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EMPIRICAL REPORT

Medical Student Perceptions of the Value of Learning Psychiatry in Primary Care Settings in Penang, Malaysia

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Abstract

Objective The study's objective was to determine the educational value of participation in a consultation/liaison psychiatry service to primary care clinics, from the perspective of Malaysian medical undergraduates.

Methods A mixed method design was used. Fourth-year medical students participated in a consultation/liaison psychiatry service to two government-operated primary care clinics. Each student attended two half-day consultations to the clinics during the psychiatry clinical clerkship. Students joined in discussions with primary care clinicians, performed supervised clinical assessments, and administered a depression screening instrument. The learning experience was evaluated through four focus groups, each with 9–10 participants, held throughout the academic year. An end-of-year, anonymous, online questionnaire survey was administered to the entire class. Thematic analysis of focus group transcripts was performed and quantitative statistics were calculated (Stata version 13).

Results Focus group themes included the following: (a) active learning opportunities in primary care psychiatry consultation had perceived added educational value, (b) students benefited from contact with patients with previously undiagnosed common mental disorders, and (c) students' primary care experience raised their awareness of societal and professional responsibilities. Of the class of 113 students, 93 (82%) responded to the questionnaire. The survey responses reflected the qualitative themes, with 79 respondents (85%) stating that the learning experience met or exceeded their expectations.

Conclusions Academic psychiatry has been criticized for its overreliance on secondary care settings in undergraduate clinical teaching. Our findings suggest that supervised clinical placements in primary care are feasible and provide added educational value as a routine component of the undergraduate psychiatry clinical clerkship.

Keywords Medical students · Consultation-liaison psychiatry · Primary care

The combination of common mental disorders, such as depression and anxiety disorders and other non-communicable diseases significantly, worsens health outcomes in terms of mortality and morbidity [1]. A large body of evidence has now emerged, suggesting that that the management of common mental disorders can be effectively integrated into platforms of care for long-term physical conditions, based on chronic care principles [2]. It is also recognized that implementing such interventions requires a paradigm shift from the traditional acute care model towards one that is system-oriented, collaborative, and community based [3–5].

Because of the high global prevalence of medical-psychiatric co-morbidity, the medical contribution to the diagnosis and management of common mental disorders is mainly reliant on non-specialist physicians, even in high-income countries [6]. In low- and middle-income countries (LMICs), where almost three quarters of the burden of mental disorder lies, the paucity of specialist mental health professionals is compounded by an overburdened frontline healthcare workforce and a range of other economic and socio-cultural barriers to effective mental health care [7]. There is a global epidemiological imperative; therefore, to better equip future doctors with the skills and attitudes, they need to respond effectively

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to common mental disorders as they present in general health and community settings. This issue is particularly relevant to medical students in Malaysia, the location for the present study, where numbers of specialist mental health professionals and vocationally trained family physicians remain relatively low [8].

Recent developments in adult educational theory emphasize that learning is to a large extent a social activity, powerfully influenced by context and by the tools available in a specific setting [9–11]. As applied to undergraduate medical training, this points towards the importance of providing a more holistic view of patient experience, exposure to system-based practice, and situated learning opportunities in settings typical of those in which the future physician will ultimately practice [12]. It is also recognized that professional identity is intrinsically shaped by the context in which future doctors learn [13].

Meanwhile, the dominant locus of undergraduate learning in psychiatry remains within specialist settings and there has been little published literature addressing the question of how to ensure that curriculum content and learning situations are tailored to the needs of the majority of graduates who will not choose psychiatry as a career [14].

From a skills perspective, the challenge therein implies that learning opportunities should be available for medical students in frontline community settings. It has also been suggested that academic psychiatry must accept the responsibility for modifications to traditional undergraduate curricula to reflect a greater emphasis on the teaching of brief assessment and management skills, relevant to physicians working within time-constrained healthcare settings [15]. From an attitudinal perspective, effective management of common mental disorders implies the nurturing of a professional identity in which values of social accountability and interdependence are internalized [10].

Post-graduate mental health learning experiences in primary care settings during psychiatric residency training have been described [16, 17]. Student-run free clinics, with close faculty supervision, have also been found to be feasible and to lead to improved clinical and learning outcomes [18, 19]. Research evaluating medical student learning in psychiatry and mental health care, within primary care settings, is less frequent, but the few studies carried out found positive impacts on students learning, in terms of their level of preparedness for working in the community [20, 21]. No published studies, to date, have reported placements within primary care settings in an Asian context, as a regular component of the undergraduate psychiatry curriculum.

Against this background, the aim of this study was to explore the educational value of participation in a psychiatric consultation service, on-site in primary care, from the perspective of fourth-year medical students at a Malaysian medical school.

Method

Study Design

A mixed method design, defined as the collection, analysis, and merging of quantitative and qualitative data in a single study, was chosen as appropriate to the aims and context of the study. Mixed methods have been increasingly used in research in complex settings, including health services, where they offer a potential advantage over quantitative or quantitative methods used alone [22]. Mixed method researchers frequently demonstrate a pragmatic interest in what works in a real-world context and often adopt a transformative philosophical position, reflected in a focus on the potential for systemic change [23]. As the subject area of medical student exposure to psychiatry in primary care is relatively unexplored in published literature, an exploratory sequential approach was adopted [24]. The qualitative method, involving focus group discussions with a purposeful sample of students, was followed by a questionnaire survey of the entire class, in order to further elucidate issues around the structure and implementation of the program. Findings from both the qualitative and quantitative methods were subsequently integrated and interpreted.

The authors include three psychiatrists at Penang Medical College (PMC) involved in the clinical consultation service and undergraduate supervision, two of whom were clinicians with considerable experience of working in local mental health services (VR, AB, and UV). The other authors included a medical graduate employed in a Malaysian clinical research center (CEL) who conducted the focus group discussions and Irish medical school academic faculty (SMS, MC, and EB), one of whom was an experienced qualitative researcher, who contributed to the analysis and write-up.

Ethical Approval

Ethical approval for the study was received from the Joint Penang Ethics Committee and the Medical Research and Ethics Committee, Ministry of Health Malaysia.

Setting

Penang Medical College is owned and operated by two Irish university medical schools in partnership: The Royal College of Surgeons in Ireland (RCSI) and University College Dublin (UCD). PMC students, almost all of whom are Malaysian high-school entrants, spend an initial 2.5-year period at either RCSI or UCD in Dublin, after which they return to PMC for further clinical training in healthcare settings in Penang. Clinical learning in psychiatry is provided within hospital inpatient units and outpatient clinics as well as in community services delivered by voluntary agencies.

The study was carried out as a component of a larger project, termed Psychiatry in Primary Care (PIPC), and was based at two government-operated health centers (HC A and HC B). Both clinics were assigned to the PIPC project by the Penang State Health Department, following a formal proposal submitted by PMC, to provide a primary care psychiatry consultation service, as a clinical and educational initiative.

Administratively, Penang Island (population 1.3 million) is served by 16 primary care clinics, distributed throughout the island. HC A serves a newer suburban township developed within an industrial zone. Consequently, it has a relatively low unemployment rate and a high percentage of working young adults. The older, inner city area, served by HC B, has a relatively greater proportion of elderly, unemployed, and socio-economically marginalized residents than HC A.

Both clinics provide a range of general healthcare services as well as antenatal and postnatal care, elderly and child health services. HC A is larger, with a total staff of 80 compared with 48 in HC B, and HC A offers extended opening hours, while HC B operates only during daytime hours. There is limited multidisciplinary staffing at both clinics, with nursing staff and medical assistants (a grade approximating to nurse practitioners in other jurisdictions) present in greatest numbers. Total medical staffing at HC A is 11, comprised of 10 junior medical officers and one family medicine specialist, while at HC B, all 7 medical staff are junior medical officers, supported by a family medicine specialist from another health clinic who visits bi-weekly.

Mental health services provided at HC A and HC B include screening for mental health problems among patients waiting for general services, using a standard instrument, the Depression Anxiety and Stress Scale (DASS 21), and a small number of stable patients with major mental illness are followed up following discharge from in-patient psychiatric facilities [25]. Apart from the family medicine specialist, the medical and nursing staff have limited formal training in mental health care.

Program Description

During their 8-week clinical clerkship in psychiatry, up to five fourth-year students accompanied one of three supervising consultant psychiatrists/lecturers, in weekly half-day mental health consultation sessions on patients referred from primary care clinicians at HC A and HC B. As 113 students rotated through psychiatry in four successive groups, each student was predicted to have two opportunities to participate in this service.

The learning outcomes, outlined to students in advance, were the following: (a) to conduct a psychiatric assessment of patients referred by primary care clinicians and (b) to participate in face-to-face discussion/feedback with the referring primary care physician and the consultant psychiatrist before and after the patient assessment.

Students, most of whom were multilingual, conducted history-taking and mental state examinations in the language preferred by the patient (Malay, Hokkien, Mandarin, Tamil, or English). The clinical interviews were directly supervised and guided by the psychiatrist, and where necessary (mainly in the case of the one psychiatrist who was non-Malaysian), the students paused at intervals to translate the questions asked and patients' responses. When clinically indicated, students also administered the Patient Health Questionnaire (PHQ-9) an established screening instrument, based on the DSM 5 diagnostic criteria for major depressive disorder, translated versions of which have been validated in the aforementioned languages [26, 27]. Students had received tutorials on the administration of the PHQ 9, in the several language versions available, as part of their initial introduction to psychiatry. The various tasks involved in the consultation, as described, were divided among the students, in order to achieve a balance in their level of participation. Within the week following each clinic visit, each group of students was required to collectively prepare and submit a case consultation report to include a diagnostic formulation and management recommendations, as a compulsory but non-graded assignment. The report was then edited by the relevant lecturer and forwarded electronically to the referring primary care physician.

Qualitative Data Collection

Student participants were recruited purposefully, through the class representative as gatekeeper, in order to achieve a balanced representation of the class as a whole, in terms of age, gender, and ethnicity. Four focus groups, each with 9–10 participants, were conducted at the end of each of the four psychiatry clerkships, through the academic year. Students were informed that their agreement or refusal to participate in the study would not impact on their grades. Prospective focus group participants were provided with a subject information sheet and a consent form. The information sheet outlined procedures involved in the study, responsibilities attached to participation, potential disadvantages and benefits, sources of funding, and the manner in which data collected would be treated.

An interview guide, informed by the existing literature and by students' learning outcomes, was developed by the investigators. The topic guide included the following subject areas:

1. Students' overall experience of the primary care mental health consultation sessions.
2. Students' views on the similarities and differences with other learning experiences
3. The perceived value, from an educational perspective, of learning psychiatry in a primary care setting.

All focus group discussions were conducted in English, in a quiet room at the PMC campus, and beverages and light snacks were provided to participants at the end of each session. Each audio-taped focus group lasted approximately 1 h and was facilitated by a female research officer who led the discussion and a male research colleague, who annotated observations of the discussion process. Neither the research officer nor the observer had been involved in clinical supervision or teaching of PMC students. The research officer was a recent medical graduate who had completed a basic training program in qualitative methodology but who had no postgraduate clinical experience in psychiatry.

Quantitative Data Collection

At the end of the academic year, all fourth-year students were invited to complete an anonymous, online survey of their learning experiences, which incorporated feedback on the psychiatry clerkship and a section on students' participation in the PIPC program. The latter comprised a 20-item semi-structured questionnaire designed by the authors, with the content informed by clinical experience and by existing literature in the area.

The survey explored students' ratings of the value of the primary care learning experience relative to other hospital and community placements, their opinions of the time allocation to the primary care sessions, and whether this learning experience had met their expectations. It also included open questions on the perceived relative value of the PIPC component and requested students to rank in order the three areas in which the primary care placements were most helpful. The questionnaire concluded with items eliciting perceptions of the students' and primary care clinician roles during the teaching sessions, the level of perceived support from PMC lecturers, and ways in which the learning experience could be improved.

Data Analysis

Qualitative analysis of focus group transcriptions employed thematic analysis (TA), an established method for organizing, describing and interpreting qualitative data [28]. Three of the authors (VR, AB, and CEL) initially read and re-read the transcripts independently, with the research aims and previous literature in mind. The first author (VR) generated codes, based on units of meaning within the texts and then examined the relationships and meanings within the coded data in order to identify emerging themes. Subsequent discussion among the authors addressed areas of overlap and divergence in interpretation of the data, and a final set of themes was agreed by consensus.

Quantitative data analysis involved the calculation and tabulation of summary statistics from the students' questionnaire responses. Screening for potential data anomalies and statistical analysis was performed using Stata version 13. Following separate analysis of both sets of data, the process of triangulation involved discussion among all authors of areas of convergence, complementarity, and dissonance before reaching a consensus on the meta-themes that cut across the findings from both methods [29].

Results

Participants

Demographic descriptors of focus group participants, all of whom were Malaysian, are presented in Table 1 below. These were broadly representative of the demographics of the class as a whole.

Of the total class of 113 students, 93 (82%) completed the online survey. Of these, there were slightly more female (56%) than male respondents. Respondents' ethnicity was primarily Malay (68%), followed by Chinese (22%), Indian (8%), and others (5%). No statistically significant differences were found with regard to gender or ethnic background between survey respondents and the total class. No statistical correlation was found between student questionnaire responses and either ethnicity or gender. All students attended at least one of the primary care session, and 60 students (65%) had attended the PIPC sessions at both health clinics.

Focus Group Themes

A number of overarching themes emerged from the focus group discussions: experience with common mental disorders, active learning and agency, shaping professional identity, working within constrained resources, and influence on career choice.

Experiences with Common Mental Disorders

The perception consistently conveyed by the students was that their involvement in the PIPC service was different, in several important respects, not only from other clinical learning placements in psychiatry, but also from their previous rotations through other clinical specialties, including family medicine.

A sub-theme emerged here, in terms of the primary care experience as engendering a sense of heightened anticipation of the clinical encounter. Illustrating the contrast between primary care and other clinical placements, the participants highlighted the challenge involved in seeing patients with common mental disorders who had not been previously diagnosed with a mental disorder.

> "I think it's more challenging because we also had a patient who complained of having pain under the arm

Table 1 Focus group participant demographic descriptors

	Participants	Average age (years)	Gender ratio	Ethnicity
Focus group 1	10	24.4	5 F: 5 M	5 Malay 3 Chinese 2 Indian
Focus group 2	10	24.3	6 F: 4 M	8 Malay 2 Chinese
Focus group 3	10	24.4	6 F: 4 M	7 Malay 2 Chinese 1 Indian
Focus group 4	9	24.6	4 F: 6 M	6 Malay 3 Chinese

but actually, after the doctors examined it, she didn't have anything abnormal about it and showed that's just the depression." FGD 1: Participant 2

Participants frequently employed the term "freshness" in reference to patients they encountered in the primary care settings. The element of unpredictability in advance of seeing the patient is reflected in the following extract:

"It was interesting because the patient was actually not diagnosed, she was only detected because she had hypertension…..and during the interview she manifested some of the symptoms—like she talks and laughs when alone." FGD 3: Participant 6

Active Learning and Agency

The second major theme that emerged was that high levels of learning activity and agency were experienced as a consequence of students' participating in the PIPC program. Students felt they were centrally involved and played a responsible role in the psychiatric assessment process. The following contributions were typical and reflected the broad consensus in this regard:

"We were actually given the chance to do it and they actually took what we did like you know… so we felt like it's not just practicing or pretending, we're actually doing something and they recorded it. So we were part of the management in this sense." FGD 2: Participant 7

Shaping Professional Identity

In all focus groups, students discussed impacts on their professional identity arising from their participation in the primary care psychiatry consultation/liaison service. These included references to social-cultural influences, confidentiality, the multidimensional professional role of primary healthcare physicians, and the diagnostic complexity that is inherent in this setting.

Students appeared to be sensitized towards the psychosocial context of patients and the socio-cultural implications associated with making a formal psychiatric diagnosis. They raised the issue of the stigma experienced by people with identified mental illness in Malaysian society, how this had impacted on their own attitudes, growing up in Malaysia, and how the primary care experience challenged their previously held views. In the following exchange, students refer to the challenge of stigma faced by people with a diagnosis of depression:

"I mean depression as well—they will treat you differently" FGD 4: Participant 6
"Even depression, which is very common in this country" FGD 4: Participant 2

There were several reflective references to the importance of maintaining patient confidentiality and to the professional responsibility not to make a formal diagnosis unless clear and specific diagnostic criteria were met, as illustrated in the following extract.

"I think the realization about our heavy responsibility to take care of patients' confidentiality because like the one experience that we had with patients, when we asked about the psycho-sexual history she actually volunteered very sensitive information." FGD 2: Participant 7

Students recognized that psychosocial issues might arise for any patient in primary care and consequently, while a diagnosed psychiatric condition might not be present,

opportunities arose for the doctor to be supportive and helpful in a variety of ways, including in an advocacy role.

> "In primary health care, you will learn how to help patients in not just in medical way, but to use your authority to do something for this person, by writing letters to the workplace and the authorities, to help to change the situation, instead of just simply prescribing the drugs." FGD 4: Participant 6

Students also showed awareness of the paradox, whereby clinicians in primary care are often faced with higher levels of diagnostic complexity than those in specialist settings, arising from sub-threshold mental disorders, the challenges of differentiating normal human distress from illness and the multiplicity of interactions between physical and mental health, as illustrated in the following contribution.

> "It's not clear-cut at all, 'cos their problems seem to be less pronounced and only when you take the thorough history can you connect the dots and see." FGD 1: Participant 1

Working with Constrained Resources

Despite the positive perceptions of the educational benefits of the primary care experience, an area of relative dissatisfaction was the level of interaction between the students and primary care clinicians. Students were aware of the organizational constraints faced by the consultation service but, nonetheless, expressed frustration with the lack of opportunities to join primary care clinicians during the course of their routine work.

> "I think it would be good if we involved the GP in the whole consultation with the patient because during the two sessions that we had they were not involved. They were not there—they are so busy!" FGD 4: Participant 9

However, participants' contributions to discussion in the focus groups on this topic were nuanced and they acknowledged the many obstacles faced by frontline clinicians in recognizing co-morbid mental health disorders, within the real-world context of primary care.

Students' sensitivity to the many challenges presented, moreover, did not seem to result in their adopting a position of therapeutic nihilism. In formal teaching sessions during the psychiatry clerkship, they had become familiar with ultra-brief screening questions for depression such as the PHQ 2 and they made an emphatic reference to this, in the following exchange from FGD 4 in which the focus group facilitator explored the question of screening for depression [30].

> "I think we have to be realistic about the time. Each patient we only have five minutes, eight minutes and the most important thing is to do screening." Participant 10
> "Who will be doing the screening?" FGD Facilitator
> "The GP!" All participants in unison
> "Just two questions." Participant 2
> "It's not hard, just two questions!" Participant 10

Influence on Career Choice

In introducing the PIPC initiative to students, the psychiatry department hoped that the experience would exert a positive impact on students' future clinical behavior in general healthcare settings. Exploration of this issue in all four focus groups suggested that participants would be more likely to identify and intervene in co-morbid mental health problems in their future practice.

> "I wouldn't send everyone to the psychiatrist. So I would have be able to sort of treat this common medical illness up until the point I think I cannot do this by myself." FGD 4: Participant 4

Most participants appeared to recognize the potential value to primary care clinicians of access to face-to-face discussion with the consultant psychiatrists, as articulated in the following comment:

> "I think it was crucial to see the communication between psychiatry and primary care and that would probably be the biggest impact for us" FGD 2: Participant 8

In contrast, students generally responded to exploration of the appeal of psychiatry as a career with explicit statements that they were unlikely to choose to work in the specialty following graduation. The following extract is illustrative of the generally expressed views in this regard:

> "I'm not gonna become a psychiatrist, that's for sure, I'm not gonna even think about it, but if let's say I'm a physician handling a patient with tuberculosis or I'm managing a HIV patient with a lot of medication they might develop depression. So then I would have be able to sort of treat this common medical illness up until the point when I think well I cannot do this by myself- then only refer to a specialist psychiatrist." FGD 4: Participant 4

Survey Findings

Students' questionnaire responses to questions 1–19 of the survey are presented in Table 2 below.

The great majority of the students provided positive feedback on the PIPC experience: it met or exceeded their expectations (85%) with appropriate time allocation (84%), and it offered additional learning experience in comparison to previous community health settings they had attended (70–88%).

When asked to rank the three areas in which the PIPC experience was most helpful, from a list of 10 potential benefits listed in the questionnaire, the respondents prioritized:

1. "Opportunity to see the type of mental health problems not usually found in hospital psychiatry"
2. "Opportunity to see patients with co-morbid medical and psychiatric illness"
3. "Opportunity to take histories from patients with less severe mental illness"

With regard to the conduct of the primary care sessions, students felt their role was appropriate (91%), that they had sufficient support (90%), active involvement (78%), and that the referral cases were appropriate (89%). This was consistent with 89% expressing the opinion that the primary care program should continue as part of the clinical rotation in psychiatry.

The student feedback also highlighted some areas that could be improved: a significant number (37%) felt that their interaction with primary care clinicians was too little while more than one in four (26%) reported technical difficulties in preparing their case reports on a Excel template and uploading them to the college website.

Responses to a final open question on how the PIPC learning experiences could be improved (question 20 in the survey), which resulted in a variety of suggestions including an increased allocation to the PIPC component during the psychiatry clerkship, greater involvement by primary care clinicians, and reduced student numbers participating each HC visit in order to facilitate patient comfort and engagement.

Triangulation of Results

There was considerable overlap in content, between the questionnaire survey items and the students' experience of PIPC participation, as explored in the focus groups. The questionnaire results revealed a high degree of corroboration of the focus group thematic findings, in terms of the overall endorsement by students of PIPC, as providing added educational value and valued clinical exposure in relation to other clinical placements. In light of the relatively demanding role carried out by the students in patient assessment, it was reassuring that the positive focus group contributions were matched by a similarly positive response to the survey question in this area. A further important area of corroboration relates to the fact that students perceived the level of involvement of primary care clinicians as too little, although the survey also revealed a high level of satisfaction with the appropriateness of referrals.

While no areas of discrepancy or disagreement could be identified between the qualitative and quantitative results, the latter revealed useful complementary information on operational aspects of the PIPC program in which the focus group thematic findings were silent. Most notable, in this regard, was the fact that approximately one quarter of survey respondents felt the numbers of students participating at each HC visit was too high and a similar percentage had difficulty with the technical aspects of recording and uploading the consultation reports.

Discussion

In summary, this mixed method study revealed that participation in a psychiatrist-led consultation service to primary care provided added educational value, from the perspective of participating fourth-year medical students. The principle learning benefit identified was the unique opportunity to see patients with co-morbid common mental disorders, in the context of medical conditions. We found evidence of perceived benefits in the area of the undergraduates' professional development, heightened awareness of patients' socio-cultural and economic circumstances, and an increased motivation to sustain an active role in mental health care into the post-graduate years, in primary and general healthcare settings.

All four focus groups revealed the particular value that students attached to the opportunity to assess patients whose mental health disorders were previously undiagnosed. Very few doctors within the Malaysian medical workforce, including government-funded primary care clinics, have completed specialist post-graduate training in family medicine [8]. In most instances therefore, patients were selected for referral to the PIPC service by relatively junior medical staff who would have had no post-graduate training in psychiatry. Consequently, there was an element of uncertainty as to whether a patient, chosen for referral, would meet criteria for a formal psychiatric diagnosis. Because the students elicited mental health symptoms themselves, sometimes in conjunction with the PHQ 9, a brief and easily administered instrument, in patients who had no previous psychiatric assessment, the perceived educational impact appeared to be greater.

It was also evident that the students' experience within the primary care psychiatry consultation service was qualitatively different from that of the family medicine rotation. Participation in the PIPC program conveyed the important

Table 2 Questionnaire survey results

Question	Item	Number (%)
1. Gender	Female	52 (56%)
	Male	41 (44%)
2. Ethnic origin	Chinese	20 (22%)
	Indian	7 (8%)
	Malay	63 (68%)
	Others	3 (5%)
3. Did you attend?	HC A	22 (24%)
	HC B	11 (12%)
	HC A and B	60 (65%)
4. If you attended both HCs, which HC did you feel provided the better learning experience?	HC A	38 (53.5%)
	HC B	33 (46.5%)
	Total	71 (100%)
5. Do you feel the time allocation within the psychiatry rotation to the HC sessions was?	About right	78 (84%)
	Too little	12 (13%)
	Too much	3 (3%)
6. In comparison to the benefits you expected from the HC visits before the start of the psychiatry rotation did the actual experience?	Exceed your expectations	18 (19%)
	Fall short of your expectations	14 (15%)
	Meet your expectations	61 (66%)
7. In comparison to the other community settings you visited during the psychiatry rotation, did the offers additional learning experiences	No	11 (12%)
	Yes	82 (88%)
8. In comparison to your visits to other HCs during your previous family medicine rotation, did the psychiatry HC sessions offer additional learning experiences?	No	23 (25%)
	Yes	70 (75%)
9. In comparison to the other psychiatry hospital/clinic sessions, did the HC sessions offer additional learning experiences?	No	28 (30%)
	Yes	65 (70%)
10. If yes, please rank in order (1–3) the three areas in which you felt the HC sessions helped most	1.Opportunities for supervised history taking and improved communication skills 2. Opportunity to take histories from patients who are not as severely ill 3. Opportunities to interact with HC staff in indirect consultation	
11. Did you feel the cases referred by the medical officers were appropriate to your learning needs?	No	10 (11%)
	Yes	83 (89%)
12. Do you feel your own active involvement during HC session was?	Just right	73 (78%)
	Too little	17 (19%)
	Too much	3 (3%)
13. During the HC visits, do you feel the extent of your interaction with HC clinicians was:	Just right	57 (61%)
	Too little	34 (37%)
	Too much	2 (2%)
14. Do you feel the role expected of you during the HC visits was appropriate?	No	8 (9%)
	Yes	85 (91%)
15. Do you feel the number of students assigned to each HC visit was:	About right	73 (78%)
	Too few	1 (1%)
	Too many	19 (20%)
16. Do you feel you had sufficient support/supervision in carrying out patient interviews in the HCs?	No	9 (10%)
	Yes	84 (90%)
17. Do you feel the task of recording the case/uploading case report to Moodle was helpful?	No	24 (26%)
	Yes	69 (74%)
18. Do you feel the task of recording the report and uploading it on Moodle should be assigned a mark?	No	52 (56%)
	Yes	41 (44%)
19. Should the HC sessions continue as part of the psychiatry rotation?	No	10 (11%)
	Yes	83 (89%)

message to the undergraduates that psychiatrists can work in settings other than secondary care and can provide useful support and clinical consultation to frontline clinicians.

Students' positive perceptions seemed to relate primarily to their awareness that the quality of the consultation service relied, to an unusual extent, on their own clinical performance. The overarching theme of perceived agency and activity cuts across the findings from both methods and is consistent with previous evidence regarding the feasibility of faculty-supervised student-free clinics in underserviced settings [19]. It also supports the value of assigning entrusted tasks, appropriately selected and supervised, which approximate to a level of professional responsibility that medical students will be required to assume following graduation [9].

In planning the PIPC project, the faculty involved were mindful of the stigma associated with mental illness and particularly the cultural barriers towards help-seeking that have been found to exist within Malaysian population, including

among Malaysian healthcare professionals [31, 32]. The focus group contributions convey students' sensitivity in this area, often informed by their personal experience and cultural backgrounds.

The students also recognized the potential for advocacy and for the ethical use of the physician's authority, in situations where patients are disadvantaged by their mental health and socio-economic status. Our experience, in this regard, resonates with that of Walters et al., who found evidence of heightened awareness of the lived experience of patients with mental disorders, arising from a primary care attachment during the psychiatry clerkship, as well as other positive impacts in promoting patient-centered attitudes and countering negative stereotypes [21]. We also found support for Bogetz and Bogetz's (2015) proposition that learning within the silo of secondary care limits the social perspective and that system-based experiences help to shape the professional identity, challenging the ways in which medical students think about the clinician's role in improving the quality of patients' lives [12].

It is of interest that the focus group participants appeared to eschew psychiatry as a career option, despite anticipating that they would be positively disposed towards mental health care in their future practice. Most studies have suggested that rewarding experiences during the undergraduate psychiatry clerkship exert a positive impact on the likelihood of pursuing post-graduate training in psychiatry [33, 34]. However, the views of our students may reflect the reality that psychiatry remains a career preference for a minority of medical undergraduates.

The more important finding, however, in terms of their future practice was that our students, while recognizing the complexities involved, felt confident and motivated to identify and manage common mental disorders. This was particularly gratifying from a public mental health perspective, in a situation where the vast majority of PMC graduates will go on to work in Malaysia and within primary care, general healthcare settings, or in specialist areas other than psychiatry [2].

The strengths of the study include the number of participants in the focus groups, the fact that the focus groups took place at intervals throughout the academic year and the high response rate to the questionnaire survey. Focus groups have been used successfully in Asian medical student evaluative research [35]. In our study, they provided new insights and understanding in a poorly understood subject areas and were feasible in the medical school setting, in terms of the accessibility and relative homogeneity of the study participants [36].

While the qualitative component was dominant, the mixed method design allowed for the triangulation of data at the interpretation stage. It was reassuring that the anonymous survey, carried out after all four focus groups had been completed, corroborated the focus group findings and revealed valuable complementary information.

With regard to limitations, the students' favorable opinions of the benefits of participation in the primary care consultation service could have been influenced by positive global impressions of their psychiatry clerkship or by their relationships with the supervising psychiatrists. As the study was conducted in a single medical school, results may not be easily generalized, so that similar research in other settings would be warranted. Further evaluation of this type of model, employing measures that objectively assess learning competencies and outcomes, could build upon the findings presented from the student perspective alone.

In conclusion, because of the ubiquitous challenge of stigma and a multiplicity of other factors contributing to the under-recognition and under-treatment of highly prevalent mental disorders, preparing medical undergraduates to provide effective mental health care in primary care is of paramount importance. Our study appears to be the first Asian evaluation of medical students' active involvement in a primary care psychiatry consultation service, as a structured component of the clinical clerkship in psychiatry. The success of the project, as reported here from the students' perspective, suggests that medical schools, in other geographic areas and in other health systems, could usefully consider a similar initiative.

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Compliance with Ethical Standards

The study received ethical approval from the Joint Penang Ethics Committee and the Medical Research and Ethics Committee, Ministry of Health Malaysia.

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