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Towards researcher physicians in Palestine: resident doctors' perceptions, practices, and barriers

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Abstract

Background Residency training, a crucial part of postgraduate medical education, allows doctors to engage in research, enhancing their critical thinking and evidence-based practice skills. However, various barriers often impede this process. This study aims to evaluate Palestinian resident doctors' perceptions, practices, and obstacles regarding medical research.

Methodology A cross-sectional study was conducted from October to December 2023, focusing on resident doctors in West Bank training centers. A sample size of 250 residents was selected. Data were collected via a self-administered questionnaire that covered demographics, attitudes toward research, barriers to conducting research, and research practices. Data analysis included descriptive statistics, chi-squared tests, and multivariate analysis using binary logistic regression.

Results Out of 290 residents invited, 256 responded, resulting in an 88.3% response rate. Positive attitudes towards research were common, with 79.7% supporting mandatory teaching of research methodology and 81.3% recognizing the importance of publishing research findings. Nevertheless, 53.9% of residents expressed concerns about the additional burden imposed by research. Research engagement was moderate, with 52.0% involved in research projects, although only 40.6% had published in peer-reviewed journals. Significant barriers identified were inadequate funding (71.9%) and insufficient time for research (71.5%). The presence of a research mentor significantly increased the likelihood of research engagement (aOR: 11.8, 95% CI: 6.2–22.5).

Conclusion Palestinian resident doctors exhibit a positive attitude towards medical research, yet significant barriers hinder their participation. Mentoring, integrating research training into residency programs, and allocating the time and resources needed for research activities are all essential strategies to increase resident research engagement and productivity. These efforts can advance healthcare by promoting evidence-based practices, addressing local health challenges, and strengthening systems through tailored interventions and collaborative efforts.

Keywords Resident doctors, Residency training, Research practice, Perception, Barriers

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Introduction

Research is an essential tool in medicine, enabling physicians to understand disease complexities, discover novel treatments, and enhance existing ones. It promotes the development of advanced technology, diagnostic tools, and pharmaceutical interventions, resulting in more effective and tailored healthcare solutions. It also aids in understanding disease mechanisms, enabling preventive strategies and early detection methods [1, 2]. Advancements in medical research are essential for establishing a comprehensive, evidence-based approach to patient care, ensuring that medical procedures align with the latest evidence and adhere to the highest standards of safety and efficacy [3]. Attention to health research system functions is mounting, and there is a consensus that strengthening this system is imperative, especially in developing countries like Palestine [4].

Residency training is a postgraduate medical learning phase in which physicians gain hands-on experience in their chosen specialty. While it presents challenges and duties for doctors, it is also rewarding since it allows them to improve their skills, develop confidence, and eventually shape the course of their future professions. Engaging in research activities during residency fosters the development of essential skills such as intellectual curiosity, critical thinking, and a commitment to continuous learning [5]. Most significantly, it empowers residents to integrate evidence-based medicine into their practice, ultimately elevating the standard of patient care [6]. Furthermore, residents may be encouraged to think about their academic path and their clinical career. This could increase the number of medical researchers and academics, ultimately raising the quantity and significance of medical research [7, 8]. Additionally, the information derived from research on patterns of illnesses, risk factors, treatment outcomes, the effectiveness of public health measures, and healthcare utilization and costs can be instrumental in implementing evidence-based interventions and strategic planning [9].

Knowledge and a positive attitude are essential for conducting research. Residents with these qualities are better prepared for interdisciplinary collaboration and more likely to engage in research activities and seek opportunities for further learning [10]. However, research participation among residents in developing and middle-income countries like Palestine remains limited due to barriers like lack of skills, resources, professional support, and time constraints due to clinical responsibilities [11–13]. A survey conducted among physicians-in-training in Saudi Arabia identified several barriers to engaging in research. These included institutional challenges such as insufficient support from professional supervisors, the absence of a structured research curriculum, inadequate

facilities, limited foundational research skills, and competing personal responsibilities [14].

Medical research in Palestine is increasing, with some universities requiring it as a graduation requirement [15]. The residency program in Palestine, established by the Palestinian Medical Council in 2006, includes around 18 training centers across the West Bank. Spanning four to five years, the program involves extensive weekly working hours that can reach up to 100, depending on the specialty and year of training. They stress the significance of scientific research in improving healthcare, as reflected in the curricula of most specialties. However, no official policies require resident physicians to engage in research during their training. Furthermore, economic and political challenges in Palestine restrict the availability of resources to support research efforts. Training hospitals, often understaffed, add to the problem by placing substantial clinical and shift responsibilities on residents, leaving them with little time to dedicate to research activities [16, 17].

A literature review showed no data on Palestinian residents' perceptions, practices, and barriers regarding medical research. This study aims to assess resident doctors' perceptions and practices regarding medical research, identify perceived barriers to conducting research during residency, and explore how these practices vary across different resident doctors' characteristics and medical specialties in Palestine. The study findings are expected to highlight the challenges, unmet needs, and barriers Palestinian residents face in engaging with research, aiming to draw the attention of medical training authorities and residency program administrators in Palestine. Addressing these challenges is vital to fostering a research culture among resident doctors, enhancing their academic and professional development, and improving healthcare quality in Palestine through impactful, locally relevant studies.

Methodology

Study design and population

We conducted a cross-sectional study from October to December 2023, targeting Palestinian resident doctors across all specialties, both surgical and nonsurgical, working in West Bank training centers. The study included all hospitals and primary health care centers with medical residency training programs affiliated with the Palestinian Medical Council, the official body overseeing all residency training programs in Palestine. The inclusion criteria included all male and female resident doctors, aged between 24 and 40 years, who were enrolled in residency training programs affiliated with the Palestinian Medical Council at any training site in the West Bank of Palestine. Exclusion criteria included

residents unable to provide informed consent, as well as interns and subspecialty residents.

The sample size for this study was determined using the Raosoft sample size calculator. Given that the residency training program in the West Bank of Palestine currently enrolls 750 doctors, a sample size of 250 resident doctors was deemed necessary. This calculation assumes a 95% confidence level, a 5% margin of error, and an expected outcome prevalence of 50%. Stratified random sampling was used to select participants, with strata representing the North, Middle, and South regions of the West Bank. To account for an anticipated non-response rate, the sample size was increased by 15%.

The study received approval from the Institutional Review Board of An-Najah National University (Ref #: Farm. Med. Sept. 2023/33). Written informed consent was obtained prior to the administration of the questionnaire. The consent form provided details about the study's nature, significance, the data collection methods, and a statement ensuring voluntary participation. Confidentiality was strictly maintained, with participants' names not recorded on the data collection forms. All information remained confidential and was used solely for research purposes.

Measurement tool

A self-administered questionnaire was used to gather data on the study variables. Prepared by the research team following a comprehensive review of the relevant literature [8, 10, 18], the questionnaire comprised 31 questions divided into four sections (Supplementary File 1). The first section collected demographic details, including age, gender, residency program, year of residency, and current workplace. The second section gathered information on the resident doctors' attitudes towards medical research. It included 11 statements, such as the necessity of teaching research methodology to residents, improving patient outcomes through ongoing medical research, and enhancing residents' career opportunities by engaging in research activities. Responses to attitude-related questions were evaluated using a 5-point Likert scale, ranging from '1' (strongly disagree) to '5' (strongly agree). Notably, two statements reflected negative attitudes and were reverse-coded, with '1' indicating strongly agree and '5' indicating strongly disagree. According to Bloom's cut-off points, the overall attitude was classified as good if the score ranged from 80 to 100% (44–55 points), moderate if it fell between 60 and 79% (33–43 points), and poor if it was below 60% (less than 33 points) [19]. Bloom's cut-off points, widely validated in similar studies, offer a standardized framework for categorizing knowledge and attitudes in medical contexts, making them a reliable tool for assessing and classifying individual responses in educational and clinical research [20–22].

The third section comprised ten questions evaluating the barriers to conducting research during residency training. These questions addressed various constraints, such as insufficient knowledge, time limitations, lack of financial support, and inadequate assistance from support staff. Responses were measured on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The final section contained 12 questions about research practices, designing studies, formulating research questions, presenting findings at conferences, and publishing papers in peer-reviewed journals. The final practice question inquired whether residents were currently engaged in a medical research project, which was designated as the study's primary outcome. A positive response (yes) to these questions scored one point, while a negative response (no) scored zero points. The total practice score was classified according to Bloom's cut-off points: good (80–100%, 10–12 points), moderate (60–79%, 7–9 points), and poor (<60%, <7 points) [23].

After developing the questionnaire's initial version, three field experts reviewed and revised it. A pilot study with 40 doctors was conducted to evaluate the questionnaire's clarity, relevance to its objectives, and ease of interpretation. The aim was to assess the acceptability and clarity of the questions and determine the time needed for participants to complete the questionnaire. The pilot responses were excluded from the final analysis. Additionally, Cronbach's alpha for the attitude section of the questionnaire was calculated, resulting in a score of 0.833, which indicates strong reliability. The questionnaire was in English and distributed online via Google Forms to resident doctors through their e-mail addresses or WhatsApp numbers. Two follow-up e-mails were sent to those not responding to the initial contact.

Data analysis

Data analysis was conducted using IBM SPSS Statistics for Windows software, version 21 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented through appropriate tables and figures, including mean, standard deviation, frequencies, and percentages. The relationships between variables were assessed using chi-squared tests and t-tests where applicable. Additionally, multivariate analysis was conducted using binary logistic regression to evaluate the study outcome variables, accounting for potential confounders. These potential confounders, identified through the literature review and chi-square association tests, included gender, country of graduation, participation in research methods and biostatistics courses during medical education, attitudes, and availability of a research mentor or supervisor. Adjusted *p*-values and adjusted odds ratios (aOR) with their corresponding 95% confidence intervals (95% CI) were

Table 1 Demographics of the medical resident participants (n = 256)

	Frequency (%)	Mean ± SD
Age		28.7 (2.7)
24–29	181 (70.7%)	
30–40	75 (29.3%)	
Gender		
Male	137 (53.5%)	
Female	119 (46.5%)	
Marital status		
Married	122 (47.7%)	
Unmarried	134 (52.3%)	
Residency Program		
Surgical	95 (37.1%)	
Nonsurgical	161 (62.9%)	
Graduation year		
2010–2016	41 (16%)	
2017–2019	118 (46.1%)	
2020–2022	97 (37.9%)	
Country of Graduation		
Palestine	178 (69.5%)	
Arab counties	60 (23.4%)	
Other	18 (7.1%)	
Years of residency		
Junior	133 (52.0%)	
Senior	123 (48.0%)	
Workplace		
Governmental	179(69.9%)	
Non-governmental	77(30.1%)	
Received research methods course during medical education or residency	204 (79.7%)	
Received biostatistics course during medical education or residency	203 (79.3%)	

reported. A *p*-value of ≤ 0.05 determined statistical significance.

Results

Among the 290 resident doctors invited to participate in the study, 256 responded to the questionnaire, resulting in a response rate of 88.3%. The participants' ages averaged 28.7 years, ranging from 24 to 40 years, with a male-to-female ratio of 1.1:1. Residents from nearly all specialties took part in the study, with over half (62.9%) coming from nonsurgical residency programs. Most participants (69.5%) graduated from Palestinian medical schools, and 69.9% worked in governmental hospitals. Additionally, 79.7% and 79.3% of the participants had taken courses in research and biostatistics, respectively, during their medical education (Table 1).

The results from Table 2 describe residents' attitudes towards research during their training. A majority of respondents, ranging from 69.9 to 81.3%, expressed positive attitudes on various aspects of research, such

Table 2 Distribution of residents' attitudes on engaging in research during residency training

	Positive attitude (%)
Teaching research methodology should be mandatory for residents	204 (79.7%)
Patients' outcome improves with continued medical research	203 (79.3%)
Adequate time should be allocated for research during the training years	206 (80.5%)
Engaging in research activities improves resident's career opportunities.	206 (80.5%)
Evidence-based clinical decisions increase the resident confidence during practice.	208 (81.2%)
Conducting research increases the burden in an already over-curriculum	44(17.2%)*
I believe that residents should not be involved in medical research	188 (73.4%)*
Conducting research reinforces teamwork spirit	179 (69.9%)
Residents can plan and conduct research without supervision	52 (20.4%)
Research experiences can improve my critical thinking skills.	199 (77.8%)
Residents should be encouraged to publish their research findings	208 (81.3%)
Overall attitude level	
Poor	28 (10.9%)
Moderate	133 (52.0%)
Good	95 (37.1%)

*Respondents who answered "strongly disagree" or "disagree" to these two statements were classified as having a positive attitude.

as the belief that teaching research methodology should be mandatory, acknowledging the benefits of research on patient outcomes and career opportunities, and the importance of evidence-based clinical decisions. However, 53.9% of residents expressed a notable concern regarding the increased burden of research within an already demanding curriculum. While only (14.9%) felt that residents should not be involved in medical research. The overall attitude levels were distributed as follows: 10.9% poor, 52.0% moderate, and 37.1% good.

The assessment of residents' practices in medical research revealed a mixed picture. While over half of them (52.0%) participated in research projects related to the medical field, and a substantial proportion (43.2%) had a research mentor or supervisor guiding them, some areas needed improvement. Although a majority practiced developing research questions and designing studies (60.3%), conducting literature reviews (63.8%), and performing data analysis (60.3%), fewer engaged in activities such as presenting research at conferences (38.9%) or having publications in peer-reviewed journals (40.6%). Despite this, a significant majority expressed willingness

to participate in research-related workshops (70.4%) and conduct medical research (79.4%). The practice level was categorized as poor for 53.1%, moderate for 27.0%, and reasonable for 19.9% of the residents (Table 3).

The main obstacles identified when assessing the residents' perspectives on barriers to research include inadequate funding or resources for research projects (71.9%), limited time allocated for research activities during training (71.5%), and a lack of research-specific training and education [Fig. 1].

Table 4 presents the distribution of residents' involvement in research projects according to their demographics and attitude scores. In the univariate analysis, several factors were significantly associated with the current participation in research projects ($P < 0.05$): being female, graduating from Palestinian universities, receiving courses in research methods and biostatistics during medical education, having a research mentor or supervisor during residency training, and attending workshops on research methodology. The multivariate analysis revealed that having a research mentor or supervisor during residency training was the most significant predictor of research activity involvement (a P -value: < 0.001 ; aOR: 11.8; 95% CI: 6.2–22.5).

Table 3 Residents' engagement in research practices during residency

Practice items	Yes (%)
Participate in research projects related to the medical field	133 (52.0%)
Have a research mentor or supervisor who helps	111 (43.2%)
Practiced developing research questions and designing research studies	155 (60.3%)
Conducted literature reviews to assist in research projects	164 (63.8%)
Conducted data analysis for research	155 (60.3%)
Actively participated in writing research proposal (plan)	167 (65.0%)
Read medical articles on a regular and consistent basis	162 (63.0%)
Presented a poster or research paper at a conference	100 (38.9%)
Have any publications in a peer-reviewed journal	104 (40.5%)
Attend a workshop on research methodology	86 (33.5%)
Willing to participate in a workshop on research methodology	181 (70.4%)
Willing to conduct medical research	204 (79.4%)
Overall practice level	
Poor	136 (53.1%)
Moderate	69 (27.0%)
Good	51 (19.9%)

Discussion

The study analyzed resident doctors' perceptions and practices regarding medical research, identifying barriers and comparing them across different medical specialties in Palestine. The findings provide insights into the current state of medical research engagement among Palestinian doctors, highlighting strengths and areas for

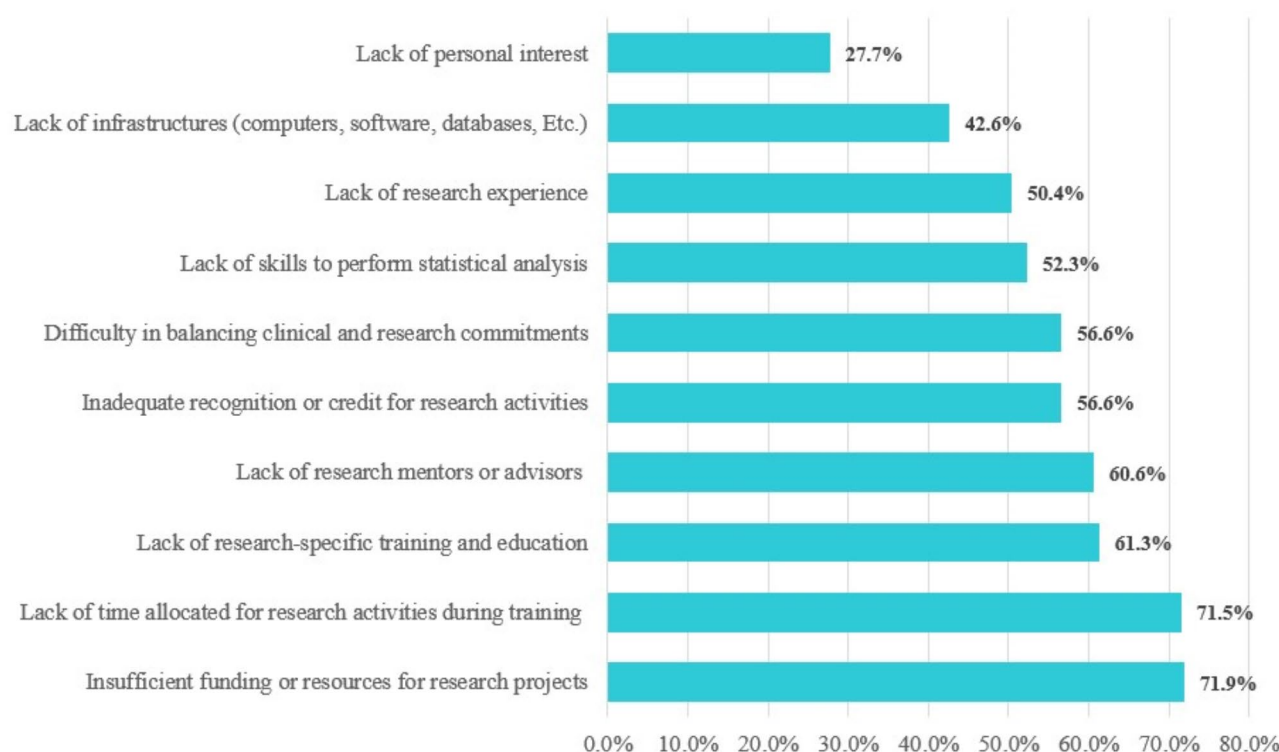


Fig. 1 Barriers to conducting research among the participating residents

Table 4 Distribution of the residents by their demographics and attitude score about their engagement in research projects

	Engaged in a clinical research project		P-value	aP- value	aOR(95%CI)
	Yes (%)	No (%)			
Age			0.27		
25–29	98 (54.1%)	83 (45.9%)			
30–40	35 (46.7%)	40 (53.3%)			
Gender			0.04		
Male	63 (46.0%)	74 (54.0%)			1
Female	70 (58.8%)	49 (41.2%)		0.408	1.3 (0.68 – 2.5)
Marital status			0.72		
Married	62 (50.8%)	60 (49.2%)			
Unmarried	71 (53.0%)	63 (47.0%)			
Residency Program			0.54		
Surgical	47 (49.5%)	48 (50.5%)			
Nonsurgical	86 (53.4%)	75 (46.6%)			
Graduation year			0.33		
2010–2016	17 (41.5%)	24 (58.5%)			
2017–2019	63 (53.4%)	55 (46.6%)			
2020–2022	53 (54.6%)	44 (45.4%)			
Country of Graduation			0.005		
Palestine	104 (58.4%)	74 (41.6%)		0.44	1.5 (0.67 – 3.2)
Other countries*	29 (37.2%)	49 (62.8%)			1
Years of residency			0.630		
Junior	71 (53.4%)	62 (46.6%)			
Senior	62 (50.4%)	61 (49.6%)			
Workplace			0.160		
Public	89 (49.7%)	90(50.3%)			
Private	44 (57.1%)	33 (42.9%)			
Received research methods course during medical education			0.002		
Yes	116 (56.9%)	88 (43.1%)		0.59	1.6 (0.61 – 4.3)
No*	17 (32.7%)	35 (67.3%)			1
Received biostatistics course during medical education			0.008		
Yes	114 (56.2%)	89 (43.8%)		0.27	1.8 (0.70 – 4.6)
No*	19 (35.8%)	34 (64.2%)			1
Attitude score			0.310		
Poor attitude*	14 (50.0%)	14 (50.0%)			1
Moderate attitude	75 (56.4%)	58 (43.6%)		0.787	0.86 (0.30 – 2.5)
Good attitude	44 (46.3%)	51 (53.7%)		0.691	1.3 (0.43 – 3.5)
Have a research mentor or supervisor			< 0.001		
Yes	92 (82.9%)	19 (17.1%)		< 0.001	11.8 (6.2–22.5)
No*	41 (28.3%)	104 (71.7%)			1
Attend a workshop on research methodology.					
Yes	52 (60.5%)	34 (39.5%)	0.053	0.98	0.91 (0.45 – 1.8)
No*	81 (47.6%)	89 (52.4%)			1

*Reference group; **aP-value**: Adjusted P-values; **aOR**: adjusted odds ratio; **95% CI**: 95% confidence intervals

improvement. The mean age of the participants was 28.7 years, aligning with the typical age range of medical residents in similar studies [7]. The male-to-female ratio of 1.1:1 reflects the global trend of increasing female representation in medical education and residency programs [24].

The results indicate that many resident doctors hold positive attitudes towards medical research. Most respondents acknowledged the importance of research

for improving patient outcomes and enhancing career opportunities, with over 80% agreeing that research methodology should be mandatory in their training. This positive attitude is crucial, as attitudes greatly influence the willingness to engage in research activities [25]. However, 53.9% of residents expressed concern about the additional burden of research within an already demanding curriculum, highlighting the need for better integration of research activities into the residency program

to alleviate this perceived burden. This positive attitude towards research aligns with findings from other studies [26, 27] and reflects the growing recognition of the importance of research skills in medical practice [28]. Despite the generally positive attitudes, only 37% of resident doctors were rated as having 'good' attitudes towards research, indicating a need for improvement. Enhancing residents' perceptions could be achieved by creating more supportive research environments, implementing robust mentorship programs, and emphasizing the practical benefits of research engagement in clinical practice. Studies comparing Palestine with other low- and middle-income countries (LMICs) like Nigeria and India show similar challenges in balancing clinical work and research responsibilities. They highlight shared barriers such as limited funding, mentorship, and time for research [13, 29]. In contrast, research in high-income countries (HICs) benefits from superior infrastructure, mentorship, and integration into residency programs, leading to higher research engagement [30, 31]. Recognizing these differences emphasizes the importance of tailored interventions addressing LMIC-specific challenges in Palestine.

The evaluation of resident doctors' practices in medical research provides a detailed understanding of their involvement and identifies opportunities for improvement. Notably, 52.0% of residents participated in research projects, indicating moderate engagement. However, this also means that nearly half of the residents are not involved in research, highlighting the need for initiatives to encourage greater participation. Mentorship is a significant factor in research involvement [32, 33]. In our study, 60.6% of resident doctors cited the absence of research mentors and supervisors as a critical barrier to research involvement, with only 43.2% reporting having such support. The multivariate analysis further underscores the significance of mentorship, which is identified as the most significant predictor of research involvement. Residents with a mentor or supervisor were almost 12 times more likely to engage in research activities than those without. These findings align with the existing literature [26, 34, 35], indicating that implementing mentorship programs within residency programs can connect residents with experienced researchers who can offer support and guidance. Such initiatives can significantly enhance participation rates and improve research output quality. However, the feasibility of implementing mentorship programs in Palestine must account for the country's unique political, economic, and healthcare challenges. Limited financial resources, high clinical workloads, and political instability pose significant barriers to establishing structured mentorship initiatives. To address such challenges, residency programs could consider cost-effective approaches such as imposing virtual mentorship

platforms, establishing partnerships with international institutions, or integrating mentorship into existing residency training frameworks. Pilot programs targeting specialties with high research potential could serve as a starting point, with gradual expansion informed by resource availability and program outcomes. Priority should be given to pairing residents with mentors who share their research interests and providing tailored support throughout the research process. Future investigations could assess the long-term impact of such mentorship models on research engagement and productivity.

Our study revealed that female residents exhibited greater involvement in research activities than their male counterparts. This finding is consistent with the literature, suggesting that female medical professionals may turn to research as a means to advance their careers and address systemic gender-based barriers in clinical or administrative roles [36, 37]. Additionally, societal expectations in specific contexts might encourage female residents to prioritize structured academic and research pursuits over the unpredictable demands of clinical practice. Further exploration of this trend could uncover the underlying factors driving female engagement in research and guide the development of gender-sensitive strategies to support and enhance this progress.

The data indicates that a majority of residents are gaining essential research skills: 60.3% have worked on developing research questions and designing studies, 63.8% have conducted literature reviews, and 60.3% have engaged in data analysis. These activities are vital to the research process and show that residents are building necessary skills. However, the lower percentages of residents presenting research at conferences (38.9%) and publishing in peer-reviewed journals (40.5%) reveal a gap in converting their research efforts into published outputs. This suggests that while residents are active in the early research stages, they may require additional support or resources to complete and disseminate their work. The disparities in research dissemination may result from limited access to prestigious journals, insufficient institutional resources for editing and publishing, and fewer opportunities to attend international conferences [38]. Collaborating with global research networks could help address these issues, ensuring residents' research is finalized and shared widely.

The willingness of residents to participate in research-related workshops (70.4%) and to conduct medical research (79.4%) is a promising indicator of their interest and potential for future engagement, aligning with findings from similar studies [39, 40]. These findings suggest that appropriate support structures, such as targeted workshops and accessible research resources, could significantly increase residents' level of research activity.

The study reveals that resident doctors face several barriers to engaging in medical research; the main barriers identified include inadequate funding and resources, limited time allocated for research, and a lack of specific training. These obstacles are consistent with findings from other studies in similar settings [41–44]. The primary obstacle is the lack of adequate funding or resources for research projects cited by 71.9% of participants. This lack of funding can hinder the quality of research and lead to poor motivation for research [23]. Additionally, limited time allocated for research activities during training poses a significant challenge, often stemming from heavy clinical responsibilities. Allocating protected time for research within the residency curriculum can help residents engage in research activities without compromising their clinical duties.

A significant proportion of residents (61.3%) identified a lack of research-specific training and education as a barrier to conducting research. This highlights the need for integrating research methodology and biostatistics courses into residency training programs. Comprehensive training in research skills and ongoing educational opportunities can enhance residents' research capabilities and foster a culture of continuous learning [45, 46]. Future studies should investigate how residency programs in LMICs can adapt successful strategies from HICs, such as integrating protected research time and funding mechanisms while accounting for local constraints. A longitudinal study design could also evaluate the effectiveness of these interventions over time.

This study represents the first attempt to examine the perceptions, practices, and barriers concerning medical research among resident doctors in Palestine and could serve as a foundational reference for future research. Nevertheless, several limitations warrant consideration when interpreting the findings. One possible limitation is the study's exclusive focus on the West Bank region; future research should encompass residents from the Gaza Strip to strengthen the generalizability of the findings across all Palestinian territories. Additionally, there is potential for response bias, particularly social desirability bias, whereby participants may tailor their responses to align with societal expectations rather than candidly reflecting their actual practices or attitudes. Moreover, the study's cross-sectional design, akin to a snapshot, may not fully capture the dynamic nature of medical residency, potentially overlooking temporal variations in practices and attitudes. Adopting a longitudinal design would help track changes over time and provide a more comprehensive understanding of how residents' perceptions and practices evolve. Similarly, qualitative approaches could explore residents' lived experiences, offering detailed insights into the challenges they encounter and potential solutions.

Conclusion

The study provides a valuable understanding of the perceptions, practices, and barriers related to medical research among resident doctors in Palestine. Despite generally positive attitudes towards research, there are notable gaps in research involvement and significant barriers hindering resident participation. Mentorship emerges as a crucial factor influencing research engagement. Therefore, residency programs should focus on establishing structured mentorship programs to connect residents with experienced researchers. Curricula should include dedicated research time to alleviate workload, promote continuous learning, and integrate comprehensive research methodology and biostatistics courses.

Additionally, securing funding and resources for resident-led research projects is essential. Initiatives such as conference presentations and peer-reviewed journal publications should be implemented to facilitate research dissemination. Furthermore, fostering collaboration between residency programs, academic institutions, and healthcare organizations can create a supportive research ecosystem and promote interdisciplinary research projects. Strengthening research engagement will empower residents to address local healthcare challenges, enhance professional development, foster innovation, and improve the quality of patient care.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12909-025-06834-3>.

Supplementary Material 1

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Author contributions

ZN conceived the idea and managed the study. ZN, SN, and HA were responsible for designing the study and supervising data collection, analysis, and manuscript preparation. NS, RF, and AT participated in data collection and analysis and wrote the initial draft of the manuscript. All authors interpreted the results, provided feedback on earlier drafts, read and approved the final manuscript, and agreed to submit it to the journal.

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Data availability

All data generated or analyzed during this study are included in this published article.

Declarations

Ethics approval and consent to participate

All procedures performed in this study have been performed following the Declaration of Helsinki. The study was approved by the Institutional Review Board of An-Najah National University [Ref #: Farm. Med. Sept. 2023/33]. All

subjects involved in the study were invited to participate voluntarily and signed an informed consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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