GA, Kloostra SJ, Boynton JR, Inglehart MR. Nursing and dental students' and pediatric dentistry residents' responses to experiences with interprofessional education. *J Dent Educ* 2014;78(9):1301-12.
11. Haber J, Harnett E, Allen K, et al. The impact of oral-systemic health on advancing interprofessional education outcomes. *J Dent Educ* 2017;81(2):140-8.
12. Palatta A, Cook BJ, Anderson EL, Valachovic RW. 20 years beyond the crossroads: the path to interprofessional education at U.S. dental schools. *J Dent Educ* 2015;79(8):982-96.
13. Hamil LM. Looking back to move ahead: interprofessional education in dental education. *J Dent Educ* 2017;81(8 Suppl):eS74-80.
14. Andrews EA. The future of interprofessional education and practice for dentists and dental education. *J Dent Educ* 2017;81(8 Suppl):eS186-92.
15. Wilkes M, Kennedy R. Interprofessional health sciences education: it's time to overcome barriers and excuses. *J Gen Intern Med* 2017;32(8):858-9.
16. Mitchell AM, Riccelli A, Boucek L, et al. Effect on dental hygiene students of a substance use simulation conducted with nursing students. *J Dent Educ* 2018;82(5):469-74.
17. Nierenberg S, Hughes LP, Warunek M, et al. Nursing and dental students' reflections on interprofessional practice after a service-learning experience in Appalachia. *J Dent Educ* 2018;82(5):454-61.
18. McFadyen AK, Webster V, Strachan K, et al. The Readiness for Interprofessional Learning Scale: a possible more stable sub-scale model for the original version of RIPLS. *J Interprof Care* 2005;19(6):595-603.
19. Curran VR, Sharpe D, Forristall J, Flynn K. Attitudes of health sciences students towards interprofessional teamwork and education. *Learn Health Social Care* 2008;7(3):146-56.
20. Parsell G, Bligh J. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Med Educ* 1999;33(2):95-100.
21. Lie D, Richter-Lagha R, Forest CP, et al. When less is more: validating a brief scale to rate interprofessional team competencies. *Med Educ Online* 2017;22(1):1314751.
22. Milutinovic D, Lovric R, Simin D. Interprofessional education and collaborative practice: psychometric analysis of the Readiness for Interprofessional Learning Scale in undergraduate Serbian health care student context. *Nurse Educ Today* 2018;65:74-80.
23. Townsend J, Zorek JA, Andrieu SC, et al. Developing interprofessional education at one U.S. dental school: establishing a baseline and moving forward. *J Dent Educ* 2018;82(5):446-53.