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Self-Directed Learning Readiness among Post Graduate Trainees at Shifa International Hospital

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Abstract

Background: Self-directed learning is a way of learning in which learner is the main regulator of learning and manages learning on its own according to the requirements. This concept implies that whatever a postgraduate trainee (PGT) will learn during his or her training is dependent on his self-ability to learn.

Objective: To determine the self-directed learning readiness (SDLR) among postgraduate trainees of multiple specialties and to examine factors affecting it.

Material and methods: It was a cross-sectional study in which self-directed learning readiness of PGTs working at Shifa International Hospital Islamabad was investigated using a 58 item validated SDLR questionnaire.

Results: Mean SDLR score of females (213.36) was more than males (206.13). Maximum mean score of SDLR was found at age of 37(n=1) (252.00) and at 33 years (n=10) (236.40), respectively. Highest mean SDLR score was found among PGTs of Gynaecology and Obstetrics (n=28), (230.11). Mean total SDLR score initially increased from 204.65 to 218.50 from 1st to 2nd year but then remained static and start dropping at regular pace and became lowest at fifth year (200.36). Mean total SDLR score was highest among PGTs of poor socioeconomic background 237.33. Departments in which research activities were ongoing their postgraduate trainees showed an average SDLR score of 215.41.

Conclusion: Study concluded that self-directed learning readiness of PGTs of Gynaecology was highest with average SDLR in General Medicine and General Surgery PGTs. The SDLR was found more among PGTs with poor socioeconomic status and in departments with high ongoing research activities. However, SDLR has not shown any significant difference regarding gender and age.

Keywords: Post-graduate trainees; Self-directed learning readiness; Specialties; Research activity

Introduction

Self-Directed Learning (SDL) is the student's centered learning concept [1,2]. Generally, the SDL is described as learning on one's own initiative, with learner having basic responsibility about planning, implementing as well as assessing the effort [3]. The SDL classic definition described by Knowles is "a process wherein people take initiative, with/with no assistance of others in identifying their learning needs, devising the learning goals, diagnosing human and material resources about learning, choosing and implementing proper learning approaches and assessing the learning outcomes" [4-7]. The SDL is an important principle in the higher education which has been encouraged by several institutions because of its value among developing professionals to become permanent learners [8].

The modern healthcare sector is one of the ever changing fields. One needs to adapt and deal with it accordingly [9]. Worldwide, medical education systems have embraced the self-directed learning so that postgraduate trainees gain the SDL skills to equip themselves constantly with appropriate knowledge as well as skills in continuously changing medicine world [8]. The SDL is understood like an auspicious approach that can support lifelong learning during medical education [10].

It increases the clinical reasoning as well as cognitive skills among postgraduate trainees by activating and provoking the critical thinking process and providing them maximum responsibility to find the solutions of numerous problems [11].

The SDL is a process in the medical education in which PG trainees take initiatives with or with no help of the other persons (e.g., colleagues or instructors), decide their learning requirement, identify the resources of learning, set learning objectives, select and apply learning approaches to obtain knowledge and eventually assess the learning outcomes. Therefore, postgraduate trainee is responsible for his/her own learning. The SDL readiness is Extent to which PG students have the capability, attitude as

well as personal characteristics suitable for self-directed learning [8].

The readiness for SDL boots self-confidence among medical trainees and enhances their desire for learning in novel circumstances. Through SDL, through SDL and self discipline trainees acquire knowledge and become life long learners. This helps them become successful in their profession and make them more confident and prepared in their studies. Thus, PG trainees will be more confident and prepared in their studies [12].

For educators, it has been very challenging to assist in SDL skills development. There are several validated techniques to identify the SDLs. Everyone own inborn learning readiness; however, it can be improved by specific learning situation as well as environment. Guglielmino's SDLRS (SDL readiness scale) is considered one of the instruments for the purpose of measuring the self-direction during learning. Though, this scale has extensively been utilized, further local validation is required [13].

A study carried out by Sahoo analyzed the impact of SDL topics weekly assessment in fostering the SDL during clinical training of student. Among male PG trainees, mean SDLRS score was 214.15 ± 19.73 while among females was 207.95 ± 17.983, which falls under the average score as described in the Guglielmino scale. Most of the respondents expressed better use of the SDL study hours due to weekly evaluation than when they had no evaluation for SDL [13].

A study carried out by Kar et al. assessed the SDLR among MBBS fifth semester students in a teaching health facility. Among 87 students, 73.5% consented to be evaluated for the readiness toward SDL. Study revealed that SDLRS mean score was 140.4 ± 24.4, with 19 (30%) PG trainees scoring above 150 indicating high readiness. Mean scores in 3 domains of desire for learning, self-management and self-control were 47.3 ± 6.9, 38.8 ± 9.8, and 54.3 ± 10.4, respectively. Male students had an elevated readiness for SDL than female students (P=0.045) [14].

Another study performed by Yang et al. evaluated the level of postgraduate trainees' SDL capability in China. Study indicated that mean total self-directed learning score was 76.12+10.96, implying that PG trainees had moderate SDL capability. Study found that personal characteristics of the confidence, trainees' enjoyment regarding their specialty, utilization of the library resources, academic performance, learning habits and goals and the contextual determinants such as age, gender, family monthly income, learning resources and group discussion were found significantly related to SDL score (p<0.05) [10].

Several studies have been carried out on undergraduate student's self-directed learning readiness and the variables affecting it, however, no such data is available regarding post-graduate trainees in different disciplines of medicine and what factors affect them. Therefore, current study is carried out to determine the self-directed learning readiness in postgraduate trainees of multiple specialties including General Surgery, Gynecology and obstetrics, Radiology, Anaesthesia, General Medicine, Cardiology, Neurology, and Gastroenterology and to identify the probable factors affecting it. Postgraduate trainees are the pillars of hospital working environment and future expert physicians, so it is very important that they have self-directed learning readiness, both for their career progression, and to keep them up to date in this ever changing medical field. The results of this study will postgraduate trainees to become lifelong learners and can also form the basis of further studies in this field.

Material and Methods

It was a quantitative descriptive study with cross-sectional study design in which self-directed learning readiness of all 130 post graduate trainees trainee in multiple clinical specialties has been investigated. The study was carried out at Shifa International Hospital Islamabad and the clinical specialties included in the study were General Surgery, Gynecology and Obstetrics, Radiology, Anesthesia, General Medicine, Cardiology, Neurology and Gastroenterology. A convenience sampling was used for postgraduate trainees. The study was completed in six months period.

For this research SDLR scale was used. It is a 58 item scale developed by Lucy M. Guglielmino in 1977 [15]. Its score ranges from 58 to 290. If score is from 58-201, SDLR is below average. If score is from 202-226, SDLR is average. If SDLR score is 227-290 it is above average.

After approval from IRB, questionnaire was made on Google forms. Participants were referred to the instructions at the top of questionnaire. Confidentiality was maintained since no names were identified on the instrument. Its components were consent form, demographic profile (age, gender), four variables i.e., name of specialty, year of postgraduate training, socioeconomic status, any ongoing research in the department; and 58 items of self-directed learning readiness scale. The link of this proforma was sent to 130 postgraduate trainees working in the above mentioned departments at that time. Out of 130 questionnaires 110 responses were received. That turns out to be 85% response rate. Other postgraduate trainees were either on sick leave or educational leaves for their upcoming exams.

Data was analyzed using SPSS version 26. Descriptive statistics mean and standard deviation was calculated for all variables. Data was analyzed using independent t-test for gender and Pearson Moments Correlation Coefficient for age. Analysis of variance (ANOVA) was used to compare the mean SDLR scores between different specialties, between years of training, socioeconomic classes and presence or absence of research activities ongoing in different departments. Post-hoc analysis was performed using Bonferroni correction to find significance. Results were presented as means with 95% confidence intervals. All results were analyzed keeping p<0.05 as statistically significant.

Results

Table 1 exhibits that there were more female postgraduate trainees (n=80) as compared to males (n=30). Mean SDLR score of females (213.36) was also more than males (206.13). On applying independent t-test, no statistically significant difference in SDLR score was found among male and female post graduate trainees.

	Mean	N	Standard Deviation
Gender			
Male	206.13	30	27.186
Female	213.36	80	35.569
Total	211.39	110	33.527
Age (years)			
24	201	1	.
25	207	2	42.426
26	207.9	10	28.49
27	223.35	17	31.369
28	198.92	24	40.562
29	202.5	16	25.56
30	207.69	13	23.027
31	216.44	9	32.261
32	212	3	16.462
33	236.4	10	44.313
34	211	2	32.527

37	252	1	.
39	213	2	7.071
Total	211.39	110	33.527
Socioeconomic status			
High class	219.2	10	20.324
Middle class	209.78	97	33.833
Poor class	237.33	3	54.93
Total	211.39	110	33.527

Table 1: Mean total SDLR score with respect to gender, age and socioeconomic status

As far as age of the PG trainees is concerned, Table 1 shows that postgraduate trainees ranged in age from 24 to 39 years. The age category 24-29 (n=54) was the largest group, which consisted of 42% of the sample. Maximum mean score of SDLR was found at age of 37(n=1) (252.00) and 33 years (n=10) (236.40) respectively (Figure 1).
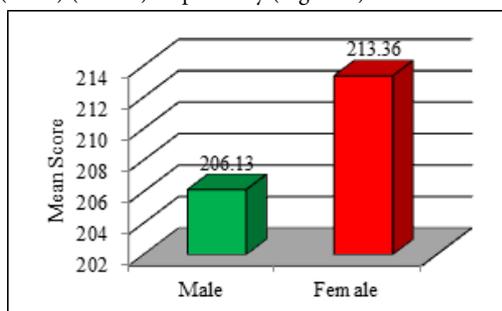

Figure 1: Mean SDLR score of male and female post graduate trainees

Pearson correlation coefficient showed a p=0.114 which was >0.05, so positive correlation was observed with age but no statistically significant difference was observed in mean SDLR score among different age groups.

Result shows that mean total SDLR score was highest in postgraduate trainees with poor socioeconomic background 237.33. This shows an above average self-directed learning skill of poor postgraduate trainees. Postgraduate trainees of middle class showed lowest mean total SDLR of 209.78.

Using ANOVA, no statistically significant difference was found in mean total SDLR score of postgraduate trainees across three socioeconomic classes (p=0.280).

Table 2 depicts the highest number of postgraduate trainees and highest mean SDLR score in postgraduate trainees of Gynecology and Obstetrics (n=28), (230.11) whereas lowest mean total SDLR was observed in postgraduate trainees of Gastroenterology (n=6) (189.67) and Radiology (n=17) (192.88).

	Mean	**N**	**Standard Deviation**
Specialties			
General Surgery	206.08	12	13.166
Gynecology/ Obstetrics	230.11	28	27.658
Radiology	192.88	17	24.889
Anesthesia	201.42	12	22.456
General Medicine	221.28	25	44.796
Cardiology	195.25	4	8.18
Neurology	198.33	6	26.258
Gastroenterology	189.67	6	40.461
Total	211.39	110	33.527
Year of training			
1st Year	204.65	20	26.017
2nd Year	218.5	20	24.812
3rd Year	218.21	33	38.785
4th Year	208	23	42.254
5th Year	200.36	14	19.852
Total	211.39	110	33.527

Table 2: Mean total SDLR score with respect to specialties and year of postgraduate training

ANOVA was applied to see its significance, p value turned out to be 0.02 which was less than 0.05. Results showed a statistically significant difference in mean of total SDLR score across different specialties.

Table 2 further shows the year of training and found that mean total SDLR score initially increased from 204.65 to 218.50 from 1st to 2nd year but then remained static and start dropping at regular pace and became lowest at fifth year (200.36).

By using ANOVA, calculated p value was 0.309 showing no statistically significant difference of mean total SDLR across five years of post-graduate training.

Table 3 indicates the departments in which research activities were ongoing; their postgraduate trainees showed an average SDLR score of 215.41. However, postgraduate trainees of departments in which no research work was ongoing or those postgraduate trainees who had no idea if any research is ongoing or not have shown below average SDLR score i.e., 201.35 and 200.93 respectively.

Research Activity	**Mean**	**N**	**Standard Deviation**
Yes	215.41	79	35.467
No	201.35	17	27.347
May be	200.93	14	24.678
Total	211.39	110	33.527

Table 3: Mean total SDLR score of postgraduate trainees with respect to an ongoing research activity in departments

Using ANOVA, no statistically significant difference was found in mean total SDLR score of postgraduate trainees with respect to research activities in their respective departments (p=0.134) (Figure 2).
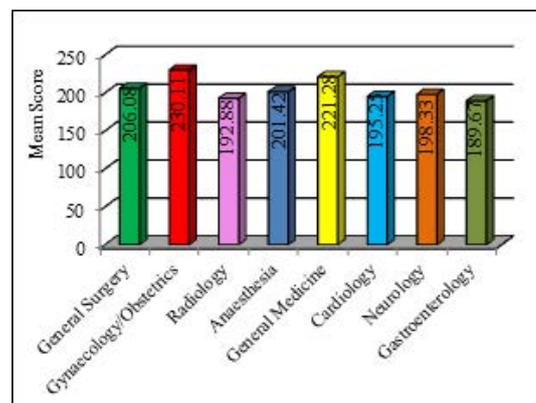

Figure 2: Mean SDLR score in relation to specialties

Discussion

Self-directed learning plays an important role in promoting lifelong learning during medical education. Present study determined the self-directed learning readiness among postgraduate trainees at Shifa International Hospital. To acquire appropriate results, total 110 postgraduate trainees were included in the study and found that most of them were females 72.7% (80) while only 27.3% (30) were male postgraduate trainees. The findings of a recent study carried out by Yang and teammates are comparable with our study results who reported that majority (58.4%) of postgraduate trainees were females and 41.6% were males [10]. In our study both genders had average score but females had better mean SDLR score (213.36) than males (206.13). The results of our study showed better SDLR score than Yang and teammates study who asserted that both genders had below average score and male participants had more mean SDLR score (78.48+11.28) than female participants (74.45+10.43) [10]. A study carried out by Sahoo fellows showed similar results that both genders had average score and females had more mean SDLR score (214.15+19.73) than males (207.95+17.983) [13]. Alfadhel and comrades also confirmed in their study that both genders had an average score but females had more mean SDLR score (221+21.9) than males (220+23.69) [9]. However, two studies performed by Kar et al. and Madhavi et al. highlighted that both genders had below average score but male participants had more mean SDLR score than female participants [14,16].

As far as age of postgraduate trainees is concerned, study highlighted that age range was between 24 to 39 years. Among these trainees, 22.7% had below average SDLR mean score while remaining significant proportion had average or above average mean SDLR mean score. The mean total SDLR score among PG trainees was found 211.39. Positive correlation was observed with age but no statistically significant difference was observed in mean SDLR score among different age groups. A study carried out by Yang and teammates indicated that postgraduate trainees age range was between 20 to 42 years and the mean age was 25.01+2.69 years which showed negative association with SDL scores (P>0.05) [10]. The results of a study carried out by Slater and companion demonstrated that SDLR score was found elevated among older postgraduate trainees than younger trainees, however, a weak positive relationship was found between age and SDLRS scores (r=0.266, P<0.001) [5].

It is believed that good socioeconomic status can boost the SDLR of postgraduate trainee. But study disclosed that SDLR score was highest among post graduate trainees who belonged to poor class (237.33), followed by high class (219.20) and middle class (209.78). These findings could be explained by the fact that these PG trainees did not have much educational logistics available to them and they focus more on their self-directed approach for improvement. The findings of our study are comparable with a study performed by Yang and teammates who confirmed that SDLR score was found better among post graduate trainees who belonged to poor class (80.31+10.14), followed by high class (77.53+11.60) and then middle class (73.53+10.17) [10].

It was found that majority of specialties (such as radiology, anesthesia, cardiology, neurology, gastroenterology) showed below average SDLR score and general surgery, general medicine showed average SDLR score while only gynecology and obstetrics showed above average score. Statistically significant difference was found in mean of total SDLR score across different specialties (P 0.02). As none of the studies have been done on postgraduate trainees of different specialties, so it is not possible to do a direct comparison at the moment. However, a study undertaken by Slater and companion found statistically significant difference in SDLRS mean scores across the disciplines (P<0.001). The difference

in mean scores of SDLRS was seen statistically significant between PG trainees in (a) health sciences (health promotion, therapeutic recreation, healthcare services management) (209.47 ± 27.21) and occupational therapy (220.29 ± 24.86; p=0.05); (b) sports and exercise science (207.51 ± 22.66) and physiotherapy (219.23 ± 22.40; p=0.016) and (c) sports and exercise science (207.51 ± 22.66) and occupational therapy (220.29 ± 24.86; p=0.003) [5].

When the mean SDLR score with respect to year of post graduate training was assessed, study demonstrated that score was initially increased from 204.65 to 218.50 from first to second year but then remained constant (218.21) at third year and start declining from fourth (208.00) year to fifth year (200.36). A study conducted by Prem kumar and coworkers reported that average SDLR mean score was noticed among first and second years PG trainees and was decreased during third and fourth years as both years postgraduate trainees had below average self-directed learning readiness score [8]. A recent study carried out by Koirala and associates also elucidated that young postgraduate trainees had more self-directed readiness as compared to senior trainees [17]. But a study done by Kidane and collaborators confirmed a significant increase in SDLR score on comparing the students of first year (212.3+36.23) with students of second year (238.2+26.90) (P=0.002) [18]. Another study performed by Salih and partners asserted that junior trainees had more self-directed readiness than senior trainees (P=0.022) [19].

During study last variable researched was the effect of ongoing research activities on SDLR of PGTs. This variable has not shown any direct influence on SDLR, though mean SDLR of PGTs working in departments with active research was high. During analysis while finding out the reasons of high SDLR in gynaecology PGTs research activities in that department were also found out to be higher as compared to others. Leatemia and colleagues emphasized that environment created at learning places influenced SDLR of students [3]. This environment included educational facilities, logistic support, and promoting conducive academic circumstances. A study undertaken by Nurrokhmanti and collaborators also argued in favor of academic environment as important external influencing factor of SDLR [20].

Conclusion

Postgraduate training made the basis of future expert physicians. Considering the importance of postgraduate training in medical field, this study was planned to determine the self-directed learning readiness of post graduates working in different clinical specialties and examine factors that affect it. Study concluded that self-directed learning readiness of PGTs of Gynaecology was highest with average SDLR in General Medicine and General Surgery PGTs. The SDLR was found more among PGTs with poor socioeconomic status and in departments with high ongoing research activities. However, SDLR has not shown any significant difference with respect to gender and age.

Author's Contribution

Dr. Saeeda Yasmin has substantial contributions to the conceptualization, design, analysis, and interpretation of data and drafting. Dr. Hashaam Bin Ghafoor was involved in drafting, analysis and data interpretation. data. Dr. Ahmed Ehsan Rabbani has done the Design, analysis, and interpretation of the data. Dr. Nasir Ayub has the approval of the version to be published. Dr. Salman Shafi Koul has drafted and approved the version to be published. Dr. Fazal-e-Rabi Subhani and Dr. Fazal-i-Akbar Danish have done a critical revision of important scientific content and approved the version to be published.

Declaration

Author declared no conflict of interest.

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