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Dietetics Students' Perceived Facilitators and Barriers to Clinical Training in Malaysia: A Qualitative Theory-Guided Analysis

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ABSTRACT

This study explored barriers and facilitators experienced by Malaysian dietetics graduates during clinical training in local healthcare settings. A qualitative study with phenomenological design was conducted on fifteen purposely selected fresh dietetics graduates, with a mean age of 24.7±0.8 years from seven local universities. Virtual interviews were conducted via the Cisco Webex and were verbatim transcribed and thematically analyzed using NVivo 12 Plus software. Data collection continued until data saturation was reached. Nine Theoretical Domain Frameworks (TDF-derived domains), comprising of 1) knowledge, 2) skills; 3) belief about capabilities; 4) intention; 5) goals; 6) memory, attention, and decision process; 7) environmental context and resources; 8) social influences; and 9) emotions domains, was utilized to develop open-ended questions in the semi-structured questionnaire. Within these domains, frequently associated sub-themes of perceived facilitators were identified: early preparation and comprehension. Pre-clinical classes that involve solving diverse and challenging cases equip students with practical understanding of clinical training. Curriculum-based university clinics offer valuable insights into hospital dietetics practice. Resources availability is crucial for effective Nutrition Care Process (NCP) implementation and aids in evidence-based nutrition counseling. Conversely, the factor that hinders clinical training reported by dietetics graduates is a lack of knowledge and readiness, particularly concerning their perceived knowledge before clinical training. Dissatisfaction also arises from challenges in building rapport, gathering patient information during counseling, and difficulties in assessing dietary recall with patients from diverse cultural backgrounds, affecting their readiness for dietetics practice and therefore, highlighting the need to enhance multicultural knowledge and cultural competency training among dietetics students. The findings from this study may assist in developing strategies to promote impactful experiences and enhance dietetic students' preparedness for clinical practice.

Keywords: barriers, clinical training, dietetics students, facilitators

INTRODUCTION

Dietetics students must undertake clinical placement in hospitals by becoming interns at the end of the degree to enhance their confidence and readiness for professional practice (Ross *et al.* 2017). Clinical training is compulsory in Malaysia's Bachelor of Dietetics (Hons.) program. Dietetics students must undergo clinical attachments in outpatient and inpatient settings, food service, and community. The Clinical Instructors and Local Preceptors will supervise clinical training at various facilities, including Ministry of Health Malaysia Hospitals, Health Clinics, and University Teaching Hospitals.

A study expressed concern regarding producing underprepared graduates, specifically in clinical dietetics, with minimal skills irrelevant to future workforce needs (Morgan *et al.* 2019). According to Hewko *et al.* (2021), there is a need for expanded skills and practice in the dietetics field. Facilitators at the workplace, regular training sessions, allocated time to practice, management support, provision of the electronic health record, and peer support are enablers in implementing good nutrition care to patients during clinical training (Lövestam *et al.* 2020). Another study reported that peer teaching overcomes poor student learning and increases their confidence in clinical practice (Karupaiah *et al.* 2016).

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Despite its positive impacts in preparing dietetics students for future workforce needs, several studies reported that negative experiences and unwelcoming culture led to emotional stress and anxiety among students, exacerbating the impostor phenomenon of having persistent fear throughout the clinical placement (Gibson *et al.* 2015; Landry *et al.* 2022).

Various studies have been conducted among dietetics students on their experiences, mainly from Australia (Morgan *et al.* 2019; Markwell *et al.* 2021). According to a previous study by Markwell *et al.* (2021), students' intrinsic psychological needs and motivation can be enhanced by autonomy-supportive behaviors from peers and supervisors, which may be advantageous for students on placement. To our knowledge, a published study of Malaysian dietetics students' perceptions of post-clinical placement has yet to be published. Thus, understanding Malaysian dietetics students' perceptions and experiences during clinical training is crucial in identifying potential areas for improvement. This is the first study to identify the facilitators and barriers during clinical training among dietetics students in Malaysia, as strongly recommended by a previous study that dietetics education programs should take graduates' opinions of their training into account and adjusted as necessary (Morgan *et al.* 2019). The findings from this study may assist in developing strategies to promote positive experiences and enhance dietetics students' preparedness for the dietetics practice among Malaysian dietetics students.

METHODS

Design, location, and time

This qualitative study with phenomenological design focused on acquiring participants' perceptions through open-ended and conversational communication. The open-ended questions were regarding the perceived barriers and facilitators encountered during clinical training among fresh graduate dietetics students. This study was conducted online through the Cisco WebEx platform, involving participants across different universities with dietetics programs in West Malaysia from March until July 2023. Ethical approval was granted from the UniSZA Human Research and Ethics Committee (UHREC) on March 9, 2023, UHREC Code: UniSZA/UHREC/2022/472.

Sampling

Purposive sampling was used to select fresh graduate dietetics students who had completed clinical training in 2021 and 2022 to answer the open-ended questionnaires during the online interviews. To ensure a diverse range of perspectives and to enrich the richness of the information gathered, participants were recruited from multiple universities in Malaysia, including 1) Universiti Sultan Zainal Abidin (UniSZA); 2) Universiti Teknologi Mara (UiTM); 3) Universiti Putra Malaysia (UPM); 4) Universiti Kebangsaan Malaysia (UKM); 5) Universiti Sains Malaysia (USM); 6) Universiti Islam Antarabangsa Malaysia (UIAM); and 7) International Medical University (IMU).

Data collection

In-depth interviews were conducted virtually through Cisco Webex platform to capture the diversity of individual experiences and viewpoints while accommodating the availability of participants. The in-depth interview duration varies (Showkat & Parveen 2017), ranging from 60–120 minutes. In-depth interviews for study participants were carried out from March 22 until May 12, 2023, depending on the study participants' time availability.

Semi-structured questionnaire. Semi-structured interviews were conducted in Malay to explore participants' experiences, barriers, and facilitators related to clinical training. The interviews employed pre-determined topics and questions, with additional probing questions added during the interviews as necessary to explore the in-depth perceptions (DeJonckheere & Vaughn 2019). After confirming their eligibility, the interview questions were disseminated to the study participants, allowing them time to reflect on the topics before the interviews. Contents for the semi-structured interview questionnaire were developed based on TDF. The TDF-derived semi-structured questionnaires were developed and were not structured exclusively based on the domains. Instead of clustering questions into each domain that may limit experience exploration, open-ended questions related to the research objective were made to obtain a more comprehensive understanding of dietetics graduates' perspectives on barriers and facilitators during clinical training. A deductive analysis was used as it reported that most previous studies used

TDF-deductive approaches (McGowan 2020). The deductive analysis provides more detailed descriptions of participants' experiences (Haith-Cooper *et al.* 2018).

Recruitment of study participants. Study participants were recruited through disseminated posters once data collection started. Through the recruitment posters, inclusion and exclusion criteria were informed. The inclusion criteria for this study were dietetics graduates who graduated in 2021 and 2022 and completed outpatient and inpatient dietetics training in allocated healthcare facilities. This study excluded participants who could not converse in Malay or English. Study participants were directed to a Google form to complete their consent forms. Any upcoming and essential information for the interview schedule was notified later.

Data analysis

Descriptive statistics on sociodemographic data, including age, graduation year, universities, and frequency of pursuing the current job, were analyzed using IBM SPSS Statistics Version 27—two members, including the interviewer, coded transcripts. Two researchers read transcripts independently, coded the data, and then combined codes into sub-themes and participant quotes. Data collection and analysis were conducted concurrently until thematic saturation was achieved. Thematic saturation is calculated using a base size of 4 interviews and a run length of 2 interviews (Guest *et al.* 2020). Thematic saturation was achieved as the new information threshold reached 0%. All transcribed interviews verbatim were compared to original video recordings to ensure accuracy. Transcripts were thematically analyzed deductively. Two researchers independently read and manually coded the data using NVivo 12 Plus software. The credibility of the arising sub-themes was demonstrated using verbatim participants' quotes. The trustworthiness of the findings was ensured through a rigorous member-checking process with the subjects.

RESULTS AND DISCUSSION

Fifteen dietetics graduates, consisting of 14 females and one male, with a mean age of 24.7±0.8 years, participated in this study. Participants were recruited from Universiti Sultan Zainal Abidin (UniSZA) (n=6, 40.0%), Universiti Teknologi MARA (UiTM) (n=3, 20.0%), Universiti Putra Malaysia (UPM) (n=1, 6.7%), Universiti Kebangsaan Malaysia (UKM) (n=2, 13.2%), International Medical University (IMU) (n=1, 6.7%), Universiti Islam Antarabangsa Malaysia (UIAM) (n=1, 6.7%), and Universiti Sains Malaysia (USM) (n=1, 6.7%). A total of fifteen consents were received from each of the universities. The number of participants who participated in this study varied from each university. All participants were eligible for this study and proceeded to interviews.

Participants enrolled in this study mainly graduated in 2022 (n=13, 86.7%), and only two (13.3%) graduated in 2021. The participants were predominantly practicing dietitians specializing in various dietetics fields. Among them, five participants (33.3%) were clinical dietitians, four (26.7%) worked as retail dietitians in pharmacies, two (13.3%) were food service dietitians, one (6.7%) was a community dietitian, and one (6.7%) worked as a corporate dietitian. Additionally, one participant (6.7%) worked in public relations in science, and another (6.7%) pursued a Master of Science degree in Nutrition.

Perceived facilitators reported by dietetics graduates throughout the interviews are categorized into seven Theoretical Domain Frameworks (TDF): knowledge, skills, intentions, environmental contexts and resources, social influences, emotions, memory, attention, and decision process, followed by domain belief about capabilities and goals. The overview of the sub-themes for perceived facilitators is shown in Figure 1.

Perceived facilitators

The most frequent perceived facilitator reported by dietetics graduates is early preparation and understanding. Dietetics graduates reported having pre-clinical classes in solving common and complex cases aids them in having an idea of what clinical training would be. According to P09_Female, *"Before we go for clinical attachment, my university organized one short class and provided us with many cases. We have different cases to be solved every week. The cases varied and had different difficulties such as ICU or burn patient case..."* A previous study reported that pre-clinical training effectively prepares dietetics students for clinical placement as they

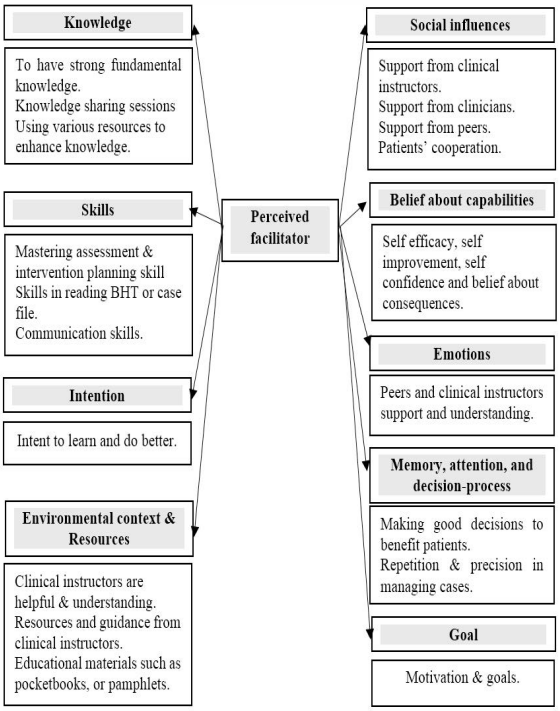

Figure 1. Overview of the sub-themes for perceived facilitators

can apply theoretical concepts to clinical training (Kellet *et al.* 2018). In addition, curriculum-based university clinics also enabled third-year dietetics students to gain early insight into hospital dietetics practice (Swanepoel *et al.* 2016). A previous study also reported that dietetics students valued 'real' learning experiences as they developed awareness of dietitians' roles and appreciated the profession's reality (Morgan *et al.* 2019).

Early preparation regarding resources used during clinical training aids them in nutrition counseling. This coincides with another facilitator in which preparation and availability of educational resources such as handbooks, pocketbooks, or pamphlets help them give nutritional care according to evidence-based practices. A previous study reported that evidence-based dietetics practice combined utilizing evidence-based guidelines, the dietitian's expertise and judgment, and patients' unique circumstances (Hand *et al.* 2021). Resource scarcity hinders successful Nutrition Care Process (NCP) implementations and affects patient nutrition care (Porter *et al.* 2015). As said by P07_Female, *"Plates and cups must be brought together. My bag is heavy because I prepare and bring along books and files. One of the files consists of MNT books. At the same time, another file contains pamphlets for counseling, such as diabetes pamphlets. It is used as our reference during the counseling."* Sub-themes and supporting quotes are summarized in Table 1.

Perceived barriers reported by dietetics graduates throughout the interviews are categorized into seven Theoretical Domain Frameworks (TDF): knowledge, skills, belief about capabilities, social influences, emotions, environmental contexts, resources, memory, attention, and decision process. The overview of the sub-themes for perceived barriers is shown in Figure 2.

Lack of knowledge and readiness is the most frequent barrier identified in the interviews, representing dietetics students' perceived knowledge before clinical training. This study found that dietetics graduates complained of needing to be more prepared and satisfied with their knowledge before clinical training as knowledge gaps hindered dietetics students' progress in clinical placements (Gibson *et al.* 2015). Since the participants graduated from the dietetics batch in 2021 and 2022, they have been severely affected by the COVID-19 pandemic. This pandemic has negatively impacted dietetics students' education quality and made them learn less than usual (Coakley & Gonzales-Pacheco 2022). Unpreparedness before clinical training reported by dietetics graduates during their clinical training includes a lack of multicultural counseling skills for patients with various cultural backgrounds and an inability to build rapport and extract patient information during counseling in an outpatient setting.

Dietetics graduates reported having intense counseling experiences with patients from different cultural backgrounds. They encountered difficulty assessing dietary recall due to limited knowledge of the ingredients. *"I got Chinese, Indian patients. So, regarding their foods, it was difficult to assess because we did not know how to estimate the calories correctly as we were unfamiliar with the food eaten. And we didn't know the ingredients used. Hence, taking their diet recall is somehow challenging."* (P06_Female). A previous study on Canadian dietetics students reported that students show low multicultural knowledge that hinders their cultural competence (Hack *et al.* 2015). This

Table 1. Arising sub-themes of perceived facilitators and supporting quotes

Domains	Sub-themes of perceived facilitators	Supporting quotes
Knowledge	To have strong fundamental knowledge	"But basic knowledge must be strong. With strong basic knowledge, CIs will easily understand when you talk, and discussing with friends becomes easy." (P03_Female)
	Knowledge-sharing sessions	"So, we all decided to sit together with six friends. We all will be sharing information. For example, when another group performed measurements. So, when they returned home, they taught us how to do the measurement. And then, we also share our cases with them." (P10_Female)
	Using various resources to enhance knowledge	"So, we had a one-week rotation, one week for clinical, and another alternate week for simulations. I think CIs helped a lot. Sometimes, the simulations were conducted one-to-one, but sometimes in groups. So, that means we treat the simulations like real-case situations. We pretend to be a patient and dietitian whereby CIs will observe." (P05_Female)
Skills	Mastering assessment and intervention planning skills	"Initially, we acknowledged our intervention was inadequate even though we got plenty of times but did not know what to do. However, as time passes, we know how to shorten the counseling sessions. We know how to save time." (P02_Female)
	Skills development in reading bed head tickets (BHT) or case file	"When we flipped through the BHT, we knew what to search for. For diabetic patients, we looked for glucose monitoring. Sometimes, nurses did not update the glucose reading in the system. So, the data can only be obtained in BHT as the nurse reported it manually." (P05_Female)
	Communication skills	"You cannot use jargon terms learned during classes. Patients will not be able to understand well, so you must adapt to that. And then, you have to know the correct counseling flow because we only learn basic counseling skills in classes. So, we must know the appropriate techniques for the counseling sessions." (P10_Female)
	Early preparation and understanding	"Plates and cups must be brought together. My bag is heavy because I prepare and bring along books and files. One of the files consists of MNT books. At the same time, another file contains pamphlets for counseling, such as diabetes pamphlets. It is used as our reference during the counseling." (P07_Female)
Belief about capabilities	Self-efficacy	"We must think critically during clinical training because we need to be able to connect different theories to achieve better outcomes. We need to be able to think critically." (P09_Female)
	Self-confidence	"I think I'm good at coping with stress. Even though I felt nervous meeting patients and did not know what to do, and I expressed my confidence so that the patients would trust me." (P12_Female)
	Self-improvement	"Every challenge I faced is what shaped me now. I became confident that I could face challenges and speak English fluently. I have work now, and I communicate in English with my client from Singapore fluently." (P04_Female)
	Belief about consequences	"It's great because I was exposed to making decisions during the clinical training. Thus when I work alone, I can execute decisions myself if correct" (P04_Female)

Continue from Table 1

Domains	Sub-themes of perceived facilitators	Supporting quotes
Intention	Intent to learn and do better	“There is a lot to learn in terms of simplifying sentences, in terms of knowledge on how to make sure patients understand what we try to say. And we will not stutter.” (P13_Female)
Goals	Motivation and doing better	“As a student, we need to move forward. We should have the initiative to learn. That means it will be hard to catch up if we act passive during clinical training.” (P15_Female)
Emotions	Peers and clinical instructors support and understanding	“I and my colleagues separated into different clinical groups. So sometimes, we gather at night and finish our thesis together. Hence, at the same time, we stay up and have a heart-to-heart session together.” (P15_Female)
Environmental Context and Resources	Clinical instructors are helpful and understanding	“The knowledgeable and experienced CIs showed a lot of things. Besides sharing knowledge, they also provide support and guidance. So, I think helpful CIs are important in clinical training.” (P12_Female)
	Resources and guidance from clinical instructors	“CIs provide us with notes to read before entering clinical training. For example, biochemical data and oral nutrition supplements should be memorized.” (P09_Female)
	Educational materials such as handbooks, pocketbooks, or pamphlets	“References such as Kidney Disease Outcomes Quality Initiative (KDOQI) and Kidney Disease: Improving Global Outcomes (KDIGO). One more thing: you must read more from Clinical Practice Guidelines (CPG) because there are a lot of versions for diseases. Next, you need to refer a lot to seniors.” (P10_Female)
Social influences	Support from clinical instructors	“Our CIs are so motherly, very supportive, and acknowledged that we were from Covid batch. They understand that we lacked a lot in terms of counseling skills and knowledge.” (P14_Female)
	Support from clinicians	“Dietitians in the hospitals taught us wholeheartedly. We felt relieved as dietitians showed their sincerity to teach us even though we were nervous in the first place.” (P07_Female)
	Support from peers	"Clinical training is tiring, but it's fun if you have supportive group mates that help you by encouraging you" (P10_Female)
	Cooperation from patients	“For the first time, I was so happy to consult an elderly person that was cooperative and very kind during the counseling. Maybe she knew that I was a student at that time.” (P04_Female)
Memory, attention, and decision-process	Making good decisions to benefit patients	"The general knowledge you have, you should be able to apply to patients' conditions. Besides, you need to know what to prioritize. The main problem should be prioritized and followed by other problems." (P07_Female)
	Repetition and precision in managing cases	“I took almost an hour in the early training phase because I did not know what to do, but I got help from CIs since that was my first time. Day by day, I have shown improvement as I have become familiar, and I can make decisions quickly. I did not need a long time to think of what to do.” (P05_Female)

showed that dietetics students were unprepared even though dietitians have been proven to be culturally competent to enhance nutrition care across all populations (Jager *et al.* 2020). A previous study also emphasized dietetics students should be involved and participate in cultural competency training to tackle a growing diverse community (McCabe *et al.* 2020).

They also expressed dissatisfaction with building rapport and extracting patient information during counseling due to the lack of preparedness before the clinical placement. P07_

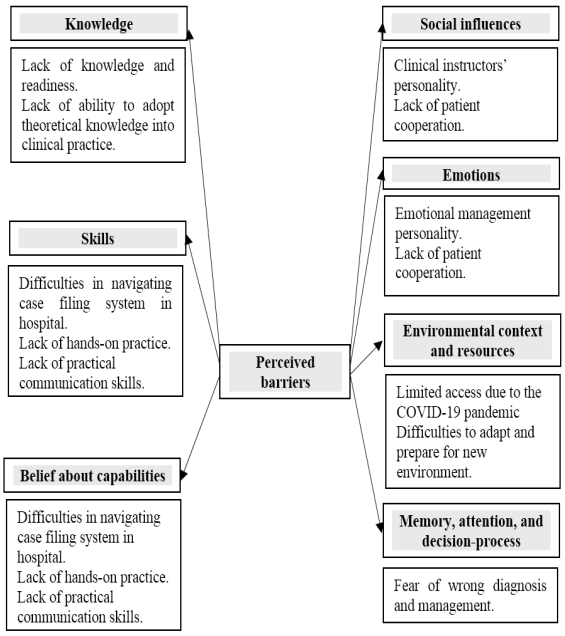

Figure 2. Overview of the sub-themes for perceived barriers

Female said, *"So, uh, the experiences, it's like we were ready, everything is already prepared in my mind, but the outcomes make us feel like it was not enough, there was a feeling of something important that was left out that made us feel incomplete. We were dissatisfied as the process was not completed."* Dietetics graduates also frequently mentioned that the active participation of actual patients may enhance the preparation for clinical training regarding communication skills due to reproductive actions on repetition of performing counseling patients. A previous study also supported that Patient Centered Care (PCC) established communications between the professional and the patients (Olsson *et al.* 2013). This training has been proven relevant in improving the self-efficacy of healthcare professionals in terms of their communication skills through the participant-centred care process (Mata *et al.* 2021). In addition, a previous study also highlighted the importance of communication skills influencing perfect patient satisfaction scores in nutrition counseling (Knight *et al.* 2020). Lack of preparation in knowledge and skills in the early stages of clinical training impedes their ability to communicate effectively with patients, thus influencing their readiness for dietetics practice (Teng & Najlan 2019). Sub-themes and supporting quotes are summarized in Table 2.

Table 2. Arising sub-themes of perceived barriers and supporting quotes

Domains	Sub-themes of perceived facilitators	Supporting quotes
Knowledge	Lack of knowledge and readiness	"So, uh, the experiences, it's like we were ready, everything is prepared in mind, but what came out makes us feel like it was not enough, there was a feeling of something important that was left out made us feel incomplete. We were dissatisfied as the process was not completed." (P07_Female)
	Lack of ability to adopt theoretical knowledge into clinical practice	"We immediately went for clinical, especially since we had to learn the theories online during the pandemic. So, all the case studies and discussions were conducted online. Thus, we were lost in the early clinical training days because we did not know how to apply." (P14_Female)
Skills	Difficulties in navigating the case filing system in the hospital	"We didn't know what BHT is, bed head tickets, and what dietitians' care notes (DCN). We only know about MNT and NCP processes. I mean the system they are using in the hospital. It's different from my mindset, so the university also didn't teach us about the complete details of the system used in the hospital." (P11_Male)
	Lack of hands-on practice	"We couldn't attend wards, so we did it virtually with clinical instructors. It was like a role-play simulation with the clinical instructors. The experiences were okay, but we had to do it ourselves during clinical training, so it was different because we did not have real experiences." (P02_Female)
	Lack of practical communication skills	"When you meet patients, they will be like 'what is diet recall?', then you must educate them in layman's terms. That is the biggest problem." (P10_Female)

Continue from Table 2

Domains	Sub-themes of perceived facilitators	Supporting quotes
Belief about capabilities	Students perceived self-incompetency	“I am not satisfied with myself. In terms of preparation during phase 1, it was inorganized. If I had to rate myself out of ten, it would be four out of ten because I'm unprepared.” (P03_Female)
	Guilty of not performing up to the expected standard	“We worried that everything we said was wrong, and what is more concerning us if patients did not understand what we were trying to say.” (P01_Female)
Emotions	Emotional management	"Honestly, it was tiring mentally and physically because you had to attend clinical from eight to five in the evening. Whether you went to health clinics, hospitals, or just simulation, you still had to clerk cases. You couldn’t even do other things or even relax. If you didn’t attend clinical in the hospital, you still get cases from clinical instructors.” (P05_Female)
	Mental and physical exhaustion	“We were indeed tired, like mentally exhausted. We had to complete all ADIME and all the reports because you had to submit them by Monday. It means you had to submit it all on Sunday.” (P10_Female)
Environmental context and resources	Limited access due to the COVID-19 pandemic	“I think the experiences were unfair due to the pandemic. So, the exposure of the clinical experiences we got was lesser than other cohorts.” (P11_Male)
	Difficulties in adapting and preparing for new environments	"It was stressful to adapt to the hospital environment, but over time, it got better by days.” (P08_Female)
Social influences	Clinical instructors’ personality	“To be honest, I once cried in front of the CI. I cried because I got mad at myself every day. There was one time; I cried because I couldn’t hold it back.” (P04_Female)
	Lack of patient cooperation	“It was difficult to counsel patients as they only listened to themselves. They did not listen to our advice. Sometimes, patients had to meet us several times, even for simple advice like eating.” (P09_Female)
Memory, attention, and decision-process	Fear of wrong diagnosis and management	“I became nervous every time I was given cases. It is because of being fearful. I was afraid I misdiagnosed the patients, gave inaccurate intervention, or misunderstood the case, especially during inpatient training.” (P05_Female)

CONCLUSION

In conclusion, this qualitative study provides a detailed exploration of dietetics graduates' perspectives on perceived barriers and facilitators throughout their clinical training journey in local healthcare settings in Malaysia. The most recurring perceived barrier among dietetics graduates is a need for more knowledge and readiness for clinical training. Lacking knowledge and being unprepared for clinical training contributed to low self-esteem and confidence in providing nutritional care for patients. However, the most frequently perceived facilitator reported by the dietetics graduate is early preparation and understanding in nutrition counseling. These findings may help develop a more practical and effective dietetics curriculum to enhance dietetics students' competency throughout their bachelor's degree and preparedness for the dietetics workforce in the future.

A wide range of perspectives was identified that enabled a more profound exploration of dietetics graduates' perceived facilitators and barriers during clinical training in Malaysia with a minimum of one hour through in-depth interviews and semi-structured questionnaires. Data from this study has reached data saturation; hence, these findings may help develop a more practical and effective dietetics curriculum for educators to enhance dietetics students’ early preparation for clinical training. However, there are several limitations in conducting this study. Due to the lengthy data collection method interview, the recruitment of participants took

longer than planned, dragging data analysis and thematic analysis. Besides that, the researcher has lower literacy regarding thematic analysis. Hence, qualitative experts were referred. In addition, there were some disruptions in the internet connection during the interview. Still, to ensure all details and questions were asked, the researcher repeated the questions and asked participants to re-answer the questions.

The recommendation for future research is to conduct an in-depth exploration using a qualitative approach among Clinical Instructors (CIs) to study their perceptions and experiences in supervising dietetics students in identifying potential clinical training areas or students that need improvement.

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DECLARATION OF CONFLICT OF INTERESTS

The authors have no conflict of interest.

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