PERCEPTIONS OF SUPERVISORS REGARDING THE UTILITY OF E-LOG SYSTEM FOR MONITORING POSTGRADUATE TRAINING - A QUALITATIVE STUDY: RAWALPINDI, 2016

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ABSTRACT

Objective: To explore supervisors' perceptions about the utility of E-Log system used for monitoring post-graduate training.

Study Design: Interpretivist qualitative research.

Place and Duration of Study: Military teaching hospitals (Military and Combined Military) and Institutes (Armed Forces Institutes of Radiology, Cardiology, Ophthalmology, Mental Health, Urology, Pathology) at Rawalpindi, from Jul to Dec 2016.

Material and Methods: Maximum variation purposive sampling technique was used to collect data from postgraduate training supervisors from various specialties with more than four years teaching experience. Participants were interviewed using a semi structured interview guide. The interviews were digitally recorded and transcribed. Thematic analysis of the qualitative data was carried out using software NVivo 7. Tree nodes (codes) were developed and arranged in different categories leading to discrete themes.

Results: Data were collected from 16 postgraduate training supervisors, three of them being females. A total of 101 codes were developed, leading to 17 sub-themes which gave rise to four distinct themes elaborating awareness about the importance of E-log system as a tool for monitoring of postgraduate training, its utility, factors affecting the working of this system followed by suggestions to improve the system and thus its utility.

Conclusion: The E-Log system was considered a convenient means of monitoring postgraduate training and had conditional acceptability among supervisors. It was felt that there was a need to enhance awareness regarding the importance and utility of this system. Key suggestions offered were organizing mandatory medical education workshops, arranging teaching videos, improving the software and the way of its checking, introducing faculty committees, limiting number of trainees per supervisor, taking steps against password sharing and a better communication between the monitoring body and supervisors.

Keywords: Assessment, Interpretivist qualitative research, Medical education, Postgraduate training.

INTRODUCTION

Assessment is the cornerstone of any educational process as it ensures optimization of the capabilities of all learners[1]. Assessment methods have been evolving with the passage of time and workplace-based assessment has been advocated for monitoring postgraduate training in medical education. Logbook has long been used as one of the workplace-based assessment tools[2]. During the past few years the electronic format of logbook has gained importance because of increasing access to computers and advancements in information technology[3-6].

Through electronic logbook, the recorded entries are immediately available to the supervisor for evaluation, along with options for giving a structured feedback to the resident and the monitoring body. It is, thus, a good tool which simplifies documenting and analyzing data about clinical activities of residents and is considered a step forward in monitoring post-graduate training[5]. Such logbooks are in use in many parts of the world and have been found to add convenience and versatility to record

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keeping[7]. The College of Physicians and Surgeons Pakistan (CPSP) had been using conventional logbooks for monitoring postgraduate training throughout the country up to 2011. E-Logbook program was implemented in 2011 and since then it is being used for monitoring postgraduate training[8].

A mixed method study by Iqbal *et al* in 2014, looked into perceptions of trainees about E-Logbook and reported their high level of satisfaction[9]. However, it overlooked supervisors' perceptions, who play a key role in the E-Log system. Gondal *et al* in 2017 reported a wide acceptability among supervisors and suggested steps to improve the usage of E-Log system[10]. However this was a descriptive cross sectional study in which an electronic questionnaire with limited options was distributed to supervisors through E-log system by CPSP thus having the potential of affecting the opinion of participants. Apropos, a qualitative study was considered imperative to get an insight into how supervisors independently perceived the use of E-Log system for monitoring the post-graduate training in a completely free atmosphere. The findings and recommendations of this study could be utilized by all stake-holders to improve training program, thus leading to better patient care.

MATERIAL AND METHODS

This qualitative study with Interpretivist approach used the concept of utility index as theoretical framework[11]. The study population consisted of CPSP supervisors working in military teaching institutes of Rawalpindi. The study was carried out in military teaching hospitals (Military and Combined Military) and institutes (Armed Forces Institutes of Radiology, Cardiology, Ophthalmology, Mental Health, Urology, Pathology) at Rawalpindi, after administrative approval from the competent authority. The study was also approved by KMU-Advanced Studies and Research Board and KMU-Ethics Board, Khyber Medical University Peshawar. Saturation technique was used to decide the sample size where further interviewing was stopped when new ideas ceased coming forth. Sixteen supervisors including both genders from Anesthesiology, Cardiac surgery, Cardiology, General surgery, Gynecology & Obstetrics, Nephrology, Ophthalmology, Oral and Maxillofacial surgery, Orthopedics, Pathology, Psychiatry, Radiology and Urology were thus included in the study, using maximum variation purposive sampling technique[12,13]. All participants had at least 4 years of postgraduate teaching experience.

All participants were briefed about the nature and purpose of the study. They were assured about the confidentiality of their opinions and were informed that participation in this study was purely on voluntary basis and they were free to opt out of it. Their written consent was obtained before the interview.

An interview guide was developed for the semi structured interviews planned for carrying out the study. Themes were identified from the literature for developing questions to explore these themes in light of discussion among co-authors and with specialists in health professions education. Finally pilot interviewing was done to authenticate the data gathered from these questions. Potential sources of bias were addressed by asking open ended questions, avoiding asking leading questions, encouraging free expression, ensuring confidentiality, discussing questions with peers and later requesting participants to review results.

Interviews were transcribed using transcription software, Inqscribe[14]. Data were analyzed by manual coding of the printed interviews followed by using computer assisted qualitative data analysis software (CAQDAS), NVivo 7 to develop categories and themes[15]. Axial coding was used by the co-authors for re-evaluation and identifying categories to analyze how they were linked for building a conceptual model and themes for subsequent interpretation[16].

RESULTS

A total of 16 supervisors participated in the study. All of them were actively involved in postgraduate training for at least 4 years and

have been using E-log system with variable computer literacy. All participants were working in military training institutes and belonged to different seniority and specialties. Among the participants 13 were males and three were females.

During thematic analysis common words, phrases or sentences, used by the participants and depicting concepts were identified and abbreviated. A total of 101 such codes were identified and labeled.

On the basis of conceptual congruence and axial coding, categorization and major pattern generation was done. Further analysis, revealed following themes.

Theme awareness explored the level of supervisors' awareness about monitoring the postgraduate training, use of E-Log system for such monitoring as well as various options available in this tool. Most of the participants agreed that there had to be some form of monitoring of the postgraduate training. However, only a few supervisors were aware of all options available in the E-Log system. Very few supervisors had a regular routine of checking the E-Log system. Most of them checked it only when prompted by residents or CPSP. Some checked it just once in six months.

Majority of supervisors agreed that manual system was obsolete and E-Log system was the need of the time because of its dynamic nature, better documentation and many other available options, although some saw no difference between the two.

Theme Utility focused on supervisors' perceptions about the utility of the E-Log system and was clearly segregated along the components of the utility index formula. Majority of supervisors expressed reservations about the reliability and validity of data. They admitted that verification of each entry of the logbook was difficult. Validity of documentation for assessing surgical skills was particularly questioned. Majority of the participants agreed that super-

Table-I: Results for theme I on awareness about the E-Log system.

Themes, Sub Themes, Categories, Sub Categories	Codes	Sources	Ref	Quotes
1. Awareness	AW	0	0	
a. Why Logbook	WL	4	7	Logbook is an essential part, wherever you go in the world.
b. Introduction of E-Log system	Intr	16	21	I am not very well conversant with that.
c. Options	Op	1	1	
i. Documentation	D	15	27	It ensures that the trainees document whatever they are learning.
ii. Feedback	Fbk	16	33	I found the feedback system to be quite useful.
iii. Corrective Feedback	CFbk	6	7	I just approve the entries. I have not given any specific feedback about any particular trainee.
Documentation	CFbk-D	5	6	The spelling mistakes are so many that, you know, (laughs) one has to send it back.
Management	CFbk-M	4	5	I give a corrective feedback and ask them to rectify it. Sometimes I feel the case wasn't properly managed.
iv. Android App	Andr	11	13	I am not aware of it.
v. CME Record	CME	3	5	
vi. Competency Chart	C-Cha	1	2	
d. Routine	R	0	0	
i. Regular	RR	9	9	I generally check it twice monthly or sometimes monthly.
ii. Irregular	RI	7	9	Erratic! . . . . I mean that I check the system 'not regularly'.
iii. Prompted	RP	2	4	Usually I am prompted to check the logbook after about 6 to 8 months by my trainees.
e. Comparison with manual logbook	CwM	15	24	To me it is much better.

visor had a pivotal role in ensuring the quality of data and honesty was considered to play a vital role in this process.

considered it useful if the option of corrective feedback was effectively utilized; while few felt that there was a possibility of using the data for

Table-II: Results for theme II on utility of the E-Log system.

Themes, Sub Themes, Categories, Sub Categories	Code	Sources	Ref	Quotes
2. Utility	U	2	2	
a. Quality	Q	3	3	
i. Reliability	Rel	9	16	Reliability and validity of logbook entries is very doubtful
Supervisor's role	Rel-S	11	16	It depends on the supervisor to ensure that.
ii. Validity	V	8	11	Surgical skills cannot be measured by documenting cases.
b. Educational impact	Ei	7	9	
i. Conditionally useful	Ei-cU	4	9	If the residents wholeheartedly, truly and religiously fill the logbook entries as per the cases seen in the department.
ii. Somewhat useful	Ei-UU	5	6	It is just a documentation and you are informing the other party that this is happening and we are doing this.
iii. Useful	Ei-U	7	8	I guess this is very important. It is one of the best tool we can have.
Corrective feedback	EiU-CFbk	2	2	The corrective feedback given to the trainee helps him a lot in improving things.
Quality Assurance	EiU-QA	2	2	You improve things, you know like quality assurance etc.
Research opportunities	EiU-R	4	6	Tremendous. You actually generate a lot of data. You can verify that data and later publish it.
Self esteem	EiU-Est	1	1	It brings a sense of self esteem in residents as their work experience is being recorded by themselves and constantly scrutinized and supervised.
Structured documentation	EiU-sD	2	2	It gives a structure to the training and while writing these entries he has an idea about the steps involved in the procedure.
iv. Useless	Ei-UL	2	3	None. There is no educational impact.
c. Cost effectiveness	C	16	17	Excellent. It costs the trainee nothing rather.
d. Feasibility	F	7	8	I think it is very feasible. This is a single most advantage of this system. It is very very feasible.
i. Conditional	F-Cond	1	1	We have to make a balance between the workload, the number of trainees and this kind of activities.
ii. Convenient	F-Con	1	1	
Flextime	Flexi	1	3	
Monitoring body	FCon-Mb	1	1	
Residents	FCon-R	1	1	
Supervisor	FCon-S	5	5	If compared to manual logbook it is very feasible and convenient. You're free of space and time.
iii. Cumbersome	F-Cmb	2	4	It is slightly cumbersome. I need the internet, a computer and an environment where I can sit and do this job.
e. Acceptability	A	5	8	
i. Better documentation	A-bD	7	8	It enables timely and regular entries to be made by the residents.
ii. Grades residents	A-gR	2	3	
iii. Negative perception	A-Np	3	5	
iv. The Zeitgeist – A way forward	A-Zgst	5	9	We have to go along with the zeitgeist which is the spirit of the time.

Although some participants felt that E-Log system had no educational impact, others

research, quality assurance and structured documentation. All participants were of the view

that E-Log system was cost effective for all stake-holders.

Using E-Log system was generally considered feasible by most of the participants.

Table-III: Results for Theme III on Factors affecting the utility of E-Log system.

Themes, Sub Themes, Categories, Sub Categories	Codes	Sources	Ref	Quotes
3. Factors	Fac	1	1	
a. Educational environment	Ee	0	0	
i. Busy schedule & Workload	BS & Wkl	11	19	Because of the busy schedule of consultants, they cannot see it. They cannot spare that much time.
ii. Computer & internet	C&I	5	9	There is an issue of availability of IT system including computers and internet.
iii. Culture	Cul	3	6	I think many of the supervisors are not regular because still the culture of log is not prevailing.
b. Supervisors & Residents	S&R	3	4	
i. Delayed & lack of corrective response	DR & xCFb	13	14	I think we have this kind of culture that giving a constructive feedback is not there and most of the time this logbook is just taken as a tick box exercise.
ii.Password sharing	PSW	16	34	Yes it is happening.
iii. Number of residents	R-Num	4	7	The number of trainees for each supervisor should be restricted.
iv. Poor time management	PTM	5	8	It needs a lot of resolve and time management to give their electronic feedback and check the entries.
v. IT-shy supervisors	ITS	4	6	The problem with our seniors is not the system but the shyness about the IT. They are reluctant to use it.
vi. Image of supervisor	S-Im	8	10	There is no alternative to a motivated teacher and enthusiastic teacher.
vii. Supervisor – the key	S-Key	7	17	Supervisor is the main key to this system.
viii. Supervisor's lack of interest	S-xInt	4	7	For a lot of people it's a tick box exercise.
No educational impact	xE	5	6	So at the moment it doesn't have an educational impact but it could.
Residents' casual attitude	R-Cas	6	10	The real problem is with the trainee. Either they don't do it or they do it all at once.
Time consuming	Tc	2	3	It is time taking.
Unreliable data	URD	1	1	
Waste of time	WoT	3	4	This is just a whiling away time.
ix. Honesty	H	5	14	Depending upon supervisor's commitment as well as honesty.
x. Learning curve	Lc	2	3	I think the system will take time to establish.
xi. Supervisor–resident communication	C-S&R	1	1	The communication between trainee and supervisor about the book is less.
c. E-Log software	ELS	2	3	It is definitely an advancement.
i. Boring	B	1	1	Not an interesting job.
ii. Convenient	Con	1	1	
iii. Cumbersome	Cbm	1	2	It's more of a cumbersome procedure.
iv. Potential hacking	Hk	1	1	
v. Tick-box exercise	TBE	2	2	
d. Monitoring body	Mb	0	0	
i. Effective monitoring	EfM	7	12	Nothing can be achieved without a degree of obligation and compulsion.
ii. Monitoring body-supervisor communication	MbSC	7	9	There is a huge gap of communication actually.

One of the reasons given for the feasibility was its convenience to use because of its flexibility about time - the so called Flexi-time, both for supervisors as well as residents. Majority of the participants showed acceptability towards the system as a tool for monitoring the postgraduate training.

Theme Factors affecting the utility of E-Log system included the educational environment, net and a lack of culture of providing feedback to be the limiting factors leading to infrequent checking of the E-Log system. Even trainees were mentioned to find it difficult to timely document their work. Characteristics of supervisors and residents were also considered to be important factor affecting the utility of E-Log system. Unreliable data, perceived poor educational impact, lack of time and residents' casual attitude were considered to be major factors resulting in

Table-IV: Results for theme IV on suggestions for improving E-Log system.

Themes, Sub Themes, Categories, Sub Categories	Code	Sources	Ref	Quotes
4. Suggestions	Sug	0	0	
a. Enhanced awareness	EAw	0	0	
i. Mandatory workshops	MWs	4	6	The college should make mandatory for them to attend certain workshops on medical education.
ii. Teaching videos	Vid	2	2	For teaching purpose they can make YouTube videos.
b. Improved E-Log system	iELS	5	13	We have moved now from logbook to feedback and I would like the platform to further enhance it to e-learning.
i. Software improvement	Swimp	2	4	They should adopt simpler and user friendly interface.
ii. System improvement	Simp	0	0	
Time bound	Tb	3	7	Trainee should not be able to put in entries which are more than two weeks old and the supervisors too should be bound to clear entries within a period of two weeks.
Faculty committees	Fc	3	3	Make some committees in each specialty who will very closely monitor the entries.
E-Log as part of exam	ex	1	3	Keep this E-Logbook as one component of your examination system when you are going for practical.
Hard copy or certificate	HCC	2	4	The trainee should be able to have a printable hard copy of the logbook for that purpose. Alternatively CPSP should give a certificate to that effect.
c. Better monitoring	bM	0	0	
i. Better communication	bCom	4	5	I think there is need of more communication between supervisors and CPSP through E-Log system.
ii. incentives for supervisor	S-Inc	1	1	They should give more incentives to supervisors for checking E-Log system.
IT coordinator	ITC	1	4	Supervisors should have a trained individual like clinical coordinator.
More powers	S-Pwr	2	3	Moreover the institution of supervisor has to be given more respect and more leverage.
i. Number of residents	Sugg-Rnum	3	3	They should not give more than single figure trainees even to the best of the supervisors.
ii. Password sharing	Sugg-PWS	9	11	Think of bio identification like we do for trainees.
iii. Training institutes	Inst	2	3	RTMC has to monitor the training institutes.

supervisors and trainees, monitoring body (CPSP) and the software itself. In educational environment participants highlighted supervisors' busy schedule and heavy clinical workload, unpredictable availability of computers and inter-lack of interest by supervisors. The most alarming issue highlighted by some participants was that of many supervisors sharing password with their residents for checking their own entries. Almost all participants were aware that the practice was

detrimental to the very purpose of the system and needed to be stopped. Large number of residents per supervisor, poor time management, IT-shy seniors and a lack of supervisors - residents' communication were other factors highlighted by the participants. Mixed views were obtained about the system software itself where some considered it to be convenient while others thought it was quite cumbersome and time consuming. A lack of frequent and meaningful communication between the monitoring body and supervisors was considered to be negatively affecting the utility of E-Log system.

Lastly, theme Suggestions comprised of recommendations by participants for improving the system. Enhancing awareness was suggested to be ensured by mandatory medical education workshops and arranging teaching videos. Improving the system was recommended which included improving the software itself along with improving the system by making it time bound, having supervising faculty committees, issuing a certificate for completing the entries and making it part of examination. Many suggestions were given for improved monitoring of postgraduate training including better communication between the monitoring body and supervisors, having incentives for supervisors, limiting the number of residents per supervisor, ensuring steps against password sharing and finally monitoring the training institutes for procedures mentioned in E-Logbook.

DISCUSSION

This study explores awareness about the importance of E-log system as a tool for monitoring of postgraduate training, its utility as a monitoring tool and factors affecting its working along with suggestions to improve the system and thus its utility.

Awareness about the importance of an assessment technique and the available options is of paramount importance for its successful implementation. Whereas, in this study, majority of supervisors agreed with the importance of monitoring the postgraduate training, many of them were skeptical about E-Log system being a suitable tool for workplace based assessment. One of the reasons for this skepticism was a lack of awareness of the available options among them. Therefore, they considered the E-Log system as merely a way of documentation, akin to a 'tick-box exercise'. Very few supervisors thus made use of all the available options even if they were aware of their existence. The CME credit system and creating competency chart options were little known, highlighting the importance of enhancing awareness among the supervisors as well as trainees about the available options and their maximum utilization for better monitoring of the postgraduate training. This was in accordance with recent studies by Iqbal *et al* and Gondal *et al* which suggested arranging workshops for increasing awareness of the stakeholders regarding more effective use of the E-Log system and alleviating the hindering reasons for a better training monitoring[9,10].

Reliability and validity of logbook and thus E-Log system have been questioned for long[17]. Majority of the supervisors were of the view that mere documentation of clinical procedures could not predict competence of the resident. The validity of mere documentation for checking procedural skills is even more debatable[18]. Logbook is often considered to be an unreliable tool for assessing procedural competence[19]. The participants, therefore, were of the opinion that the responsibility of ensuring better quality of the entries primarily rested with the supervisors. This was in line with Hunter *et al* who argued that one of the reasons of failure of any log system was leaving its quality to residents and never inspecting it[20]. The monitoring body has to educate supervisors about their responsibility.

Documenting clinical exposure using E-Log system, in line of the course curriculum, can potentially have educational impact and improve the standard of training provided both resident and supervisor take the system seriously and utilize all its options with honesty and commitment. The educational impact also includes using the data for research purposes and quality assu-

rance of training program, although, Achuthan *et al* showed that quality of the data had to be verified before using it for research purpose[21]. The structured documentation helps residents to have a better understanding of the cases and procedures. The corrective feedback given by supervisors leads to improved skills.

One of the oft-quoted benefit of E-Log system is its feasibility, not only for residents and supervisors, but also for the monitoring body[7]. The system is convenient to use because it offers flexibility of time and place. The inconvenience reported by some supervisors more likely appears to be either because of poor time management or inability to keep pace with fast developing information technology. All participants in this study were of the view that E-Log system was cost effective and had high acceptance among residents and supervisors[9]. This high acceptance was because of the better documentation the system offers along with dynamic monitoring of the training and improving skills by giving corrective feedback.

This study highlighted multiple factors affecting the utility and performance of E-Log system. These include heavy workload and busy schedule of supervisors, dependence on internet and a lack of culture of giving corrective feedback or using internet for educational purposes[22]. Delayed response and lack of giving corrective feedback due to any reason as well as large number of residents per supervisor have also been found to adversely affect the utility of E-Log system. The issue of password sharing has not been mentioned in any previous study and needs a detailed exploration along with possible remedies, if the monitoring body intends a successful implementation of the system.

The voluntary nature of E-Log system and lack of effective communication between the monitoring body and supervisors also lead to a lack of interest by stake holders and makes it a tick box exercise for many. This study emphasized the need for some sort of obligation and making residents' entries and supervisors' response time bound. In addition, personal traits of supervisors like honesty, dedication, motivation, enthusiasm, self-discipline and time management were considered to play important role in the utilization of the system.

The study has shown that many of the factors negatively affecting the utility of E-Log system were because there was lack of awareness among the supervisors about the importance of having a standardized and structured training which has a system of monitoring. Introduction of mandatory medical education workshops for supervisors' awareness focusing on motivation, time management and the use of E-Log system has been suggested. Better communication between the monitoring body and supervisors, limiting the number of residents per supervisor, introduction of CME points for supervisors and provision of IT coordinators in every department to facilitate the use of E-Log system are the incentives likely to improve supervisors' interest.

One limitation of this study was the selective nature of the study population. All participants belonged to the same Military environment that makes it quite contextual. An attempt was made to deal with this limiting factor by using maximum variation sampling to include supervisors from different specialties and seniority, as well as from different administrative units. Another limitation was the inability to ensure a proportionate number of female participants as only three female supervisors were included in study. This was predominantly because of their limited number though even among the available female supervisors many were not willing to be part of the study. The unwillingness was mostly because of digital recording of the interview and apprehensions about the confidentiality.

CONCLUSION

The E-Log system was considered a convenient means of monitoring postgraduate training and had conditional acceptability among supervisors. It was felt that there was a need to enhance supervisors' awareness regarding the importance and utility of this system. Key

suggestions offered were organizing mandatory medical education workshops, arranging teaching videos, improving the software and the way of its checking, introducing faculty committees, limiting number of trainees per supervisor, taking steps against password sharing and a better communication between the monitoring body and supervisors.

CONFLICT OF INTEREST

This study has no conflict of interest declared by any author.

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