Strides Dev Med Educ. 2022 December; 19(1):145-149. doi 10.22062/sdme.2022.197994.1131

Original Article

Social Presence in Distance Education Among Medical Students During COVID-19 Pandemic

Habibeh Ahmadipour[1*], Diana Hajipour[2]

[1]Associate Professor of Community Medicine, Community Medicine Department, Medical Education Leadership and Management Research Center, Kerman University of Medical Sciences, Kerman, Iran.
[2]General Practitioner, Community Medicine Department, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran.

Received: 2022 October 31
Revised: 2022 November 27
Accepted: 2022 December 03
Published online: 2022 December 06

***Corresponding author:**
Department of Community Medicine, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran.
Email: ahmadipour@kmu.ac.ir

Citation:
Ahmadipour H, Hajipour D. Social Presence in Distance Education among Medical Students during COVID-19 Pandemic. Strides Dev Med Educ. 2022 December; 19(1):145-149. doi:10.22062/sdme.2022.197994.1131

Abstract

Background: Online social presence is one of the main contributors which has a significant impact on student's academic performance.

Objectives: The present study aimed to assess the online social presence among medical students using the Persian Version of the Online Social Presence Questionnaire (OSPQ) after determining its psychometric properties.

Methods: A cross-sectional study was conducted on 303 medical students at Kerman University of Medical Sciences in 2021. The participants were selected through quota sampling. A two-part online questionnaire containing demographic data and the Persian version of the Online Social Presence Questionnaire (OSPQ) was used for data collection. Exploratory and Confirmatory factor analysis was conducted using SPSS version 20.0 and LISREL version 8.80. Internal consistency of the Persian version was determined. ANOVA, Independent T-test, and multiple linear regression were also used. The significance level was considered as 0.05.

Results: Out of 303 medical students, 63.7 percent were female with a mean age of 22.83±2.84 years. The mean score of the social identity subscale (P = 0.001) and the total score (P = 0.03) was significantly higher in females. Also, the mean of the intimacy subscale was significantly higher in interns and basic sciences students compared to pre-clinical students. (P = 0.006) The Cronbach alpha coefficient ranged from 0.70 to 0.93 for the whole scale and its subscales. The factor loading of all items was at an acceptable level ranging from 0.4 to 0.95. Almost all of the goodness of fit indices had excellent levels.

Conclusion: Our study revealed that the Persian version of OSPQ is a simple, valid, and reliable tool to assess medical students' sense of social presence in an online environment.

Keywords: Social Presence, Online Learning, Distance Education, Medical Students, Iran

Background

As a result of the COVID-19 pandemic, all educational systems were forced to move rapidly toward virtual education, which was referred to as "emergency remote teaching," implying that this transition was temporary in nature (1, 2). But it seems that the flexibility and learning possibilities of virtual education lead the educational systems not to return fully to previous training conditions in the post-corona era (1, 3, 4). Therefore, to provide quality online education, different aspects of this method should be considered by educational planners and policymakers. Barbara found nine dimensions including "modality, student-instructor ratio, instructor and student role in online education, pacing, pedagogy, online communication synchrony, the role of online assessments, and source of feedback" (5).

One of the important issues related to students in an online learning environment is the social presence which assesses the learner's sense of being connected with the instructor and other students in an online learning environment and is often misunderstood or ignored (6, 7).

Some researchers believe that an online learning environment compared to face-to-face education provides less social presence due to a lack of nonverbal communication (8).

Aldheleai and colleagues found a significant relationship between students' academic performance and all aspects of online social presence (9). Other

literature in this regard shows that social presence has a remarkable impact on students' satisfaction, interactive behaviors, development of the virtual world, and community in an online learning environment (8). Due to the importance of social presence in online learning, various tools have been introduced to measure it such as The Social Presence and Privacy Questionnaire (SPPQ), IPO Social Presence Questionnaire (IPO-SPQ), and Online Social Presence Questionnaire (OSPQ) (8).

Almost all training in medical education was held virtually during the Covid era and it has been specified that social presence in distance education is an important factor for students' learning and satisfaction, their interactive behaviors, and the development of the virtual community in an online learning environment. Therefore, our educational system must assess the social presence of distance education among medical students.

Objectives

Given that the OSPQ had appropriate psychometric properties in the previous study (6, 9) and since the psychometric properties of the Persian version of the questionnaire have not been reviewed, the current study aimed to assess the social presence in distance education among medical students after determining its psychometric properties.

Methods

A cross-sectional study was conducted on 303 medical students who were studying at Kerman University of Medical Sciences in the academic year 2020-21 (second semester). The participants were selected through the quota sampling method. Given that the main purpose of the study was to assess the Psychometric Properties of an instrument, the sample size was considered to be 15 times per item of the tool (10). Inclusion criteria were studying at Kerman University of Medical Sciences as a student during the study period and willingness to participate. Leaving more than 10% of questions unanswered will result in the questionnaire being excluded.

Data was collected using a two-part self-administered questionnaire in which the first part contained demographic information including age, gender, residence, marital status, student's educational stage (Basic sciences, Introductory to clinical sciences, Clerkship, and Internship), and parents' educational level and the second part was the Persian version of the Online Social Presence Questionnaire (OSPQ). This questionnaire has 19 questions with five subscales: social respect, social sharing, open mind, social identity, and intimacy which assesses the learner's sense of being connected with the instructor and other students in an online learning environment. Response to each item is rated on a 5-point Likert scale (1 = very little, 5 = very much) (6). The total score and the score of each subscale were then transformed into a score between zero and 100 for better comparison. The higher the score in each area, the better the situation in that subscale.

To provide the Persian version of OSPQ, after obtaining permission to use the questionnaire, the forward and back-translation method was used. The instrument was adapted culturally by an expert panel. Through an expert panel including five community medicine and two medical education specialists, the face and content validity of the instrument was evaluated, and accordingly, the Content validity index (CVI) of the whole questionnaire was determined as 0.86.

To design an electronic questionnaire, the "Porsline" Platform was used through https://porsline.ir/ and its link was shared with the students. The participants completed the questionnaire voluntarily and anonymously. The study was approved by the ethics committee at the Kerman University of Medical Sciences (IR.KMU.REC.1400.085).

Data were analyzed by LISREL version 8.80 (Scientific Software International, Chicago, IL, USA) and SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). In a pilot study on 35 medical students, the internal consistency of the Persian version was determined by the Cronbach Alfa coefficient. These students then entered the study. Exploratory and Confirmatory factor analyses were conducted for construct validity. Furthermore, ANOVA (The comparison of the total score of social presence and its subscales based on students' educational stage, parents' educational level, and residence) and Independent T-test (The comparison of the total score of social presence and its subscales based on gender and marital status), and multiple linear regression (the variables which had $P < 0.2$ in univariate analysis) were used. The significance level was considered as 0.05.

Results

Out of the 303 medical students who participated in the study, 63.7 percent were female with a mean age of 22.83±2.84 years. Most of them (67.3%) were in the clinical stages.

Table 1 shows the central and dispersion parameters of the total score of social presence and its subscales. In the comparison of the total score of social presence and its subscales based on students' characteristics, the mean score of the social identity subscale ($P = 0.001$) and social presence total score ($P = 0.03$) was significantly higher in females.

Table 1. Central and dispersion parameters of the total score of social presence and its subscales

	Number of items	Mean (SD)	Min	Max
Social respect	5	16.20 (3.70)	5	25
Social sharing	5	18.40 (3.68)	5	25
Open mind	3	10.73 (2.26)	3	15
Social identity	4	12.79 (3.09)	4	20
Intimacy	2	6.34 (1.64)	2	10
Total	19	64.49 (12.29)	19	95

Also, the mean of the intimacy subscale was significantly higher in interns and basic sciences students compared to pre-clinical students. (P = 0.006). No statistically significant difference was found in the rest of the comparisons based on the students 'characteristics (P > 0.05) (Table 2).

Table 3 shows the Cronbach alpha coefficient of the Persian version of the OSPQ and its subscales indicating excellent internal consistency for all subscales and the whole questionnaire.

In construct validity analysis, Bartlett's test of sphericity was statistically significant (P = 0.001, χ = 3564.94, df =171) and Kaiser-Meyer-Olkin (KMO) measure was 0.93, indicating the proper sample size and suitability of factor analysis (10). Table 2 shows the exploratory factor loading of the scale. Almost all of the goodness of fit indices had an excellent level in confirmatory factor analysis, ((χ2 /df = 2.69, RMSEA = 0.07, SRMR = 0.04, GFI = 0.90, AGFI = 0.84, NFI = 0.96, IFI = 0.98, and IFI = 0.98).

In multiple linear regression, none of the students 'characteristics could significantly predict the social presence score.

Discussion

The current study aimed to assess the online social presence among medical students using the Persian Version of the Online Social Presence Questionnaire (OSPQ) and it was revealed that the Persian version of OSPQ had appropriate psychometric properties. The internal consistency of the instrument and its subscales had an excellent level based on the Cronbach alpha coefficient (11) which is consistent with similar studies. Sung and Mayer report that Cronbach's alpha ranged from 0.847 to 0.863 (4). In a study conducted by Aldheleai on tertiary education students in Malaysia, the Cronbach alpha coefficient was reported between 0.78 and 0.93 (9). Kovari found a Cronbach's alpha of 0.93 in a study on the students of the University of Pannonia, Hungary (12).

The construct validity of OSPQ was confirmed by factor analysis. The factor loading of all items was at an acceptable level ranging from 0.4 to 0.95 which has concordance with Sung and Mayer and Aldheleai that showed the factor loading between 0.5 and 0.79 and 0.74 to 0.97, respectively (6, 9).

In the current study, almost all goodness of fit indices yielded excellent results in confirmatory factor analysis, indicating the instrument's five-item model is valid. This model was confirmed in similar studies in different populations in Malaysia and South Korea (6, 9).

Table 2. The comparison of the total score of social presence and its subscales based on students' characteristics

	Social respect	Social sharing	Open mind	Social identity	Intimacy	Total
Gender						
Female	57.43(17.9)	68.18(17.1)	65.19(17.9)	57.73(18.9)	55.37(19.6)	61.33(15.2)
Male	53.54(19.3)	65.04(20.4)	63.18(20.4)	50.11(19.1)	52.50(21.8)	57.26(17.4)
P	0.08	0.15	0.37	0.001**	0.24	0.03**
Marital status						
Single	55.92(18.7)	66.58(18.3)	63.70(19.1)	53.70(19.0)	53.30(20.5)	59.21(16.3)
Married	56.34(17.9)	69.71(18.7)	68.42(17.7)	60.45(19.6)	59.13(19.8)	62.93(15.1)
P	0.88	0.26	0.10	0.02**	0.06	0.13
Educational stage						
BS	55.76(19.7)	65.86(19.5)	62.79(20.8)	53.60(20.9)	55.18(20.0)	59.01(17.3)
ICS	56.90(23.9)	58.57(20.9)	60.32(19.7)	51.79(19.7)	41.07(21.7)	55.14(19.7)
Clerkship	54.60(19.0)	70.60(18.1)	67.44(17.9)	52.25(18.5)	52.33(21.5)	60.11(15.6)
Internship	57.08(15.9)	67.31(16.7)	64.74(17.3)	58.74(17.8)	57.52(19.0)	61.38(14.5)
P	0.83	0.05	0.29	0.08	0.006**	0.38
Residence						
With parents	56.61(17.5)	66.94(18.3)	64.16(18.6)	54.54(19.4)	54.17(20.0)	59.83(15.7)
Own home	55.43(18.6)	68.50(17.9)	66.31(19.4)	58.75(19.0)	57.68(19.3)	61.52(15.4)
Dormitory	54.70(21.8)	65.40(19.6)	63.00(19.1)	51.25(18.9)	50.25(23.3)	57.63(18.5)

P	0.77	0.65	0.60	0.09	0.14	0.43
Father education						
Under diploma	58.00(17.3)	71.83(19.1)	68.61(16.6)	56.04(20.5)	55.42(24.5)	62.63(15.2)
Diploma	50.94(16.7)	65.94(18.3)	63.05(16.7)	51.77(18.9)	53.30(19.3)	57.22(16.2)
Academic	56.98(19.0)	66.66(18.4)	64.24(19.6)	55.60(19.3)	54.43(20.3)	60.11(16.3)
P	0.08	0.31	0.41	0.41	0.89	0.31
Mother education						
Under diploma	57.07(20.2)	70.00(22.4)	66.67(20.9)	57.54(21.4)	55.60(23.8)	61.93(18.2)
Diploma	51.88(19.3)	66.23(17.6)	63.53(18.0)	52.60(20.9)	51.14(22.7)	57.57(17.3)
Academic	57.49(17.8)	66.93(18.2)	64.51(19.0)	55.52(18.4)	55.39(19.0)	60.45(15.4)
P	0.07	0.63	0.74	0.40	0.28	0.32

The values: Mean (SD), BS: Basic sciences, ICS: Introductory to clinical sciences
**P<0.05

Table 3. Internal consistency and factor loading of the Persian version of the OSPQ items

Num	Subscale	Items	Cronbach alpha coefficient	Factor loading
1	Social respect	Express of appreciating	0.70	0.40
2		Acknowledgment		0.66
3		Timely response		0.82
4		Use humor		0.81
5		Strike up communication		0.62
6	Social sharing	Social relationship	0.91	0.76
7		Sharing learning information		0.76
8		Express belief or value		0.67
9		Social motivate facilitator		0.63
10		Close relationship		0.68
11	Open mind	Express agreement	0.91	0.72
12		Express positive view		0.72
13		Self-disclosure		0.68
14	Social identity	Use greetings title	0.82	0.64
15		Address learner by team name		0.68
16		Learner's characteristic		0.70
17		Address learner by name		0.70
18	Intimacy	Express personal's stories	0.84	0.77
19		Express emotion or feeling		0.85
The whole questionnaire (Cronbach alpha coefficient)			0.93	

Therefore, it can be concluded that the Persian version of OSPQ had excellent validity and reliability and can be used to assess medical students' sense of social presence when virtual/distance learning has almost completely replaced traditional education in the COVID-19 era. Even though the training has returned to face-to-face mode after the corona pandemic subsided, surely the experience of virtual training in this era has made at least part of the training to be presented in virtual form. Since social presence is considered an important aspect of online learning, our educators and education planners should take into account the facilitators and barriers of social presence in the virtual environment. This approach helps medical students trust each other and have a sense of connection with the educators and other students (13). Aldosari found that for improving social presence in online higher education, students and instructors must be competent in technology (14).

Our study revealed that social presence was significantly higher in females compared to males which are consistent with some similar studies and not consistent with others (15, 16). For instance, Kovari et al found that among the students of the University of Pannonia, the proportion of high scores of social presence was higher in the females (12), meanwhile showed that no significant differences in students' sense of social presence based on gender among postgraduate students in one of the Malaysian public universities (16). Kear and colleagues emphasized the role of personal profiles which helps online learners to feel connected with others (17).

Therefore, it seems necessary that other factors such as online learning self-efficacy, students' interest and satisfaction with online education, as well as their skills in using Information and Communications Technology, etc. should be considered by the educational systems to improve the sense of social presence among students.

Limitation: The current study was cross-sectional with its potential limitations and also was limited to medical students, so the results should be generalized with caution. The study tool was an electronic

questionnaire, the accuracy of its completion may not have been observed. Considering that the previous experience of the students or their parents in the field of virtual education can affect the sense of social presence in an online environment, it would be better to investigate this relationship as well.

Conclusion

The Persian version of OSPQ is a simple, valid, and reliable tool to assess the sense of social presence in an online environment among medical students. Also, we found that none of the students 'characteristics could significantly predict the social presence score. Therefore, it is suggested that other factors be considered in future studies.

Acknowledgements: The authors appreciate the medical students of Kerman University of Medical Sciences who contributed to this study.

Conflict of interests: There are no conflicts of interest.

Ethical approval: The study was approved by the ethics committee at the Kerman University of Medical Sciences with ethical approval code: IR.KMU.REC.1400.085).

Funding/Support: This study was financially supported by the Kerman University of Medical Sciences, Kerman, Iran.

References

1. Lockee BB. Online education in the post-COVID era. Nature Electronics. 2021;4(1):5-6. doi: 10.1038/s41928-020-00534-0.
2. Hodges CB, Moore S, Lockee BB, Trust T, Bond MA. The difference between emergency remote teaching and online learning. [cited 2020 Mar 27]. Available from: https://socialscience.msu.edu/_assets/docs-online-teaching/remote-teaching-vs-online-learning.pdf:
3. Alves P, Miranda L, Morais C. The influence of virtual learning environments in students' performance. Universal Journal of Educational Research. 2017;5(3):517-27. doi:10.13189/ujer.2017.050325.
4. Ahmady S, Shahbazi S, Heidari M. Transition to Virtual Learning During the Coronavirus Disease–2019 Crisis in Iran: Opportunity or Challenge? Disaster Med Public Health Prep. 2020 Jun;14(3): e11-e12. doi: 10.1017/dmp.2020.142. [PMID: 32375914] [PMCID: PMC7264447]
5. Means B, Bakia M, Murphy R. Learning online: What research tells us about whether, when and how. London, UK: Routledge; 2014. doi: 10.4324/9780203095959.
6. Sung E, Mayer RE. Five facets of social presence in online distance education. Computers in Human Behavior. 2012;28(5):1738-47. doi: 10.1016/j.chb.2012.04.014.
7. Kreijns K, Kirschner PA, Jochems W, Van Buuren H. Measuring perceived sociability of computer-supported collaborative learning environments. Computers & Education. 2007;49(2):176-92. doi: 10.1016/j.compedu.2005.05.004.
8. Cui G. Evaluating online social presence: An overview of social presence assessment. Journal of Educational Technology Development and Exchange (JETDE). 2013;6(1):3. doi: 10.18785/jetde.0601.02.
9. Al-dheleai Y, Tasir Z, Al-Rahmi W, Al-Sharafi M, Mydin A. Modeling of Students Online Social Presence on Social Networking Sites and Academic Performance. International Journal of Emerging Technologies in Learning (iJET). 2020;15(12):56-71. doi: 10.3991/ijet.v15i12.12599.
10. Nakhaei N. Questinnaire design and analysis. Kerman: Gera Pub; 2013. [In Persian]
11. Eslami M, Ahmadipour H, Bagheri F. Psychometric properties of the Persian version of Whiteley Index. Russian Open Medical Journal. 2017; 6(3): 307.
12. Kővári E, Bak G. University Students' Online Social Presence and Digital Competencies in the COVID-19 Virus Situation. In: Agrati LS. et al. (eds) Bridges and Mediation in Higher Distance Education. HELMeTO 2020. Communications in Computer and Information Science, vol 1344. New York: Springer, Cham; 2021. doi: 10.1007/978-3-030-67435-9_13.
13. Akcaoglu M, Lee E. Increasing social presence in online learning through small group discussions. International Review of Research in Open and Distributed Learning. 2016;17(3):1-7. doi: 10.19173/irrodl.v17i3.2293.
14. Aldosari AM, Alramthi SM, Eid HF. Improving Social Presence in Online Higher Education: Using Live Virtual Classroom to Confront Learning Challenges During Covid-19 Pandemic. Front Psychol. 2022; 13: 994403. doi:10.3389/fpsyg.2022.994403. [PMCID: PMC9714682] [PMID: 36467142]
15. Oh CS, Bailenson JN, Welch GF. A systematic review of social presence: Definition, antecedents, and implications. Front Robot AI. 2018; 5: 114. doi:10.3389/frobt.2018.00114. [PMCID: 7805699] [PMID: 33500993]
16. Tasir Z, Al-Dheleai Y. Web 2.0 for fostering students' social presence in online learning-based interaction. JOTSE: Journal of Technology and Science Education. 2019;9(1):13-9. doi:10.3926/jotse.552.
17. Kear K, Chetwynd F, Jefferis H. Social presence in online learning communities: The role of personal profiles. Research in Learning Technology. 2014; 7:22. doi: 10.3402/rlt.v22.19710.