

Empowering Endoscopy: Transforming Trainee Engagement and Aspirations through Targeted Education

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ABSTRACT

Background: Endoscopy is a key factor in attracting trainees to gastroenterology careers, yet exposure during Internal Medicine Training (IMT) is often limited. The pandemic's impact on healthcare provision and training in gastroenterology and hepatology has led to significant exposure deficits and perceived inadequacies in preparing for higher specialty applications. Prospective trainees face challenges attending endoscopy sessions due to demanding work schedules, e-portfolio requirements, and the evolving NHS landscape.

Methods: Health Education England supported a gastroenterology trainee taster day. The half-day workshop covered GI endoscopy fundamentals, practical simulator experience with anatomical models, and case-based discussions on endoscopic intervention in upper gastrointestinal bleeding. The training was free of charge, interactive, and divided into smaller groups for workshops and simulation sessions. The faculty comprised gastroenterologists and clinical endoscopists.

Results: The study revealed significant findings highlighting the impact of our intervention on participant satisfaction and outcomes in endoscopic training. Thirteen applicants were selected as delegates, and participants completed pre- and post-course questionnaires. The course material and delivery were deemed satisfactory by all respondents (100%), and 69.2% reported a "very satisfied" experience with EndoSim. With 61.5% indicating moderate comprehension, confidence in fundamental scope management varied. All respondents (100%) felt more confident in pursuing gastroenterology training after taking the course, while 53.8% felt more confident attending ad hoc endoscopy lists. The successful resolution of significant training obstacles, such as the absence of access to ad hoc or training lists, significantly impacted the career goals of 84.6% of respondents in gastroenterology.

Conclusion: The study reveals that educational interventions in endoscopy significantly boost trainee engagement and aspirations, overcoming barriers to exposure and reducing anxiety levels. These findings underscore the importance of well-structured, practical training programs for improving skills and career direction.

Keywords: Endoscopy; Gastroenterology; Internal Medicine Training; Gastrointestinal Bleeding; Educational Intervention

Introduction

Endoscopy is a crucial technique in diagnosing and treating many diseases within the broad field of gastroenterology. The United Kingdom is witnessing a rise in the number of Internal Medicine Trainees (IMTs) selecting gastroenterology as their future specialty [1]. Nevertheless, endoscopic practical skill development opportunities are frequently limited to clinical settings, with minimal early exposure for IMTs [1,2]. This makes considerable theoretical knowledge and ongoing endoscopic training crucial. During foundation and integrated medical training, exposure to endoscopy is very challenging given the frequency of on-calls and ward commitments [3]. The COVID-19 pandemic has significantly impacted gastroenterology training for IMTs, limiting exposure to specialized procedures like endoscopy [4]. This has led to increased uncertainty and anxiety among trainees, necessitating innovative training methodologies and effective strategies to ensure the continued development of skilled gastroenterologists in the healthcare sector [5]. Most hospitals have endoscopy units, and formal training programs were created to start practical instruction [6].

A study conducted by Hosseine, et al. determined that strong mentoring connections were associated with improved training satisfaction and a greater chance of endoscopic career pursuits among trainees [7]. The first training in endoscopic procedures was completed at many UK hospitals under the guidance of experienced gastroenterologists [8]. A study conducted by Huang determined that equitable training opportunities are necessary for ensuring that all learners can achieve high competency levels [9]. A study conducted by Huang determined that equitable training opportunities are necessary for ensuring that all learners can achieve high competency levels." Additionally, please mention that due to limited opportunities, live patient training will be restricted for IMTs because of multiple issues, including safety and prioritization within an already limited resource pool for trainees, such as Gastroenterology trainees, Surgical trainees, and nurse endoscopists. Simulation training could provide a safe practical environment for IMTs to gain appropriate exposure. "A survey among IMT and foundation trainees in the North-West of England revealed a significant training gap in endoscopy training [10].

Without the stress and dangers of dealing with actual patients, it enables trainees to perform a variety of treatments, from simple diagnostic endoscopy to more intricate therapeutic therapies [11]. By bridging the knowledge gap between theory and practice, the use of simulators in endoscopic training helps trainees feel competent and confident. It has been demonstrated that using simulation in endoscopic training increases learner confidence overall, decreases

mistakes, and improves procedural competence. The COVID-19 epidemic had placed restrictions on conventional training techniques, making simulation especially more essential to preserving the caliber and continuity of endoscopic education [12]. The study by Vignesh in 2021 emphasized how the pandemic affected endoscopic training programs, pointing out a significant drop in the number of procedures and trainee exposure. The research recommended that, in order to reduce the educational gaps brought on by the pandemic, virtual and simulation-based training modalities be implemented [13]. The project's goals were to draw attention to the complexities of endoscopic procedures and provide IMTs with an interest in pursuing gastroenterology a flavor for endoscopy and the exposure one would get as a gastroenterology registrar.

The primary objective of the course was to provide a flavour of basic endoscopic instruments and methodologies and practice on simulation machines. Based on their pre-existing abilities and interest in gastroenterology, trainees were selected on a first-come basis. There were no requirements for the candidates to have any hands-on exposure, but limited applications to internal medical trainees as this targeted future gastroenterologist trainees. Our course was essentially to provide a flavor and hope to inspire potential trainees in an open environment so they can ask questions about endoscopy training and in general [14]. A survey among IMT and foundation trainees in liwest England revealed a significant training gap in endoscopy training. 61.1% of respondents had not participated in taster days, indicating a lack of exposure to endoscopic procedures [15]. This lack of exposure hinders skill development and confidence in future specialization in gastroenterology. The survey highlights the need for targeted intervention in endoscopy training, focusing on practical and accessible opportunities for IMTs [16].

To ensure that our candidates got the most out of the day, our course followed a step-by-step approach that began with simulation models in a controlled environment and practical cases with case-based interactive lecture-based discussion. We divided the group into two to allow maximum hands-on exposure to the simulation models with fewer candidates at once.

Methods

Course Design and Venue

The purpose of the endoscopic taster day was carefully thought out to optimize accessibility and effect. We wanted to ensure the course was free of charge and was supported by our local endoscopy academy. We used a central city location for ease of accessibility and university facilities that allowed us to use simulation services as shown in Figures 1 & 2.

15 SEPTEMBER
2023

IMT TRAINEES ENDOSCOPY TASTER DAY

An endoscopy taster day for IMT trainees interested in gastroenterology through "hands-on" simulations and lectures.




This course will provide trainees a brief taster of endoscopy under the supervision of our expert faculty members, as well as the opportunity to network with gastroenterology registrars and consultants.

You will get:

- An Appreciation of basic scope functions.
- A brief outline of new endoscopy/ shape of training.

15 SEPTEMBER 2023

AT 8:45

LOCATION TBC

APPLY TODAY:
<http://forms.gle/xC7q56JArA1erc17A>

Figure 1: Course design and Venue.

0845-0900	REGISTRATION
0900-0915	INTRODUCTION
0915-1000	BASIC SCOPE HANDLING
1000-1100	ENDOSCOPY SIMULATION
1100-1115	REFRESHMENT AND NETWORKING
1115-1215	BITESIZE LECTURES
1215-1230	CLOSING REMARKS & CERTIFICATES

ROTATIONAL STATIONS

1.STACKER A - RETRIEVE FLAT OBJECTS WITH CLIP
 2.ENDOSIM - NEGOTIATION INTO D2 AND J-MANOEUVRE
 3.ENDOSIM - OESOPHAGEAL/GASTRIC/DUODENAL BIOPSIES

DELEGATES WILL HAVE AN OPPORTUNITY TO TRAIN ON EACH STATION.

COST

FREE OF CHARGE.

FACULTY MEMBERS

PROF PAUL COLLINS
 DR NEIL HASLAM
 DR SENTHIL MURUGASEN

COURSE DIRECTORS

DR DANYAL BAIG (LEAD)
 DR JAMES FOX
 DR INDY HT WAI

Figure 2: Course design and venue.

Course Components

The half-day program was divided into several sections, each designed to address a different endoscopic training topic.

Hands-On Experience

By applying their theoretical knowledge in a monitored and controlled setting using simulators trainees improved their learning process as shown in Figures 3-5.



Figure 3: Hands on Practice.



Figure 4: Hands on Practice.

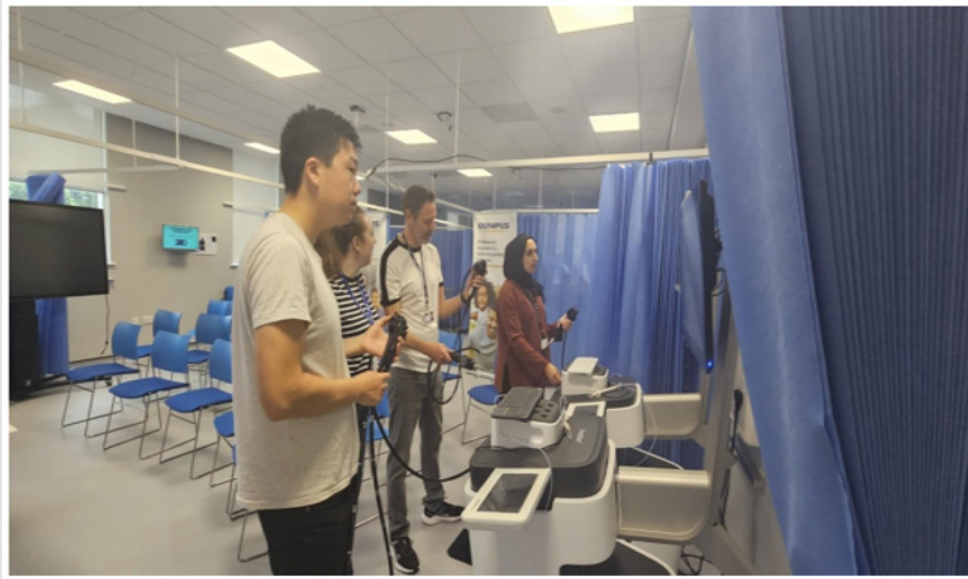


Figure 5: Hands on Practice.

Small Group Teaching

The core knowledge of endoscopic concepts and procedures that were provided by these seminars on the basics of gastrointestinal (GI)

endoscopy paved the door for further advanced study, as shown in Figure 6.



Figure 6: Small Group Teaching.

Case-Based Discussions

Focused on the typical and crucial situation of endoscopic management for upper gastrointestinal bleeding in urgent medical on-call tasks. These conversations sparked critical thinking and decision-making.

Career Insights

A conversation on what it's like to be a trainee gastrointestinal specialist offered insightful information about what to expect in the next phase of IMTs' careers. The goal of this seminar was to provide trainees with a realistic perspective of the opportunities and difficulties that lie ahead in their professional path.

Pre and Post-Taster Day Questionnaires

These instruments were used to assess the effectiveness of the training and ascertain trainees' views of the obstacles to endoscopic exposure at the IMT level.

Course Structure and Local Leadership

The course was designed to avoid the traditional lecture-based style in favour of participatory workshops and discussions.

Interactive Workshops and Discussions

Designed to provide a more interactive and engaging learning environment, urging trainees to actively participate.

Local Leadership

The discussions were made more relatable and comfortable by the participation of regional endoscopy leaders and registrars. These familiar faces within the trainee community, who were local specialists, brought a feeling of ease and accessibility to the learning process.

Central Location

The central city location reduced delegates' travel and lodging expenses, increasing the course's accessibility and practicality for students juggling other obligations.

Skilled Trainers

Regionally certified instructors conducted workshops and endoscopic demonstrations, ensuring pertinent and high-quality instruction.

Challenges and Solutions

The training was designed with the trainees' requirements in mind, focusing on interactive workshops and discussions covering a range of issues pertinent to trainees in gastroenterology. It was free and offered internally, unlike other paid courses throughout the country that cost between £50 for a half-day and £350 for a two-day course. The cohort was divided into two smaller groups for the day's activities, which included workshops and simulation exercises. Topics

covered included upper GI treatments, endoscopic training, and a day in the life of a gastroenterology registrar. Video and model demonstrations of upper GI therapies such as variceal banding, endoscopic clipping, and thermospray were shown.

Faculty and Sustainability

The faculty consisted of gastroenterologists and clinical endoscopists actively involved in training local trainees and delivering JAG-endorsed endoscopy courses. Sustainability was envisioned, aiming to centralize resources and garner support from endoscopy trainers across the region. The collaboration sought to adapt capacity to meet the training demands of local trainees and recruit sufficient faculty members to sustain the course. In summary, the course's structure and leadership were carefully curated to create an optimal learning environment. The blend of practical workshops, expert-led demonstrations, and interactive discussions provided a comprehensive and enriching experience for the IMTs, catering to their diverse learning needs and preferences.

Results

The results of our study revealed significant findings that highlight the impact of our intervention. The survey response gives comprehensive knowledge of participant satisfaction and course results pertaining to endoscopic training. The course was well-received by all respondents (100%) who expressed satisfaction with both its content and delivery. The EndoSim experience was delivered with good feedback, as indicated by the 69.2% of respondents who reported being "very satisfied" and the 30.8% who reported being "satisfied." Participants' differing degrees of expertise were reflected in their confidence in fundamental scope handling, with 61.5% expressing moderate comprehension, 30.8% a good grasp, and 7.7% an expert understanding. The confidence in attending ad hoc endoscopy lists was also significantly affected by the training; 53.8% of participants reported improvement, 15.4% said they were unsure, and 30.8% said they might improve. Additionally, all responders (100%) expressed increased confidence in their ability to pursue training in gastroenterology, demonstrating the course's efficacy in preparing participants for further training.

The workshop covered a number of important concerns regarding obstacles and fears associated with beginning endoscopic training. 53.8% of the respondents cited the inability to attend and observe endoscopy lists. Of the participants, 7.7% indicated having responsibilities related to wards or clinics, while 15.4% stated being on call. Even when access restrictions have been successfully addressed, schedule conflicts and prioritizing issues persist. Ultimately, 84.6% of respondents stated that their intention to pursue gastroenterology training was positively impacted by their endoscopic experience, compared to 7.7% who expressed a neutral opinion and 7.7% who expressed a negative one. All responders (100%) expressed overall satisfaction with the course, with the majority expressing they were "very sat-

isfied.” In summary, the results of the study demonstrate a marked improvement in both the practical engagement and the attitudes of participants towards endoscopy following the course. The course effectively addressed several key barriers to endoscopy training, lead-

ing to increased opportunities for participation, reduced anxiety, and a positive influence on career aspirations in gastroenterology (Table 1) (Figures 7-14) .

Table 1.

Any particular aspect of the course you have enjoyed?		
	Frequency	Percent
all of above	13	100.0
Feedback on the delivery of endosim experience		
satisfied	4	30.8
very satisfied	9	69.2
Total	13	100.0
Confidence in basic scope handling		
moderate understanding	8	61.5
good understanding	4	30.8
expert understanding	1	7.7
Total	13	100.0
Has this course improve your confidence in attending adhoc endoscopy list?		
yes	7	53.8
no	2	15.4
may be	4	30.8
Total	13	100.0
Has this course enhanced your confidence to enter gastroenterology training?		
yes	13	100.0
Has this course helped to address some of the barriers and anxiety in entering endoscope training?		
	Frequency	Percent
ward/clinic commitment	1	7.7
on call commitment	2	15.4
lack of opportunity as unable to access adhoc or training list	7	53.8
gastroenterology trainees or clinical endoscopists prioritised	3	23.1
Total	13	100.0
Desire to enter gastro training influenced by endoscopy experience		
positively	11	84.6
negatively	1	7.7
neutral	1	7.7
Total	13	100.0
Course satisfaction		
Very satisfied	13	100.0

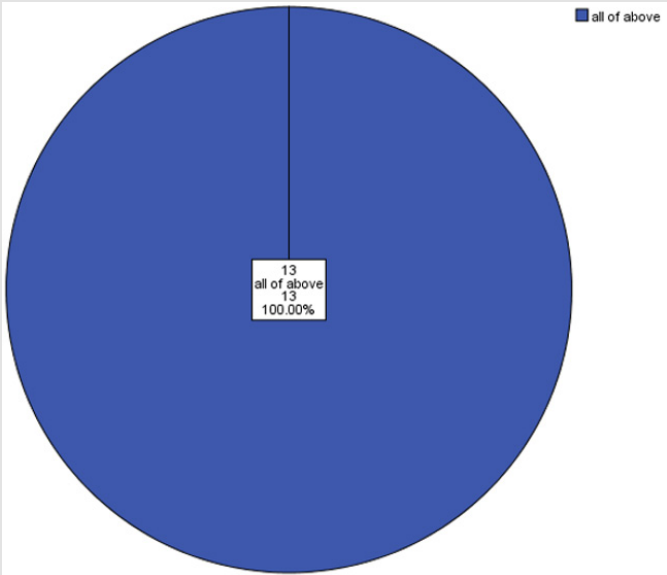


Figure 7: Any particular aspect of the course you have enjoyed?

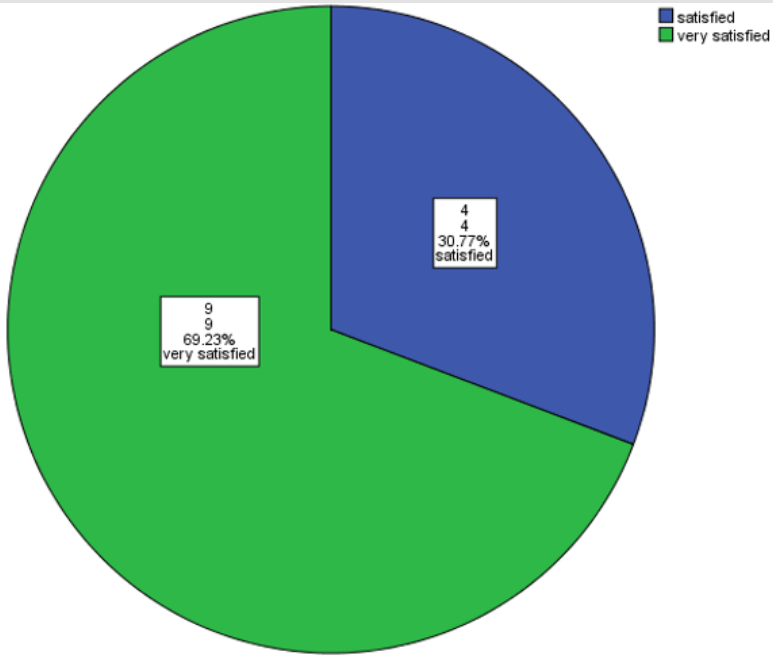


Figure 8: Feedback on the delivery of endosim experience.

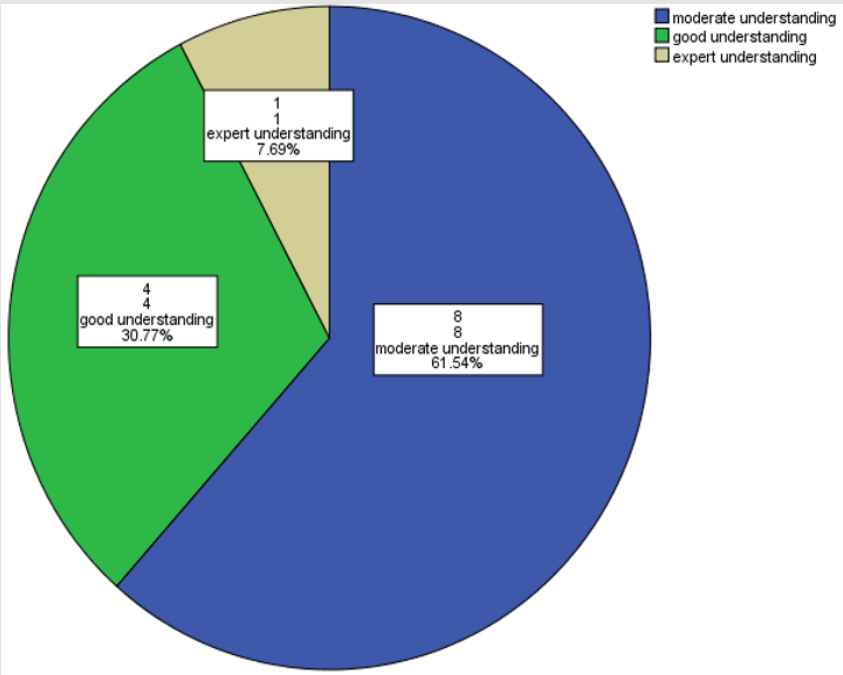


Figure 9: Confidence in basic scope handling.

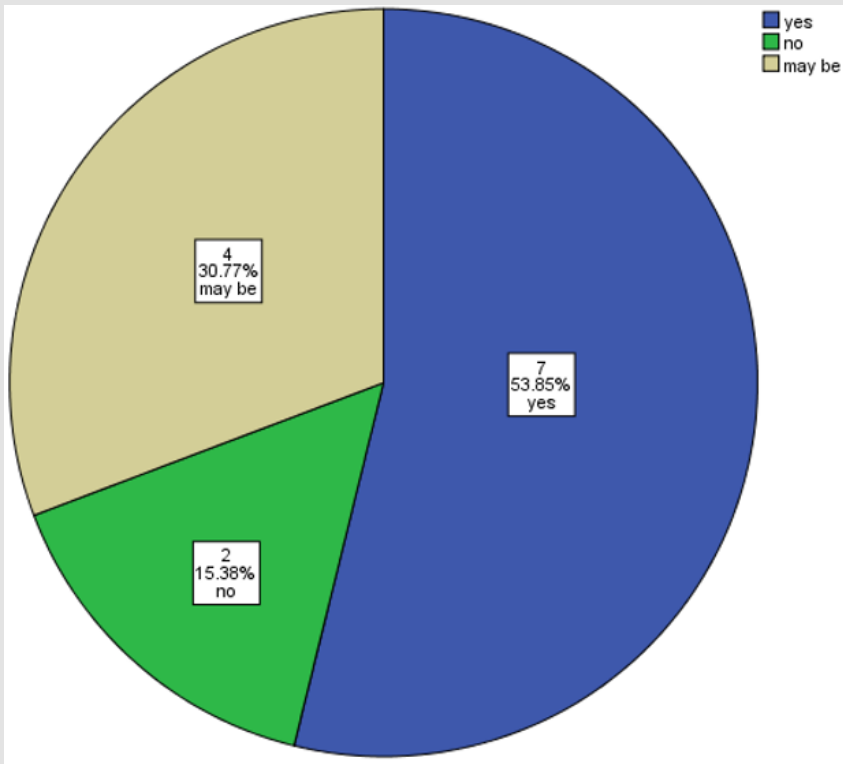


Figure 10: Has this course improve your confidence in attending adhoc endoscopy list?

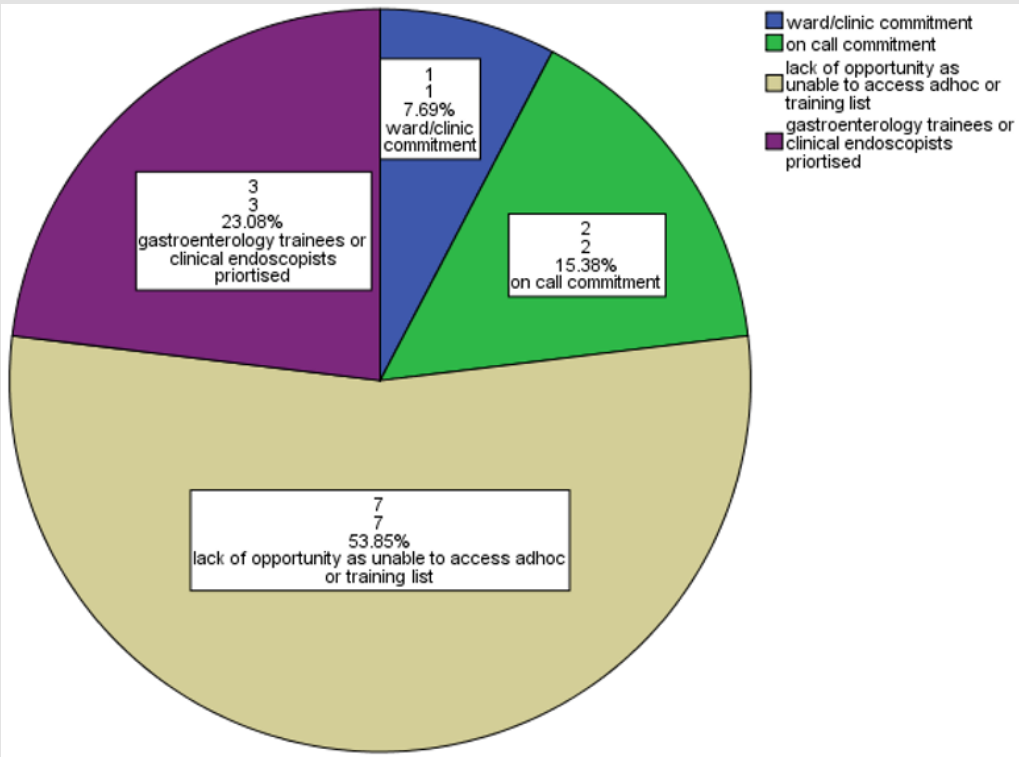


Figure 11: Has this course helped to address some of the barriers and anxiety in entering endoscopy training?

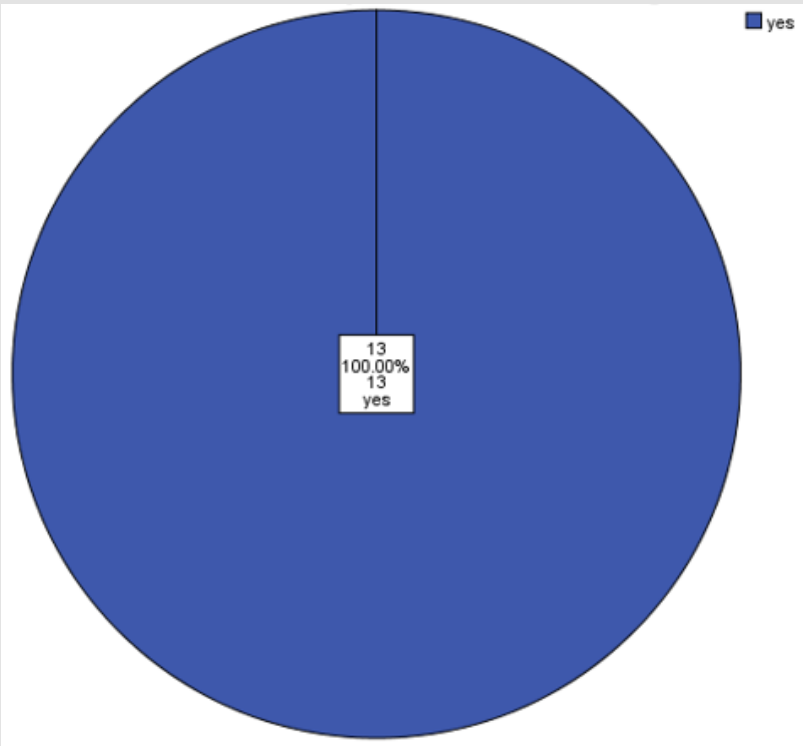


Figure 12: Has this course enhanced your confidence to enter gastroenterology training?

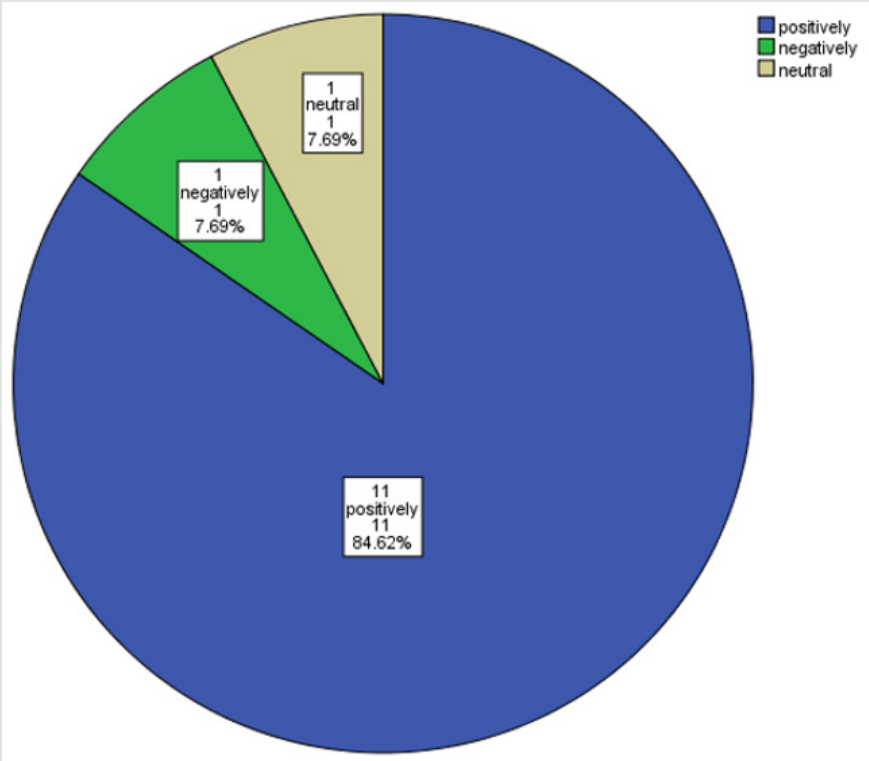


Figure 13: Desire to enter gastro training influenced by endoscopy experience.

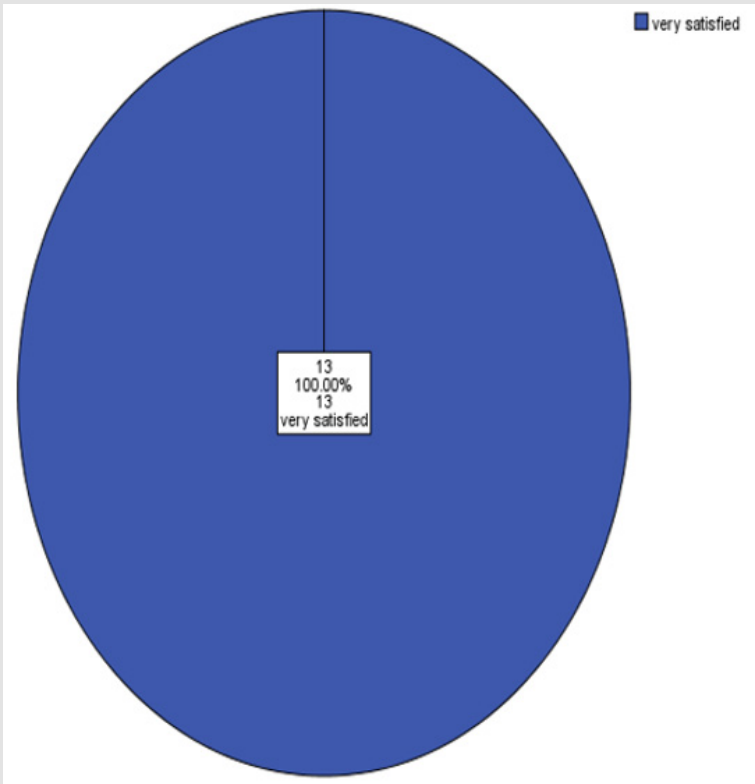


Figure 14: Course satisfaction.

Discussion

Endoscopy plays an integral part in recruiting trainees for gastrointestinal careers, yet there is often little exposure to it during Internal Medicine Training (IMT) [17]. The endoscopy taster day was an important attempt to close the gap in endoscopic exposure for IMTs and remove obstacles preventing their involvement in this vital area of gastroenterology [18]. In gastroenterology training, simulation-based training provides a methodical way to overcome obstacles, including limited procedural exposure and disturbances like the COVID-19 epidemic [19]. A systematic study that assesses various educational interventions, such as seminars and mentoring programs, and their beneficial effects on skill development and trainee satisfaction provide more evidence for this. Studies have demonstrated that decision-making and procedural competence are improved by simulation-based training, as noted in their review of simulation in gastroenterology education [20]. Due to the COVID-19 pandemic's effects on hepatology and gastrointestinal training programs, there was a significant lack of preparation for applications in higher specializations and a notable lack of exposure [21]. However, it appears that early on in a junior doctor's training, there is little to no exposure to endoscopy.

When feasible, prospective trainees try to attend endoscopic sessions [22]. The changing NHS landscape, e-portfolio regulations, and hectic work schedules make it difficult for trainees to have enough endoscopic experience [23]. The number of IMTs choosing gastroenterology as their future specialty has increased in the United Kingdom. Studies show that training in gastroenterology involves hands-on anatomical models, simulation, mentorship programs, and innovative tools like virtual and augmented reality. These methods improve trainee competence, confidence, and career satisfaction, emphasizing the importance of continuous innovation [24]. Nevertheless, there is insufficient early exposure for IMTs to endoscopy, and opportunities for developing practical skills are restricted to clinical settings. This demands extensive theoretical understanding as well as continual endoscopic training. These difficulties were exacerbated by the COVID-19 pandemic, which reduced trainee exposure to specialist procedures like endoscopy and increased their level of worry and uncertainty [25]. Our course effectively solved significant barriers to beginning endoscopic training, most notably the common worry (53.8%) about having insufficient access to lists.

These results highlight how the course might help reduce anxiety and increase access to crucial gastrointestinal training opportunities. Most of the participants had little to no experience with endoscopy before the workshop. The main challenges were restricted chances to participate in endoscopic lists, ward/on-call responsibilities, and the prioritization of gastroenterology trainees and clinical endoscopists. These obstacles reflect larger systemic problems within the training framework, where opportunities for specialized training are frequently subordinated to the demands of daily clinical tasks [26]. The study highlights the value of organized, practical training programs in filling knowledge gaps and providing aspiring gastroenterologists with the

skills and self-assurance they need for clinical practice [27]. Our study shows a substantial change in the participants' views toward obtaining training in gastroenterology, with all participants reporting more confidence after the course. The result emphasizes the importance of the course in helping students make wise career decisions and preparing them for specialized positions in GI healthcare.

Post-course, participants showed improved engagement and confidence, an increased likelihood of attending ad-hoc endoscopy lists, and reduced anxiety about endoscopy procedures. This indicates that hands-on, practical training in a supportive environment can enhance trainees' confidence and readiness to engage in endoscopic procedures. The course combined theoretical knowledge with practical simulator experience and case-based discussions to provide a comprehensive learning experience. It covered endoscopic fundamentals, hands-on simulator practice, and career insights into gastroenterology, enhancing trainees' competence, confidence, and critical thinking skills. The hands-on experience on anatomical models and case-based discussions on endoscopic intervention in upper gastrointestinal bleeding enriched the learning experience. The course positively influenced 90% of participants' career aspirations, addressing workforce planning and the need for skilled gastroenterologists in the healthcare sector.

Conclusion

The study concludes that targeted educational interventions in endoscopy significantly enhance trainee engagement and aspirations. Participation in ad-hoc endoscopy lists notably increased post-course, demonstrating effective overcoming of barriers to endoscopy exposure. The course also significantly reduced anxiety levels about endoscopy among participants, fostering confidence and motivation for further training. Furthermore, the course positively influenced trainees' interest in specializing in gastroenterology. These findings highlight the necessity and impact of well-structured, practical endoscopy training programs in improving skills, confidence, and career direction for trainees, advocating for more inclusive and comprehensive training approaches in the field.

Course Design and Venue

The endoscopic taster day was intended to be very powerful and approachable. For IMT trainees interested in gastroenterology, there is a great chance on September 15, 2023, at 8:45 AM at the IMT Trainees Endoscopy Taster Day. The course of action includes interactive simulations and talks that provide attendees a quick overview to endoscopy under the direction of knowledgeable professors.

Hands on Practice

Training simulators allowed trainees to apply their theoretical knowledge in a controlled environment, which improved their learning process. They were able to have firsthand experience with endoscopic treatments.

Small Group Teaching

The fundamentals of gastrointestinal (GI) endoscopy ideas and techniques were covered in seminars, which opened the door for more in-depth research. Through these sessions, trainees were able to communicate directly with peers and instructors in an interactive learning environment.

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