

Readiness for Self-directed Learning among Undergraduate Medical Students of Northern India

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ABSTRACT

Aim: Medical students are expected to possess lifelong learning skills to keep themselves updated with the continuous advances in the field of medicine. This study was undertaken to assess the readiness for self-directed learning (SDL) among undergraduate medical students and to see the effect of strategies implemented to do so.

Materials and methods: Assessment of readiness for SDL was done among undergraduate medical students of the 2018 batch and the 2019 batches using the 29-item self-directed learning readiness scale (SDLRS) questionnaire covering three major domains, namely, "self-management," "desire for learning," and "self-control." Data management and analysis were done by using Microsoft Excel and IBM SPSS, version 20, software. Mann-Whitney U was applied and $p < 0.05$ was considered as a statistically significant result in the inferential statistics.

Results: The total of 295 students participated in the study, 148 from the 2018 batch and 147 from the 2019 batch. The median for overall SDL readiness was 4 (3–4) for the 2019 batch, whereas it was 3 (3–4) for the 2018 batch. The self-directed learning readiness (SDLR) across all three domains of self-management, self-control, and desire for learning was significantly lower for the 2018 batch than that of the 2019 batch of students ($p < 0.001$).

Conclusion: A statistically significant difference was observed in the readiness for SDL between the 2019 batch and the 2018 batch. The reason identified was the use of various teaching modalities to impart SDL skills to the 2019 batch.

Significance: The study emphasizes that SDL in medical courses is helpful to promote lifelong learning skills for medical students.

Keywords: Medical students, Readiness, Self-directed learning, Undergraduate.

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INTRODUCTION

With the pace at which the information explosion is occurring particularly in the field of Medicine, it will be a challenge to keep oneself abreast in the absence of a self-directed mode of learning to inculcate lifelong learning. As new developments occur in the field of biomedical sciences, self-initiation and self-management of learning are required not only during formal years for academic achievement but also during the lifespan itself.¹

Therefore, the medical professionals need to be lifelong learners as they upgrade their knowledge, attitude, and skills through continuing professional development programs. Among the number of modalities used to develop lifelong learning skills, SDL has been acknowledged and advocated for the transformation of knowledge in higher education.²

Self-directed learning has been defined by Malcolm Knowles as "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".³ It is further elaborated that self-directed learners are proactive in their learning process. They initiate their learning on their own rather than waiting to be reactive learners.^{4,5}

In recent years, exponential research and scholarship have been conducted in the field of SDL for various courses. Self-directed learning is advocated as an efficient and alternate form of learning for knowledge acquisition and no supplementation is required.^{6,7} Several attempts have been made to compare the lecture form of the instructional method with SDL instruction.

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Most of the studies give a positive response or a balanced one.⁸ The advocacy for SDL was reiterated for teaching evidence-based medicine module also.⁹

Recently, the Medical Council of India (MCI) has made amendments to Graduate Medical Education Regulations (GMER) 1997 and introduced competency-based undergraduate medical curriculum from the 2019–2020 batch of bachelor of medicine and bachelor of surgery (MBBS) students. Self-directed learning has been dedicated 5–15% of allocated teaching hours across various subjects throughout the curriculum. It needs to be implemented

in letter and spirit for forging ahead the Indian Medical Graduate (IMG) goal of a lifelong learner.¹⁰

As SDL training will be a part of the curriculum for all professional years of MBBS, we aim to generate baseline data of readiness of first-year students for SDL. The data generated will be helpful to explore teaching–learning strategies to be implemented in subsequent years for enhancing students’ SDL skills.

OBJECTIVES

- To assess the SDLR among undergraduate medical students of a private medical college in Punjab, India using the Fisher-abridged SDLR scale.
- To compare the SDLR scores of the 2019 batch that was exposed to SDL sessions vs the 2018 batch that was not exposed.

MATERIALS AND METHODS

The study was carried out in a tertiary care hospital and medical institute in Punjab, India. This is a cross-sectional questionnaire-based observational study. The study participants, who were willing to participate, were all MBBS students from the 2018 and the 2019 batches. Study was conducted at the end of the sessions in both batches to assess the readiness skills in the 2019 batch that was exposed to SDL sessions as compared to the 2018 batch that was not exposed to SDL. Approval of the institutional ethical committee was obtained before the commencement of the study.

Study Instrument

A variety of scales have been developed to measure readiness for SDL among medical students. One such scale was developed by Fisher et al. in 2001¹¹ for use among nursing students and this was recently validated for use among medical students. This is a 52-item scale with three major domains, namely, “self-management,” “desire for learning,” and “self-control” that was reduced to a 29-item abridged version after factor analysis by Akkilagunta et al.¹² in their study on medical students. We used this abridged version with 29 items covering all the three domains to assess SDL readiness.

Method of Data Collection

The 29-item SDLRS questionnaire was administered to all 295 MBBS students (148 of the 2018 batch and 147 of the 2019 batch) through online Google Forms via Google Classroom for easy and rapid access. Specified days were allotted to both batches with stipulated time given to fill the questionnaire. Sensitization of the students about the scale was done prior to administration. Data were also collected on the sociodemographic profile of the students from both batches such as age, gender, area of residence, place of stay, father’s and mother’s education, and occupation, respectively.

Responses to SDLRS questionnaire (29 items) were graded on a Likert scale from 1 to 5 as follows:

- 1 = Almost never true of me; I hardly ever feel this way.
- 2 = Not often true of me; I feel this way less than half the time.
- 3 = Sometimes true of me; I feel this way about half the time.
- 4 = Usually true of me; I feel this way more than half the time.
- 5 = Almost always true of me; there are very few times when I don’t feel this.

Data Analysis

Data collected were statistically analyzed using Microsoft Excel 2013 and IBM SPSS, version 20, software, and valid conclusions were

Table 1: Background characteristics of students

Parameter	2018 batch N (%) 148 (100)	2019 batch N (%) 147 (100)
Age (years)		
Mean age of the participants	20.64	19.4
Gender		
Female	74 (50.0)	91 (61.9)
Male	74 (50.0)	56 (38.1)
Area of residence		
Urban	115 (77.7)	132 (89.8)
Rural	33 (22.3)	15 (10.2)
Place of stay		
Hostel	115 (77.7)	132 (89.8)
Day-scholar	33 (22.3)	15 (10.2)
Father’s education		
Postgraduate	57 (38.5)	55 (37.4)
Graduate	61 (41.2)	67 (45.6)
Others	30 (20.3)	25 (17.0)
Father’s occupation		
Doctor	19 (12.8)	23 (15.6)
Others	129 (87.2)	124 (84.4)
Mother’s education		
Postgraduate	70 (47.3)	58 (39.5)
Graduate	53 (35.8)	58 (39.5)
Others	25 (16.9)	31 (21.0)
Mother’s occupation		
Doctor	11 (7.4)	13 (8.8)
Others	137 (92.6)	134 (91.2)

drawn. Descriptive statistics were based on mean and standard deviation or median and interquartile range for continuous variables and, proportions/percentages for the categorical variables. Mann–Whitney *U* was applied and *p* = 0.05 was considered a statistically significant result in the inferential statistics.

RESULTS

The Cronbach’s α coefficient was calculated for each sub-dimension to test the reliability of the measurements, which was found to be 0.850 for the sub-dimension of “self-control,” 0.908 for the sub-dimension of “self-management,” and 0.759 for the sub-dimension of “desire for learning.” Cronbach’s α for the overall SDLRS score was 0.913. Based on the reliability coefficients obtained, the scale can be said to be a reliable measurement tool.

A total of 295 students participated in the study, 148 from the 2018 batch and 147 from the 2019 batch.

Table 1 depicts the background characteristics of the students. The mean age of participants was 20.64 years and 19.4 years for the 2018 and 2019 batches, respectively. The gender ratio was equal in the 2018 batch while the 2019 batch showed a female preponderance of 61.9%. More students were from rural background (22.3%) in the 2018 batch than in the 2019 batch (10.2%). Regarding information collected for the place of stay, the majority were hostelers and among day-scholars more were from the 2018



Table 2: Median score of SDLRS and its domains in all the batches

	2018 batch (N = 148) Median (IQ range)	2019 batch (N = 147) Median (IQ range)	Significance* p
Self-control (14 items)	3 (3–4)	4 (3–4)	<0.001
Self-management (9 items)	2 (2–3)	3 (3–4)	<0.001
Desire for learning (6 items)	3 (3–4)	4 (4–5)	<0.001
SDLRS (29 items)	3 (3–4)	4 (3–4)	<0.001

*Mann–Whitney U test

Table 3: Effect of background characteristics on SDL readiness of students

	2018 (N = 148) M (IQR)	2019 (N = 147) M (IQR)	Significance	2018 (N = 148) M (IQR)	2019 (N = 147) M (IQR)	Significance
<i>Gender</i>						
	<i>Female</i>		<i>p</i>	<i>Male</i>		<i>p</i>
Self-control	3 (3–4)	4 (3–4)	<0.001	3 (3–4)	4 (4–4)	<0.001
Self-management	2 (2–3)	3 (3–4)	<0.001	2 (2–3)	3 (3–4)	<0.001
Desire for learning	3 (3–4)	4 (4–5)	<0.001	3 (3–4)	4 (4–5)	<0.001
SDLRS	3 (3–4)	4 (3–4)	<0.001	3 (3–4)	4 (3–4)	<0.001
<i>Area of residence</i>						
	<i>Urban</i>		<i>p</i>	<i>Rural</i>		<i>p</i>
Self-control	3 (3–4)	4 (4–4)	<0.001	3 (3–4)	4 (3–4)	0.021
Self-management	2 (2–3)	4 (3–4)	<0.001	2 (2–3)	3 (3–4)	<0.001
Desire for learning	3 (3–4)	4 (4–5)	<0.001	3 (3–4)	5 (4–5)	<0.001
SDLRS	3 (3–3)	4 (3–4)	<0.001	3 (3–4)	4 (3–4)	0.076
<i>Place of stay</i>						
	<i>Hostel</i>		<i>p</i>	<i>Day-scholar</i>		<i>p</i>
Self-control	3 (3–4)	4 (3–4)	<0.001	3 (3–3)	4 (3–4)	0.001
Self-management	2 (2–3)	3 (3–4)	<0.001	2 (2–3)	3 (2–4)	0.01
Desire for learning	3 (3–4)	4 (4–5)	<0.001	3 (3–4)	4 (4–5)	<0.001
SDLRS	3 (3–4)	4 (3–4)	<0.001	3(3–3)	4 (4–4)	<0.001
<i>Father's occupation</i>						
	<i>Doctor</i>		<i>p</i>	<i>Others</i>		<i>p</i>
Self-control	3 (3–3)	4 (4–4)	<0.001	3 (3–4)	4 (3–4)	<0.001
Self-management	2 (2–3)	3 (3–4)	0.001	2 (2–3)	3 (3–4)	<0.001
Desire for learning	3 (3–3)	5 (4–5)	<0.001	3 (3–4)	4 (4–5)	<0.001
SDLRS	3 (3–3)	4 (4–4)	<0.001	3 (3–4)	4 (3–4)	<0.001
<i>Mother's occupation</i>						
	<i>Doctor</i>		<i>p</i>	<i>Others</i>		<i>p</i>
Self-control	3 (3–3)	4 (3–4)	0.009	3 (3–4)	4 (3–4)	<0.001
Self-management	2 (2–3)	3 (3–4)	0.026	2 (2–3)	3 (3–4)	<0.001
Desire for learning	3 (3–3)	5 (4–5)	0.002	3 (3–4)	4 (4–5)	<0.001
SDLRS	3 (3–3)	4 (3–4)	0.03	3 (3–4)	4 (3–4)	<0.001

batch (22.3%) than from the 2019 batch (10.2%). The parents of the majority of students were graduates and above. Regarding the occupation of the parents, fathers of 12.8% of and 15.6% were doctors in the 2018 and 2019 batches, respectively. Similarly, mothers of 7.4 and 8.8% were doctors in both batches, respectively.

Table 2 shows medians of all three domains of the scale as well as the scale as a whole in both batches. It was interpreted that self-directed readiness was significantly higher among the 2019 batch students who were given SDL sessions as compared to the

2018 batch that was not exposed to SDL sessions. The results were highly significant ($p < 0.01$).

Table 3 shows that on assessing the self-directed readiness of the student according to their gender, area of residence, place of stay, and father's and mother's occupation it was found that there was a significant difference between the two batches. Better self-directed readiness in the 2019 batch than in 2018 except in rural areas where no significant difference was found in the two batches when SDLRS whole was observed.

DISCUSSION

This study was undertaken to assess the readiness for SDL among the students of the 2019 batch that were exposed to SDL activities in their phase I vs the students of 2018 batch that were never exposed to SDL activities in the past 2 years. A total of 295 students participated in the study, 148 from the 2018 batch and 147 from the 2019 batch.

The Cronbach's α coefficient was found to be 0.850 for the sub-dimension of "self-control," 0.908 for the sub-dimension of "self-management" and 0.759 for the sub-dimension of "desire for learning." Cronbach's α for the overall SDLRS score was 0.913. This was in accordance with Fisher et al. who found Cronbach's α coefficient to be 0.857 for the sub-dimension of "self-direction," 0.843 for the sub-dimension of "desire for learning" and 0.830 for the sub-dimension of "self-control."¹¹

Table 1 shows the background characteristics of the students. The mean age of the participants was 20.64 years and 19.4 years for the 2018 and 2019 batches, respectively. The gender ratio was equal in the 2018 batch while the 2019 batch showed a female preponderance of 61.9%. The majority were hostelers and lived in urban areas. Fathers and mothers of approximately 12–15% and 7–8%, respectively, were doctors in both batches. A Study by Kar et al. in South India reported that nearly all were from urban backgrounds and were currently living in hostels. They reported that almost 50% had doctors in their families.¹³

This study revealed that the median for overall SDL readiness was 4 (3–4) for 2019 batch, where as it was 3 (3–4) for the 2018 batch (Table 2). Also, the readiness for SDL across all three domains of self-management, self-control, and desire for learning was significantly lower for the 2018 batch than that of the 2019 batch of students ($p < 0.001$). When the effect of sociodemographic factors was observed and compared in the two batches, it was observed that the SDL readiness was significantly higher for the 2019 batch as compared to the 2018 batch (Table 3).

Similarly, the study conducted on first-year students of a medical college in Nepal following an integrated organ systems-based curriculum with problem-based learning showed improvement in total SDL scores at the end of the first year.¹⁴ In another study conducted on allied health science students in the USA, a change in SDLR scores was observed from the first to final semester with the use of PBL and case-based learning teaching strategies.¹⁵ Scores on the three subscales (i.e., self-management, desire for learning, and self-control) increased significantly during the 4 years of the program, in a Turkish nursing school without any exposure to SDL sessions. This finding supports SDL as a maturational process.¹⁶ Interestingly, in a study from South India, where a conventional curriculum was followed, high scores were obtained by the first-year students than the second-year students.¹⁷ This was in spite of any exposure to SDL sessions for both batches. This may reflect the change in attitude and zeal of the students once they enter medical college. It can be presumed that the inherent self-directedness of medical students diminishes as they progress in the course. In this study, the SDL sessions conducted for the 2019 batch also factored in to build the perceptions of better self-directedness in first-year students along with their initial enthusiasm.

Self-directed learning readiness in this study was assessed regarding three components self-management, desire for learning, and self-control. Regarding the result of the three components for the 2019 batch, it was noticed that the readiness was found to be higher for student response to the desire for learning component

and self-control component, while student readiness for the self-management component was the lowest. The trend is similar to the other studies done in India^{17–19} and indicates that students need support in self-management skills and there is a scope for improvement in the self-management domain. Although our results are in contrast to the findings of the Nepal study wherein there was an improvement in self-management scores but no difference was seen in scores for the desire for learning and self-control subdomains.

LIMITATIONS

This study was based on a self-report questionnaire that evaluated the perceptions of students regarding their self-directedness. Therefore, it is not a direct evaluation of their SDL readiness. Also, the sample size was small enough to contribute to the observed difference. The small sample size impedes the ability to compare and contrast the study, in turn limiting its generalizability.

CONCLUSION

A statistically significant difference was observed in the readiness for SDL between two consecutive batches of undergraduate medical students. The reason identified was the use of various teaching modalities to impart SDL skills. The findings provide encouragement to medical educators to further apply SDL in medical courses, to improve teaching and learning methods, and to promote lifelong learning for doctors.

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