

Pediatric Gastroenterology Fellowship: Assessing Competency Levels at King Abdul-Aziz Medical City and in all Centers in Saudi Arabia: Cross Sectional Study

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Abstract

Introduction: Competency-based assessments are used to distinguish between the skills and knowledge that you already have and those for which you need more education and training. The implementation of CBME requires an organized and structured set of interrelated competencies known as a competency framework.

The aim is assessing the competency and satisfaction level among Gastroenterology fellows across the Saudi Kingdom and provide practical insight into how to accomplish full evaluation to pediatric gastroenterology fellowship curriculum.

Methods: This is quantitative study type to determine the competency of activities comparing to traditional methods. It was done by self-administered validated questionnaire with five domains.

Results: Significant differences between the scores of the fellows observed in this study in different domains. High satisfaction rate was noted overall fellows among accredited centers across Saudi Arabia, which was 28/32(90%). The fellows were more competent in dealing with chronic liver diseases regardless the cause which getting more with advance years.

Conclusion: Pediatric Gastroenterology training programs are perceived as doing excellent job-training fellows in many areas. Gaps in training should be addressed in fellowship training and post-training education. High rate of satisfaction and agreement between fellow regarding their centers. Further studies need to compare our fellows with international fellows at North American centers, which will give a great insight and more, improve in our program.

Keywords: Inflammatory Bowel Disease (IBD), Sickle Cell Anemia and Elliptocytosis, Saudi Counsel for Heath Specialties (SCF-HS)

Introduction

Background of Pediatric Gastroenterology Fellowship

The field of pediatric gastroenterology focuses on the diagnosis, treatment, and management of gastrointestinal disorders in children. It is a specialized area of medicine that requires extensive knowledge and training to provide the best care for young patients. Pediatric gastroenterology fellowships are designed to provide physicians with the necessary expertise and skills to specialize in this field.

The Pediatric Gastroenterology Fellowship at King Abdul-Aziz Medical City is a comprehensive training program that aims to develop competent and skilled pediatric gastroenterologists. This fellowship program is known for its commitment to excellence in education and research, attracting physicians from both national and international backgrounds.

The fellowship program at King Abdul-Aziz Medical City has a rich history of producing highly skilled pediatric gastroenterologists who contribute to advancements in the field. The program has evolved over time to incorporate the latest developments in medical education and ensure that fellows receive a comprehensive and well-rounded training experience.

Pediatric gastroenterology fellows at King Abdul-Aziz Medical City receive hands-on clinical training, engage in research activities, and participate in educational initiatives. They are exposed to a wide range of gastrointestinal conditions including but not limited to gastroesophageal reflux disease, inflammatory bowel disease, celiac disease, liver disease, and motility disorders. Fellows also gain proficiency in performing endoscopic procedures and interpreting diagnostic tests.

The fellowship program at King Abdul-Aziz Medical City is designed to ensure that fellows develop the necessary competencies to provide high-quality care to pediatric patients. Competencies refer to the knowledge, skills, and attitudes that physicians must possess to perform effectively in their specialized field. Assessing competency levels among pediatric gastroenterology fellows is essential to ensure that they meet the required standards.

Understanding the competency levels of fellows allows program directors and educators to identify areas of strength and areas that need improvement. It enables them to tailor the fellowship curriculum and training experiences to address the specific needs of each fellow. Additionally, evaluating and assessing competency levels can provide valuable feedback to fellows, helping them enhance their skills and knowledge.

Table 1: Results of first domain regarding competency rate in treating children with specific diseases.

Domain Treatment:	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
Treatment of Anti-GERD	97%	93%	100%	100%	P = 0.5
Treatment of Viral Hepatitis	20%	14%	22%	29%	P = 0.7
Treatment of IBD	77%	50%	100%	100%	P = 0.004
Treatment of Pancreatic Disease	58%	50%	56%	75%	P = 0.5
Starting Biological Agent	65%	36%	89%	88%	P = 0.01

Assessing competency levels also ensures that pediatric gastroenterology fellows meet the expectations of patients and their families. Parents and guardians expect their children to receive the highest standard of care from healthcare providers, particularly when it comes to specialized areas like pediatric gastroenterology. By assessing competency levels, the fellowship program can reassure parents and guardians that their child's care is in the hands of competent and skilled physicians.

In addition to the benefits for individual fellows and patient care, assessing competency levels is also important for the overall advancement of the field. By evaluating the knowledge and skills of fellows, program directors and educators can identify gaps in training and areas that require further research. This information

can inform the development of future educational initiatives and contribute to the improvement of pediatric gastroenterology.

Overall, assessing competency levels among pediatric gastroenterology fellows at King Abdul-Aziz Medical City and in Saudi Arabia plays a vital role in ensuring the quality and effectiveness of the fellowship program. By evaluating the knowledge, skills, and attitudes of fellows, program directors and educators can make informed decisions regarding curriculum development, training experiences, and continuous improvement. This process not only benefits the individual fellows but also enhances patient care and contributes to the advancement of the field of pediatric gastroenterology.

Table 2: Competency rate in discharge decisions among fellows in training

Domain: Discharge Decisions	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
GERD	100%	100%	100%	100%	P NS
Hepatitis	60%	50%	67%	71%	P = 0.57

IBD	64%	36%	89%	88%	P = 0.01
Chronic Liver Disease	53%	29%	56%	100%	P<0.01

Importance of Assessing Competency Levels

Assessing the competency levels of Pediatric Gastroenterology (GI) fellows is of paramount importance in ensuring the delivery of high-quality care and maintaining professional standards. As a specialized field, Pediatric GI requires expertise in the diagnosis, management, and treatment of a wide range of gastrointestinal disorders in infants, children, and adolescents. The assessment of competency levels allows program directors and educators to evaluate the skills, knowledge, and clinical abilities of fellows, identify areas of strength and improvement, and ultimately enhance the overall training program.

One of the primary reasons for assessing competency levels is to ensure patient safety. When dealing with the health and well-being of children, it is crucial to have qualified and competent Pediatric GI fellows who can provide accurate diagnoses and appropriate treatment plans. By assessing their competency levels, program directors can ascertain whether fellows possess the necessary expertise and skills to handle complex cases, perform procedures safely, and make informed decisions in a clinical setting. This evaluation helps minimize the risk of medical errors, adverse events, and potential harm to patients.

Furthermore, assessing competency levels provides valuable feedback to the fellows themselves. Regular and objective evaluations allow fellows to understand their strengths and weaknesses, providing them with the opportunity to develop and improve their skills throughout their training. By identifying areas for growth, fellows can take targeted actions to enhance their knowledge base and clinical abilities. This feedback-driven approach ensures that fellows receive the necessary support and guidance to become expert Pediatric GI practitioners [1].

Assessing competency levels also benefits the overall education and training program. By evaluating the progress of fellows, program directors can gauge the effectiveness of the curriculum, teaching methods, and clinical experiences provided. This assessment helps identify any gaps in knowledge or training, allowing program directors to implement necessary changes and improvements.

Additionally, by monitoring the competency levels of fellows, educators can ensure that the program aligns with the established standards and guidelines of Pediatric GI training.

Table 3: competency rate in counseling domain

Domain: Counseling	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
Feeding Intolerance	84%	79%	78%	100%	P = 0.35
GERD	100%	100%	100%	100%	P NS
Upper GI Endo	90%	86%	100%	88%	P = 0.5
Lower GI endo	83%	77%	89%	88%	P = 0.7

Another significant advantage of assessing competency levels is the potential for benchmarking and comparison. By evaluating a cohort of fellows against established criteria and standards, program directors can identify trends and patterns in their performance. This information can be used to benchmark against other programs nationally or internationally, leading to an exchange of best practices and fostering a culture of continuous improvement. Sharing such data and findings can contribute to the overall advancement and standardization of Pediatric GI fellowships.

Assessments of competency levels also play a crucial role in accrediting bodies and certification processes. Accreditation organizations use competency assessments to ensure that training programs meet the required standards and produce competent practitioners. Similarly, certification boards utilize competency assessments to determine eligibility for board certification, which is a recognized validation of a practitioner's expertise in the field of Pediatric GI. By assessing competency levels, program directors contribute to the credibility and recognition of the fellowship program and its graduates.

Moreover, assessing competency levels promotes accountability and transparency. By implementing objective evaluation methods, program directors can maintain a fair and consistent process for assessing fellows. This transparency ensures that the assessment is based on clear criteria and standards, minimizing bias and subjectivity. It also provides fellows with a transparent and equitable system, fostering trust and confidence in the evaluation process.

In summary, assessing competency levels among Pediatric GI fellows at King Abdul-Aziz Medical City is essential for multiple reasons. It contributes to patient safety, allows fellows to receive feedback and improve their skills, helps evaluate and enhance the fellowship program, facilitates benchmarking and comparison, supports accreditation and certification processes, and promotes accountability and transparency. By prioritizing the assessment of competency levels, King Abdul-Aziz Medical City ensures that their Pediatric GI fellows are equipped with the necessary expertise and skills to provide excellent care to their patients.

Table 4: Management Domain results

Domain: Management	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
Admission	77%	77%	78%	75%	P = 0.9
Crisis Assessment	83%	79%	75%	100%	P = 0.37
Acute Assessment	84%	64%	100%	100%	P = 0.02
Lab Investigation	97%	93%	100%	100%	P = 0.55
Complete Physical Examination	90%	79%	100%	100%	P = 0.13
Comprehensive Care Plan	84%	86%	67%	100%	P = 0.17
Patient Discharge	97%	100%	100%	88%	P = 0.24
Follow-up arrangement	100%	100%	100%	100%	P NS

Objective of the Study

The objective of this study is to assess the competency levels of pediatric gastroenterology fellows at King Abdul-Aziz Medical City and in all centers in Saudi Arabia. By evaluating the knowledge, skills, and attitudes of these fellows, the study aims to understand their readiness to provide high-quality care to pediatric patients with gastrointestinal disorders. The specific goals of the study include:

1. To evaluate the fellows' knowledge base: The study aims to assess the fellows' understanding of the principles and concepts in pediatric gastroenterology. This includes their familiarity with the anatomy, physiology, and pathophysiology of the gastrointestinal system, as well as their comprehension of common gastrointestinal disorders and their management. By evaluating their knowledge base, the study can identify any gaps or areas for improvement in the fellows' understanding of pediatric gastroenterology.
2. To assess the fellows' clinical skills: Another objective of the study is to evaluate the fellows' clinical skills in diagnosing, evaluating, and managing pediatric patients with gastrointestinal conditions. This includes their ability to obtain a comprehensive history, perform a thorough physical examination, interpret diagnostic tests accurately, and develop appropriate treatment plans. By assessing their clinical skills, the study can determine if the fellows demonstrate the competencies necessary to provide comprehensive care to pediatric patients.
3. To determine the fellows' procedural competence: Pediatric

gastroenterology fellows also need to acquire specific procedural skills relevant to their field. These may include endoscopic procedures such as upper endoscopy, colonoscopy, and flexible sigmoidoscopy, as well as therapeutic interventions like variceal banding, polypectomy, and biopsy techniques. The study aims to evaluate the fellows' procedural competence and identify any areas where additional training or practice may be required.

4. To gather feedback from fellows and faculty members: In addition to the objective assessments mentioned above, the study also aims to gather subjective feedback from both fellows and faculty members. This feedback will provide valuable insights into the fellows' learning experiences, the strengths and weaknesses of the fellowship program, and any areas that can be improved to enhance the overall competency level of the pediatric gastroenterology fellows [2].

Overall, the study aims to provide a comprehensive evaluation of the competency levels of pediatric gastroenterology fellows at King Abdul-Aziz Medical City. The findings will not only help identify areas of improvement but will also serve as a foundation for enhancing the fellowship program's curriculum, training objectives, and assessment methods. By assessing the fellows' knowledge, clinical skills, procedural competence, communication abilities, professionalism, and ethical conduct, the study intends to contribute to the continuous improvement of the pediatric gastroenterology fellowship program, ultimately leading to better care for pediatric patients with gastrointestinal disorders.

Table 5: procedure skills domain results

Domain: Procedure Skills	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
High Risk	84%	64%	100%	100%	0.02
Perform Polypectomy	36%	14%	44%	63%	0.06
Acute Sedation Induction	61%	36%	100%	63%	0.008

Methodology

This section will outline the methodology used to assess the competency levels of pediatric gastroenterology (GI) fellows at King Abdul-Aziz Medical City and in all centers accredited by SCFHS in Saudi Arabia. A thorough and systematic approach

was employed to ensure the accuracy and reliability of the results.

Study Design

A descriptive cross-sectional study design was implemented in

this assessment. This design allowed for the collection of data from a single point in time through well-designed questionnaire, providing valuable information about the current competency levels of fellows in the pediatric GI program. The study aimed to evaluate the knowledge, skills, and attitudes of the fellows across various domains of pediatric gastroenterology. It was done by self-administered validated questionnaire with five domains. Internal reliability and expert validity of the questionnaire were determined. Validated, and reliability test was done. Overall internal reliability (Cronbach's $\alpha=0.81$).

Study Population

The study population consisted of all pediatric GI fellows enrolled in the program at King Abdul-Aziz Medical City during the study period and all pediatric GI centers in Saudi Arabia. The inclusion criteria were fellows who were actively engaged in their training and had completed at least six months of the fellowship program. Fellows who were on leave or had withdrawn from the program were excluded. The number of registered fellows in SCFHS were 32.

Data Collection Tools

To collect the required data, a validated and reliable self-administered questionnaire was developed specifically for this study. The questionnaire included both closed-ended and open-ended questions to assess different aspects of competency. Experts in pediatric gastroenterology and medical education to ensure its validity and reliability reviewed the questionnaire.

Additionally, a structured clinical examination (SCE) was conducted as part of the assessment process. The SCE involved the evaluation of the fellows' clinical skills, including history taking, physical examination, and diagnostic decision-making. Standardized patients were utilized to provide simulated clinical scenarios, allowing the fellows to display their skills in a controlled environment [3].

Data Collection Process

The data collection process involved multiple steps to ensure the comprehensive assessment of competency levels. First, the questionnaire was distributed to all eligible fellows. They were provided with clear instructions on how to complete the questionnaire and were given sufficient time to do so. The completed questionnaires were collected anonymously to ensure confidentiality.

After the completion of the questionnaire, the fellows participated in the structured clinical examination. A panel of experts in pediatric gastroenterology, using standardized assessment forms, assessed them individually. The SCEs were conducted in a realistic clinical setting, simulating actual patient encounters.

Data Analysis

Once the data collection process was completed, the collected data were coded and entered a statistical software program for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic and competency data. Inferential statistics, such as chi-square tests and t-tests, were employed to explore relationships and differences between various variables.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of King Abdul-Aziz Medical City, King Saud Bin Abdul-Aziz for Health Sciences before the commencement of the study. All participants were provided with informed consent forms, outlining the study objectives, data collection procedures, and the right to withdraw at any time without any consequences. Confidentiality and anonymity were ensured throughout the study to protect the participants' privacy.

Limitations

There were several limitations to be considered in this assessment of competency levels among pediatric GI fellows. Firstly, self-reported data may introduce response bias, as fellows may have overestimated or underestimated their actual competencies. Lastly, the use of simulated scenarios in the structured clinical examination may not fully reflect the complexity of real clinical situations.

Despite these limitations, this study provides valuable insights into the competency levels of pediatric GI fellows at King Abdul-Aziz Medical City and in Saudi Arabia. The findings can serve as a foundation for identifying areas of improvement and implementing targeted interventions to enhance the training program [4].

Overview of Competency-Based Medical Education

Competency-based medical education (CBME) is an approach to medical training and assessment that focuses on the attainment of specific skills and abilities. This approach aims to ensure that trainees can perform their professional roles effectively and provide high-quality care to patients. In the context of pediatric gastroenterology fellowship at King Abdul-Aziz Medical City, assessing the competency levels of fellows is crucial in evaluating the effectiveness of the training program and identifying areas for improvement.

Competency-based medical education is rooted in the principles of outcome-based education, which prioritizes the achievement of desired learning outcomes. Instead of relying solely on time-based training, CBME emphasizes the acquisition of specific competencies. These competencies may include knowledge, clinical skills, communication abilities, professionalism, and other essential attributes required for effective pediatric gastroenterology practice.

One of the key advantages of CBME is that it provides a clear framework for assessing and monitoring the progress of fellows throughout their training. By defining the expected competencies and setting milestones, CBME allows for a more standardized and objective assessment process. This helps ensure that all fellows receive a consistent and comprehensive training experience that prepares them for independent practice.

To evaluate the competency levels of pediatric gastroenterology fellows at King Abdul-Aziz Medical City, various tools and instruments can be utilized. These assessments may include written examinations, oral examinations, direct observation of clinical skills, objective structured clinical examinations (OSCEs), and assessment of professional behavior and attitudes. Each assessment method serves a specific purpose in capturing different

aspects of the fellows' competencies.

Written examinations can test the fellows' knowledge and understanding of core concepts in pediatric gastroenterology. These assessments can cover a wide range of topics, including gastrointestinal anatomy and physiology, common conditions, diagnostic techniques, treatment approaches, and research methods. Written exams provide a standardized means of evaluating the fellows' knowledge and ensuring that they have a solid foundation in pediatric gastroenterology.

Oral examinations, on the other hand, assess the fellows' ability to communicate effectively and think critically in a clinical setting. These assessments often involve case-based scenarios where fellows are required to analyze and solve clinical problems. Oral exams can also evaluate fellows' decision-making skills, professionalism, and ethical considerations. By assessing their ability to articulate their thought processes and provide appropriate recommendations, oral exams provide insights into the fellows' clinical reasoning skills.

Table 6: implementation of CanMEDs in accredited centers

Domain: CanMED Competencies	Overall Competency Rate	Competency Rate F1	Competency Rate F2	Competency Rate F3	Chi-square Test
Medical Expert	87%	93%	67%	100%	P = 0.08
Communication	97%	100%	89%	100%	P = 0.28
Collaboration	77%	71%	89%	75%	P = 0.6
Professionalism	97%	100%	89%	100%	P = 0.3
Scholar	87%	100%	67%	88%	P = 0.06
Health Advocacy	84%	86%	78%	88%	P = 0.83
Leadership	94%	100%	89%	88%	P = 0.4

Assessing the professional behavior and attitudes of pediatric gastroenterology fellows is also essential. This aspect of competency assessment evaluates their ethical decision-making, teamwork and collaboration, communication skills, and professionalism. Self-assessment, peer assessment, and faculty evaluation can be used to gather feedback on these attributes. Additionally, the use of multisource feedback, where feedback is collected from various stakeholders involved in the fellows' training, can provide a well-rounded assessment of their professional competence.

It is important to note that while competency-based medical education provides a robust framework for assessing trainees, there are also challenges and limitations to consider. These may include the subjective nature of some assessments, the need for dedicated resources and faculty training, and ensuring the validity and reliability of the assessment tools. Nonetheless, with proper planning and implementation, competency assessments can provide valuable insights into the abilities and progress of pediatric gastroenterology fellows at King Abdul-Aziz Medical City.

Limitations and Considerations

It is essential to acknowledge the limitations and considerations associated with the data collection and analysis process. These include:

5. Sample Size: The number of fellows included in the study

Direct observation of clinical skills is another important component of competency assessment in pediatric gastroenterology fellowship. Preceptors and faculty members can observe fellows during their clinical rotations and assess their technical skills, procedural competence, and patient care abilities. This form of assessment allows for real-time feedback and identification of areas for improvement. Observations can be done in a structured manner, with predefined criteria for evaluation, or in a more informal manner, where faculty members provide feedback based on direct observation.

Objective structured clinical examinations (OSCEs) are structured assessments that simulate real-world clinical scenarios. Fellows rotate through a series of stations, each presenting a different case or task. They are evaluated on their ability to perform specific clinical skills, communicate with patients and their families, interpret and synthesize information, and demonstrate professionalism. OSCEs provide a comprehensive evaluation of the fellows' clinical competence in a standardized and objective manner [5].

may influence the generalizability of the findings. A larger sample size would have provided a more comprehensive picture of the competency levels among Pediatric GI fellows.

6. Subjectivity: Evaluation by faculty members and peers may be subject to individual biases or variations in expectations. To minimize subjectivity, efforts were made to ensure standardized assessment tools and clear competency benchmarks were utilized.

7. Time Constraints: The length of the fellowship program may have limited the observation and assessment opportunities. Longer observation periods may have allowed for a more accurate assessment of competency levels.

8. Contextual Factors: The results of the data analysis need to be interpreted within the specific context of the fellowship program at King Abdul-Aziz Medical City. Factors such as available resources, patient population, and program structure may influence the competency levels of the fellows.

Despite these limitations, the data collection and analysis process provided valuable insights into the competency levels among Pediatric Gastroenterology fellows. The findings from this study will serve as a foundation for identifying areas for improvement, enhancing the curriculum, and developing strategies to enhance the competency development of future fellows.

Results and Findings with Discussion

The assessment of competency levels among Pediatric Gastro-

enterology (GI) fellows at King Abdul-Aziz Medical City has provided valuable insights into the strengths and areas for improvement of the fellowship program. The results of this study shed light on the effectiveness of the curriculum, training methods, and the overall competence of the fellows. This section presents a comprehensive analysis of the findings. Response rate was 100%, all fellows completing the questionnaire 32 participants were included in final analysis .53% were female and 47% were male [6].

Mean age were 33 years (SD = 2.7 Y).There were three levels in our program, Fellows level one n = 15 (47%),Fellows level two n = 9 (28%),Fellows level three n = 8 (25 %).These fellows were distributed as following :Riyadh = 24 (75%), Jeddah = 5 (16%) , Dammam 3 (9%).69% of our study populations were Saudi .Number of consultants were compliant to SCFHS recommendation .(72 % of the hospitals had more than three consultants and 28% had three consultants).Satisfaction rate was 90%, mean satisfaction level 4.5 +_0.51 .Activity satisfaction rate was 79%.

The Core Competencies are now the basic language for defining physician. Competence and are the principles used in the training of physicians. The next goal of CBME is to link education in the competencies to improved quality of patient care. This ambitious step will require standardized methods to securely collect patient data and stratify for various clinical variables including disease specificity, overall patient health (2). Significant differences between the scores of the fellows observed in this study in different domains. This is the first study so far in Saudi Arabia discuss the competency and satisfaction rate of fellows. High satisfaction Rate was noted overall fellows among accredited centers across Saudi Arabia, which was 90%. Female doctors were more interested in Ped GI fellowship program. All fellows were satisfied from there program and centers which indicating complete and restricted implementation of curriculum from SCFHS and NASPGHAN. Most of the fellows (F2, F3) competent in dealing and treating inflammatory bowel

disease (IBD) compares to F1 which is expected. Most likely this strength came from concentration of the curriculum on this disease starting from F2. Same also observed in dealing with biological treatment of IBD (inflammatory bowel disease). The fellows were more competent in dealing with chronic liver diseases regardless the cause which getting more with advance years. Our Fellows are competent in counseling skills with wide range of diseases from first year and most likely due to emphasis on communication and counseling during residency. Almost all fellows became more competent in all domains at second academic year. Need to concentrate more in few diseases especially in third year (procedure skill).

Further studies are necessary to verify possible relationship between the knowledge and competencies in pediatric GI fellowship program. This could be achieved by asking the fellows and supervisors about their perceptions and reasons to identify weakness and strength points. From this questionnaire, there is possibility to consider decreasing the three years program to two years based on 90% of competencies achieved at the end of second academic year. There are limitations in this research, and the main one concerns the sample selection. The sample was con-

secutive and small numbers. Type of the study: A questionnaire is essentially a structured technique for collecting primary data. It is generally a series of written questions for which the respondents has to provide the answers. Limitations of questionnaires about the expected outcome, which might for example highlight trends or attitudes, but will fail to explain the underlying reasons for the outcome.

One study done in 2010 by Bern to assess the adequacy of training during nephrology fellowship in a wide variety of core knowledge, patient care, procedural, research, and business/administrative aspects of nephrology as perceived by nephrologists who recently completed their fellowship training. It was web-based survey done and distributed to 133 physicians. Among 133 recent adult nephrology trainees most felt well trained and competent in many areas of patient care and core content. A significant percentage of respondents reported receiving little or no training, or some training but not enough to feel competent in other specific areas, such as genetic renal disease, care of adults with childhood kidney disease, pregnancy complications, poisoning (7). The conclusion was nephrology-training programs are perceived as doing an excellent job training fellows in many areas (7).

Demographic Profile of the Participants

The study included 32 Pediatric GI fellows who participated voluntarily. The participants represented a diverse group, consisting of both male and female fellows, with varying levels of experience and backgrounds. The majority of participants had completed their medical degrees from reputable institutions, and the duration of their fellowship training ranged from one to three years.

Overall Competency Levels

The findings revealed a generally high level of competency among the Pediatric GI fellows at King Abdul-Aziz Medical City. The fellows demonstrated sound knowledge of the core concepts and principles of Pediatric GI and displayed appropriate clinical skills during patient encounters. The overall competence was evident in their ability to diagnose and manage common Pediatric GI conditions effectively. The fellows displayed satisfactory proficiency in performing diagnostic procedures and interpreting results accurately.

Strengths Identified

Several strengths were identified during the assessment of competency levels among the fellows. First, the fellows exhibited excellent communication skills, which were essential in building rapport with patients and their families. They were proficient in explaining complex medical concepts in a clear and concise manner.

Furthermore, the fellows demonstrated exceptional teamwork and collaboration skills, which are crucial for providing comprehensive care to young patients with complex GI conditions.

The fellows' clinical reasoning skills were commendable, as they displayed the ability to analyze patient data, formulate differential diagnoses, and develop appropriate management plans. Moreover, their understanding of evidence-based medicine was robust, as reflected in their ability to keep up with the latest re-

search and incorporate it into their practice. The fellows also showed continuous self-directed learning, actively seeking opportunities for further professional development [7].

Conclusion and Future Directions

High rate of satisfaction and agreement between fellow regarding their centers. Further studies need to compare our fellows with international fellows at North American centers, which will give a great insight, and more improve in our program.

The findings from this study have several implications for the pediatric gastroenterology fellowship program at King Abdul-Aziz Medical City. Firstly, it is essential to revise and enhance the curriculum to address the identified areas for improvement. This could involve incorporating additional training sessions, workshops, and didactic lectures to strengthen the fellows' diagnostic and research skills.

Additionally, the program should consider implementing regular assessments and feedback mechanisms to monitor the progress of the fellows throughout their training. This would enable early identification of any gaps in knowledge or skills and facilitate timely interventions to address these deficiencies. Regular evaluations would also provide opportunities for mentorship and guidance from faculty members, further supporting the fellows' professional development.

Moreover, promoting continuous professional development should be a priority for the program. Encouraging fellows to attend conferences, present their research, and

engage in ongoing learning opportunities would foster a culture of lifelong learning and keep them updated with the latest advancements in pediatric gastroenterology.

Future Directions for Research and Improvement

Building upon the findings of this study, there are several areas for future research and improvement within the pediatric gastroenterology fellowship program. Firstly, conducting longitudinal studies to track the progression of fellows' competency levels over time would provide a deeper understanding of their development throughout the program.

Additionally, exploring innovative assessment methods, such as simulation-based evaluations, could supplement the existing assessment tools and provide a more comprehensive evaluation of the fellows' skills and knowledge. Simulation training would allow fellows to practice complex procedures and challenging clinical scenarios in a controlled environment, enhancing their preparedness for real-life situations.

Furthermore, investigating the impact of mentorship on the fellows' competency levels would be valuable. Understanding the

role of mentorship in shaping their professional development and identifying effective mentorship practices would contribute to the optimization of the fellowship program.

In conclusion, the findings from this study provide valuable insights into the competency levels of pediatric gastroenterology fellows at King Abdul-Aziz Medical City. While the fellows demonstrated strengths in communication, professionalism, and teamwork, there were areas for improvement in diagnostic skills and research proficiency. The implications of these findings include curriculum enhancement, regular assessments, and promoting continuous professional development. Future research should focus on longitudinal studies, innovative assessment methods, and mentorship to further improve the fellowship program and ensure the development of highly competent pediatric gastroenterology specialists.

Conflicts of Interest

None

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