Evaluation of Self-directed Learning Readiness (SDLR) among first-year medical students of Northern Karnataka: A cross-sectional study

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Abstract

Background: Self-directed Learning Readiness (SDLR) is defined as the degree to which an individual possesses i.e., the attitude, abilities and personality characteristics that are necessary for Self-directed Learning. A literature search showed no study of SDLR among Northern Medical Students. Therefore, the present study was conducted to evaluate self-directed learning readiness among first-year medical students in Northern Karnataka, and its correlation with academic performance.

Methods: This cross-sectional study was conducted among first-year medical students of the Belagavi Institute of Medical Sciences, Belagavi, Karnataka, using Fisher's Self-Directed Learning Readiness Scale (SDLRS). The self-directed learning readiness scores of these students were correlated with their average scores of the theory internal assessment using the Spearman's correlation coefficient. The Mann-Whitney U test was used to compare the median values of the SDL scores and Internal assessment scores between males and females.

Result: The Mean SDLRS score was 150.4 ± 13.27. The mean scores in the three domains, that is, self-management, desire for learning and self-control were 3.6 ± 0.3, 3.6 ± 0.18 and 3.6 ± 0.26 respectively. There was a negligible negative relationship between the SDLRS score and internal assessment marks (r= - 0.159). There was no significant difference in the median SDL scores between males and females (Z=1.017).

Conclusion: The mean SDLRS score was high among first-year medical students and there was no statistically significant correlation between the SDLRS scores and academic performance. There was no significant difference in the median SDL scores between males and females.

Keywords: Self-directed learning; Medical students; SDLRS; Academic performance; Gender

Introduction

Self-directed learning (SDL)is defined as a process in which individuals control their learning needs, processes, and outcome[1]. In SDL, learners identify their learning goals, form objectives, prepare plans, and evaluate their learning outcomes. Healthcare professionals require lifelong learning skills owing to continuous advances in biomedical sciences. SDL readiness depends on learners' attitudes, abilities, and personality characteristics[2]. SDL is considered the most efficient and effective method of medical students' training to stay up-to-date of current literature and knowledge[3]. It is associated with increased curiosity, critical thinking, quality of understanding, retention and recall, better decision making, achievement satisfaction, motivation, competence and confidence, which are important qualities of a doctor[4]. It empowers students to develop problem-solving and lifelong learning skills. This allows them to be involved in learning activities that focus on communication skills[5].

In India, students enter medical education at a much younger age than their Western counterparts do. Didactic lectures, tutorials, and practical are the dominant teaching methods in Indian Medical colleges[6]. With the implementation of CBME in India, SDL sessions have become mandatory in all phases of undergraduate medical training[7]. More emphasis is placed on student-centered teaching-learning methods in the CBME curriculum. Lifelong learning is one of the goals of Indian Medical graduates as per the latest graduate medical regulations. Thus,

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medical colleges following the CBME guidelines seek to develop SDL readiness among students.

Self-directed Learning Readiness is defined as the degree to which an individual possesses the attitude, abilities and personality characteristics that are necessary for Self-directed Learning[2]. Before incorporating SDL, students should be assessed for their readiness to use creativity, problem solving, and assuming responsibilities[8]. Measuring readiness for SDL at the beginning of the curriculum will help teachers adopt appropriate teaching- learning strategies to make students achieve educational objectives[2].

The association between self-directed learning readiness (SDLR) scores and academic success is not clearly defined. Some studies have reported a poor relationship between the two[2,9] However, few studies have observed that students with high SDLR tend to have significantly higher academic success[10]. A literature search showed no study of SDLR among Northern Medical Students. Although many studies have evaluated SDL among medical students in India, data from Northern Karnataka is lacking. This study is novel in assessing self -directed learning readiness in this region and evaluating its correlation with academic performance and gender. This study contributes to the existing data by generating region-specific baseline data and supports development of relevant strategies to strengthen self -directed learning within CBME framework. Therefore, the present study had taken with the following objectives

Objectives:

1) To evaluate self-directed learning readiness among first year medical students of Northern Karnataka. 2) To correlate Self-directed learning readiness scale (SDLRS) score with their academic performance and 3) To compare SDLRS score between male and female students.

Material and Methods:

This cross-sectional study was done among the 2024-25 batch first-year medical students admitted to the Belagavi Institute of Medical Sciences, Karnataka State. Convenience sampling was used. Institutional ethical approval was obtained for this study. Written consent was obtained from all participants after explaining the purpose of the study.

Inclusion criteria: First-year students enrolled for MBBS at Belagavi Institute of Medical Sciences who expressed willingness to participate in the study.

Exclusion criteria: Students who were absent at the time of the survey and those who provided incomplete details were excluded.

Self-directed learning Readiness Scale (SDLRS) designed by Fisher[11] was administered to 150 first year medical students during physiology lecture by using google form .132 students out of 150 submitted the google form. The Fisher SDLRS has 40 items grouped into three scales: self-management (13 items), desire for learning(12 items), and self-control (15 items)[11]. Students were asked to respond to each item on a five-point Likert scale (where 5-strongly agree, 4=agree, 3=not sure, 2=disagree, 1=strongly disagree). The results are expressed as mean± SD**.** The SDLRS scores of these students were correlated with their average scores of the Ist, IInd, and IIIrd theory internal assessments, using Spearman's correlation coefficient. The Mann-Whitney U test was used to compare the median values of the SDL scores and IA marks between males and females. Statistical significance was set at P <0.05. SPSS version 23 was used for statistical analysis.

Result:

The questionnaire was administered to all first-year MBBS students from the to 2024-25 batch admitted to our Medical Institute. Of the 150 students,132 students responded to the questionnaire. The age of the participants ranged from 17 to 19 years and included 52(39%) females and 81(61%) males. The SDLRS score above 150 indicated high readiness for self-directed learning. The mean SDLRS score was 150.4 ± 13.27 in our study. The mean scores in the three domains of Self-management, Desire for learning, and self-control were 3.6±0.3, 3.6±0.18 and 3.6±0.26 respectively.

Table 1: Mean scores of individual Item of Self-management domain

Item	Mean± SD
I solve problems using a plan	3.6±0.76
I prioritize my work	3.8±0.73
I do not manage my time well	3.7±0.55
I have good management skills	3.4±0.74
I set strict time frames	3.0±0.81
I prefer to plan my own learning	3.9±0.72
I am systematic in my learning	3.3±0.76
I am confident in my ability to search out information	3.8±0.64
I set specific times for my study	3.3±0.86
I am self-disciplined	3.7±0.82
I am disorganized	3.8±0.57
I am methodical	3.5±0.69
I can be trusted to pursue my own learning.	4.0±0.52
Mean± SD	3.6±0.3

Table 1 shows the mean scores of all items in the self-management domain. The mean score 3.6±0.3 indicates moderate to high ability among students in planning and arranging their learning activities.

Table 2: Mean scores of individual Item of Desire for learning domain

Desire for learning	
I need to know why	3.8±0.70
I critically evaluate new ideas	3.6±0.76
I learn from my mistakes	4.0±0.61
I am open to new ideas	3.9±0.56
When presented with a problem I cannot resolve I will ask for assistance	3.5±0.84
I like to evaluate what I do	3.8±0.68
I do not enjoy studying	3.8±0.53
I have a need to learn	4.0±0.56
I enjoy a challenge	3.9±0.78
I want to learn new information	4.1±0.56
I enjoy learning new information	4.1±0.57
I like to gather the facts before I make a decision	3.9±0.66
Mean± SD	3.6±0.18

Table 2 shows the mean scores of all items in the desire for learning domain. The mean score of 3.6±0.18 reflects strong intrinsic motivation in acquiring new knowledge.

Table 3: Mean scores of individual Item of Self-control domain

Self- control	
I am able to focus on a problem	3.6±0.69
I prefer to set my own learning goals	3.9±0.60
I am responsible	3.9±0.67
I have high personal expectations	3.7±0.90
I have high personal standards	3.7±0.79
I have high beliefs in my abilities	3.7±0.81
I am aware of my own limitations	3.9±0.58
I am logical	3.7±0.68
I evaluate my own performance	3±0.74
I prefer to set my own criteria on which to evaluate my performance	3.7±0.70
I am responsible for my own decisions/ actions	4.1±0.56
I can find out information for myself	3.8±0.61
I like to make decisions for myself	3.9±0.63
I prefer to set my own goals	4.0±0.59
I am not in control of my life	4.0±0.66
Mean± SD	3.6±0.26

Table 3 shows the mean scores of all items in the self- control domain. The mean score 3.6±0.26 demonstrates good self-discipline, responsibility, and autonomy in learning among students.

The Mann-Whitney U test was used to compare the median values of SDL scores between males and females as the data were not normally distributed. There was no significant difference in the median SDL scores between males and females (Z=1.017, P=0.309).

Table 4: Comparison of SDL score between Males & females

Variable	Mean + SD	Confidence Interval for mean	Median	IQR	Test statistic & P value
SDL Score					
Male	151.43 + 13.27	(148.46, 154.4)	152	12	Z=1.017 P=0.309
Female	148.98 + 13.38	(145.22, 152.74)	151	13	

Table 4 presents a comparison of SDL scores between Males and females. Mean SDL score among males were higher than females but difference was not statistically significant.

Academic performance indicated by average marks in three internal assessments of Physiology subject was correlated with the SDLRS score using Spearman's correlation coefficient, as the data were not normally distributed. There was a negative, negligible relationship between the variables (r= − 0.159).

Discussion

Self-directed learning is a process in which individuals take the initiative, with or without the help of others, to diagnose their learning needs, formulate learning goals, identify human and material resources for learning, choose and implement appropriate learning strategies, and evaluate learning outcomes[12]. SDL initiates the quality of ownership of learning among students and helps in better understanding the topic. To develop SDL skills, students require specific qualities such as self-management, desire for learning, and self-control[13]. Thus, knowing students' SDLRS scores helps educators design teaching sessions according to their needs and makes SDL sessions more effective.

Mean SDLR score:

In our study, the mean SDLRS score was 150.4 ± 13.27 among 132 first-year MBBS students of the Belagavi Institute of Medical Sciences, Belagavi. A high SDLRS score indicates students' readiness for self-directed

learning, which plays a key role in Meical Education. The higher SDLRS score in our study could be attributed to students' early exposure to a coaching environment for the preparation of entrance examinations, such as NEET, which fosters students' study habits and time management skills[6]. Early access to online platforms and the use of digital tools to supplement classroom teaching have strengthened the SDL domain in students. Our results are comparable with the study among medical students at Melaka Manipal Medical College of Manipal University (Karnataka, India) where the total score was found to be 151.4[14] India. 72.7% medical students of MCOMS, Pokhara scored more than 150 on Fisher's SDLRS scale[15] a central theme in adult education, is considered to be associated with the management of lifelong learning for better outcomes. Certain learning situations help to strengthen SDL. Medical science changes rapidly and there is an information explosion; so, it is important to train doctors for SDL. Aims: The aim of this study was to measure the readiness for SDL of students at the beginning of the undergraduate medical course. Methods: The readiness for SDL was measured among 121 first year undergraduate medical students at Manipal College of Medical Sciences, Pokhara, by using the Self-directed Learning Readiness Scale (SDLRS. The overall mean SDLR score obtained for the six cohorts of students enrolled in the MBBS program at CMC in Vellore using Guglielmino's self-directed learning readiness scale was 212.91[6] with the learner having primary responsibility for planning, implementing, and evaluating the effort. Medical education institutions promote SDL, since physicians need to be self-directed learners to maintain lifelong learning in the ever-changing world of medicine and to obtain essential knowledge for professional growth. The purpose of the study was to measure the self-directed learning readiness of medical students across the training years, to determine the perceptions of students and faculty on factors that promote and deter SDL and to identify the role of culture and curriculum on SDL at the Christian Medical College, Vellore, India.\nMethods: Guglielmino's SDL Readiness Scale (SDLRS. A South Indian study at JIPMER by Kar et al., reported a mean SDLRS score of 140.4±24.4, with 30% in the high readiness category[16]. Shokar et al. found that the mean SDLRS score of third-year medical students at the University of Texas was significantly higher than that of general adult learners[17]. Our study contrasts with the previous Manipal study by Devi et al., where the total median SDLR score using Fisher's scale for hybrid and traditional curriculum students was 132 and 137 respectively[2]. The preclinical group in Riyadh had a mean readiness score of 122. The low score was attributed to their cultural and educational backgrounds and unfamiliarity with the process[11].

The differences in students' learning behaviour, personal attributes, differences in teaching/learning methodology and curricular design may be attributed to variations in the SDLRS scores of different study groups[18].

SDLRS subscale

The self-management domain indicates the students' ability to manage their learning resources and time. The desire for learning denotes students' intrinsic ability to acquire knowledge whereas the self-control domain shows students' autonomy in their learning activities. In our study, the mean scores in the three domains of self-management, desire for learning, and self-control were 3.6±0.3, 3.6±0.18 and 3.6±0.26 respectively. Our results are in contrast with a previous study among medical students of Melaka Manipal Medical College (MMMC) where the scores for self-control were higher, followed by the desire for learning and self-management[14] India. Another study among first-year Saudi Medical students showed the highest mean score for desire to learning (4.08±0.5), followed by self-control (3.9±0.9), and self-management (3.7±0)[19].

SDLRS score and Academic performance:

In our study, the correlation between SDLRS scores and academic performance was not statistically significant. This indicates that although students are ready for self-directed learning, they are not reflected in their academic performance. This could be because theory examinations test content knowledge whereas SDLRS assesses the learning process[9]. Students may have a positive attitude towards SDL but lack metacognitive skills, such as knowledge of the task and knowledge of one's own motives, resources and constraints in context, in order to plan strategically to improve their academic performance[4]. In a medical school with a packed curriculum in the first year 85% of the time per day is devoted to learning anatomy, and the remainder is shared by physiology and biochemistry[14]. Therefore, students have difficulty managing their time spent learning physiology. Our study aligns with a previous study that showed a weak negative correlation between SDLRS scores and academic performance in physiology examinations[14]. Balmurgan and Kumar found no statistically significant difference in the mean scores between high and low SDLRS scores[9]. Our results are in contrast with those of other studies conducted among Saudi nursing and emergency medical students of King Saud University, which showed that SDLR levels positively influenced students' academic performance, which was

attributed to students' perceptions of their learning environment[20]. SDLR is positively correlated with academic performance among undergraduate dental students in private Malaysian dental colleges [21]. SDLR studied first-, third-, and fifth-year medical students at the College of Medicine, University of Sharjah, and showed that high-achieving students had significantly higher total readiness for SDL than their medium- and low-achieving peers[22]. Turkey's university students had significantly higher self-directed learning skills and higher academic success. Self-directed learners can identify their own learning needs; utilize different learning strategies, methods and techniques; manage their learning processes; plan their time effectively, evaluate their learning outcomes and identify and amend their learning deficiencies. These skills are related to academic success [10].

SDLRS score and Gender:

In our study, there was no significant difference in the median SDL scores between male and female students. Our findings are consistent with those of a study conducted among medical students at Andhra Medical College, Visakhapatnam, Andhra Pradesh[18]. In contrast, males had a higher readiness for self-directed learning than females (P = 0.045) among fifth-semester students of JIPMER, Puducherry College[16]. A study among undergraduate students of first-year interprofessional health science subjects at a metropolitan university in New South Wales, Australia, showed females had higher scores than males[22]. A Turkish study among university students showed that female students had significantly better self-directed learning skills than male students[10].

Readiness alone is not sufficient for effective SDL. The MBBS curriculum should include explicit skill development and metacognitive strategies to translate the SDLR into academic performance. Students should be supported in SDL skill development[14]. High SDLRS scores provide an opportunity to integrate SDL-based T-L methods, such as the flipped classroom and problem-based learning. Faculty development programs have played an important role in bringing about these changes in medical education. Faculty members must be trained in implementing SDL under structured guidance. Feedback from students and facilitators will help further improve the process.

Limitations of study: This study used Fisher's self-report questionnaire. Therefore, this study was limited by a self-reporting bias. Studies on the validation of the Fisher's scale in the Indian context are limited. Convenient sampling methods can cause selection bias, and other confounders such as socioeconomic status, prior schooling, and English comprehension were not studied, which may have influenced the SDLRS and academic performance. Longitudinal studies from the first to the final year will provide a better perspective of SDL readiness among Indian medical graduates.

Recommendations:

Structured SDL session should be integrated within physiology curriculum.

Longitudinal studies sho

Conclusion:

First-year medical students in Northern Karnataka demonstrated higher SDL scores but no correlation with academic performance. This finding suggests a gap between attitudes toward SDL and functional skills. To bridge this gap, students should be trained in strategies to develop SDL skills.

uld be conducted to evaluate SDLR among all phases of MBBS.

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