RESEARCH

Research engagement and career aspirations among public health graduate students:

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experiences from a developing country

Abstract

Background Public health professionals are instrumental in shaping evidence-based policies and improving population health by translating research findings into actionable solutions. To sustain this progress, it is essential to understand the research engagement, aspirations, and challenges of public health students, as their active participation in research is critical for their development into successful public health practitioners.

Methods This cross-sectional descriptive study surveyed graduate public health students from universities in Bangladesh offering Master of Public Health program, using a questionnaire to collect data on demographics, research engagement, training, future aspirations, and the challenges encountered during research.

Results Among the 417 participating students, the mean age was 31.3±5.7 (SD) years, with a majority being female (58.7%). Approximately half of the participants (49.2%) had engaged in research activities prior to pursuing their current degree, while 27.6% had received formal research training. Of all, 87.8% students (n = 366) had an intention to pursue research career in future. Female students (aOR 2.07, 95% Cl 1.02–4.19, p = 0.043), students who were ≥ 30 years (aOR 2.51, 95% CI 1.11–5.69, p = 0.027), and studying MPH in public institutions (aOR 0.45, 95% CI 0.22–0.90, p = 0.024) exhibited a higher likelihood of conducting research independently, compared to male students, age < 30 years and studying MPH in private institutions, respectively. Factors such as prior research training (aOR 5.61, 95% Cl 2.64–11.9, p < 0.001) and prior education in non-science discipline (aOR 3.40, 95% Cl 1.16–9.99, p = 0.026) were positively associated with conducting research independently.

Conclusion Graduate public health students have demonstrated a strong interest in research careers, with nearly half reporting prior research experience. Being able to conduct research independently is shaped by factors such as gender, academic background, and the quality of training they receive.

Keywords Research involvement, Public health, Medical education, Developing country, Research training

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Background

Research drives advancements in science, technology, and healthcare, with public health research playing a critical role in shaping evidence-based policies. It provides key insights into areas such as disease trends, risk factors, treatment outcomes, public health interventions, healthcare costs, and service utilization [1]. As a result, public health professionals have become influential change agents, working behind the scenes to conduct impactful research and apply its findings to improve population health and wellbeing [2–4]. Given their role in advancing public health, understanding the participation, aspirations, and perceived barriers faced by public health students in research is essential to fostering their development and future contributions.

Studies have explored the perceptions, knowledge, attitudes, barriers, and factors that influence research participation among undergraduate medical and allied health science students [5-8]. Factors influencing student involvement in research included gender, student status (domestic vs. international), and the type of institution attended (public or private) [8-10]. Motivations such as contributing to community well-being, enhancing professional practice, and personal development played a significant role in driving research engagement among the students [10-12]. Additionally, many students pursue research for career growth and promotions, with some leveraging their degrees and research experience to secure scholarships, residency programs, or opportunities at high-ranked universities for better career prospects [12–15]. However, barriers and de-motivators still remain, including lack of funding, time constraints, demanding curricula, limited autonomy, insufficient collaboration, inadequate supervision and mentorship, and gaps in training in research methodology and biostatistics [13-16].

Although research participation has been extensively studied among undergraduate students globally, there remains a significant gap in the literature regarding research engagement, barriers, and career aspirations among postgraduate students pursuing a Master of Public Health (MPH).

In Bangladesh, Master of Public Health (MPH) programs typically span 1.5 to 2 years, with a few public institutions and a greater number of private universities offering the course. The standard MPH program lasts around 1.5 years, while executive or weekend MPH (E-MPH/W-MPH) programs extend to 2 years, specifically designed for working professionals who cannot attend weekday classes. Both the regular and E-MPH/W-MPH tracks offer a comprehensive curriculum covering research methodology, epidemiology, biostatistics, health economics, public health nutrition, health policy, health promotion, reproductive health, and mental health among many others. Students are typically required to complete a capstone project, such as a thesis or dissertation [17-20].

In recent years, the introduction of E-MPH/W-MPH programs has led to a significant increase in the number of students from diverse academic backgrounds. Many students enter MPH programs with little research experience, often seeing the degree as a stepping stone for career advancement, international migration, or moving to urban areas, rather than a true passion for public health expertise. This mind-set can make it harder for them to learn crucial parts of the curriculum, especially in research methods and data analysis, leaving them unprepared for the real-world challenges of public health. As a result, graduates may fall short of the skills needed by academics, policymakers, and health organizations, who rely on well-trained professionals for evidence-based interventions and program implementation.

This study was designed to assess the prevalence of research participation, barriers to research participation and future research- career aspiration among the students enrolled in MPH program in Bangladesh.

Methods

MPH education and accreditation system in Bangladesh

In Bangladesh, five public universities, 28 private universities, and the National Institute of Preventive and Social Medicine (NIPSOM) offer the Master of Public Health (MPH) program [19, 20]. While all public and private universities operate under the oversight of the University Grants Commission (UGC), medical colleges nationwide, along with NIPSOM, are governed by Bangabandhu Sheikh Mujib Medical University (BSMMU). BSMMU is responsible for overseeing MPH admissions, curriculum development, and providing academic guidance to its affiliated institutions. More details regarding the MPH course and universities offering MPH program are detailed in supplementary file (Table S1, S2 & S3).

Although private and public universities offering MPH programs follow BSMMU's curriculum, their admission and assessment processes differ. BSMMU employs a centralized system for admissions and evaluations, whereas non-affiliated universities manage their own independent entrance exams and assessments. Due to this decentralized approach and the lack of centralized oversight, the Bangladesh Medical and Dental Council (BMDC) does not accredit MPH graduates from private and public universities but grants accreditation to those from BSMMUaffiliated institutions. A comprehensive overview of the MPH education and accreditation landscape is presented in Fig. 1.



*BSMMU-Bangabandhu Sheikh Mujib Medical University; UGC-University Grant Commission; BMDC-Bangladesh Medical and Dental Council; Govt.-Government; E-MPH-Executive MPH, MPH-Master in Public Health; W-MPH-Weekend MPH

! BSMMU is also overseen by the UGC ** The symbol '+' signifies presence or affirmation, while '-' indicates absence. The symbol '±' denotes that some universities follow the indicated condition while others may not *** Public University other than BSMMU. BSMMU is also a listed public university but is the dedicated to medical education and service

Fig. 1 MPH education and accreditation system in Bangladesh

Study design, participants, and sample size estimation

This cross-sectional study involved post-graduate public health students enrolled in the Master of Public Health (MPH) program across five private universities and two public institutes in Bangladesh. The study sites were selected based on several factors, including student enrolment numbers at each university, the enrolment criteria (whether limited to health-related backgrounds or open to diverse fields), the geographical distribution of the universities, and the timeline for data collection. These criteria allowed us to ensure a diverse and representative sample while considering logistical constraints. All current MPH students who had not completed their capstone research project were eligible to participate in this study. The estimated sample size was calculated using the Cochran (1977) $[n = z^2 pq/d^2]$ formula, with a prevalence of 50%, a margin of error of 5% at the 95% confidence interval, and a 10% non-response rate. The participants were recruited by convenience sampling, and a total of 417 students participated in this study.

Questionnaire development and data collection

We utilized a structured, self-administered questionnaire to collect data. The questionnaire encompassed items organized into five primary sections: (a) demographic characteristics of the participants, (b) prior research engagement before enrollment in the MPH program, (c) participation in research training outside the undergraduate academic curriculum, (d) future research aspirations, and (e) barriers and challenges to research engagement encountered by students before enrolling in the MPH program. Questions were evaluated based on statements/short answers, checkboxes and yes/no responses. One item under "future research aspirations" was evaluated by a 5-point Likert scale with 1 = strongly agree and 5 = strongly disagree (Do you agree that undergraduate studies should include mandatory courses on research methodology?). The questionnaire's components and themes with detailed information is available in the supplementary file (Table S4).

In this study, current occupations were categorized into two main categories: healthcare professionals and nonhealthcare professionals. The healthcare professionals included physicians, dentists, nurses, and allied healthcare professionals, while the non-health care professionals included individuals outside the healthcare sector. For the analysis, the discipline of previous education was divided into two groups: science discipline, which comprised fields such as Medicine and surgery, Dentistry, Nursing, Physiotherapy, Homeopathy, Bachelor of Sciences, and Master of Sciences. The non-science discipline encompassed areas such as Liberal Arts, Humanities, Social Sciences, Business administration, Bachelor of Arts, and Master of Arts.

Certain sections of the questionnaire were adapted from previously published studies [5-8] and additional items were added to further characterize the demographic profile and research perspective of our study population. To assess how easily the participants could understand and complete the questionnaire, an extensive process of peer review and discussions was undertaken. Subsequently, the questionnaire was pre-tested on a group of students (n = 20), with the aim of pinpointing the questions that were most effective in addressing our research objectives. These questions were then adjusted as needed to create the final version of the questionnaire. The data for this study were collected after written informed consent was obtained from the participants. A student who was not willing to participate was considered a non-respondent. The data were collected from May to October 2023. The data were collected through two methods: utilizing online social media platforms via a Google questionnaire and distributing the questionnaire to students by visiting public and private universities with MPH programs. To ensure the integrity of our data collection, dual submissions of the questionnaire were prevented by inquiring the participants whether they had previously engaged with and completed the online questionnaire. If affirmative, they were politely requested not to participate further in the study.

 Table 1
 Demographic characteristics of public health graduate

 students in Bangladesh
 Figure 1

students in Bangladesh		
Variables	n	%
Age (years) (n = 393)		
Mean±SD (Range)	31.3±5.7	(21–51)
Gender (n=412)		
Male	170	41.3
Female	242	58.7
Monthly family expense (BDT (n = 360))	
Mean±SD (Range)	66,932.7±43,952	(3000 - 350,000)
Current Occupation (n = 328)		
Health-care professional	94	28.7
Non-health care professional	147	44.8
Unemployed	87	26.5
Discipline of previous educa-		
tion (n = 328)		
Medicine and surgery	153	46.6
Dentistry	40	12.2
Nursing	31	9.4
Physiotherapy	4	1.2
Homeopathy	1	0.3
Bachelor of sciences	44	13.4
Master of sciences	4	1.2
Liberal arts, humanities and social science	10	3.0
Business Administration	16	4.9
Diploma	3	0.9
Master of philosophy	4	1.2
Type of institute for MPH course (n = 408)		
Government (Public)	96	23.5
Private	312	76.5
Study year of MPH course		
(n=376)		
1st year	141	37.5
2nd year	235	62.5

Ethics statement and consent to participate

The study protocol was reviewed and approved by the institutional review board of Public Health Foundation, Bangladesh (PHF-NG-1003). For online data collection, a dedicated consent section was placed on the landing page, where participants could provide their consent before submitting their responses. In the case of direct data collection, separate written consent forms were provided prior to completing the questionnaire. The study was carried out in accordance with the Declaration of Helsinki.

Data management and analysis

The data were cross-checked against the original data to ensure accuracy, reliability and no repetition of data. Descriptive statistics relating to respondent characteristics were expressed as frequencies and percentages for categorical variables and means and standard deviations for continuous variables. Pearson's chi-square test and Independent student's t-test were performed to determine the factors associated with being able to conduct "independent research" which was defined as the ability of a participant to design and conduct a research on their own, without direct supervision. Factors responsible for conducting "independent research" were assessed using univariate and multivariate logistic regression. Variables for regression were selected based on their theoretical relevance to the study outcomes, ensuring that all relevant confounders were accounted for in the final model. The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. A p value < 0.05 was considered to indicate statistical significance.

Results

Demographic profile of the study population

A total of 417 MPH students were included in this study. The demographic characteristics of the study population are provided in Table 1. The mean age was 31.3 ± 5.7 (SD) years, with an age range of 21 to 51 years. The majority were female (58.7%), were studying at an MPH program at a private university (76.5%), and were in 2nd year of the MPH program (62.5%). The primary disciplines of previous education of the MPH students were medicine and surgery (46.6%), bachelor of sciences (13.4%) and dentistry (12.2%). Moreover, 44.8% were non-healthcare professionals, 28.7% were healthcare professionals, and 26.5% of the students were unemployed.

Research engagement and participation in research training

Of the 417 participants, 138 (33.1%) reported having previously conducted independent research, while 205 (49.2%) indicated that they had volunteered in research projects outside of their academic curriculum. Additionally, 18% of the students stated that they had published their research paper in a peer-reviewed journal, with 74.7% being the first authors of any published research paper. In terms of participation in research training, 115 students (27.6%) received formal research training during their undergraduate studies. Furthermore, 40.3% attended workshops or training on research methodologies, 25.9% on biostatistics, 20.9% on research ethics, 24.2% on proposal writing, 11.5% on manuscript writing, and 9.4% on the publication process. Moreover,

Table 2 Prior research engagement, research training and opinions about research (n=417)

Components	Yes n (%)				
Components related to voluntary research engagement					
Volunteered for any research project outside of academic curriculum	205 (49.2)				
Conducted any research independently	138 (33.1)				
Ever published a research paper in a peer-reviewed journal	75 (18)				
Being a first author on a published research paper ($n = 75$)	56 (74.7)				
Components of participation in research training					
Received formal research training (Yes)	115 (27.6)				
Attended workshops/training/seminars on:					
Research methodologies	168(40.3)				
Biostatistics	108(25.9)				
Research ethics	87(20.9)				
Proposal writing	101(24.2)				
Manuscript writing	48(11.5)				
Publication process	39(9.4)				
Read medical journal(s) at least once	303(72.7)				
Components of research barriers and challenges					
Encountered any obstacles or challenges during research activities	278(66.7)				
Received encouragement from faculty members	356(85.4)				
Opinion about most challenging part of research: *					
Study design	140 (33.6)				
Sampling technique	81 (19.4)				
Data collection and/or recruitment of study participants	119(28.5)				
Data analysis	92(22)				
Manuscript writing	61(14.6)				
Presentation of research paper	42(10.1)				
Opinion about inclusion of mandatory research meth- odology course in undergraduate curriculum (n = 388)					
Strongly agree	226(58.2)				
Agree	137(35.3)				
Undecided	11 (2.8)				
Disagree	9 (2.3)				
Strongly disagree	5 (1.2)				
Opinion about volunteering in research project in near future					
Yes	366 (88)				
	·/				

*multiple responses were considered

303 respondents (72.7%) reported that they read medical journals at least once during their academic life (Table 2).

The majority of the students (278, 66.7%) indicated encountering obstacles or challenges to different extents in their research activities or engagement prior to enrolling in MPH course. Among the research activities, the most challenging parts were identified by the students as framing the study design (33.6%) and data collection and recruitment of study participants (28.5%). Additionally, 22% reported difficulty in data analysis, and 24.7% encountered challenges in proposal writing and manuscript writing. Overall, 85.4% mentioned that they received encouragement from their department or faculty members. Upon further questioning, 87.8% (*n* = 356) of the graduate public health students expressed interest in volunteering for research projects in the future to gain more research experience. They also expressed their opinion (93.7%) in favor of the inclusion of mandatory research methodology courses in their undergraduate curriculum, irrespective of discipline (Table 2).

Career aspirations in research, de-motivators and motivators

Despite facing numerous challenges, 366 respondents (87.8%) expressed their intention to pursue a research career in the near future. Potential motivators for choosing a research career included bright career prospects (30%), honor and prestige (29%), passion for research (25%), assistance in healthcare careers (24%), and social recognition (24%). On the other hand, de-motivators for pursuing a research career included lack of consistent funding to ensure career stability while conducting research (21%), limited access to mentors and advisors (7%), and fear of financial instability in the future due to low earnings during their career (6%). Additionally, a prolonged career trajectory (6%) and insufficient social recognition for research contributions (5%) were also identified as significant de-motivators (Fig. 2).

Factors responsible for conducting research independently After excluding all missing data, we analyzed the responses of 299 graduate public health students to precisely identify the factors influencing their engagement in research independently. The majority of students who independently conducted research were female (69.2%), enrolled in private universities (71.8%), had a previous educational background in science disciplines (87.2%), and were from non-healthcare professional backgrounds (82.1%). Participation in formal research training was significantly more common among those with experience in conducting independent research (n = 35, 44.9% vs. n = 40, 18.1%, p < 0.001); similarly, they encountered more obstacles and challenges than did those without experience in conducting independent research (n = 59,



Lack of research fund (21%) No social recognition (5%) Fear of financial insolvency in future (6%) Lack of mentors and advisors (7%) Prolonged career path (6%)



Career aspirations in research (88%)

Motivators

Bright career (30%) Honor and prestige (29%) Passion for research (25%) Assist in healthcare career (24%) Social recognition (24%) Adventurous lifestyle (18%) Financial stability(11%)

Fig. 2 Motivators and de-motivators of choosing a research career in the future

75.6% vs. n = 133, 60.2%; p = 0.014). However, both groups expressed a similar desire to pursue a future career in research (Table 3).

Multivariate regression analysis revealed that several factors were significantly associated with student's independent engagement in research. Chronologically, older age (aOR 2.51, 95% CI 1.11–5.69, p = 0.027), female students (aOR 2.07, 95% CI 1.02–4.19, p = 0.043), and students studying MPH in public institutions (aOR 0.45, 95% CI 0.22–0.90, p = 0.024) exhibited a higher likelihood of engagement in research activities on their own, compared to younger age, male students, and students studying MPH in private institutions, respectively. Factors such as prior research training (aOR 5.61, 95% CI 2.64–11.9, $p \le 0.001$) and prior education in non-science disciplines (aOR 3.40, 95% CI 1.16–9.99, p = 0.026) were positively associated with student's independent engagement in research (Table 3).

Development of a framework

We created a framework by bringing together insights from three key sources: (1) previous studies on factors that influence undergraduate student's engagement in research [9–16], (2) existing research on what motivates students to pursue an MPH degree [21, 22] and (3) the findings from our study on the motivators and de-motivators influencing the decision to pursue a research career in future. This framework was developed to demonstrate how research participation at the undergraduate level connects to the journey of enrolling in an MPH program and ultimately pursuing a career in research (Fig. 3).

Discussion

The study revealed that nearly half of the students had voluntarily participated in research projects outside of their academic curriculum. This finding aligns with expectations, as a significant number of students enrolling in MPH programs, whether from health science or non-health science backgrounds are likely to have completed mandatory thesis or dissertation projects during their undergraduate studies [23]. These experiences often expose students to research processes and establish connections with faculty members who supervise their work. Faculty, in turn, often mentor these students to participate in ongoing research projects, usually in roles like data collection, scientific writing thereby offering students the opportunity to engage in research voluntarily [24].

However, it is important to highlight that fewer than half of the students (33.1%) reported engaging in 'independent research'. This lower rate may be linked to various motivational factors and challenges they encounter. Common obstacles identified within this study population included difficulties with research methodology (study design and data collection) and data analysis, compounded by a lack of consistent funding. Previous studies among MPH students have shown that strong training and research skills significantly influence their engagement in research activities [21, 25]. Furthermore, insufficient financial compensation has been demonstrated as a barrier in previous studies [26, 27]. To encourage and build student's confidence in conducting independent research, it is essential to provide more mentoring programs and accessible training opportunities, either through academic institutions or government subsidies,

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	Experience research	of conducting	independent	Regression anal	ysis		
	Yes (n = 78)	No (<i>n</i> =221)		Unadjusted mod	del	Adjusted model	
	n(%)	n(%)	P value**	OR (95%CI)	P value	aOR (95%Cl)	P value
Age (years)			0.20				
< 30	12(20.7)	55(29.3)		Ref		Ref	
≥30	46(79.3)	133(70.7)		1.59 (0.78–3.22)	0.200	2.51 (1.11–5.69)	0.027
Gender			0.06				
Male	24(30.8)	95(43)		Ref		Ref	
Female	54(69.2)	126(57)		1.70 (0.98–2.94)	0.059	2.07 (1.02–4.19)	0.043
Type of institute for MPH cours	e		0.28				
Government	22(28.2)	49(22.2)		Ref		Ref	
Private	56(71.8)	172(77.8)		0.72 (0.40–1.30)	0.069	0.45 (0.22–0.90)	0.024
Discipline of previous educatio	n		0.07				
Science discipline	68(87.2)	207(93.7)		Ref		Ref	
Non-science discipline	10(12.8)	14(6.3)		2.17 (0.92–5.12)	0.070	3.40 (1.16–9.99)	0.026
Current occupation status			0.017				
Healthcare professional	14(17.9)	71(32.1)		Ref		Ref	
Non-healthcare professional	64(82.1)	150(67.9)		2.16 (1.14–4.12)	0.019	2.00 (0.87–4.58)	0.10
Participated in formal research training			< 0.001				
Yes	35(44.9)	40(18.1)		3.68 (2.10–6.46)	< 0.001	5.61 (2.64–11.9)	< 0.001
No	43(55.1)	181(81.9)		Ref		Ref	
Encountered barriers during research engagement			0.014				
Yes	59(75.6)	133(60.2)		2.06 (1.15–3.68)	0.015	0.90 (0.44–1.85)	0.77
No	19(24.4)	88(39.8)		Ref		Ref	
Pursue career in research			0.58				
Yes	68(87.2)	187(84.6)		1.23 (0.58–2.64)	0.58	2.34 (0.85–6.47)	0.10
No	10(12.8)	34(15.4)		Ref		Ref	

Table 3 Factors associated with public health graduate students' independent engagement in research activities (n = 299)

*p value obtained by chi-square test **p value obtained by independent Student's t test

[¥]missing values were excluded from analysis

to improve research skills. Additionally, integrating scientific research and research-driven courses early on into the undergraduate curriculum can improve student's research skills and instill confidence in conducting their own research, promote scientific publications and facilitate career advancement [28, 29].

Despite encountering obstacles, the majority of the students expressed their intention to pursue a career in research in the near future. This inclination could be attributed to the encouragement received from mentors and faculty [25], as well as the prospect of advancing their careers through research, which could lead to

promotions and opportunities to study at prestigious universities both at home and abroad.

The study highlighted that female students were more likely to engage in research activities independently than their male counterparts. Although studies have shown that male researchers tend to progress faster in their careers compared to female researchers [30, 31], our study revealed a different pattern, which aligns with the findings of Zafar et al. [32]. Historically, women's participation in research was limited due to factors such as sexism, patriarchal norms, gender-biased workplaces, and lack of family support [33, 34]. However, the growing involvement of women in research may be attributed to



Fig. 3 Framework for research engagement and career aspiration in research among public health graduates

heightened interest in science, technology, engineering, and mathematics education, transformative international initiatives/schemes which have created global opportunities and increased scholarships for women in research and the promotion of women-friendly workplaces, all of which may have contributed to shifting women in the field of research [35].

Our study also found that students from public institutions are more inclined to engage in independent research compared to their peers. This may be due to the higher research output typically associated with public institutions in Bangladesh [36], which not only motivates students to participate in research but also helps them develop the skills and confidence needed to conduct research independently compared to the private institution students. The study also revealed that students from non-science backgrounds were more likely to engage in independent research compared to their peers in science fields. This disparity may stem from the fact that many science students in this particular study were enrolled in medical, dental, or nursing universities, where the focus often leans heavily on clinical work [37, 38]. This emphasis can restrict their time and opportunities to build essential research skills, such as study design, grant writing, and data analysis, which are crucial for confidently undertaking independent research.

Based on the findings of our study and insights from previous literature, we developed a framework (Fig. 3) to illustrate the factors that motivate students to engage in research activities during their undergraduate studies, their decision to enrol in an MPH program [9-16, 21, 21]22], and the motivators and barriers shaping their pursuit of a research career in the future. Given the limited knowledge on this topic, particularly in the context of Bangladesh, we created this framework to provide a comprehensive perspective on the relationship of research participation during their undergraduate years, transitioning to an MPH program, and ultimately deciding to pursue a career in research. This framework was developed with an intention to serve as a strategic tool for academic institutions, policymakers, and educators to gain deeper insights into the factors influencing students' progression from early academic engagement to choosing a research career. By identifying these key motivators and barriers, the framework aims to enhance research skill development, improve the quality of training programs, address existing challenges, and provide stronger support for student's professional growth in the field of research.

Strengths and limitations

Despite our best efforts in this research, some limitations warrant consideration when interpreting the study results. As a cross-sectional, quantitative study, it lacks the depth that qualitative methods, like interviews or focus groups, could provide in uncovering more nuanced insights. The use of convenience sampling may also introduce selection bias, limiting the generalizability of the results. Furthermore, it is crucial to recognize the potential for social desirability bias, as the study relied on selfreported data from students. Since only face validity was conducted for the questionnaire, this may lead to less accurate responses and, consequently, flawed interpretations of the findings.

Despite these limitations, the strength of this study lies in its exploration of research engagement among graduate public health students, their future career aspirations in research, and the motivators and de-motivators they encounter. This information can be used during educational planning, curriculum development, research training design, and the implementation of measures to address challenges. Moreover, the findings are valuable for assessing the competencies expected of MPH students and aligning them with the demands of the job market. Ultimately, this study offers insights that can contribute to improving educational programs and ensuring that graduates are well prepared to meet the needs of the public health sector.

Conclusion

This study found that nearly half of the students had taken the initiative to participate in research projects beyond their academic curriculum. However, less than half felt confident in their ability to conduct research independently. To encourage more students to get involved in research at the university level in Bangladesh, it's crucial to create a more research-focused educational curriculum irrespective of type of institution and whether they are from science or non-science background. While it's important to tackle external challenges like funding and institutional support, we must also pay attention to improving student's internal skills and knowledge. Building their confidence in conducting research, writing grant proposals, and designing studies is essential. By implementing initiatives that support personal growth alongside structural improvements, universities can foster a research-oriented mindset among students. This balanced approach will not only boost student engagement in research but also improve public health outcomes and help tackle the pressing health challenges in Bangladesh.

Supplementary Information

The online version contains supplementary material available at https://doi.or g/10.1186/s12909-025-06730-w.

Supplementary Material 1

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Author contributions

All the authors have read and approved the final version of the manuscript. Conceptualization: MJH, SS, SI, JF, MDH, MJH, TT, PZ, MASK, MRK, HMA. Formal analysis: SI, SZ, MJH, PZ, MSS, SA, MASK, MDH, SR. Investigation: MJH, MRH, TC, MRA, MRK, HMA, JF. Methodology: MJH, MRH, TC, MRA, MRK, HMA, JF, SR. Resources: MJH, MRH, TC, MRA, MRK, HMA, JF.SR. Supervision: MJH, SI, SZ, MJH, PZ, MSS, SA, MASK, MDH. Writing: SI, MJH, MRH, TC, MRA, SI, SZ, PZ, MSS, SA, MASK, MDH, SR.

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Data availability

The datasets used during the current study will be available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The study was reviewed and approved by the institutional review board of the Public Health Foundation, Bangladesh (PHF-NG-1003). Written informed consent was taken from all participants prior to data collection. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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