Implications of Introducing Reflective Practice to the Family Medicine Residency Program in Qatar

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Abstract

Background: Reflection is an essential and useful method used in medical education to enhance self-awareness, develop new understanding of experiences, as well as to examine one's own reasoning, analytical abilities and decision making skills. The department of family medicine, incorporated in October 2015, reflective case practice into the training curriculum for Family Medicine Residents.

Aim: Our main goal is to assess the implications of introducing reflective practice in Family Medicine Residency Program on residents' perceptions in Qatar.

Methods: In this action research, we used a cross-sectional study design. A purposive sample of 26(34) residents were recruited. Inclusion criteria: all current PGY1-PGY3 residents. PGY4 residents as well as residents who had finished the 4 years Training were excluded.

Results: The study included 26 residents from PGY-1, PGY-2 and PGY-3. More than 80% of respondents thought that the sessions were useful and enjoyable. Over 88% believed that the sessions boosted their interest in family medicine as a specialty and improved their patient care skills as they were positively influenced by exposure to others' experiences. However, 27% of the residents felt that they did not have enough time to reflect on their own experiences. The results generally showed significantly more positive influence on PGY-2 and PGY-3 compared to PGY-1 residents. On the other hand, the written reflective-based case assessments showed moderate levels of writing skills with slightly higher scores superiority for PGY-2 residents.

Conclusion: By enhancing reflective practice, family medicine residents will be able to improve their insight into their strengths and weaknesses, and develop an action plan to mitigate weaknesses and improve their case management in the future. This will help to improve competencies for a better Primary Care work force in PHCC .

Key words: Reflective practice, residents, Family medicine

Introduction

Reflection is an essential and useful method that has been used in medical education to enhance self-awareness, develop new understanding of the experience as well as to examine one's own reasoning, analytical abilities and decision making skills(1). Lewis et al. highlighted the value of reflective practice in the development of physicians(1). They explained that it ensues by engaging health care professionals in critical thinking to analyze their own performance and decision making in the learning process(1). Boud et al. defined reflective practice as *"Intellectual and affective activities in which individuals engage to explore their experience in order to lead to new understanding and appreciation (p. 19)"(2)*.

Physicians are usually working in complex situations. In addition to addressing complex medical problems, the physician must also manage patients' and sometimes their own emotions along with empathy and appreciation. The ability to manage emotions is essential for physicians(3). Teaching residents how to reflect and facilitating their practice of reflection will aid their development into adaptable, lifelong learning professionals(4). Shaughnessy & Duggan argued that reflective practice augments the capacity for personal development of family medicine residents (4). In contemporary medical education institutions, reflection has been introduced at all levels of health professions education(5). Educational programs are putting in tremendous effort to discover effective strategies that promote reflection(6). A systematic review conducted by Mann et al. concluded that reflection may be most useful when viewed as a learning strategy, which helps learners integrate new learning to existing knowledge and skills. This may be mostly beneficial in the clinical learning environment, where many aspects of the professional role are experienced and learned(5). Furthermore, reflection provides an opportunity to determine one's strengths and weaknesses, and to consider learning needs and future action plans(5).

Reflecting on one's work is an essential component of family practice(6,7). Bethune & Brown studied the effect of reflective case based exercises on the learning of family medicine residents. They found that among participants, reflective learning exercises were effective for many issues that emerged in practice. They argued that written, reflective exercises can help to bridge the transition between clinical experience and current knowledge by encouraging thoughtful analysis and deeper understanding(6). It contributes to greater understanding of the patient-doctor relationship, and provides learners with personal insights as they develop as professionals(6). Family Medicine residency training requires long working hours and less time for rest and balance. Adding social pressure and some other factors made training programs search for the best practice to aid residents acquire a broad range of technical, cognitive, and emotional skills to gain professional competence. Reflective practice is one of the best ways to help residents achieve their goals. It was found that introducing reflective practice in many residency training programs requires overcoming many obstacles from the extended working hours to overcoming the cultural resistance to creative activities that may still be perceived as less relevant to residency training(7). Bethune & Brown suggested that reflective activity would be further enhanced if the discussion was guided by trustful teacher and peers(6).

Methods

Setting

The Family Medicine Residency Program (FMRP) in Qatar is a 4-year program with a capacity of 10-12 new residents every year. The program is fulfilling the requirements of the Accreditation Council of Graduate Medical Education (ACGME) for the accreditation process. The goal of the ACGME outcome project is to ensure that programs assess each resident's mastery of six general competencies: medical knowledge, patient care, professionalism, interpersonal and communication skills, practice-based learning, and systems-based practice with a focus on outcomes evaluation (ACGME program requirements, 2007).

Intervention

The study took place from July 2015 to June 2016. To implement reflective practice in Family Medicine residency program, we introduced an orientation session about the reflective practice to the Family Medicine curriculum where all faculty and residents were expected to attend. During the session orientation about the nature of reflective practice a guide towards reflective cycle and reflective case-based activities was given. Gibb's cycle was adopted as a model of reflection. All residents are expected to choose a challenging case from the continuity of care clinic as they specify, reflect on it and discuss it in a specified session with peers and a faculty mentor. The faculty provides feedback on progress, covering strengths, exploring development needs and agreeing on action plans. The time given for case discussion presentation was 30 minutes and 30 minutes for reflection and discussion. At least 80% of residents were expected to discuss three reflective case-based activities with their Supervisors in the clinics, and 80% of all family medicine residents were to document at least four reflective writing essays in their portfolios. All residents who practiced reflection were to show improved awareness of the application of Practice-Based Learning and Improvement (PBLI) competency, particularly Self-directed learning and self-development as specified in residents self-assessment. Some of the data collection tools that were used in the study are mentioned below:

1. The first questionnaire contained demographic data of residents, and how frequently they applied reflective practice during the year. Close ended as well as open-ended questions were used. The questionnaire also contained a rating of the reaction of residents toward reflective case-based activities in a 1-5 Likert scale. The last part of the questionnaire was self-assessment questions on the application of PBLI competency in the domain of self-directed learning. Piloting of the questionnaire was done. Residents were given 15 minutes chance to complete the survey questionnaire during duty hours and this was done by investigators at the end of the Academic year after completion of the required reflective practice activities.

2. The second questionnaire was a validated tool of reflective practice self-assessment adopted from Lawrence-Wilkes & A Chapman/Businessballs 2015(15). This was done by investigators at the end of the Academic year after completion of the required reflective practice activities.

3. The third tool for data collection was the assessment of residents' portfolios, how many reflective writings were achieved by the end of the year (Goal 4/year) and were graded for depth of reflection by using Bradley's Criteria for assessing levels of reflection (16). Portfolios were assessed by two investigators twice during the study to monitor progress and the results at the end of the academic year were considered.

Design
In this action research, we used a cross-sectional study design. 30 residents were invited to the study and 26 residents accepted to participate and signed a waiver of a consent form. A purposive sample of 26 residents was recruited. Inclusion criteria: all current PGY1-PGY3 residents. PGY4 residents, as well as residents who had finished the four years training, were excluded.

Analysis
The data was analysed on two levels; the first level was a descriptive analysis of the respondents' background characteristics and their responses to the questions in the residents' survey questionnaire. Then, the analysis was taken further using Fisher's exact test to analyse the difference between the different PGYs with regards to their responses in the same questionnaire. The scores for the written reflective-based case were analysed using scale line graphs for the mean scores of each PGY level fitted against the temporal sequence of the four written cases. The data was analysed using Stata intercool 9.0 software.

Results

The goal of this study was to assess the implications of introducing reflective practice in Family Medicine Residency Program on residents' perceptions in Qatar. The study had used multiple sources of information to reach that aim. Starting with the residents' survey questionnaire; there were 26 responders. As shown in Table 1, there were 7 residents from PGY-1, 10 from PGY-2 and 9 from PGY-3. Almost half of the residents (52.2%) were younger than 30 years old. The number of males was slightly higher compared to females (15 and 11, respectively). About 56% of the respondents reported weekly hours of more than 60.

Table 1: Sociodemographic Characteristics of Participants

Characteristic	No.	%
Postgraduate Year		
PGY – 1	7	26.9
PGY – 2	10	38.5
PGY – 3	9	34.6
Age Groups		
< 30 years	12	52.2
>= 30 years	11	47.8
Gender		
Male	15	57.7
Female	11	42.3
Weekly working hours		
<= 60 hours	11	44.0
> 60 hours	14	56.0

Abbreviations: PGY: Post-Graduate Year

The residents were asked to answer questions related to their experience in presenting reflective cases. From Table 2, it is clearly seen that all (100%) of the 26 residents participated in reflective-based practice during the academic year and all of them presented at least one reflective-based case. Twenty-four (92.2%) residents agreed that physicians should reflect upon their practice. With exception of only one resident (who did not respond), the rest of them were willing to participate in reflective practice in the future. Moreover, 24 (92.2%) residents agreed that engaging in reflective practice would have an impact on the quality of patient care; with 23 of them agreeing that by engaging in reflective practice they would be more inclined to learn throughout their career.

Table 2: Residents' response to questions regarding their experience with reflective case presentations (N=26)

	YES	Percentage
Did you participate in reflective practice in this academic year?	26	100
Did you present any reflective-based case during this academic year?	26	100
Would you recommend that all physicians reflect upon their practices?	24	92.3
Are you willing to engage in any form of reflective practice in the future?	25	100
Do you think engaging in reflective practice would have any impact on the quality of patient care you or your colleagues provide?	24	92.3
Do you think by engaging in reflective practice you will be more or less inclined to learn throughout your career?	23 *	88.5

*Think they will be more inclined

Table 3 describes the residents' responses regarding reflective-based case discussion sessions. From the table, more than 80% thought that the sessions were enjoyable and that the sessions boosted their interest in the specialty. More than 88% thought that they were useful, improved their patient care and that exposure to others' experiences had positively influenced them. However, around 19 (73%) residents thought that they had enough time to reflect on their experiences.

Table 3: Residents' responses regarding reflective-case based discussion (N= 26)

Question	Strongly disagree count (%)	Disagree count (%)	Neutral count (%)	Agree count (%)	Strongly agree count (%)
The sessions were enjoyable	-	2 (7.7)	3 (11.5)	11 (42.3)	10 (38.5)
The sessions were useful	-	2 (7.7)	1 (3.9)	11 (42.3)	12 (46.1)
The sessions boosted my interest in the specialty	-	1 (3.9)	4 (15.4)	13 (50.0)	8 (30.7)
The sessions have improved my patient care	-	-	4 (15.4)	13 (50.0)	10 (38.6)
Exposure to others' experiences has positively influenced me	-	-	3 (11.5)	13 (50.0)	10 (38.5)
I had enough time to reflect on my experiences	2 (7.7)	2 (7.7)	3 (11.5)	11 (42.3)	8 (30.8)

No missing data

Table 4: Residents' responses regarding reflective-case based discussion by PGY level (N= 26)

Question	PGY-1 Mean ±SD	PGY-2 Mean ±SD	PGY-3 Mean ±SD	P-value
The sessions were enjoyable	3.4 (1.3)	4.6 (0.7)	4.1 (0.3)	0.025 *
The sessions were useful	3.4 (1.1)	4.7 (0.5)	4.4 (0.5)	0.005 *
The sessions boosted my interest in the specialty	3.4 (1.0)	4.5 (0.5)	4.1 (0.6)	0.017 *
The sessions have improved my patient care	3.4 (0.5)	4.6 (0.5)	4.6 (0.5)	< 0.001 *
Exposure to others' experiences has positively influenced me	3.6 (0.5)	4.6 (0.5)	4.4 (0.5)	0.002 *
I had enough time to reflect on my experiences	2.9 (1.1)	4.6 (0.5)	4.1 (0.6)	< 0.001 *

Abbreviations: SD: standard Deviation, PGY: Post-Graduate Year
*P-value significant (< 0.05)

The analysis was taken further to assess the disparity between different PGY levels regarding the reflective-based practice. From Table 5 (next page) it is clearly seen that residents in PGY-1 were significantly showing lower scores compared to senior PGY levels in enjoying the sessions, usefulness of the sessions, boosting their interest in the specialty, effect on improvement of their patient care, influence of exposure to others' experiences and whether they had enough time to reflect on their practice. Moreover, on the same queries, PGY-2 residents had statistically significant higher scores compared to PGY-3.

The residents' survey questionnaire included further questions regarding the application of practice-based learning and improvement to assess the implications of reflective practice on that competency. From Table 4, most of the residents (at least 92%) agreed that they identified strengths, deficiencies, and limits in their knowledge and expertise, they set learning and improvement goals, they identified and performed appropriate learning activities to guide personal and professional development, they systematically analyzed practice using quality improvement methods and implemented changes with the goal of practice improvement, they incorporated formative evaluation feedback into daily practice, they located, appraised, and assimilated evidence from scientific studies related to patient's health problems, they used information technology to optimize learning and care delivery, they developed their skills to be effective teachers, they participated in the education of patients, families, students, residents, and other health professionals and that they took primary responsibility for lifelong learning to improve knowledge, skills and practice performance.

Table 5: Residents' responses regarding application of practice-based learning and improvement (N= 26)

Statement	Mostly Count (%)	Often Count (%)	Sometimes Count (%)	Rarely Count (%)
I identified strengths, deficiencies, and limits in my knowledge and expertise	8 (30.8)	17 (65.4)	-	1 (3.8)
I set learning and improvement goals	12 (46.2)	7 (26.9)	6 (23.1)	1 (3.8)
I identify & perform appropriate learning activities to guide personal & professional development	9 (34.6)	13 (50.0)	4 (15.4)	-
I systematically analyze practice using quality improvement methods & implement changes with the goal of practice improvement	4 (15.4)	14 (53.8)	6 (23.1)	2 (7.7)
I incorporate formative evaluation feedback into daily practice	10 (38.5)	9 (34.6)	7 (26.9)	-
I locate, appraise, and assimilate evidence from scientific studies related to patient's health problems	12 (46.2)	12 (46.2)	2 (7.6)	-
I use information technology to optimize learning and care delivery	16 (61.5)	9 (34.6)	1 (3.9)	-
I develop my skills to be an effective teacher	13 (50.0)	11 (42.3)	2 (7.7)	-
I participate in the education of patients, families, students, residents, and other health professionals	18 (69.2)	4 (15.4)	4 (15.4)	-
I take primary responsibility for lifelong learning to improve knowledge, skills & practice performance	17 (65.4)	9 (34.6)	-	-

Table 6 shows the differences in residents' scores by their PGY level regarding the implications of reflective practice on the application of practice-based learning. The table shows a higher score for PGY-2 compared to PGY-1 and PGY-3, however, these results were statistically significant only in their response of whether they agreed that reflective-based practice had helped them to set learning and improvement goals, identify and perform appropriate learning activities to guide personal and professional development, systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement and develop their skills to be an effective teacher.

The response rate for PGYs in written reflection:

- PGY1 out of 7 residents with 4 cases expected for each one (Total 28) we had 27 cases available
- PGY2 out of 10 residents with expected 4 cases for each one (Total 40); we had none missing
- PGY3 out of 9 residents with expected 4 cases for each one (Total 36); we had only 30 cases

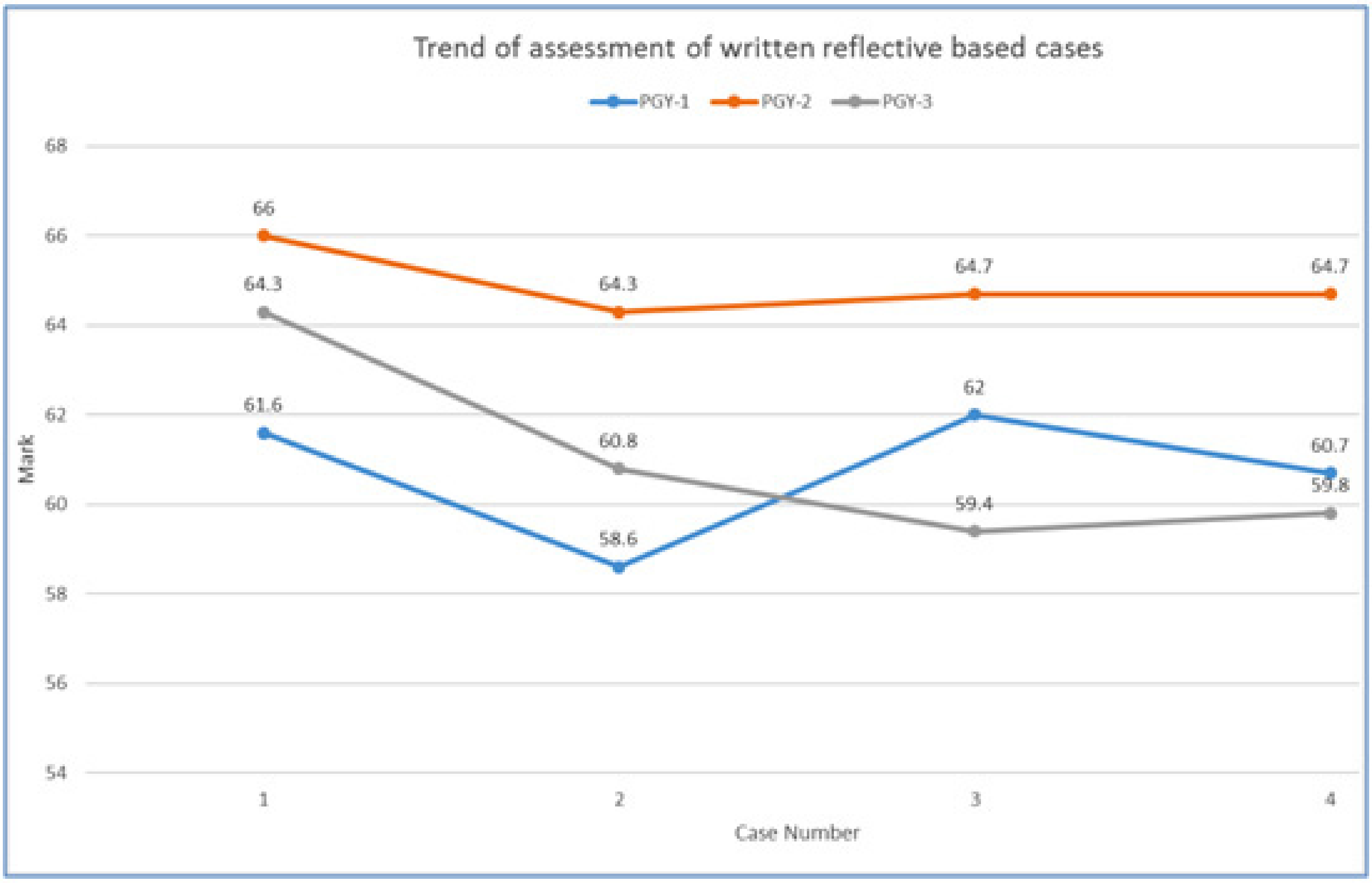
When assessing the written reflective-based cases every resident was required to write at least 4 cases in the academic year and to submit it in the resident portfolio. The assessment scores of these cases are presented in Figure 1 which shows three graph lines representing the mean score for each PGY which are fitted against the temporal sequence of the 4 cases. It can be clearly seen that PGY-2 had higher score level compared to PGY-1 and PGY-3. In addition to that, the scores of PGY-3 were higher initially than that of PGY-1 with an almost similar score in the last written case. The graph generally shows no improvement, if no change, when comparing case 4 to case 1. However, there was no sharp incline in the score levels.

Table 6: (N= 26)

Statement	PGY-1 Mean ±SD	PGY-2 Mean ±SD	PGY-3 Mean ±SD	P-value
I identified strengths, deficiencies, and limits in my knowledge and expertise	3.1 (0.4)	3.3 (0.9)	3.2 (0.4)	0.894
I set learning and improvement goals	2.3 (0.5)	3.4 (1.0)	3.6 (0.7)	0.008 *
I identify & perform appropriate learning activities to guide personal & professional development	2.6 (0.5)	3.5 (0.5)	3.3 (0.7)	0.012 *
I systematically analyze practice using quality improvement methods & implement changes with the goal of practice improvement	2.1 (0.9)	3.2 (0.8)	2.8 (0.4)	0.024 *
I incorporate formative evaluation feedback into daily practice	3.1 (0.9)	3.1 (1.0)	3.1 (0.6)	0.995
I locate, appraise, and assimilate evidence from scientific studies related to patient's health problems	3.1 (0.9)	3.6 (0.5)	3.3 (0.5)	0.345
I use information technology to optimize learning and care delivery	3.4 (0.8)	3.8 (0.4)	3.4 (0.5)	0.309
I develop my skills to be an effective teacher	2.9 (0.4)	3.8 (0.4)	3.4 (0.7)	0.007 *
I participate in the education of patients, families, students, residents, and other health professionals	3.1 (0.9)	3.8 (0.6)	3.6 (0.7)	0.220
I take primary responsibility for lifelong learning to improve knowledge, skills & practice performance	3.4 (0.5)	3.8 (0.4)	3.7 (0.5)	0.310

Abbreviations: SD: standard Deviation, PGY: Post-Graduate Year
*P-value significant (< 0.05)

Figure 1: Trend of written reflective based cases



Discussion

Summary of findings

In this study, we introduced reflective practice to the family medicine residency program. This was done through reflective case-based activities which were introduced to the curriculum and helped residents to reflect on challenging cases they face in the clinic through facilitated discussion with their peers and supervising faculty. The majority of the residents found these sessions enjoyable, useful, improved their care of patients and boosted their interest in the specialty and the results were statistically significant (P-value <0.5). However, a less percentage of residents found enough time to reflect (73%, P-value <0.001). As residents self-assessed themselves in practice-based learning and improvement competencies as specified by ACGME framework, and in comparison to the results from 3 PGY levels, it was found that the there was a significant difference in PGY3 in setting learning and improvement goals. And PGY2 had better implementation of identifying and performing appropriate learning activities to guide personal and professional development, systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement and developing skills to be an effective teacher. Other competencies in PBLI, while sufficiently implemented, did not have a significant difference between PGY levels.

The percentage of submission of reflective essays was good; the investigators used Bradley's criteria to comment on the depth of reflective writing in students' reflections. The mean average scores were considered for each PGY level. PGY2 had the best scores followed by PGY3 then PGY1. By the submission of the 4th reflective essay, the score of PGY3 declined even below PGY1 level.

Comparison with other studies

In a previous study on Family medicine resident's reaction to introducing a reflective exercise into training, Shaughnessy & Duggan [4] found that residents agreed that reflection is a method to improve personal and professional development. Although they had a different approach to reflection in their study, they asked residents to write a short reflective entry three times a week, and similar to our study, residents found it difficult to find time to reflect, and there were time conflicts with other professional duties. Also, they emphasized the importance of providing a structure to residents in reflection. We found the implementation of a reflective model such as Gibb's provided structure for residents and the reflective case-based discussions with peers and faculty which the residents enjoyed and found useful and helped them to improve self-awareness and implement an action plan for improvement with the help of faculty and peer to peer discussion.

In another study of family medicine residents' perception to introducing reflective case-based activity, Bethune & Brown [6] found that the reflective activities improved residents personal insight, discussion with mentors and peers provided more exploration of concepts, refinement of new concepts and implementing it in practice and their maturation as professionals. Also, time to reflect was raised as a potential factor for the success of the reflective practice.

Mamede & Schmidt [18] have proposed two important aspects to reflective practice, the willingness to engage in reflective activity and critically reviewing one's own assumptions regarding a situation or a problem 'meta-reasoning'. The residents in our study have explored enthusiasm for the reflective practice, and that was obvious n the better scoring of PGY2 residents in the reflective writing. They explained that better understanding of the thinking process and providing a structure to reflective practice in medicine would lead to a well-designed educational curricula that can be taught. It is assumed that doctors who are involved in reflective practice have better self-awareness, clinical reasoning and consequently, better patient care. Winkel et al. [7] have introduced a reflective writing workshop series to the curriculum of Obstetrics and Gynaecology Training program; residents found the reflective sessions enjoyable, time to reflect was also emphasized and the availability of faculty members who are dedicated to teaching reflective practice.

Strengths

More than one assessment tool. The improvement in residents' reflective abilities is expected to have many implications. In the short term, improvement of residents' knowledge and skills about reflective practice will help them to fulfill ACGME-I requirements and improve residents' skills in reflective writing and documentation in their portfolios. In the medium-term engagement of residents in reflective practice helped them to develop a new understanding of the difficult situation; it will improve their awareness of their strengths and weaknesses and how to develop a new action plan for the better care of their patients. And in the long-term, it is expected that residents will have improved decision making and patient care competencies to optimize the residents' chances for career success in primary care practice, which will be reflected in the provision of high-quality services to the wider community. Longer term studies are required to elicit this effect.

Weaknesses

Small size study and in one setting, which would limit the generalizability of results. To compare residents performance before and after intervention to detect the difference.

The results depends on the students perceptions, a better understanding of student's performance in case based discussion and PBLI would be by using faculty supervisor feedback as another tool

Recommendations for future research

Whether involvement in reflective practice will lead to better patient outcomes, requires longer term studies. Longer term studies are required to detect sustainability.

Conclusion

By enhancing reflective practice, family medicine residents will be able to improve their insight into their strengths and weaknesses, and develop an action plan to mitigate weaknesses and improve their case management in the future. This will help to improve competencies for a better Primary Care work force in PHCC.

Ethical Consideration
The author obtained approval from the institutional review board at Primary Health Care Corporation, reference number (PHCC/RC/). Residents were asked to sign a waiver of consent form.

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