

## The undergraduate medical students' perception of student-doctor approach training for diabetic retinopathy screening

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### Abstract

**Introduction:** To explore the perception of Undergraduate medical students on 'STUDENT-DOCTOR' approach of learning at a community clinic during diabetic retinopathy screening.

**Materials and Methods:** This was a sequential explanatory mixed method design to explore the benefits as perceived by 104 fourth year medical undergraduates who were enrolled for the study at the community clinic where they were trained through student-doctor approach. The quantitative analysis was done through survey questions on a five Likert scale. Open ended semi structured interview questions were used to further explore student's perception on this new method of learning.

**Results:** The average score to the statements such as improvement in communication skill & clinical examination skills were 4.27 & 4.41 respectively. All participants strongly agreed that this approach was helpful for their future clinical practice. During qualitative analysis it was found that the majority of students expressed that the learning was meaningful for its long-term effect and its implication on general practice. Most of the participants expressed that the techniques helped them in understanding of the complex mix of physical, emotional, and social elements in holistic and personalized patient care. One respondent mentioned "*Hands on experience helped me retain better & I learnt from my mistake...*". Another one described "*the exposure gave an idea of real life practice which will do in future to screen diabetic retinopathy...*". Lot of students felt that such method of learning was fun and interactive as it was not just sitting in a classroom or behind a desk studying a disease and its pathophysiology but getting the feel of real life experiences. The preceptors felt the method satisfying as they could do work place assessment on the learners.

**Conclusions:** Community based education through hands on training is effective as it makes the learning authentic by looking into implication at real life practice. We recommend to give more stress to train medical students on diabetic retinopathy screening at community settings using this unique methodology.

**Keywords:** Student-doctor, Community, Learning, Diabetic retinopathy, Screening.

### Introduction

The epidemiologic study states that the diabetic retinopathy (DR) is the leading cause of blindness among adults around the world.<sup>1</sup> In Malaysia too, it is found to be the commonest cause of visual loss in the adult working age group. The prevalence of diabetic retinopathy in Malaysia has been reported to range from 44.1% to 48.6%.<sup>2</sup> The prevalence of type 2 diabetes has escalated to 20.8% in adults above the age of 30, affecting 2.8 million individuals. The burden of managing diabetes falls on primary and tertiary health care providers operating in various settings.<sup>3</sup> DR is rapidly emerging as a global health issue that may threaten patients' visual acuity and visual functioning although treatment of established retinopathy can reduce the risk for visual loss by 60%.<sup>4</sup> A national survey conducted in 2006 at Malaysia reveals that 55 percent of patients with known DM had never undergone an eye examination. Among patients who had undergone eye examinations, 32.8 percent had the last examination within the last one year, 49.8 percent within the last one to two years, and 17.4 percent more than two years ago. A significantly lower proportion of younger patients and patients who received treatment for DM from non-government facilities had previously undergone eye examinations.<sup>5</sup>

As there is a significant number of people with potential blinding diabetic retinopathy, adherence to eye screening guidelines and the prompt referral of sight-threatening

diabetic retinopathy are essential to reduce the incidence of blindness among patients with diabetes mellitus. This emphasizes the need for routine retinal screening of diabetic individuals to detect diabetic retinopathy in the early stages.<sup>6</sup> One study recommends regular screening for retinopathy by the GP, combined with a liberal referral policy to ophthalmologists and systematic feedback of their assessment to the GP.<sup>7</sup>

Students may believe they would interact with the patient in a less professional manner, or would assume less responsibility, if they identified themselves as student, rather than doctor. The student-doctor approach during clinical learning is a novel method of teaching where in a clinical setting the students interact with the patients as it is normally done in a clinical setup. However, the whole interaction is not left to students but there is a qualified clinician to supervise these students. Since the students behave like a real-life doctor and hence the term as 'student-doctor'. This method is being practiced in various medical schools world over. This approach encourages students to actively participate, improves their clinical skills, promotes the development of their communication skills through interaction with patients and builds their confidence. Patients also enjoy their clinical encounters with student doctors. In line with global changes occurring in medical education we wanted to initiate changes at our medical school. We therefore designed a study to assess the impact of allowing medical students to be the

primary screeners (under supervision) for the complications of diabetic retinopathy.

We could not find any such study of student-doctor approach in Asian set up. This study was aimed to analyse the perceptions of students involved in student-doctor type of clinical learning activity during diabetic retinopathy screening at one of the primary care set ups in Malaysia.

**Materials and Methods**

This was a mixed method of sequential explanatory study involving 104 fourth year medical students. The study was done at a community primary care clinic where fourth year undergraduate medical students were actively participating in diabetic retinopathy screening (Student-doctor approach) under supervision of Ophthalmology preceptor. Patients were told about the programme and consented before the screening done. Students were taught about the technique of using direct ophthalmoscope in the skills labs & were well versed with the theoretical aspect of diabetic retinopathy before they experience hands on at community clinic.

After examination of the anterior segment of the eye, the pupils were dilated using a combination of 5% phenylephrine & 1% tropicamide eye drops. Posterior segment examination was conducted using a direct ophthalmoscope. The findings were recorded & confirmed by the supervising ophthalmologist. The patients were advised regarding the control of diabetes, follow-up & any treatment, if required. Whenever it was found necessary, the patients were referred to the tertiary hospital for further management.

Students filled up a validated questionnaire about their perception about this approach at the end of their four week clinical posting which was in form of statements in 5 points Likert scale from strongly disagree (0) to strongly agree (5). Mean score with SD was noted. The quantitative analysis was through survey questions in 5 Likert scale. Open ended semi structured interview questions were used to further explore student's perception on this way of learning. Thematic analysis of qualitative data was done. The research study process is shown at Fig 1.

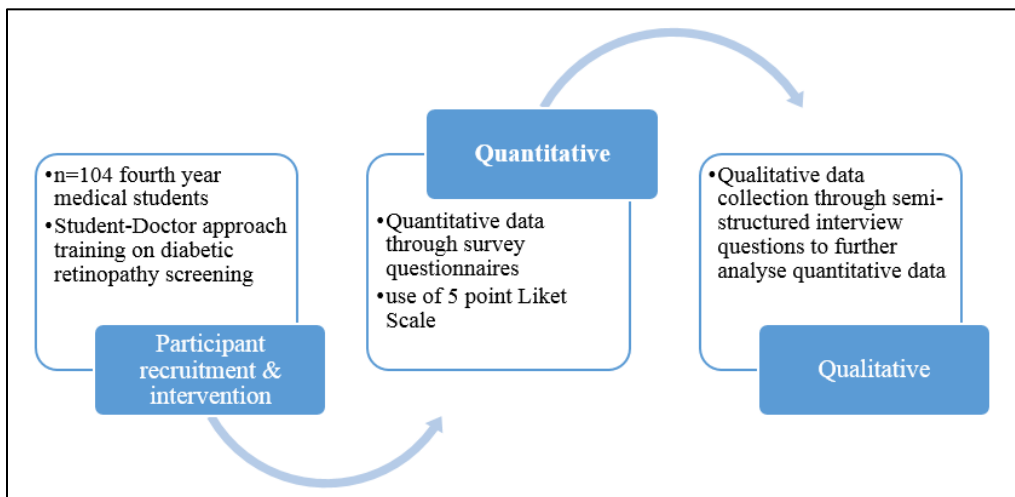


Fig. 1: The study processes

**Results**

The demography of the participants is stated in Table 1.

**Table 1:** Demography of participants

N=104	No	%
Male	44	42.3
Female	60	57.7
<b>Ethnicity</b>		
Malay	32	30.8
Indian	45	43.3
Chinese	25	24
Others	2	1.9

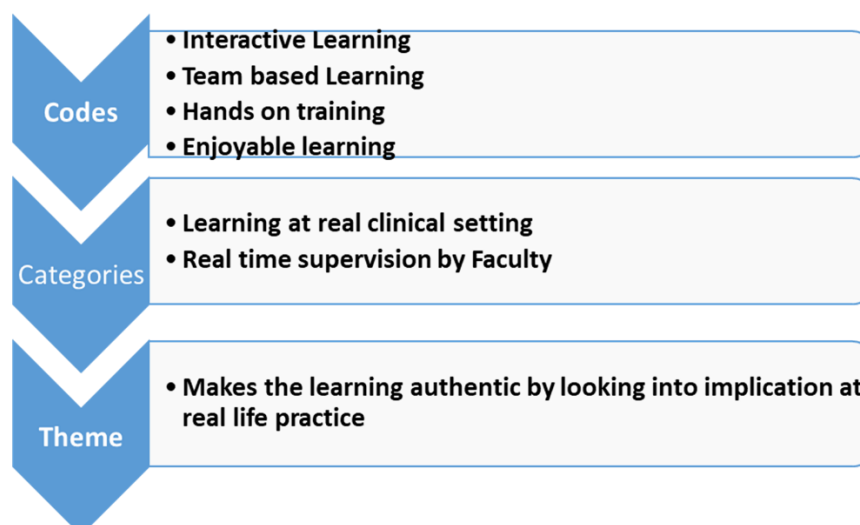
Response to various statements in 5-point Likert scale are shown in Table 2.

**Table 2:** Participants response to statements

Items	Average Response
I could improve my communication skill	4.27
I could improve my clinical exam skill	4.41
I faced many un-cooperative patients	1.97
I could improve my ophthalmoscopy procedural skills	4.51
I could improve interaction with the patient	4.1
I could improve my clerking skills	4.3
It was more stressful than traditional teaching	2.45
I could improve my clinical reasoning skill	4.14
I improved my perception of health care setup	4.30
Overall, I enjoyed my posting as student-doctor	4.66
This experience will be helpful in future practice	5.0

**Legend: 1. Strongly disagree 2. Disagree 3. Equivocal 4. Agree 5. Strongly agree**

Thematic analysis of narrative data is depicted in Fig 2.

**Fig. 2**

Analysing their narratives; one respondent mentioned “*Hands on experience helped me retain better & I learned from my mistake...*”. One more respondent describes “*the exposure gave an idea of real life practice we do in future to screen diabetic retinopathy...*” Lots of students felt that ‘*such way of learning was fun and interactive as it was not just sitting in a classroom or behind a desk studying a disease and its pathophysiology but getting the chance for real life experiences*’....

## Discussion

By introducing student-doctor system, where student becomes an integral part of the treating team, the students get an opportunity to build up an intimate relationship with the patient. This goes a long way in motivating the students to build up ethical and moral values and communication skills to enable them to influence the patient to be co-operative to discharge his duties as a student-doctor.<sup>8</sup> In our study too, the participants perceived this type of learning more authentic and motivating. They could improve communication skills in a better way.

Involving patients in medical education can be beneficial to learners: not only does it facilitate acquisition of skills such as communication, but it can also change professional

attitudes positively and develop empathy and clinical reasoning. Our study participants also reflected on improving their clinical reasoning skill while working as a student-doctor. It provides context to the learning material and motivates learners. Patient feedback on encounters with students, if carefully designed and used formatively, is largely welcomed by students and appears to improve their performance, as measured by examination results. Some learners prefer the teaching they receive from trained patients to that of from doctors.

The GMC’s document on ‘Tomorrow’s’ Doctor also state that students gain new insights and confidence when practising examination skills on patients who give constructive feedback and claim that such training increases their respect for patients and deepens their understanding of

the experience of disease. If patients remind students to wash their hands, put on gloves or explain their status, the message may be more powerful than when it comes from staff.<sup>9</sup> Our study also revealed that students could get insight to real life practice in dealing with real patients. They too enjoyed working with the patients and considered them one of the important preceptors for honing their clinical skills as a practitioner. The strength of our study was the use of mixed methods and perception from multi ethnic student population. The limitation could be absence of faculty perception on this community teaching approach. However, we plan for a bigger study with inter disciplinary approach to analyse the perceptions from all the stakeholders involved in diabetic retinopathy screening at the community settings.

### Conclusion

Meaningful clinical learning takes place when the students involve themselves as student-doctor in a clinical setting as it makes the learning authentic by looking into implication at real life practice. We recommend giving more stress to train medical students on diabetic retinopathy screening at community settings.

**Conflict of Interest:** Nil.

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