

Original Research Article

Knowledge and practices regarding self-directed learning among undergraduates from a medical college in Kerala

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ABSTRACT

Background: Medical education for undergraduates is a challenging area and medical professionals are life-long learners. Self-directed learning (SDL) is adult learning process. SDL describes a process where individuals take initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. This study assessed knowledge and practices regarding SDL among medical undergraduates and looked for association between gender and year of study with knowledge and practices of different components of SDL.

Methods: A cross-sectional study was conducted among 192 students doing final year and internship at Dr. Somervell Memorial CSI Medical College, Kerala from April to July 2018 after obtaining clearance from Institutional ethics committee. Data was collected using a predesigned and pretested structured self-administered questionnaire on socio demographic profile, knowledge, practices, barriers and opportunities regarding SDL. Data was entered in excel sheet and analyzed using SPSS trial version 21.0.

Results: Majority of the students had good knowledge regarding the components of SDL and practiced components like identifying their learning needs, objectives, commitment and implementation of the learning process. Only 57.3% students evaluated learning process and 31.8% alone had an educator as facilitator. Important barriers identified were self-motivation (88%) followed by time (81.8%).

Conclusions: Interns had better knowledge and practice of SDL components compared to final year students. Though females had a better knowledge and practice of SDL components compared to males it was not statistically significant.

Keywords: Self-directed learning, Medical colleges, Kerala, Medical education

INTRODUCTION

Learning is an art that needs to be cultured lifelong in an individual. Medical education for undergraduates is a challenging area as we know that the component of learning is so vast and it has to be a continuous process. Traditional methods of learning where teacher teaches and the student learns could be useful only to a limited extent. It is the need of the hour for all medical colleges

to facilitate andragogy, i.e., adult learning. With emphasis on students taking the initiative in learning, new learning methods like problem-based learning (PBL) and self-directed learning (SDL) have emerged in medical curricula over the past few decades.¹ Self-directed learning is an adult learning process. In its broadest meaning, self-directed learning describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs,

formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.² Learning independently can be challenging, even for the brightest and most motivated students. SDL also enables health professionals to continue learning and updating knowledge during their careers.³ Very few studies are done across India so far looking into the aspect of Self-Directed Learning among medical undergraduates. In-depth literature review revealed that no such studies are done from Kerala. So this study is planned to assess the knowledge and practices regarding different components of SDL among medical undergraduates, to find the barriers and opportunities in engaging in SDL among medical students in a teaching institute in Kerala and to look for any association between gender and year of study with the knowledge and practices of different components of SDL.

METHODS

An institution based cross sectional study was conducted among 192 undergraduate medical students doing final year and internship at Dr. Somervell Memorial CSI Medical College, Karakonam, Trivandrum district, South Kerala from April to July 2018. Written permission was obtained from the principal of the medical college and clearance from Institutional ethics committee was also obtained. Undergraduate medical students who were present on the day of data collection and consented to participate alone were included in the study. Two batches of interns and one batch of final year students participated in the study. There were 133 interns in two batches and 82 final year students thus totalling to 215 students. However data was collected on 192 students who were available during the data collection period. The non-response rate is 10.7%. Data was collected using a predesigned and pretested structured self-administered questionnaire with details regarding socio demographic profile, knowledge, practices, barriers and opportunities regarding SDL which required 20 minutes for completion. Expert validation of the questionnaire was done by a senior faculty from the medical education unit of the Institution. The identity of the students was kept confidential by not asking for their names in the questionnaire and data was collected by the trained postgraduates from department of Community Medicine.

The data thus collected was entered in excel sheet and analyzed using SPSS trial version 21.0 available as free download. Proportions were calculated for questions related to knowledge, practices, barriers and opportunities. Association between gender, year of study and knowledge and practice of components of SDL were analyzed and chi-square test was used to look for meaningful inferences and p value <0.05 was calculated to find statistical significance. The study report were shared with the principal and the Medical Education Convener so as to have an awareness regarding the SDL

culture of students in the campus and to look for facilitating factors in the campus so as to benefit the medical students.

RESULTS

192 medical students participated in this study. The median age of the medical students was 23±1.16 years where the minimum and maximum age of the participants were 21 and 30 years respectively. 61 (31.8%) and 131 (68.2%) of the medical students were males and females respectively and 112 (58.3%) were interns and 80 (41.7%) were final year students.

Majority of the medical students had good knowledge regarding all the components of SDL the highest being the individual takes the initiative for SDL and the least being the knowledge regarding the requirement of a facilitator at any step (Table 1).

Table 1: Distribution of medical students based on their knowledge regarding the components of self-directed learning (n=192).

Components of SDL	Frequency	Percentage (%)
Individual takes the initiative	187	97.4
Designing the learning needs is required	173	90.1
Formulation of learning goals is required	175	91.1
Identifying human & material resources of learning is required	175	91.1
Choosing and implementing appropriate learning strategy is required	169	88
Evaluation of learning outcomes is required	161	83.9
Facilitator is required for SDL at any step	121	63

Majority 149 (77.6%) of the medical students participated had practiced at least one component of SDL method (Figure 2). Of the students who practiced SDL 60 to 70% had practiced the components of having a commitment, seeking resources, developing objectives and implementing learning process and have identified their learning needs. However, only 57.3% of students have evaluated the learning process and 31.8% alone had an educator as facilitator for learning (Table 2).

The most important barrier identified by the students were self-motivation (88%) followed by time (81.8%). 68.2% felt poor faculty response as a barrier and 52.1% were not familiar with SDL method of learning. Majority

(59.9%) of the students opined having adequate institutional support as an opportunity in using SDL method (Table 3).

Table 2: Distribution of medical students based on their practice of different components of self-directed learning (n=149).

Practicing the components of SDL	Frequency	Percentage (%)
Had an educator as facilitator for learning	61	31.8
Identify their learning needs	136	70.8
Develop the learning objectives	132	68.8
Identify appropriate resources for learning	124	64.6
Implement the process of learning	131	68.2
Had commitment towards a learning contract	119	62.0
Evaluate the learning process	110	57.3

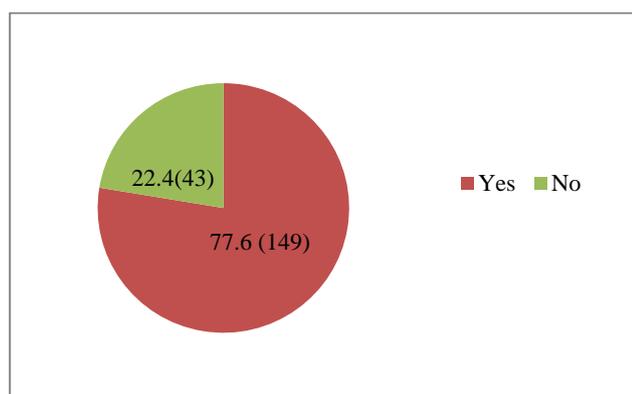


Figure 1: Distribution of medical students based on their practice of any component of SDL in % (n=192).

Table 3: Distribution of medical students based on their opinion regarding the barriers and opportunities in using SDL as a learning method in their institution (n=192).

Barriers and opportunities	Frequency	Percentage (%)
SDL method is not familiar	100	52.1
Poor faculty response towards SDL method	131	68.2
Adequate institutional support in the form of resource (e-learning, Journals, Books)	115	59.9
Self-motivation as a challenge for SDL	169	88
Time as a constrain for SDL method	157	81.8

On analyzing the association of year of learning and knowledge regarding various components of SDL among medical students, requirement of formulating the learning goals, designing the learning needs, requirement of facilitator and identifying human & material resources were high among the interns as compared to final year students and this difference found was statistically highly significant $p < 0.01$ (Table 4).

All the components of SDL were practiced by majority of the interns compared to final year students however the components like identifying appropriate resources for learning, implementing and evaluating the process of learning were found to be statistically significant (Table 5). Female medical students were found to have better knowledge regarding all the components of SDL compared to male medical students; however the difference found was not statistically significant with any of the components (Table 6). Female medical students had better practice of all the components of SDL compared to male medical students; however the difference found was not statistically significant with practice of any of the components of SDL (Table 7).

Table 4: Association of year of learning and knowledge regarding various components of SDL among medical students (n=192).

Year of learning	Students having knowledge regarding various components N (%)	P value
Individual takes the initiative		
Final year	77 (41.2)	0.40
Intern	110 (58.8)	
Designing the learning needs is required		
Final year	64 (37)	<0.001
Intern	109 (63)	
Formulation of learning goals is required		
Final year	68 (38.9)	0.01
Intern	107 (61.1)	
Identifying human & material resources of learning is required		
Final year	68 (38.9)	0.01

Continued.

Year of learning	Students having knowledge regarding various components N (%)	P value
Intern	107 (61.1)	
	Choosing and implementing appropriate learning strategy is required	
Final year	68 (40.2)	0.27
Intern	101 (59.8)	
	Evaluation of learning outcomes is required	
Final year	65 (40.4)	0.40
Intern	96 (59.6)	
	Facilitator is required for SDL at any step	
Final year	42(34.7)	0.01
Intern	79 (65.3)	

Table 5: Association of year of learning and practice of various components of SDL among medical students (n=149).

Year of learning	Students practicing various components of SDL	P value
	Had an educator as facilitator for learning	
Final year	23 (37.7)	0.98
Intern	38 (62.3)	
	Identify their learning needs	
Final year	48 (35.3)	0.06
Intern	88 (64.7)	
	Develop the learning objectives	
Final year	49 (37.1)	0.74
Intern	83 (62.9)	
	Identify appropriate resources for learning	
Final year	41 (33.1)	0.01
Intern	83 (66.9)	
	Implement the process of learning	
Final year	44 (33.6)	0.007
Intern	87 (66.4)	
	Had commitment towards a learning contract	
Final year	41 (34.5)	0.11
Intern	78 (65.5)	
	Evaluate the learning process	
Final year	36 (32.7)	0.04
Intern	74 (67.3)	

Table 6: Association of gender and knowledge regarding various components of SDL among medical students (n=192).

Gender	Students having Knowledge regarding various components	P value
	Individual takes the initiative n (%)	
Male (n=61)	59 (31.6)	0.69
Female (n=131)	128 (68.4)	
	Designing the learning needs is required	
Male	54 (31.2)	0.61
Female	119 (68.8)	
	Formulation of learning goals is required	
Male	59 (33.7)	0.06
Female	116(66.3)	
	Identifying human & material resources of learning is required	
Male	53 (30.3)	0.15
Female	122 (69.7)	
	Choosing and implementing appropriate learning strategy is required	
Male	51 (30.2)	0.19

Continued.

Gender	Students having Knowledge regarding various components	P value
Female	118 (69.8)	
Evaluation of learning outcomes is required		
Male	48 (29.8)	0.18
Female	113 (70.2)	
Facilitator is required for SDL at any step		
Male	37 (30.6)	0.64
Female	84 (69.4)	

Table 7: Association of gender and practice of various components of SDL among medical students (n=149).

Year of learning	Students practicing various components of SDL	P value
Had an educator as facilitator for learning		
Male	15 (24.6)	0.12
Female	46 (75.4)	
Identify their learning needs		
Male	44 (32.4)	0.48
Female	92 (67.6)	
Develop the learning objectives		
Male	43 (32.6)	0.45
Female	89 (67.4)	
Identify appropriate resources for learning		
Male	40 (32.3)	0.67
Female	84 (67.7)	
Implement the process of learning		
Male	41 (31.3)	0.86
Female	90 (68.7)	
Had commitment towards a learning contract		
Male	36 (30.3)	0.49
Female	83 (69.7)	
Evaluate the learning process		
Male	34 (30.9)	0.78
Female	76 (69.1)	

DISCUSSION

A review article conducted by M. Hassan Murad on SDL among health professions education concludes that the components of self-directed learning though not addressed fully by medical students, yet some components are practiced.⁴ Our study revealed that 77.6% of students practiced at least any one component of SDL (Figure 1) and more than 80% of the students had the knowledge of components of SDL, however there was only 63% of students who thought there could be a need of a facilitator for SDL (Table 1). Among the students who practiced any component of SDL it is found that only 31.8% has had a facilitator to help them in their learning process (Table 2). Though SDL can be carried out without a facilitator yet studies done by Abraham et al and Allen et al has shown that the presence of a facilitator enhances the self-directed learning process as they don't deliver contents but help the student with other components of SDL like finding for resources, providing motivation and so on.^{5,6} Hence this study throws light that

the current institution should facilitate the participation of the faculty to improve the self-directed learning process of the students.

Our study also has found only 57.3% of students has evaluated their learning process. Studies done earlier by Fung, Travena et al has shown that maintaining internet based portfolios, MCQs and modified essays helps the students with self-evaluation and facilitator guided evaluation as well.⁷

Regarding the association of gender and year of study with knowledge and practice of SDL among medical students our study found no significant association with gender and components of SDL knowledge and practice (Table 6 and 7) but significant association in knowledge and practice of few components of SDL was found with year of study among the medical students (Table 4 and 5). A research report by Kumar and Banerjee on does medical training promote or deter SDL? did not find any significant effects with both gender and year of study

with knowledge and practice of different components of SDL.⁹

In our study students have reported lack of self-motivation and time constrain as the most important barriers for SDL whereas in a study by Kohan et al among postgraduate medical students regarding SDL barriers like information overload and lack of focus on learning, communication barriers like inadequate coping skills and inadequate writing skills and educational environment barriers like heavy workload and role ambiguity were considered as barriers for SDL method.¹⁰

CONCLUSION

Majority of the medical students had good Knowledge regarding the components of SDL. Considering the practice of components of SDL by medical students though majority of them practiced components like identifying their learning needs, objectives, commitment and implementation of the learning process yet, only 57.3% of students have evaluated the learning process and 31.8% alone had an educator as facilitator for learning. The most important barrier identified by the students were lack of self-motivation (88%) followed by no availability of time (81.8%). Analysis of association of year of learning and knowledge and practice revealed that interns had better knowledge and practice of SDL components compared to final year students whereas gender though females had a better knowledge and practice of SDL components compared to males it was not statistically significant.

Implications

The results of this study have helped us to know the self directed learning culture among medical students in our institution. The barriers and opportunities reflected are eye openers for the medical institutions to strengthen various areas in the institution to develop the SDL culture among medical students.

Limitations

The students across all the batches could not be included in the study for ethical reasons and only one college was included. So the results cannot be generalized.

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