RESEARCH ARTICLE

Cross sectional study on lifelong learning's determinants among medical students in RAK Medical & Health Sciences University, UAE

Mustafa Afifi

Abstract

Objectives: To find the association of Empathy, Self-Efficacy, and/or Hope with readiness for lifelong learning among medical students.

Methods: This cross-sectional descriptive study was conducted in 2016 at Ras Al-Khaimah Medical and Health Sciences University in the United Arab Emirates, and comprised medical students from all five years. A self-reporting questionnaire was used to collect socio-demographic data .Standard scales and analysis of variance test were used to compare the mean scores of different variables for different groups.

Results: Of the 221 students 146(66%) were females, and the overall mean age was 19.94±1.71 years. The mean score of Inter-professional Reactivity Index to measure Empathy was 67.3±12.54. For self-efficacy it was 34.1±9.01. The mean score of Academic Hope Scale was 28.92±5.54. The mean score of the Revised Jefferson Scale of Physician Lifelong Learning was 40.76±6.8. Female students had significantly higher scores of Inter-professional Reactivity Index and self-efficacy, whereas, non-Arab students had higher Inter-professional Reactivity Index scores than Arab students ($p<0.05$ each). Self-efficacy, hope, and lifelong learning were significantly and positively correlated ($p<0.05$).

Conclusion: Improving the positive psychology of medical students may increase their readiness to lifelong learning.

Keywords: Empathy, Self-efficacy, Hope, Lifelong learning. (JPMA 68: 394; 2018)

Introduction

Lifelong learning (LL) has become the focus of European educational policies since 2000.[1] In 2015, the United Nations Educational Scientific and Cultural Organisation (UNESCO) released a publication on LL.[2] LL is process that helps medical student to acquire, renew and upgrade their knowledge and skills. However, it depends mainly on their motivation and self-directed learning (SDL) activities.[3] Therefore, SDL is considered a tool[4,5] for LL in medicine. Other scholars proposed SDL as a means of emphasising the importance of LL[3] and they considered the assessment of SDL readiness as a readiness to engage in LL.[6]

Albeit excellent parameters set by the national certifying boards, they have problems in implementation and evaluation of the Continuous Medical Education (CME) programmes that help junior doctors facing such challenges.[7] Moreover, the transition between undergraduate learning and being a junior doctor is abrupt, where neither the teacher, nor the lessons are there.[8]

College of Health Sciences, Jumeira University, Dubai, UAE.
Correspondence: Email: afifidr@gmail.com

Understanding the attributes of or the associated variables with LL improves the educational process, develops better physician and ultimately improves patient care.[9]

Empathy (E) is an important construct in assessment of medical students' academic performance.[10] Females show more empathy than males[11] and that could be a factor related to gender differences in academic achievement.[12] Besides, empathy was found in some research to be related to lifelong learning.[13,14]

Self-efficacy as a strong correlate to academic achievement and academic motivation of undergraduate students[15] could be one of these associated variables with LL. This is especially so because making use of self-efficacy questions is one of the ways to assess the students' readiness for SDL.[16]

Another potential attribute to LL could be Hope (H) as one of the positive psychology constructs. Brockett suggested in his research exploring the SDL and positive psychology connections further.[17] Correlations between Hope and SDL were established at workplace,[18] but never studied among undergraduate medical students and with LL.

This study was planned to bridge the gap in the research

of hope, empathy and self-efficacy with LL.

Subjects and Methods

This cross-sectional descriptive study was conducted in 2016 at Ras Al-Khaimah (RAK) Medical and Health Sciences University in the United Arab Emirates (UAE), and comprised medical students from all five years of the MBBS programme. No sampling technique had to be adopted. A self-reporting questionnaire comprising socio-demographic data, including students' age, gender, nationality, college, level or class, was prepared in addition to other standard scales that were used for data collection.

Subjects who voluntarily opted to participate were informed that the study carried no risk. They were briefed on the study objectives, encouraged to actively participate, and verbal consent was taken from each of them.

The General Self-Efficacy scale (GSE) was used to measure self-efficacy (SE). The scale consists of 10 items testing the respondent's perception of SE. The responses to the 10 questions were recorded on a 4-point scale (1 = Not at all true, 2 = Hardly true, 3 = Moderately true, 4 = Exactly true) with total score ranging from 10 to 40.[19] Cronbach's Alpha for test reliability was 0.861. Academic Hope Scale (AHS) was also applied where the students were asked to complete the domain-specific 6 items answered on 8-point Likert-type scale measuring academic hope. The AHS has not been extensively researched across different student demographics. However, the AHS has been validated and academic hope has been established as a component of hopefulness.[20] The scale scores vary between 6 and 48, with no cut-off point. Cronbach's Alpha for test reliability was 0.907. Moreover, the Davis Inter-professional Reactivity Index (IRI) was used to test E, comprising 28-items answered on a 5-point Likert scale ranging from "0 = Does not describe me well" to "4 = Describes me very well". The scale has 4 sub-scales, each made up of 7 different items: 1- Perspective Taking (E-PT) tests the tendency to adopt others' psychological point of view; 2- Fantasy Scale (E-FS) tests tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays; 3- Empathic Concern (E-EC) tests "other-oriented" feelings of sympathy and concern for unfortunate others; and 4-Personal Distress (E-PD) measures "self-oriented" feelings of personal anxiety and unease intense interpersonal settings.[21,22] Cronbach's Alpha for test reliability of the whole scale was 0.790. For the sub-scales E-PT, E-FS, E-EC, E-PD the scores were 0.656, 0.681, 0.678, 0.548. Added to that, the Revised Jefferson Scale of Physician Lifelong Learning (JeffSPLL- Medical Student Version [MS]) which is a 14-item questionnaire that assesses the MBBS students' orientation toward LL was also used. Respondents indicate their extent of agreement on each item on a four-point Likert scale (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree). The scores range from 14 to 56. Higher JeffSPLL-MS scores indicate a greater orientation toward LL. The questionnaire is known by its good internal consistency (Cronbach's alpha= 0.77) and test-retest reliability (r= 0.65).[23] Cronbach's Alpha for test reliability was 0.876.

For ethical consideration, approval was obtained from the institutional Research Committee.

Data was described in frequencies, percentages, and mean scores (standard deviation). Analysis of variance (ANOVA) test was used to compare the mean scores of different variables for different groups. Also, correlation matrix was done to examine the Pearson correlation. For multivariate analysis stepwise multiple regression was run.

Results

Of the 221medical students 75(34%) were males. The mean age of the sample was 19.94±1.71 years, with 80(36%) aged 21 years and above, (the higher age group) and the rest being younger. Besides, 104(47%) were of Arab Nationalities. The mean score of E and its sub-scale mean were higher among female students than males except E-PT (Table-1). Also, SE mean was significantly higher among females than males (p=0.024). There was no statistically significant gender difference in means with regard to the H, and LL (p>0.05 each).

The overall E score was higher among non-Arabs than Arabs (p=0.000) (Table-2). As regards E sub-scales, E-PT and E-PD showed no statistical difference related to nationality. Similarly, SE, H and LL constructs showed no statistical differences and there were no significant difference of these variables with the two age groups of the students (p>0.05 each).

Having a look at the correlation matrix EI was positively and significantly correlated to H (p=0.00) and LL (p=0.00) where only two of its subscales were correlated to SE. H was positively and significantly correlated with all constructs except E-PD (p=0.276) (Table-3).

E, SE and H significantly predicted LL controlled for age, gender and nationality (p <0.05) (Table-4).

Table-1: Comparison of mean scores of Empathy and its subscale, Self Efficacy (SE), Hope, Lifelong learning (LL) by sex (n= 218).

		N	Mean	SD	F	Sig.
Empathy	Male	74	63.8	10.7	8.5	0.004
	Female	144	69.0	13.0		
	Total	218	67.2	12.5		
E_PT	Male	74	16.9	4.2	0.0	0.977
	Female	144	16.9	4.1		
	Total	218	16.9	4.2		
E_FS	Male	74	15.8	4.3	8.7	0.003
	Female	144	17.9	5.1		
	Total	218	17.2	4.9		
E_EC	Male	74	17.6	4.5	5.4	0.020
	Female	144	19.1	4.7		
	Total	218	18.6	4.6		
E_PD	Male	74	13.5	3.6	7.3	0.007
	Female	144	15.1	4.3		
	Total	218	14.6	4.1		
SE	Male	74	32.0	10.7	5.1	0.024
	Female	144	34.9	7.8		
	Total	218	33.9	8.9		
Hope	Male	74	29.4	6.1	1.1	0.282
	Female	144	28.6	5.1		
	Total	218	28.9	5.4		
LL	Male	74	39.6	7.9	3.6	0.059
	Female	144	41.4	6.1		
	Total	218	40.8	6.8		

PT: Perspective Taking. FS: Fantasy Scale. EC: Empathic Concern. PD: Personal Distress.

Table-2: Comparison of mean scores of Empathy and its subscale, Self Efficacy (SE), Hope, Lifelong learning (LL) by Nationality (n= 218).

		N	Mean	SD	F	Sig.
Empathy	Arabs	102	64.7	12.3	8.8	0.003
	Non Arabs	116	69.6	12.3		
	Total	218	67.3	12.5		
E_PT	Arabs	102	16.3	4.2	3.4	0.065
	Non Arabs	116	17.4	4.2		
	Total	218	16.9	4.2		
E_FS	Arabs	102	16.3	4.4	5.9	0.016
	Non Arabs	116	17.9	5.3		
	Total	218	17.1	5.0		
E_EC	Arabs	102	17.6	4.5	8.8	0.003
	Non Arabs	116	19.5	4.5		
	Total	218	18.6	4.6		
E_PD	Arabs	102	14.4	3.4	0.7	0.399
	Non Arabs	116	14.9	4.6		
	Total	218	14.6	4.1		
E	Arabs	102	33.6	9.8	0.4	0.505
	Non Arabs	116	34.4	8.3		
	Total	218	34.0	9.0		
Hope	Arabs	102	29.5	5.4	1.8	0.176
	Non Arabs	116	28.4	5.5		
	Total	218	28.9	5.5		
LL	Arabs	102	40.5	7.6	0.3	0.555
	Non Arabs	116	41.0	6.1		
	Total	218	40.8	6.8		

PT: Perspective Taking. FS: Fantasy Scale. EC: Empathic Concern. PD: Personal Distress.

Table-3: Correlation Matrix for Self- Efficacy, Emotional Intelligence and its subscales, hope and LL.

		Empathy	E_PT	E_FS	E_EC	E_PD	SE	Hope	LL
Empathy	Pearson Correlation	1	0.642	0.763	0.81	0.559	-0.01	0.338	0.271
	P		<0.0001	<0.0001	<0.0001	<0.0001	0.881	<0.0001	<0.0001
E_PT	Pearson Correlation		1	0.249	0.548	0.02	0.226	0.303	0.338
	P			<0.0001	<0.0001	0.769	0.001	<0.0001	<0.0001
E_FS	Pearson Correlation			1	0.458	0.349	-0.008	0.239	0.203
	P				<0.0001	<0.0001	0.906	<0.0001	0.002
E_EC	Pearson Correlation				1	0.229	0.039	0.318	0.256
	P					0.001	0.569	<0.0001	<0.0001
E_PD	Pearson Correlation					1	-0.294	0.074	-0.051
	P						<0.0001	0.276	0.447
SE	Pearson Correlation						1	0.409	0.441
	P							<0.0001	<0.0001
Hope	Pearson Correlation							1	0.522
	P								<0.0001
LL	Pearson Correlation								1

Table-4: Significant Variables in the equation of Step-wise multiple regression predicting Lifelong learning for the overall sample.

Model		Unstandardised Coefficients		Sig.
		B	Std. Error	
1	(Constant)	27.266	1.541	<0.0001
	Hope	0.397	0.044	<0.0001
2	(Constant)	20.315	2.142	<0.0001
	Hope	0.312	0.046	<0.0001
	SE	0.341	0.076	<0.0001
3	(Constant)	15.505	2.868	<0.0001
	Hope	0.265	0.049	<0.0001
	SE	0.374	0.076	<0.0001
	Empathy	0.081	0.032	0.014

Discussion

Results suggested that E was correlated to H and LL, and to some extent to SE. LL was predicted in multi-variate analysis by E, SE and H controlling for age, gender and nationality of the subject.

Unfortunately there is a dearth of research investigating the association of E with LL. E helps in assessment of academic performance.[10] Females students have higher scores than males[11] as proved also in our study. Therefore, E can contribute to the gender difference in academic achievement.[12] Academic achievement was found to be weakly correlated to LL in some studies.[24] Actually few researchers stated that E is related to LL.[13,14]

Now, how E could be related to LL? Previous research proved that not only Emotional Intelligence (EI) has correlation with E,[25] but also E is a component of its emotionality factor.[26,27] Gharetepeh et al found that EI and SE play an important role in academic success and EI can explain SE.[28] That explains the association of E with SE in bivariate analysis in our study and their presence together in the regression equation predicting LL. Another explanation is that empathetic doctor always feels the responsibility to know better for the sake of his patient. Moreover, Ewas found to prevent burnout, to improve performance, and to improve quality of life among medical students and/or physicians.[29,30] And, Elis significantly associated with life satisfaction where the latter is a significant correlate to LL.[31]

H influences outcomes in achieving goals and promote better study skills,[32] that is why hope is related to good academic achievement.[33] Correlation between H and self-directed learning — a tool for LL[5] — was established at workplace.[18] This study is the first to prove it among medical students with LL directly in bivariate and multivariate analysis. While SDL is associated with setting goals, selecting resources, and managing time to reach goals,[34] H is also defined as setting goals, and incorporating the motivation to achieve those goals.[18] High-hope people use motivation and/or find multiple pathways to meet their goals, highly self-directed people also do the same to reach their learning goals.[18]

Our study also proved the association of SE with LL. Some studies also proved such association.[35] SE is linked to academic motivation and both lead to a desire to know.[36] Husain also found that there is a significant correlation between SE and academic motivation of undergraduate students.[15]

Improving work through learning acts as an energiser by

creating enthusiasm for any training programme; it offers a stimulus by guiding and directing learning; and it provides an impetus to apply and maintain new learning in the workplace.[37]

Indirectly, self-efficacy could be linked LL through academic achievement. Hen and Goroshit found a direct association between self-efficacy and academic achievement.[38]

We found that E, H and SE were almost positively and significantly correlated with each other and with LL in bivariate and multivariate analyses. SDL as a promising methodology,[4] or as a tool[5] for LL has been linked to other positive psychology constructs than H. For example, it was linked to self-esteem and SE,[39] self-determination,[40] and life satisfaction.[31] Therefore, improving the positive psychology of the medical students could increase their readiness to lifelong learning and help them to be good doctors.

This study still has its limitations. The sample size is small due to inadequate student response. Moreover, this is a cross-sectional study where neither temporality nor causality could be proven. If we would like to conduct a robust study, a group of high scores of E, SE and H would be followed up to examine their readiness of LL at their workplaces as doctors. In our future research, we would like to examine the mediators of the hope, SE and H to increase the readiness of medical students towards LL. One of these mediators could be self-regulation within which motivations, expectancies, and learning strategies continuously interact with each other.[41] The other mediator could be 'motivation to improve study through learning (MTISL)' which refers to engaging in learning activities to perform study functions differently.[42] Research proved the association of SDL preference but not LL with MTISL.[43] Moreover, we would like to investigate other constructs of positive psychology and its interaction with each other to predict the readiness of LL.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

References

1. European Commission.A Memorandum on Lifelong Learning. Brussels: European Commission online. 2000. [Online] [Cited 2017 Feb 10]. Availablefrom: URL: http://arhiv.acs.si/dokumenti/Memorandum_on_Lifelong_Learning.pdf.
2. Yang J, Schneller C, Roche S. The Role of Higher Education in Promoting Lifelong Learning. 2015.UIL Publication Series on Lifelong Learning Policies and Strategies: No.3. [Online] [Cited 2017 Feb 10]. Available from URL: http://unesdoc.unesco.org/images/0023/002335/233592e.pdf
3. Tight M. Lifelong Learning: Opportunity or compulsion? Br J Educ Stud. 2014;46:251-63.
4. Murad MH, Varkey P. Self-directed Learning in Health Professions Education. Ann Acad Med Singapore. 2008;37:580-90.
5. Boyer SL, Edmondson DR, Artis AB, Fleming D. Self-directed learning: A tool for lifelong learning. J Mark Educ. 2014;36:20-32. doi:10.1177/0273475313494010.
6. Shokar GS, Shokar NK, Romero CM, Bulik RJ. Self-directed learning: Looking at outcomes with medical students. Fam Med. 2002;34:197-200.
7. Talati JJ. Lifelong learning: Established concepts and evolving values. Arab J Urol. 2014;12:86-95.
8. Schweinfurth JM. Lifelong Learning in Otolaryngology: Self-Directed Learning. Otolaryngol Clin North Am. 2007;40:1323-30.
9. Arora S, Ashrafian H, Davis R, Athanasiou T, Darzi A, Sevdalis N. Emotional intelligence in medicine: A systematic review through the context of the ACGME competencies. Med Educ. 2010;44:749-64.
10. Hojat M, Erdmann JB, Gonnella JS. Personality assessments and outcomes in medical education and the practice of medicine: AMEE Guide No. 79. Med Teach. 2013;35:e1267-e1301.
11. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Veloksi JJ, Magee M. The Jefferson Scale of Physician Empathy: further psychometric data and differences by gender and specialty at item level. Acad Med. 2002;77:S58-60.
12. Austin EJ, Evans P, Goldwater R, Potter V. A preliminary study of emotional intelligence, empathy and exam performance in first year medical students. Pers Individ Dif. 2005;39:1395-405.
13. Bolhuis S. Towards process-oriented teaching for self-directed lifelong learning: A multidimensional perspective. Learn Instr. 2003;13:327-47.
14. Jarvis C. Fiction, empathy and lifelong learning. Int J Lifelong Educ. 2012;31:743-58.
15. Husain UK. Relationship between Self-Efficacy and Academic Motivation. Inter Confer Econo, Educa Humanit. 2014; 14:18-22.
16. MacDougall M. Ten tips for promoting autonomous learning and effective engagement in the teaching of statistics to undergraduate medical students involved in short-term research projects. J Appl Quant Methods. 2008;3:223-40.
17. Davis CA. Bailey C. Nypaver M. Rees T. Brockett R G. Learning projects and graduate students: An update of Tough's study. Inter J Self-Directed Learning. 2011; 7: 14-28.
18. Dieffenderfer VM. The Relationship between Hope and Self-Directed Learning in the Workplace, 2014.
19. Gse GSS, Schwarzer R, Jerusalem M, Schwarzer R, Jerusalem M. Instrument Title: Instrument Author: Cite instrument as: Ethnocentrism Scale Ethnocentrism Scale. 2013.
20. Campbell DG, Kwon P. Domain-Specific Hope And Personal Style: Toward An Integrative Understanding Of Dysphoria. J Soc Clin Psychol. 2001;20:498-520.
21. Bratek A, Bulska W, Bonk M, Seweryn M, Krysta K. Empathy among physicians, medical students and candidates. Psychiatr Danub. 2015;27 Suppl 1:S48-52.
22. Davis MH. A Mulitdimensional Approach to Individual Differences in Empathy. J Pers Soc Psychol. 1983;44:113-26.
23. Novak MK, Palladino C, Ange B. Measuring Health Professions Students ' Orientation Toward Lifelong Learning. J Allied Health. 2014;43:146-50.
24. Rashid-doubell F. Identifying key Effective Lifelong Learning Inventory (ELLI) dimensions associated with academic success amongst postgraduate medical students EMERGE.2012;4:26-48.
25. Carrothers RM, Gregory SW, Gallagher TJ. Measuring emotional intelligence of medical school applicants. Acad Med.

2000;75:456-63.
26. Petrides K V, Furnham A. Trait emotional intelligence: Behavioral validations in two studies of emotion, recognition and reactivity to mood induction. Eur J Pers. 2003;57:39-57.
27. Petrides KV, Furnham A. The role of trait emotional intelligence in a gender-specific model of organizational variables. J Appl Soc Psychol. 2006;36:552-69.
28. Gharetepeh A. Safari Y. Pashe T. Razaei M. Kabaj MB.Emotional intelligence as a predictor of self-efficacy among students with different levels of academic achievement at Kermanshah University of Medical Sciences. J Adv Med Educ Prof. 2015;3: 50-5.
29. Joseph DL, Jin J, Newman DA, Boyle EHO. Why Does Self-Reported Emotional Intelligence Predict Job Performance? A Meta-Analytic Investigation of Mixed EI. J Appl Psychol. 2015; 100:298-342.
30. Paro HB, Silveira PS, Perotta B, Gannam S, Enns SC, Giaxa RR, et al. Empathy among medical students: is there a relation with quality of life and burnout? PLoS One. 2014;9:e94133.
31. Oliver A, Tomás JM, Montoro-Rodriguez J. Dispositional hope and lifesatisfaction among older adults attending lifelong learning programs. ArchGerontol Geriatr. 2017;72:80-5.
32. Onwuegbuzie a J, Snyder CR. Relations between hope and graduate students' coping strategies for studying and examination-taking. Psychol Rep. 2000;86:803-6.
33. Çelik DA, Çetin F, Tutkun E. The Role of Proximal and Distal Resilience Factors and Locus of Control in Understanding Hope, Self-Esteem and Academic Achievement among Turkish Pre-adolescents. Curr Psychol. 2015; 34:321-45.
34. Confessore SJ, Kops WJ. Self-directed learning and the learning organization: Examining the connection between the individual and the learning environment. Hum Resour Dev Q. 1998;9:365-75.
35. Bath DM, Smith CD. The relationship between epistemological beliefs and the propensity for lifelong learning. Stud Contin Educ. 2009;31:173-89. doi:10.1080/01580370902927758.
36. Ross M, Perkins H, Bodey K. Academic motivation and information literacy self-efficacy: The importance of a simple desire to know. Libr Inf Sci Res. 2016;38:2-9.
37. Noe R a. Trainees' Attributes and Attitudes: Neglected Influences on Training Effectiveness. Acad Manag Rev. 1986;11:736-49.
38. Hen M, Goroshit M. Academic Procrastination, Emotional Intelligence, Academic Self-Efficacy, and GPA: A Comparison Between Students With and Without Learning Disabilities. J Learn Disabil. 2014; 47:116-24.
39. Long HB, Guglielmino LM, Brockett RG, Gary J, Guglielmino PJ, Hiemstra R. International Journal of Self-Directed Learning. Int J Self Dir Learn. 2004;1:1-108.
40. Quaintance JL, Arnold L, Thompson GS. Development of an instrument to measure the climate of professionalism in a clinical teaching environment. Acad Med. 2008; 83:S5-8.
41. Pintrich P. A Conceptual Framework for Assessing Motivation and Self-Regulated Learning in College Students. Educ Psychol Rev. 2004;16:385-407.
42. Naquin S, Holton E. Motivation to improve work through learning in human resource development. Hum Resour Dev Int. 2003;6:355-70.
43. Cannonier N. Self-direction in Adult Learning: Effect of Locus of Control and Program Design on Learner Motivation and Training Utility. 2014. LSU Doctoral Dissertations. 2983. [Online] [Cited 2017 October 14]. Available from: URL: http://digitalcommons.lsu.edu/cgi/viewcontent.cgi?article=3982&context=gradschool_dissertations.