Original Article

Socioeconomic characteristics and life skills of medical students: A cross-sectional study

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Abstract

Background: The current medicine teaching curriculum has caused medical students several psychological ailments including depression, and stress. Our study aimed to find a relationship between some socioeconomic characteristics of medical student and their life skills at Mashhad University of Medical Sciences, Iran.

Methods: 146 Interns of Mashhad University of Medical Sciences were enrolled in our cross-sectional study by census. The framework was obtained from education department of faculty. Students reported a history of psychological disorders, and foreign students were excluded. We evaluated participant's Proficiency in computer, habitat, parent's education, and family income and life skills. Data were analyzed by SPSS Inc. Released 2007. SPSS Inc. Released 2007. SPSS for Windows, Version 16.0.

Results: Participants aged between 22 to 27 and 98 (66.2%) of them were female. Comparison between four levels of father's education (lower than diploma, diploma, bachelor and higher than bachelor) showed worldview (P=0.014), social behavior (P=0.011) and ability to use new technologies (P=0.018) had a significant difference. Regarding the mother's education, there are no significant differences among 20 life skills. There were significant differences between levels of computer proficiency and communication skills (P=0.042), interpersonal relations (P=0.011), mental health status (P=0.035), problem-solving (P=0.021), creativity (P=0.013), ability of using new technologies (P=0.001), participate in activities that improve benefits (P=0.027), and total score (P=0.043).

Conclusion: Despite mothers' education, fathers' education has a role in medical students' world view, technology access, and social behavior. However, comparison of means and subgroup analysis didn't show a logical relationship. Computer proficiency besides affecting different aspects of life skills can affect total life skill scores.

Keywords: Life skill, Medical student, habitant, education, computer's skill

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Introduction

The lives of the young generation have been affected by worldwide community changes so far. Social phenomena like modernization, urbanization, globalization, and the media upsurge have caused rapid social changes and have made young people's lives, expectation, and their point of view different from those of old people. These fast changes have also caused young people problems in adapting to the new world and cope with stressful situations (1).

Medical school is a long-lasting period with a mean duration of 6-7 years of a young man or woman's life that intends to study medicine. This long period of study alongside the demanding and stressing study curriculum causes mental problems for medical students (2). They also experience long shifts during their internship that encounters them with disturbed sleep and awakening cycles which in turn results in mood disorders (3). Therefore, psychological problems are common among physicians and medical students. Studies have suggested that the current medicine teaching curriculum has caused medical students several psychological ailments including anxiety, depression, and stress (4). Heavy work academic pressure, economic concerns, sleep deprivation, seeing patient's sufferings and deaths, and a sense of pessimism have contributed to student's psychological problems. Several studies have proposed that medical student's mental problems may lead to alcohol and drug abuse, academic dishonesty, and low academic performance (5, 6). Also, between 4-18% of medical students are considered as having mental disorders by psychiatric consultation (5).

Life skills are defined as a spectrum of psychosocial and interpersonal skills that are needed for informed decision making, effective interpersonal communication, and encountering stressful situations (7). Several studies have suggested that these skills are effective in enhancement of psychological state, health and self-efficacy improvement, social adaptation promotion, self-esteem enhancement, developing coping skills, reduction in drug abuse tenderness, reducing high-risk sexual activities, and academic performance improvement (8).

Before entering university, mental problems are similar in medical students and non-medical students but the mental state of medical students worsens during medical courses (9). The initiation of these psychological problems are in the first year of university and continues in subsequent years of medical school (10).

The effective factors on life skills and the relationship between socioeconomic factors and life skills in medical students are still needed to be understood. Our study aimed to find a relationship between some socioeconomic characteristics of medical students and their life skills at Mashhad University of Medical Sciences (MUMS), Iran.

Methods

Medical interns that were educating in hospitals of MUMS were enrolled in our cross-sectional study by the census. The interns at different wards of Imam Reza and Qaem Hospitals, affiliated with MUMS, answered the questions in a 3 months period. The sampling frame was obtained from the education department of the medical faculty. Students reported a history of psychological disorders, and also foreign students were excluded.

We evaluated age, gender ,participant's proficiency in computer, habitat, mother's education, father's education, family income and also life skills including self-awareness, communication skills, interpersonal relations, decision making, physical and mental health status, problem-solving, teamwork skills, creativity, responsibility, justice and equality, social behaviors, professional skills and the ability of using new technologies, participation in activities that improve benefits, being purposeful, social behavior,

critical thinking, world view and observe and use safety points.

The questionnaire used for evaluating study variables had 144 questions and is affirmed by Ghiasi et al. in accordance with reliability and validity which reported 97% for Cronbach's alpha (11). A five-point Likert scale was used in the questionnaire. Also, the students were classified according to their family income to two groups of under the poverty line who had an income of fewer than 25000000 Rials in a month and above the poverty line who had an income of more than 25000000 Rials. The total point of life skills was obtained from the sum of the life skill variables. The mother's and father's education levels were obtained by a demographic questionnaire that was filled by students. Parent's education was divided into four levels, consisted of a lower diploma, diploma, upper diploma, and upper bachelor. All the participants were provided by oral consent and they were given information about the study before filling the questionnaire. The study was approved by the Ethics Committee of MUMS.

Data analysis was conducted using SPSS Inc. Released 2007. SPSS for Windows, Version 16.0. All the variables were expressed as the mean±SD. Also, the student t-test and one-way ANOVA were used for quantitative variables data analysis. *P* values lower than 0.05 were considered as significant.

Results

Among 153 medical interns, three of them were foreign students and two students did not fill the questionnaire and finally, 148 students enrolled in the study. The response rate was about 98% (figure 1). Participants aged between 22 to 26 years old and 96 (65%) of them were female. Demographic data are shown in Table 1.

As shown in Table 2, although, comparison between four levels of father's education by ANOVA test showed that participate in activities that improve benefits, world view, social behavior and the ability to use new technologies had a significant difference, subanalysis by Tukey test showed that there was significant difference between score of participants in activities that improve benefits between upper license and diploma group (*P*=0.036) and other groups didn't have significant difference. About world view and social behavior, license and lower than diploma had a significant difference (*P*=0.011 and *P*=0.007, respectively) and there were no significant differences between other groups. The ability to use new technologies was significantly different in Lower than diploma and diploma groups (*P*=0.014); nevertheless, there was no difference between other groups. Total score and other aspects of life skills didn't have a significant difference.

Regarding different levels of mother's education of the student, there were no significant differences between total score and 20 life skills. Also in terms of the total score of life skills, there is a significant difference between males and females by two independent t-tests (*P*=0.018).

Further, there were no differences between different types of the habitat of student and life skills. In our study, ANOVA test showed that means of total score of life skills became more with increasing proficiency in computer skills of students (*P*=0.043) also interpersonal relations (*P*=0.042), communication skills (*P*=0.011), mental health status (*P*=0.035), problem-solving (*P*=0.021), creativity (*P*=0.013), participate in activities that improve benefits(*P*=0.027), and the ability of using new technologies (*P*=0.001). Other skills have no differences between different levels of proficiency in computer skills. Data of the participants are presented in Table 3.

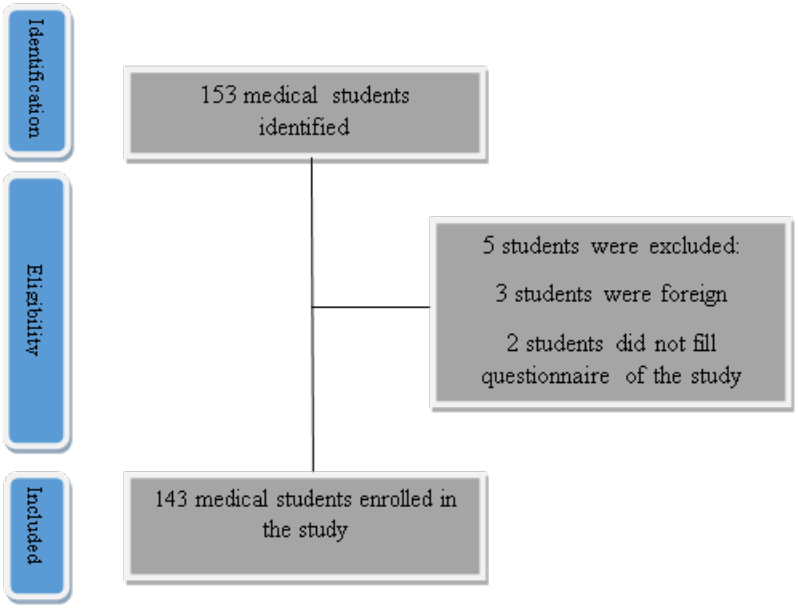

Figure 1. Flow diagram of eligible participants

Table 1. Demographic data of medical students

Variables		N (%)
Gender	Male	50 (33.8)
	Female	98 (66.2)
Father's education	Lower than diploma	10(6.8)
	Diploma	28(19.2)
	Bachelor	53(36.3)
	Higher than Bachelor	55(37.7)
Mother's education	Lower than diploma	17(11.6)
	Diploma	60(40.8)
	Bachelor	43(29.3)
	Higher than Bachelor	27(18.4)
Habitat	dormitory	42(28.6)
	lived with their family	82(55.8)
	student house	23(15.8)
Proficiency in computer skills	Low	10(6.8)
	Intermediate	78(52.7)
	High	49(33.1)
	Very high	11(7.4)
Income	Lower than 25,000,000 Rials	27(18.2)
	Lower than 25,000,000 Rials	121(81.8)

According to result of analyzing by two independent t-test, instead of justice and equality, world view, and the ability of using new technologies and, social behaviors that have more mean of score in group with less than 2,500,000 Rials income, other skills have more in group with more than 2,500,000 Rials income also decision making (P=00.4), Being purposeful (P=0.030), and use safety points (P=0.042) were significantly higher in group with more than 2,500,000 Rials income. Data of the participants are presented in Table 3.

Table 2. Comparing medical students' life skills in different parents' education level

	Father's education					Mother's education				
Life skills	Lower than diploma Mean±SD	Diploma Mean±SD	Bachelor Mean±SD	Higher than bachelor Mean±SD	*P**	Lower than diploma Mean±SD	Diploma Mean±SD	Bachelor Mean±SD	Higher than Bachelor Mean±SD	*P**
Self-awareness	54.25±6.50	50.68±8.71	51.56±7.92	52.67±9.0	0.903	51.77±7.22	51.26±8.23	51.43±8.03	54.56±9.76	0.420
Communication skills	42.25±3.59	39.47±6.28	37.76±7.22	40.02±7.59	0.807	39.67±5.17	38.17±7.28	38.83±6.89	41.33±7.89	0.146
Interpersonal relations	47.25±4.99	44.79±6.07	42.95±6.45	44.77±7.32	0.373	43.00±5.55	43.83±7.94	44.11±6.28	45.28±7.22	0.454
Decision making	29.50±5.37	28.21±5.37	28.02±4.89	28.87±5.82	0.975	28.56±4.80	28.60±5.36	28.14±4.89	28.17±6.08	0.943
Mental health status	37.25±6.34	33.10±6.26	32.66±5.53	34.00±6.73	0.619	34.22±7.36	33.05±5.85	33.14±5.92	34.11±7.12	0.900
Physical health status	49.25±7.93	46.63±7.65	47.24±6.53	48.64±8.40	0.765	47.44±8.13	46.96±6.90	48.68±7.78	48.44±8.42	0.906
Problem-solving	22.00±3.16	20.21±3.95	19.46±4.37	20.71±5.30	0.986	20.44±3.97	20.12±4.27	19.54±4.90	21.00±5.56	0.955
Teamwork skills	29.50±3.79	28.94±5.04	28.34±4.62	28.74±5.16	0.938	27.89±4.99	28.93±4.97	28.31±4.68	28.11±6.32	0.595
Creativity	21.75±3.30	20.47±4.06	21.36±4.00	21.79±4.85	0.383	21.33±3.64	21.17±4.44	20.83±4.55	22.72±3.77	0.555
Responsibility	14.50±1.91	15.31±3.30	14.63±2.09	14.97±2.82	0.810	14.33±2.40	15.24±2.72	14.71±2.42	14.78±2.86	0.897
Justice and equality	18.75±2.63	20.10±3.83	18.63±3.13	20.06±3.68	0.456	19.44±3.28	19.55±3.19	19.51±3.70	19.39±4.24	0.791
Social behaviors	19.75±1.50	19.89±3.09	18.14±3.08	19.16±3.00	0.011*	18.44±1.94	18.90±2.95	19.40±3.37	19.06±3.35	0.339
Professional skills	19.25±1.25	19.63±3.79	18.22±3.73	18.82±3.06	0.903	18.88±2.30	18.88±3.69	18.51±3.73	19.06±2.27	0.356
The ability of using new technologies	22.25±1.71	20.53±5.12	20.86±3.87	22.62±4.67	0.018*	21.56±3.91	21.17±4.81	21.77±4.35	21.89±4.03	0.221
Participate in activities that improve benefits	21.00±2.94	17.73±4.69	17.73±4.69	20.23±4.76	0.034*	20.11±5.46	19.05±4.52	19.40±5.27	18.17±5.53	0.944
Being purposeful	22.25±3.09	21.79±3.55	20.93±3.59	21.41±4.17	0.924	22.44±3.17	20.61±4.60	21.46±3.70	20.06±3.28	0.146
Critical thinking	36.75±6.18	35.21±6.13	35.34±4.99	36.30±5.91	0.872	36.11±6.47	35.93±5.43	34.66±5.61	37.06±2.40	0.229
World view	20.00±3.37	17.63±5.31	15.61±4.10	18.23±3.44	0.014*	17.78±2.91	17.36±4.42	16.83±4.40	17.39±4.67	0.290
Use safety points	12.00±2.16	11.00±2.67	11.07±2.61	11.49±2.40	0.294	11.33±1.94	11.10±1.94	11.10±2.76	12.11±1.94	0.349
Total score	539.5±53.04	513.47±70.00	500.54±60.82	523.97±75.26	0.818	514.33±70.00	509.86±70.91	510.29±64.81	524.67±71.25	0.743

*ANOVA test

Table 3. Comparison between different kind of habitant and different levels of computer skill and income in total score and different aspects of life skill

	Habitant				Proficiency in computer skills					Income		
Life skills	Dormitory Mean±SD	Lived with family Mean±SD	Lived in student house Mean±SD	*P* [β]	Low Mean±SD	Moderate Mean±SD	High Mean±SD	Very high Mean±SD	*P* [β]	<25000000 Rials Mean±SD	≥25000000 Rials Mean±SD	*P* *
Self-awareness	49.86±7.86	52.67±8.96	52.56±6.50	0.566	55.25±12.21	50.60±7.53	51.46±7.28	59.50±10.10	0.233	51.09±7.30	54.37±10.22	0.051
Communication skills	39.59±6.82	38.79±6.82	38.50±5.90	0.706	40.00±8.35	38.28±6.62	38.43±6.84	46.12±7.40	0.042*	38.84±6.90	40.37±8.42	0.226
Interpersonal relations	43.86±6.79	44.34±6.98	43.44±5.68	0.878	45.75±8.19	43.49±6.02	43.03±6.01	51.25±8.48	0.011*	43.67±6.43	45.80±7.80	0.108
Decision making	28.52±5.21	28.13±5.26	28.38±5.08	0.307	28.75±8.17	27.47±4.49	28.43±4.49	33.62±6.99	0.240	28.60±4.77	29.07±5.90	0.102
Mental health status	33.76±7.36	33.09±5.64	32.75±4.86	0.524	37.37±8.21	32.23±6.21	32.60±4.25	40.25±5.68	0.035*	33.38±6.36	33.90±667	0.169
Physical health status	45.59±6.88	48.69±7.56	48.06±7.68	0.874	48.00±8.45	46.71±7.14	48.77±8.03	51.00±6.39	0.382	47.91±7.26	48.87±7.79	0.125
Problem-solving	19.93±4.73	20.21±4.60	19.62±4.87	0.878	20.25±6.45	19.11±4.44	20.31±3.69	25.62±4.88	0.021*	20.29±4.00	20.43±5.94	0.769
Teamwork skills	27.55±3.93	29.03±5.43	27.69±5.21	0.403	29.25±7.34	27.58±4.18	28.57±5.32	33.37±4.78	0.375	28.44±4.91	29.30±5.69	0.123
Creativity	21.31±4.39	20.98±4.43	22.31±3.57	0.434	25.50±6.50	20.92±3.81	21.00±3.73	26.37±4.78	0.013*	20.49±4.25	23.07±4.78	0.030*
Responsibility	14.66±2.38	15.00±2.71	14.69±2.44	0.667	14.87±2.75	14.94±2.11	14.51±3.04	16.37±3.29	0.684	15.00±2.30	15.20±2.91	0.207
Justice and equality	19.24±3.14	19.71±3.61	18.87±3.79	0.148	18.37±3.70	19.66±3.29	19.20±3.62	20.87±4.49	0.627	19.33±2.95	19.30±4.09	0.583
Social behaviors	18.17±3.20	19.41±3.07	19.19±2.66	0.091	18.37±3.58	18.75±3.08	19.17±3.05	21.25±1.83	0.095	18.67±2.93	19.57±2.66	0.160
Professional skills	18.38±3.37	18.81±3.53	18.94±3.17	0.395	18.50±5.45	18.49±3.16	18.54±3.11	21.62±3.29	0.305	18.71±3.40	19.27±3.79	0.055
The ability of using new technologies	20.83±4.70	21.81±4.18	21.31±4.54	0.626	18.50±5.60	20.83±4.29	22.06±3.32	26.87±3.94	0.001*	21.20±4.06	22.10±4.83	0.582
Participate in activities that improve benefits	19.96±4.26	18.79±4.87	19.81±6.18	0.307	18.25±4.86	18.51±4.68	19.11±5.18	23.87±4.55	0.027*	18.69±4.10	18.63±5.81	0.814
Being purposeful	20.72±3.37	21.59±4.12	21.19±3.08	0.307	20.37±6.09	20.85±3.26	21.54±3.42	24.25±4.59	0.145	20.56±3.37	23.07±4.00	0.004*
Critical thinking	36.03±5.20	35.71±5.88	34.56±4.56	0.865	35.37±7.74	35.34±4.63	35.05±5.49	41.37±6.65	0.073	35.36±5.08	37.40±6.68	0.107
World view	16.45±3.64	17.50±4.16	17.44±5.86	0.745	15.62±4.90	17.26±4.08	17.17±4.55	18.75±4.27	0.145	17.42±3.48	16.03±2.29	0.213
Use safety points	10.72±2.52	11.38±2.54	11.62±2.28	0.244	11.12±3.68	10.75±2.58	11.74±2.08	12.62±1.60	0.069	10.84±2.30	12.27±2.48	0.042*
Total score	504.14±64.29	515.66±71.53	510.94±57.92	0.781	514.50±98.12	501.81±56.97	510.71±62.76	595.00±81.81	0.043*	508.69±60.19	528.00±82.23	0.069

[B]ANOVA test

*two independent t-test

Discussion

We found a significant difference between the world view, social behavior, and use of technologies life skills of medical students regarding their fathers' education level, however, comparison of means and subgroups analysis between fathers' education subgroups showed that likely there is not a logical relationship between father's education and life skills. Also, the total life skill score notably differed between various levels of students' proficiency in computers. We found no considerable statistical difference in the life skills of medicos regarding their mothers' education level and habitat. We found a significant difference between some of these skills in different study groups of the above-mentioned factors. A life skill is an essential tool to overcome life challenges; therefore, they seem important for students as a part

of community experience challenges (12). The prevalence of psychological disorders is high in medical students and obeys a rising pattern (13). World Health Organization proposes that the best way to prevent psychological problems in medical students is to attain and learn life skills (14). Our study showed that there was a significant difference in life skills in accordance with different father's educational level and the mean amounts of the life skills such as world view, social behavior, participation in activities that improve benefits, and the ability of using new technologies, however, comparison of means and subgroup analysis showed that probably there is not a logical relationship between fathers' education levels and medical students' life skills. Also, our findings did not show any significant difference in life skills of medical students whose mother have different educational levels; although, a study in 2015 showed that better personality and greater spiritual health is associated to higher father's level of education but in the case of mother's Although there was a significant difference in life skills in accordance with different father's educational level and the mean amounts of the life skills such as world view, social behavior, participation in activities that improve benefits, and the ability of using new technologies, however, comparison of means and subgroup analysis showed that probably there is not a logical relationship between fathers' education levels and medical students' life skills. Also, our findings did not show any significant difference in life skills of medical students whose mother have different educational levels; although, a study in 2015 showed that better personality and greater spiritual health is associated to higher father's level of education but in the case of mother's income, the situation is vice versa (15). Also, another study in 2006 showed an association between life skills and father's education (16).

We found no association between mother's education and medical students' life skills including problem-solving. This finding is in accordance with another study conducted by Kissal et al. on problem-solving skill of nursing students and its association with their mothers' education (17). Also, an opposing study showed an inverse association between problem-solving life skills and mother's education. This difference may be due to using various questionnaires (18). In our country's culture, the level of father education directly affects the mother's behavior and, the function and behavior of the children.

Our study did not show any association between habitat and life skills including critical thinking. Sabzi et al. also showed that there is no relation between habitat and critical thinking skills (19). Our findings suggested that there was an association between life skills such as communication skills, interpersonal relations, physical and mental health status, problem-solving, creativity, participate in activities that improve benefits, and professional skills and the ability to use new technologies. A supporting study showed that there should be an association between life skills and proficiency in computer (20). Also, another study reported that communication skill can be learned via computer and this could lead to both patient's and physicians' satisfaction (21). Our study proposed that there may be an association between different life skills and family income.

Our study was limited to the intern of hospitals related to Mashhad University of Medical Sciences and we did not include other medical students of other educational levels and other hospitals. It is the first study that investigates socioeconomic factors effect on levels of different life skills in medical students.

view, social behavior, participate in activities that improve benefits, and the ability of using new technologies, but comparison of means and subgroup analysis showed that probably there is not a logical relationship between fathers' education levels and medical students' life skills. Furthermore, a knowledgeable father can help their children to learn better ways of social behaviors and they also can give a better attitude of the world to them. Additionally, we found that proficiency in computer provided better total life skill scores. Better access to the World Wide Web with various training courses can provide better life skill learning. However, our study showed no association between the mother's education and the habitat with the students' life skill level. It can be proposed that as habitat changes are just temporary and short-term changes in the life of a student, this factor may cause the least effect on the students' life skill learning. Further, investigations are suggested to complete our results.

Conflict of interest

Authors declare no conflict of interests.

References

1. Dogra B. Online Discussion Group for Pre service Teachers: An ODL Tool for Life Skills Based Education. 2010.
2. Henning K, Ey S, Shaw D. Perfectionism, the imposter phenomenon and psychological adjustment in medical, dental, nursing and pharmacy students. Med Educ. 1998 Sep;32(5):456-64.
3. Chan J, Pun N, Selden M. Interns or workers? China's student labor regime. Asian Studies. 2015 Sep 7;1(1):69-98.
4. Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. Med Educ. 2001 Jan;35(1):12-7.
5. Stewart SM, Lam TH, Betson CL, Wong CM, Wong AM. A prospective analysis of stress and academic performance in the first two years of medical school. Med Educ. 1999 Apr;33(4):243-50.
6. Wolf TM, Faucett JM, Randall HM, Balson PM. Graduating medical students' ratings of stresses, pleasures, and coping strategies. J Med Educ. 1988 Aug;63(8):636-42.
7. Manee FM, Khoiee SA, Eghbal MK. Comparison of the efficiency of self-awareness, stress management, effective communication life skill trainings on the social and academic adjustment of first-year students. Research in Psychology and Behavioral Sciences. 2015;3(2):18-24.
8. Michaeli Manee F, Ahmadi Khouiee SH, Zaree H. The effect of three life skills instruction on the general health of college freshmen. Journal of Mazandaran University of Medical Sciences. 2011 Dec 15;21(85):127-37.
9. Carson AJ, Dias S, Johnston A, McLoughlin MA, O'Connor M, Robinson BL, Sellar RS, Trewavas JJ, Wojcik W. Mental health in medical students. A case control study using the 60 item General Health Questionnaire. Scott Med J. 2000 Aug;45(4):115-6.
10. Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burnout in medical students: a five-year prospective longitudinal study. J R Soc Med. 1998 May; 91(5): 237–243.
11. Sarvkalaei HE, Dadkhah S, Yaghoubi A. An Investigation and Comparison Concerning the Degree of Self-Esteem and Life Satisfaction among Fertile and Infertile Women. 2014.
12. Valipour R, Salehi E. Students' Life Skills in Mazandaran University of Medical Sciences. Iranian Journal of Medical Education. 2012;12(2):93-100.
13. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. Mayo Clin Proc. 2005 Dec;80(12):1613-22.
14. Dadgarmoghaddam M, Niroumand S, Shiehzadeh E, Rahimzade R, Rezayat AA, Ramezani M. Assessment of medical students' life skills in an internship course of Mashhad University of medical science. Medical journal of Mashhad University of Medical Sciences. 2016 Nov 2;59.
15. Sen S, Pal D, Hazra S, Pandey GK. Spiritual health of students in government medical colleges of Kolkata and their coping skills in a crisis situation. Indian J Public Health. 2015 Jul-Sep;59(3):196-203.
16. kan'ani katamjaki, S. investigating the capability of secondary school students in using life skills, in Guilan province. Educational Psychology, 2006; 2(5): 75-98.

17. Beşer A, KISSAL A. Critical thinking dispositions and problem solving skills among nursing students.
18. Feizi Konjini L, Fadakar Soghe R, Chehrzad M, Kazemnejad- Leili E. Problem Solving Skills and their Related Factors in Nursing Students. Journal of Holistic Nursing and Midwifery. 2016;26(3):86-95.
19. Sabzi Kh, Abazari Z, Ghaedamini Hg, Ghasemzadeh D. Study of Critical thinking skill of Students of Rehabilitation in the University of Social Welfare and Rehabilitation Sciences (2012-13). Scientific Journal Management System. 2012;4(13):77-90.
20. Nezhad M. A Glance at Rural ICT Experience in Iran: Study of the Impacts of Computer Skills on Economic Power of Educated Girls in Gharnabad Village. OIDA International Journal of Sustainable Development. 2015 Feb 28;8(02):97-110.
21. Roter DL, Wexler R, Naragon P, Forrest B, Dees J, Almodovar A, Wood J. The impact of patient and physician computer mediated communication skill training on reported communication and patient satisfaction. Patient Educ Couns. 2012 Sep;88(3):406-13.