Understanding International Students' Perspective of Health Service Quality: A Cross-Sectional Study in a Hungarian University

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Purpose: Understanding patient's preferences is important to delivering good quality services. Patients' feedback provides healthcare providers with valuable information about the services provided. The increasing number of international students enrolling in Hungarian Universities raises the need to ensure the quality of services meets international students' requirements, which includes healthcare. This study aimed to assess service quality in the University Health Center (UHC) from the international student's point of view to be used to improve the quality of services.

Methods: This cross-sectional study was conducted at the university health center. We used a mixed methods approach to collect both quantitative and qualitative data. We used the importance-performance analysis (IPA) for quantitative analysis to understand expectations and perceptions in service research. The qualitative analysis was conducted from responses to reflection questions. The qualitative data were then analyzed using thematic analysis.

Results: 437 international students participated in the study, but only 402 (91.99%) were analysed. The gaps between the importance and performance of service quality were negative in all dimensions (P-value < 0.001). This suggests that there is an unmet need for student expectations and university health center performance. From the Importance factor, the highest and lowest were related to safety (4.54 ± 0.56) and efficiency (4.31 ± 0.66) dimensions. The Performance factor's highest and lowest mean scores were also related to safety (4.22 ± 0.72) and efficiency (3.91 ± 0.87), respectively. From qualitative analysis, there are two major themes several secondary themes from the thematic analysis of free-text responses were identified.

Conclusion: The importance and performance analysis could provide useful information to university policymakers about university health center service quality. There is a need for improvement and obviating the importance-performance gaps, especially in the efficiency dimension. Decision-makers can use the IPA analysis results to allocate limited resources more effectively, giving special attention to possible organizational weaknesses for further direction.

Keywords: healthcare, service quality, international students

Introduction

Measuring the service quality of healthcare facilities is essential for healthcare systems worldwide. Healthcare organisations have realised that providing quality service is key to economic and long-term sustainability success in a competitive market.[1] University healthcare providers are no exception. Understanding patient's preferences, needs, and values is important to delivering good quality services.[2] Patients' feedback provides healthcare providers valuable information about the services provided.[3] Furthermore, assessing patients' feedback will give a clear picture of what is working well and what needs further improvement in the service provided.[2,3]

Hungary has become a popular destination for international students to pursue higher education degrees.[4,5] The number of international students in Hungary increased yearly following the launch of the Stipendium Hungaricum scholarship program in 2013.[4,6] The increasing number of international students enrolling in Hungarian Universities raises the need to ensure the quality of services meet international students' requirements, which includes healthcare.[7]

A comprehensive quality system for universities with international students has become one of the pivotal issues inherent in higher education strategy policy. In adhering to policy, universities should consider the quality of healthcare services and the satisfaction derived from such services for students of different nationalities.[8] Service quality can be measured by comparing the perception of expected service with the service received and perceived by customers.[9,10] Researchers suggest that service providers must compare expected and perceived service quality to identify the gap between the two, apply feedback from patients to improve service quality and assess the experience of medical care and the perception of quality provided by patients.[11–14] Understanding the gap between expectations and perceptions can provide additional insights into the background of service excellence.

Assessing patient expectations and perceptions of health service delivery has been an ongoing challenge.[9] Many studies have focused on the quality of healthcare services from patients' perspectives, while only a few studies have investigated this among international students. To date, no study has been conducted to assess service quality in the University Health Center (UHC) from the international student's point of view. Such investigation is expected to contribute to a better understanding of the issues faced by international students concerning healthcare services.

The University of Debrecen is one institution with the largest population of international students in Hungary.[15] At the University of Debrecen, the University Health Center (UHC) has become a full-service center providing general care for students while away from their primary care providers in their home countries, The UHC services are free to the students, included in their tuition fee or paid by the Hungarian government. It is coordinated by the Coordinating Center of the international office and it is run by the University of Debrecen YouMed a non-profit organisation. The UHC is located on the main campus close to the Coordinating Center for International Students. The center is open from Monday to Friday from 8.00 to 16.00. For seeking care, students need to call, send an Email or book an appointment online before visiting the UHC, but in case of emergency, they also see same-day walk-in patients.[16]

As healthcare providers encounter and treat an increasingly diverse range of patients, they need to understand the characteristics of different groups and the cultural values of foreign students to serve them better.[8] To understand international students' expectations and perceptions of health services, the importance-performance analysis (IPA) was performed. The IPA approach measured satisfaction from two components: the importance of service to the customer (Importance) and the providers' performance in providing such services (Performance).[17] This means that IPA examined Performance and Importance as two important components determining customer satisfaction.[11] Combining customer ratings from Performance and Importance provided an overall view of satisfaction and clear direction for management regarding where to focus their resources.[13,18,19] The IPA methodology involves the comparison of an ideal value with the existing reality, providing a mechanism for assessing the alignment or disparity between theoretical ideals and practical outcomes. The IPA method has several advantages, such as being easy to administer, efficient, and applicable to various fields.[11,12,20] In the healthcare sector, the IPA method has been used to assess the quality of services from the patient's point of view in primary healthcare, dental services, hospitals, and medical services.[9–11,13,19,21,22]

The results of this study will be useful for the UHC's strategic planning process, specifically concerning future resource allocation towards quality improvement. Therefore, this study aimed to assess service quality in the university health center from an international student's point of view using the importance-performance analysis (IPA) to be used to improve the quality of services.

Methods
Study Design and Setting

This cross-sectional study was conducted at The University of Debrecen using an Importance Performance Analysis (IPA).[17] The IPA two-dimensional matrix used Performance as an X-axis and Importance as a Y-axis to categorise components of services into four quadrants to set the priorities in allocating limited resources.

The study population was international students at all levels and faculties. According to the University website, the University of Debrecen had a total population of 7000+ international students from 120+ countries in 2022.[23]

Sample Size and Participants

The calculations with Raosoft Calculator show that the minimum number of participants required in the sample would be 363 respondents. The inclusion criteria in this study are international students in the University of Debrecen aged ≥ 18 years, having active student status from the University of Debrecen, and having visited or used the University Health Center at least once. The study participants were international students at all degree levels at the University of Debrecen and were recruited by convenience sampling.

Data Collection

We used a mixed methods approach to collect both quantitative and qualitative data. Quantitative methods allow for a convenient, reproducible way to measure international students' expectations and perceptions of healthcare services. Concurrently, qualitative methods allowed investigators to explore international students' views of the quality of service and the scope for improvement at the University Health Center.

Data were collected using a self-administered questionnaire developed from our previously published study to explore quality dimensions for service quality in the University Health Center. The questionnaire consisted of three parts. The first part consisted of the socio-demographic profiles of international students. The second part consisted of 25 pairs of statements developed to record student perspectives surrounding the two central components of the study: individual student importance and service quality of provider performance.

The questions were scored based on the Likert scale (from 1: total disagreement to 5: total agreement). Each quality dimension had two aspects, performance and importance, and students rated them. The reliability of the questionnaire was verified by Cronbach's alpha coefficient of 0.93. The last section consists of reflection questions in a free text format evaluating international students' views on what changes or improvements have to be made regarding healthcare services for future directions.

The cross-sectional survey was developed as an online survey using Google Forms and offline surveys. The online survey was distributed to international students through social media (Facebook, Instagram, and WhatsApp). The offline survey was distributed through the University Health Center and researchers' networks. The combination of online and offline methods was chosen to minimise bias due to the standard challenge of online surveys, such as low response rates, unequal participant distribution, and participant fraud.[24] The onsite requirement was conducted to minimise it, although recall bias is expected in both online and onsite questionnaires.[24,25]

Furthermore, the University of Debrecen is a multi-campus university. Its campuses are located in different parts of the city, namely Debrecen (Main Building, Böszörményi, Ótemető, and Kassai Campus), Nyíregyháza, Hajdúböszörmény, and Szolnok.[23,26–28] Therefore, conducting online and offline methods for data collection increased the reach of international students at the University of Debrecen. The data collection was held from 14 August- 20 September 2022.

Data Analysis
Quantitative Data

All data were edited and cleaned for analysis. Quantitative data were imported into SPSS. Descriptive statistics were used to obtain variable distributions (ie, frequencies, percentages, means). The four quadrants of the matrix were identified as "keep up the good work" (Q1), "possible overkill" (Q2), "low priority" (Q3) and "concentrate here" (Q4).

Q1) Concentrate here: Customers feel that the service or quality characteristic of the services is high, but the organisation's performance is low.

Q2) Keep up with the good work: Customers feel that the service or quality characteristic of the services is high, and the organisation's performance is also high.

Q3) Low priority: The performance of the organisation's product or service quality characteristic is low, and the importance perceived by the customer is also low.

Q4) Possible overkill: The performance of the organisation's product or service quality characteristic is high, but the importance perceived by the customer is low.

Attributes in the four quadrants represent different implications for managerial actions, as described by Martilla and James.[17]

Qualitative Data

The qualitative analysis was conducted from responses to reflection questions. Data were initially imported into Microsoft Excel, and then NVivo 12 Plus software was utilized in the data analysis process. The qualitative data was analyzed using thematic analysis, in which the researcher identified patterned themes. Thematic analysis steps include transcription, familiarization of data, open coding of the entire data, axial coding (identifying the association of codes and integrating associated codes into a thematic category), and selective coding (selecting and integrating categories into main themes).[29] Three authors with qualitative analysis expertise (PAI, LPS, ID) read the transcripts of the responses to each of the two reflection questions independently and developed a preliminary codebook to assign descriptive codes to text segments. The three authors then discussed it online to reach a consensus on the code, and a final codebook was created. It is then used to recode each transcript.

Ethical Consideration

The study poses only negligible risk to participants, and the indirect benefits could substantially improve access and utilization of appropriate healthcare services. The Faculty of Medicine ethics committee reviewed and approved the study at the University of Debrecen with ethics decree number (DE RKEB/IKEB) 6047–2022 on 20 April 2022. The study ensured the confidentiality and anonymity of the study participants from research up to publication. All participants obtained electronic written informed consent. In addition, this study was conducted conforming to the Declaration of Helsinki.

Results

437 international students participated in the cross-sectional survey, but only 402 (91.99%) were analysed. As shown in Table 1, the mean age of international students was 23.72. Most participants were female (51.24%), 51.99% were from Asia, 46.52% were Bachelor students, and 78.86% were unmarried. The majority of the students (55.47%) were studying

Table 1 Socio-Demographic Characteristics of International Student

Variables (n=402)	n (%)
Age	
Mean (SD)	23.72 (5.51)
Min, Max	18, 50
Gender	
Male	196 (48.76)
Female	206 (51.24)
Nationality	
America	20 (4.98)
Africa	152 (37.81)
Asia	209 (51.99)
Europe	21 (5.22)

(Continued)

Table 1 (Continued).

Variables (n=402)	n (%)
Level of Study	
Bachelor	187 (46.52)
Master	73 (18.16)
PhD	53 (13.18)
1 Tier Degree	64 (15.92)
Others	25 (6.22)
Marital Status	
Single	317 (78.86)
In relationship	51 (12.69)
Married	34 (8.45)
Faculty	
Non-Health	223 (55.47)
Health	179 (44.53)
Student status	
First year	165 (41.04)
Second years	101 (25.12)
Third years	60 (14.93)
Fourth years	26 (6.47)
Others	50 (12.44)
Sponsorship	
Self-payment	204 (50.75)
Scholarship	198 (49.25)
Religion	
Christian	149 (37.06)
Muslim	173 (43.03)
Others	30 (7.46)
No religion	50 (12.44)
Last visit to the UHC	
Less than 1 month	160 (39.80)
Between 1–2 months	90 (22.39)
More than 3 months	152 (37.81)

at non-health-related faculties, 41.04% were first-years, and 50.75% were participating in a self-funded program. The majority of the students adhered to the Muslim religion (43.03%). Additionally, 39.80% of the participants visited the University Health Center in less than a month.

Quantitative Results

The overall mean scores for the importance and performance gap have been shown in Table 2. The gaps between the importance and performance were negative in all dimensions (P-value < 0.001). This finding suggests that there is an unmet need between student expectations and university health center performance.From the Importance factor, the highest and lowest were related to safety (4.54 ± 0.56) and efficiency (4.31 ± 0.66) dimensions. The Performance factor's highest and lowest mean scores were also related to safety (4.22 ± 0.72) and efficiency (3.91 ± 0.87), respectively.

Table 3 describes the mean scores of sub-attributes of importance and performance analysis in detail. It shows that in the empathy dimension, the largest negative gap is "healthcare workers tell you what you want to know about your symptoms and illness" (−0.38). From the Equity dimension, "health workers treating every patient exactly the same" has the biggest negative gap (−0.46). In the Effectiveness dimension, "Health workers use effective English in providing care" had the biggest negative gap with −0.35. Furthermore, in the Efficiency dimension, "Waiting time for examination

Table 2 The Mean ± SD Scores of Importance, Performance and Quality Gaps

Quality Attribute	Importance	Performance	Gap	P-value
Empathy	4.52 ± 0.58	4.19 ± 0.74	− 0.33	<0.0001
Equity	4.52 ± 0.62	4.13 ± 0.79	− 0.39	<0.0001
Effectiveness	4.32 ± 0.65	3.99 ± 0.81	− 0.33	<0.0001
Efficiency	4.31 ± 0.66	3.91 ± 0.87	− 0.40	<0.0001
Safety	4.54 ± 0.56	4.22 ± 0.72	− 0.32	<0.0001

Notes: *** Values are expressed as mean ± SD. ***P<0.001.

Table 3 The Mean ± SD Scores of Service Quality Attribute

No	Quality Attribute	Importance	Performance	Gap	P-value
	Empathy				
1	Health workers listening to you.	4.65 ± 0.61	4.31 ± 0.78	−0.35	<0.0001
2	Health workers help you to feel well so that you can perform your normal daily activities	4.46 ± 0.76	4.13 ± 0.84	−0.32	<0.0001
3	Health care workers tell you what you want to know about your symptoms and illness	4.60 ± 0.67	4.23 ± 0.87	−0.38	<0.0001
4	Health care workers make you feel comfortable during consultation	4.50 ± 0.74	4.24 ± 0.87	−0.27	<0.0001
5	Health care workers involving you in decisions about your medical care	4.41 ± 0.83	4.06 ± 0.97	−0.36	<0.0001
	Equity				
6	Health workers treating every patient exactly the same	4.45 ± 0.92	3.99 ± 1.06	−0.46	<0.0001
7	Health care workers treated with dignity and compassion	4.58 ± 0.72	4.23 ± 0.86	−0.35	<0.0001
8	Health care workers are always willing to help	4.52 ± 0.72	4.19 ± 0.92	−0.33	<0.0001
9	Health care services are affordable	4.53 ± 0.75	4.12 ± 0.96	−0.41	<0.0001
10	Comprehensive service available to all	4.54 ± 0.77	4.09 ± 0.97	−0.45	<0.0001

(*Continued*)

Table 3 (Continued).

No	Quality Attribute	Importance	Performance	Gap	P-value
	Effectiveness				
11	Health workers use effective English in providing care	4.44 ± 0.79	4.08± 1.03	−0.35	<0.0001
12	Health workers knowing what s/he had done or told you during contacts	4.49 ± 0.74	4.15 ± 0.85	−0.34	<0.0001
13	Quick relief of your symptoms after examination	4.18 ± 0.86	3.85 ± 1.00	−0.33	<0.0001
14	A visit to the doctor usually results in an improvement in health	4.24 ± 0.88	3.93 ± 0.95	−0.31	<0.0001
15	My physical and mental state improved after the visit to the doctor	4.24 ± 0.90	3.93 ± 1.01	−0.32	<0.0001
	Efficiency				
16	Getting an appointment to suit you	4.35 ± 0.85	3.91 ± 1.14	−0.45	<0.0001
17	Getting service through digital services	4.13 ± 0.99	3.89 ± 1.03	−0.24	<0.0001
18	Waiting time for examination fast	4.20 ± 0.94	3.71 ± 1.15	−0.49	<0.0001
19	Health workers provide service competently	4.53 ± 0.69	4.15 ± 0.87	−0.38	<0.0001
20	Overall service time in line with expectation	4.38 ± 0.80	3.92 ± 1.02	−0.46	<0.0001
	Safety				
21	Create a safe patient experience	4.62 ± 0.70	4.34 ± 0.80	−0.28	<0.0001
22	Explaining the purpose of tests and treatments	4.50 ± 0.74	4.15 ± 0.94	−0.35	<0.0001
23	The center insists on error-free record	4.43 ± 0.80	4.08 ± 0.89	−0.34	<0.0001
24	Medical devices use in the center	4.51 ± 0.70	4.18 ± 0.83	−0.33	<0.0001
25	Keeping your records and data confidential	4.68 ± 0.61	4.37 ± 0.75	−0.31	<0.0001

Notes: [a,b]Values are expressed as mean ± SD. [c] Gap = performance score-importance score. [d] P<0.001.

fast" has a negative gap of −0.49. In the Safety dimension, the item" Explaining the purpose of tests and treatments" has the biggest negative gap (−0.35). The next step for analysis was conducting The IP matrix. The matrix was drawn after determining the Importance and Performance scores of each quality dimension and component.

Figure 1 shows that Quadrant I (the concentrate here quadrant) captured a single attribute for international students: "Health Workers treating every patient exactly the same" (item no.6)". This means that according to the international students in the study, the Equity attribute for treating patients equally has high importance but low performance. In the "Keep up the good work" Quadrant (Q II), students identified 13 attributes (Empathy- items 1, 3, 4, Equity-items 7,8,9,10, Effectiveness-item 12, and Safety-items 21,22,24,25) that could be considered satisfactory in meeting their needs. Furthermore, in the low-priority quadrant (Q III), international students identified eight attributes (Empathy-item 5, Effectiveness-item 13,14,15, Efficiency-item 16,17,18,20). Those items where health centers perform adequately, but students perceive them as less important than other attributes. Finally, in the Possible Overkill quadrant (IV), our analysis identified two attributes (items 2 and 11) considered low by international students. There is 1 item ("The center insists on error-free record") at the border of quadrants 1 and 3, which should be improved.

Qualitative Result

In addition to the quantitative result, our study found two major and several secondary themes from the thematic analysis of the free-text responses. Each major theme contained three sub-themes. Figure 2 depicts how themes were identified.

According to the international students, the UHC can improve service quality by considering human resources and its services. Regarding the human resources aspect, international students stated that health workers should improve in the
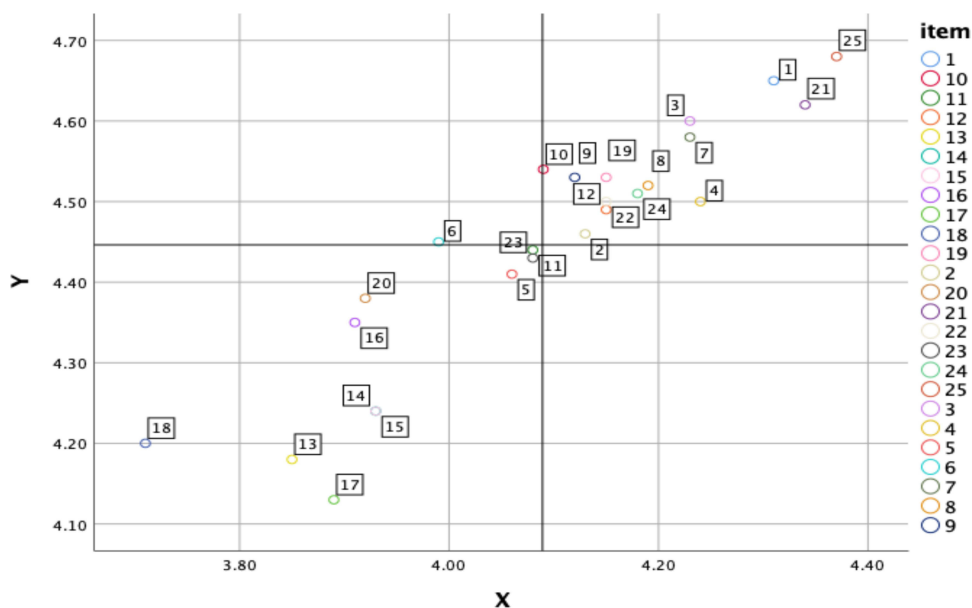
Figure 1 The Importance-Performance Matrix. ***The X-axis represents performance and the Y-axis represents importance. *** Values are expressed as mean values of importance and performance from Table 3.
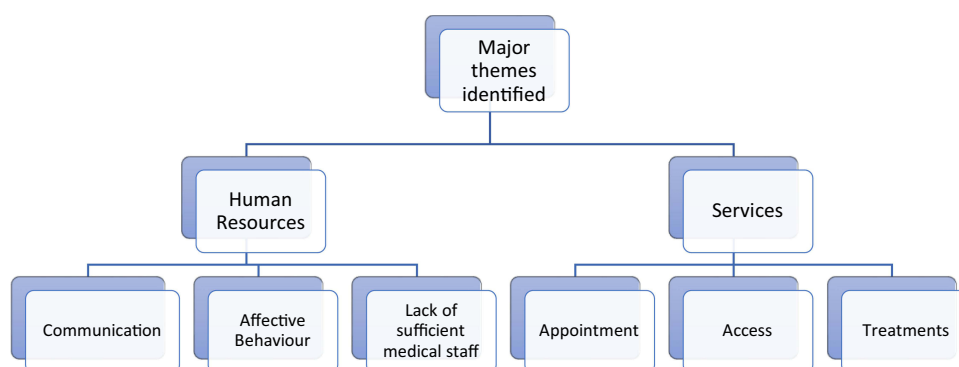
Figure 2 Qualitative themes.

areas of communication and affective behaviour. They suggested that the number of medical staff in the UHC be increased. In sub-theme services, students pointed out that the number of appointments, access to services, and treatments are important for future directions.

Major Theme: Human Resources

The international students from different countries and cultural backgrounds at the University of Debrecen primarily recognized that human resources had become an important issue for improving quality services at the UHC.

Sub-Theme: Communication

It was not surprising to confirm that, as providers who encounter and treat diverse patients from different nationalities, health workers at UHCs need to communicate effectively. The main issue that remains challenging for international students when seeking care in the UHC is the language barrier.

> The language barrier sometimes makes it difficult (Student_offline_87)

> Making the health workers speak the basics English at least, and explain how the TAJ card (Hungarian Social Insurance) helps us because until now, I do not know when it is useful or not… (Student_online_55)

Apart from language barriers, creating good interaction in communication between patients and health workers was also important for international students concerning the quality of health care services.

> Healthcare quality could be improved by conducting more research when a patient has a problem. Most of the time, not enough measures are taken to ensure a patient is cured (Student_offline_50)

> The quality provided by the university health center is adequate to alleviate a patient's symptoms, but interaction with the international student has proved quite problematic … (Student_offline_65)

Sub-Theme: Affective Behavior

In other cases, students also pointed out that healthcare workers are expected to improve their affective skills. Affective skill, in this essence, is related to the ability of health workers to show empathy and respect in communication with patients. Affective behavior will contribute to the patient's impression of the center and could affect patient treatment and outcomes.

> Equitable treatment and respect, most importantly, more empathetic staff required with better English skills (student_online_48)

> I hope health workers tell us more details about our symptoms and illness and also treat the patients with dignity and compassion (student_online_15)

Sub-Theme: Lack of Sufficient Medical Staff

Furthermore, international students suggest that considering the huge number of international students at The University of Debrecen, it is important that the UHC have more doctors to provide services. The lack of doctors in the center has directly affected the service provided by the UHC, such as relatively late appointments and long waiting times.

> The amount of doctors available for international students is too low for the number of students, which leads to late appointments (Student_offline_105)

> More international doctors who understand the situation (Student_online_117)

Major Theme: Services
Sub-Theme: Appointment

In addition to human resources, in terms of services provided by the Center for International Students, appointments, access, and services are the remaining issues that need to be improved by the UHC. Students pointed out that long waiting times to get an appointment might hinder students in seeking care.

> The quality of health care provided is good; however, at times, making online appointments for certain health conditions is tricky because it takes so long (student_offline-19)

> The care is good, but getting an appointment close enough is a big problem (student_offline_33)

Sub-Theme: Access

Additionally, students expected the UHC could improve access to several issues the international student faces, for instance, access to mental health services and care. It is also expected that the UHC can provide 24-hour services and be open during the weekend, as students might get sick late at night. Others also mention that it would be beneficial if the UHC gave them access to their electronic medical record to make it easy to maintain their health.

> I believe mental health awareness campaigns should be effective, and consultation services must be better. (Student_online_11)

> If the center gives a function 24 hours a week, it is better for students. (Student_offline_69)

I would require them to provide student access to the website where they can check their health and previous records and tests…. (Student_offline_6)

Sub-Theme: Treatment

Lastly, the international students expect that healthcare workers in the center will provide them with a thorough examination. It highly correlates with the communication aspect of healthcare workers. Students pointed out that health workers need to give them detailed explanations of their disease, the purpose of tests and treatments, and referrals.

[The GP] should inform the patient about the exact disease instead of only giving medicines (Student_offline_150)

In general, it's okay for me, but sometimes, the examination can feel rushed, and some symptoms may be forgotten. Also, when referred somewhere like a department, it is hard to find [the place] (Student_offline_17)

Discussion

This study aimed to assess service quality in the university health center from an international student's point of view. To determine the service quality of UHC, we used IPA to explore priorities that could be improved. This is because IPA evaluates strengths (keep up with the good work) and weaknesses (concentrate here).[12,21] The results may produce a more realistic understanding of prioritizing goals to improve the service quality of university health centers and produce an evidenced-based strategy for program development.[9,13,22]

Our study found a significant negative gap between the Importance and Performance components of service quality from the international student's point of view. This finding aligns with several published studies in hospital settings and medical centers.[9,10,18] This suggests an unmet need for student expectations and university health center performance. It is essential to note that ideal situations, characterized by perfection or optimality, are frequently challenging to fully realize in practice. This acknowledgment underscores the recognition that achieving ideal conditions is often a complex and multifaceted endeavor, subject to various real-world constraints and limitations. Although this study found a significant negative gap, compared to other studies in healthcare settings in several countries such as Brazil[11] and Iran,[10,13,19] the findings of this study are better. This indicates that the University Health Center offers a commendable service compared to international providers. However, it is crucial to consider that there exists a difference in the target population and attributes used in the analysis of importance and performance components.

This study also found that the highest and lowest were related to safety and efficiency dimensions from the Importance and Performance factors. This means that the UHC in this study was highly committed to putting patient safety at a high standard for international students. Patient safety is vital to primary care service quality.[25,30] However, efficiency still becomes a remaining problem in the UHC. As shown from the result, the waiting times for examination have the largest negative gap in the efficiency dimension that might affect international student satisfaction with the service. The qualitative finding suggests that a lack of staff, especially the availability of GPs, might delay health service delivery to the students. The lack of GPs is not only happening in Hungarian primary health care. GP shortage remains a substantial issue in Europe. Several studies found that the GP shortage in Europe might contribute to the workforce crisis in primary care.[31–33] A study in Hungary also revealed a significant decrease in GPs in all types of practices.[33]

From IPA analysis, the study found that the "Concentrate Here" quadrant (Q1) captured a single attribute for international students: "Health Workers treating every patient exactly the same" (item no.6)". This means that according to the international students, the Equity attribute in treating patients fairly has high importance but low performance. This might relate to different cultural backgrounds. International students in Hungary experience multiple new experiences and cultures that differ greatly from their home country. Several studies suggest that international students hope medical staff will treat them fairly despite their backgrounds.[34–36] On the contrary, host country healthcare providers experience challenges in providing healthcare for international students due to language differences, cultural differences, and limited resources.[35,37]

Strength and Limitations

The findings of this study can help decision-makers identify the strengths and weaknesses of quality dimensions resulting from the importance and performance analysis. The results can also help decision-makers improve service quality and patient satisfaction by emphasizing service recipients' perceptions. Lastly, it could assist healthcare managers in better understanding patient perceptions and expectations with different cultural backgrounds.

The limitation of our study stems from the potential impact of international students' need for more information about the expected level of healthcare services provided by the University Health Center (UHC). This lack of awareness may lead to biased estimates due to insufficient health literacy. Additionally, a scale ranging from 1 to 5 may not provide sufficient scope for expressing a nuanced opinion. A bias among test subjects may also influence interpretations, as dissatisfied patients might be more inclined to fill out such evaluations than satisfied ones.

Future Research

It was found that the UHC offers a commendable service compared to international providers; however, there is room for improvement and reducing several negative importance-performance gaps. As a result of the study, the UHC has made some improvements. Regarding the language barrier, the doctors and nurses participate in regular English Classes. From January 2024, the UHC has increased the number of healthcare workers for services. There are additional full-time doctors. From 1 full-time doctor to 4 full-time doctors (2 GPs and 2 Occupational Specialists), a part-time foreign GP, one part-time occupational health specialist, and seven full-time nurses. As a result, it can decrease the waiting time for getting care.

Additionally, emergency appointments are provided from 8.00–8.30 am,11.30–12.30, and 15.30–16.00. The UHC is open from Monday to Friday, 08.00–4.00 pm; outside the opening hours, service is provided by emergency room and ambulance services. The UHC is planning to conduct regular surveys for patients'feedback. This is because the center is committed to patient satisfaction and safety as a priority. Furthermore, to improve international students' health literacy in navigating healthcare services in Hungary, the UHC staff will do regular health education for first-year students and all students every year. Future research is needed to assess interventions implemented to improve service quality at the UHC. Further elaboration on specific outcomes and justification for interventions are important for consideration for the long-term sustainability of good quality healthcare services.

Conclusion

In conclusion, using an IPA analysis matrix, our findings identified key areas for improvement of the selected university health center's service concerning the international students' expectations. The importance and performance analysis provide useful information regarding feedback from international students for the quality of service at the university health center.

There is a need for improvement and obviating the importance-performance gaps, especially in the efficiency dimension. Decision-makers can use the IPA analysis results to allocate limited resources more effectively, giving special attention to possible organizational weaknesses for further direction.

Abbreviations

UHC, University Health Center; IPA, Importance Performance Analysis; GP, General Practitioner.

Disclosure

The authors have no conflict of interest to declare in this work.

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