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ORIGINAL ARTICLE

Challenges hindering emergency physicians; involvement in multicenter collaborative studies in Japan: A nationwide survey analysis

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Abstract

Aim: Multicenter collaborative research accelerates patient recruitment and strengthens evidence. Nevertheless, the factors influencing emergency and critical care physicians' involvement in such research in Japan remain unclear.

Methods: A nationwide web-based survey conducted in early 2023 targeted emergency physicians working a minimum of 3 days per week in Japan. The survey descriptively assessed their backgrounds, work and research environments, experiences, and perceived impediments and motivators for multicenter research.

Results: Of the 387 respondents, 348 were included in the study, yielding a 5.1% response rate. Women comprised 11% of the participants; 33% worked in university hospitals, 65% served in both emergency departments and intensive care units, and 54% did shift work. Only 12% had designated research time during working hours, with a median of 1 hour per week (interquartile range 0–5 h), including time outside of work. While 73% had participated in multicenter research, 58% noted barriers to participation. The key obstacles were excessive data entry (72%), meeting time constraints (59%), ethical review at each facility (50%), and unique sample collection, such as bronchoalveolar lavage specimens or pathological tissues (51%). The major incentives were networking (70%), data sets reuse (65%), feedback on research results (63%), and recognition from academic societies (63%). Financial rewards were not highly prioritized (38%).

Conclusions: While valuing clinical research, emergency physicians face barriers, especially data entry burden and limited research time. Networking and sharing research findings motivate them. These insights can guide strategies to enhance collaborative research in emergency and critical care in Japan.

KEYWORDS
collaborative research, cross-sectional survey, emergency medicine, intensive care units, research barriers

The RED-PAM study investigators group are presented in Appendix A.

Manaho Yasuda, Ayaka Saito contributed equally.

BACKGROUND

The consistent accumulation of evidence and ongoing quality improvement activities have driven advancements in clinical medicine, leading to improved outcomes in emergency and critical care settings.[1,2] However, conducting high-quality clinical research in these fields, particularly in Japan, remains challenging.[3–5] The country's scholarly article output, particularly in critical care, has stagnated; also, there has been a decline in noncommercial clinical trials.[6,7] Therefore, it is crucial to invigorate clinical research initiatives.

Obstacles, such as patient recruitment, often hinder clinical research.[6,7] Multicenter collaborative research could provide a solution, as it accelerates patient recruitment, allows for a more diverse patient population, and increases the generalizability of the study compared with single-center studies.[8] However, multicenter research necessitates extensive collaboration among clinicians from various hospitals and demands significant human and financial resources.[9,10] Therefore, adopting measures to promote physician involvement in multicenter studies and eliminate participation obstacles could expedite clinical research in emergency and critical care.[11,12] Notably, Japan's landscape of multicenter research, particularly the distinct challenges and motivations faced by emergency physicians, remains largely unexplored. Unlike other nations, Japan lacks the presence of Clinical Trial Groups that consistently produce multicenter clinical trial results.[10] Moreover, reports indicate a high rate of burnout among Japan's emergency physicians, potentially hampering clinical research participation.[13] Recent findings underscore the struggles of Japanese university–affiliated physicians in setting aside adequate research time.[14] With the impending work style reform law set to be implemented on April 1, 2024, the challenges related to research time allocation may intensify.[14] Therefore, to enhance research and quality improvement in Japanese emergency medicine, identifying research barriers and proposing solutions are crucial.

This study aimed to investigate emergency and critical care physicians' perceptions of multicenter collaborative research and identify both potential barriers and facilitators to their participation.

METHODS

Study design and participants

This cross-sectional, nationwide, web-based survey was conducted between January and February 2023. The participants were selected based on their status as emergency medicine residents, board-certified emergency physicians, and attending emergency physicians affiliated with the Japanese Association for Acute Medicine (JAAM).[15] We selected 230 core training hospitals for specialist residents listed on the JAAM website, as well as 340 of the 688 associated specialist resident training hospitals with confirmed emergency physicians on their respective websites.[15] Departments providing emergency medical care in Japan consist of intensive care unit (ICU)-, emergency department (ED)-, and multispecialty-type models.[16] The details of the carriers and residency programs of emergency physicians in Japan are described in the supporting information. Participants were those engaged in emergency medical care in settings such as EDs and/or ICUs for at least 3 days per week. The Nagoya University Hospital Institutional Review Board approved the study protocol (approval number 2022–0366). The research methodology complied with the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) reporting statement for prognostic studies.[17]

Recruitment process

The survey was created using Google Forms (Alphabet Inc., Mountain View, CA) and distributed to potential participants using multiple methods.[18] Targeting 570 hospitals, notifications were sent through email and physical mail to emergency physicians with whom program administrators, department heads, or researchers had direct connections requesting distribution within their facilities. Three calls for participants were posted on the mailing lists of the Emergency Medicine Alliance (EMA; https://www.emalliance.org/) and the Japanese Society of Education for Physicians and Trainees in Intensive Care (JSEPTIC; https://www.jseptic.com/en/). The EMA and JSEPTIC are nonprofit organizations known for education and research, with 4056 and 7660 subscribers, respectively, as of March 4, 2023.[19,20] Participants on the survey page were informed about the research's purpose, data protection measures, and incentives. Electronic informed consent was required for participation, with selection of "yes" indicating consent. The incentives included potential group authorship meeting *the International Committee of Medical Journal Editors* criteria, financial incentives through a lottery, feedback on research results, and potential future research collaborations.[18] To prevent duplicate entries, email addresses, names, and affiliations were collected. After crosschecking this information with publicly available data from the JAAM and each hospital, it was thoroughly anonymized.

Survey development and pretesting

The survey was divided into six sections. A detailed survey form in English is available in Table S1. The initial section collected participant backgrounds and research history (12 items). The second section addressed work and research environments (24 items). The third section focused on multicenter clinical research experiences (5 items), while the fourth section delved into encountered research barriers and facilitators (29 items). The fifth section outlined study

participation incentives (4 items). Barriers were categorized by research content, participant environment, and personal factors. To assess attitudes toward these barriers and facilitators, we used a 5-point Likert scale.[21]

In the pilot phase, we sought feedback from 28 volunteer emergency physicians from the EMA and the JSEPTIC (Table S2). They reviewed the clarity and relevance of each question to evaluate and enhance the content validity.[22] We encouraged the participants to suggest additional questions or modifications to existing items. Based on this feedback, we finalized the survey form.

Data management and statistical analysis

All items except those asking for free-form descriptions of research barriers and proposed solutions were mandatory. Only completed responses were analyzed. We calculated response rates for different groups at the individual (residents, board-certified physicians, and all physicians) and hospital (core training facilities and all target hospitals) levels.[15] We verified the number of emergency residents on the Japanese Medical Specialty Board website for the years 2020–2022.[23] Subgroup analyses were performed based on the number of postgraduate years (PGYs), hospital type, and number of published articles in which the participant was the first author.[12] Because of the system design, there were no missing values. All statistical analyses were performed using the R software (version 4.2.2) with R Studio (R Foundation, Vienna, Austria).

RESULTS

Characteristics of participants

Responses were received from 387 individuals. After excluding 39 participants, including 15 non–JAAM-affiliated physicians and 24 with less than 3 days of clinical duties per week, we analyzed the remaining 348 responses (Figure 1). This represented a 5.1% response rate among all 6863 Japanese emergency physicians, 5.1% of the 5603 board-certified emergency physicians, and 4.8% of the 1260 emergency medicine residents. In addition, there were 214 hospital-level responses, resulting in a 48.7% response rate among 230 core training facilities and 37.5% among all 570 target hospitals. Spatial distribution of the hospital response rate is shown in Figure S1. Participant demographics are detailed in Table 1 and Figure 2. Of the respondents, 37 (11%) were women, 114 (33%) worked in university hospitals, and 189 (54%) engaged in shift work. Work experience, as measured by the PGYs, was distributed evenly, with 220 (63%) working in both the ED and the ICU, 85 (24%) exclusively in the ED, and 18 (5%) solely in the ICU. Among the participants, 154 (44%) had been the first author of a paper (Figure 2A). Most respondents had participated in observational research ($n = 254$, 73%), with a smaller number involved in interventional studies ($n = 159$, 46%; Figure 2B,C). Furthermore, 118 (34%) had led observational research and 37 (11%) had led interventional research (Figure 2D,E). Overall, 43 (12%) had designated research time during working hours, with the median time allocated for research (including outside of

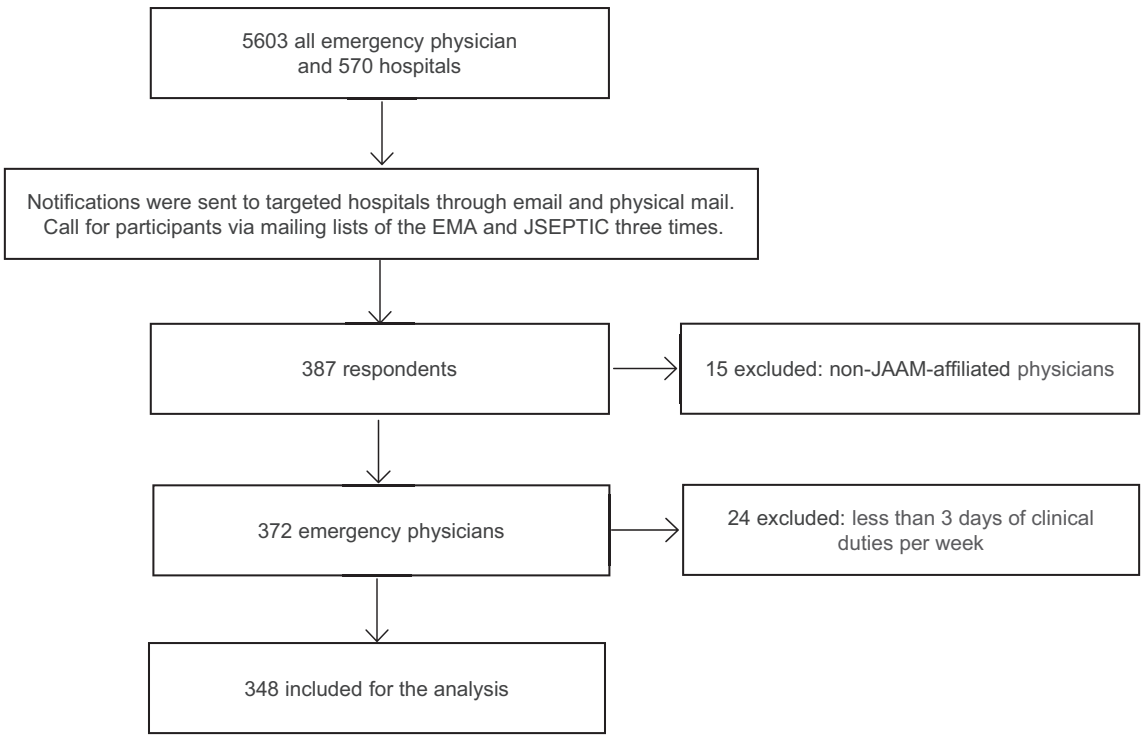

FIGURE 1 Flow diagram of participant recruitment process. EMA, Emergency Medicine Alliance; JSEPTIC, Japanese Society of Education for Physicians and Trainees in Intensive Care.

TABLE 1 Characteristics of participants and their work/research environment.

Variables	Overall ($n = 348$)
Female sex	37 (11)
PGY	
3–6	65 (19)
7–10	55 (16)
11–15	89 (26)
16–20	51 (15)
21–30	52 (15)
≥31	36 (10)
Current training status	
Emergency residents	70 (20)
Board-certificated physicians	217 (62)
Attending physicians	61 (18)
Current affiliated department	
Emergency medicine	294 (84)
Critical care medicine	28 (8)
General internal medicine	18 (5)
Others	8 (2)
Clinical practice field	
Emergency department and ICU	220 (63)
Emergency department	85 (24)
ICU	18 (5)
Others	25 (7)
Work environment	
Hospital type	
University hospital-secondary emergency medical center	23 (7)
University hospital-tertiary emergency medical center	91 (26)
Nonuniversity hospital-secondary emergency medical center	85 (24)
Nonuniversity hospital-tertiary emergency medical center	149 (43)
Prehospital care	
Physician-staffed ambulance	165 (47)
Physician-staffed helicopter	72 (21)
Work system of shift work	189 (54)
Assignment of care of hospitalized patients	253 (73)
On-call system: duty doctor system	71 (20)
Participation in procedures (eg, surgeries and IR)	124 (36)
Distribution of work hours among categories (proportion out of 10 levels)	
Clinical	6 (4–7)
Education	2 (1–2)
Administrative tasks	1 (1–2)
Research	0 (0–1)
Research environment	
Designated research days during working hours	43 (12)
Time spent on research including time outside of work hours (h/week)	1 (0–5)
Time dedicated to research outside of working hours (h/week)	1 (0–4)
Ideal research hours to allocate (h/week)	6 (3–10)
Presence of regular research meetings	103 (30)
Research mentors	172 (49)
Consultation availability regarding statistical analysis or research design	205 (59)
Presence of colleagues engaged in research activities	233 (67)
Easy access to paywalled articles	293 (84)
Research funding available	100 (29)
Database available for research	168 (48)
Easy access to the database	145 (42)
Function of data extraction from the electronic medical records	123 (35)
Data extraction support for research	171 (49)
Presence of clinical research support center	171 (49)
Past consultation to clinical research support center	81 (23)

Note: Data are presented as unweighted numbers (%) or median (IQR) as appropriate.

Abbreviations: ICU, intensive care unit; IR, interventional radiology; PGY, postgraduate year.

working hours) being 1 hour per week (interquartile range 0–5 h; Table 1). Of the participants, 103 (30%) had regular research meetings and 172 (49%) had research mentors. Research funds were secured for 100 (29%) participants.

Perceived barriers and incentives to participate in multicenter collaborative research

Among the participants, 255 (73%) had participated in multicenter collaborative research, 296 (85%) acknowledged its significance, and 178 (51%) were willing to participate. However, 202 (58%) reported potential barriers. These barriers, presented in Table 2, were primarily excessive data entry requirements ($n = 249$, 72%), time constraints for meetings ($n = 204$, 59%), the requirement for an ethical review process at each facility ($n = 174$, 50%), and the collection of unique samples, such as bronchoalveolar lavage specimens ($n = 176$, 51%). Younger doctors (PGY <10 years), compared with their senior counterparts, reported a lack of knowledge (68% vs 35%), absence of a research invitation (56% vs 35%), and unclear participation processes (50% vs 33%) as significant barriers. Physicians in university hospitals encountered difficulties in securing workplace cooperation more frequently than those in nonuniversity hospitals (53% vs 31%). Experienced authors (>10 papers) noted a lack of participants' scientific interest in the research question of

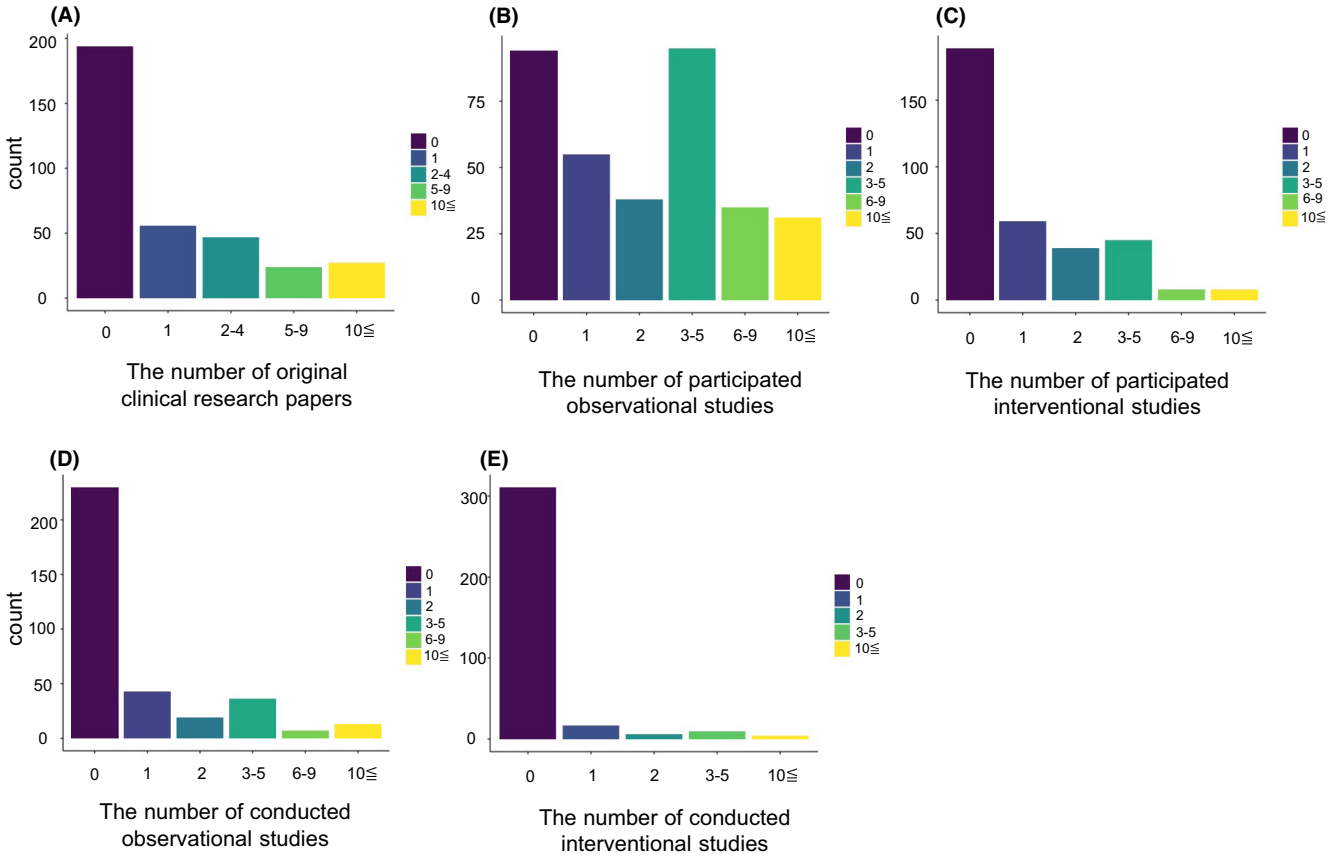

FIGURE 2 Participants' experience in clinical research. (A) Histogram depicting the count of original clinical research papers published on PubMed by the participants. (B) Histogram representing the number of observational studies the participants have taken part in. (C) Histogram illustrating the number of interventional studies the participants have been involved in. (D) Histogram showing the number of observational studies the participants have led. (E) Histogram indicating the number of interventional studies led by the participants.

the invited multicenter study (67% vs 33%) and difficulties in securing workplace cooperation (70% vs 36%) as notable barriers compared with less experienced colleagues.

The primary incentives for research were networking opportunities among researchers ($n = 243$, 70%), the potential to reuse research data sets ($n = 226$, 65%), feedback on research outcomes ($n = 219$, 63%), and recognition or support from academic societies ($n = 220$, 63%; Table 3). Monetary rewards were not viewed as significant incentives ($n = 131$, 38%). No notable differences were observed in the perceived incentives across the various subgroups.

DISCUSSION

This study represents the first exploration of barriers and facilitators to participation in multicenter collaborative research in the field of emergency and critical care in Japan.

Our nationwide survey found that respondents recognized the significance of this research and frequently participated. However, over one-half faced challenges, notably extensive data entry. Obstacles differed based on years since graduation, hospital type, and prior research experience. Valuable facilitators were networking, sharing research results, and data set use.

The key barriers to multicenter clinical research, including data entry, meetings, and facility ethical reviews, might be attributed to time constraints. This aligns with prior research on critical care in Japan and South Korea, highlighting time as a major research obstacle.[4] Our study elucidated the reasons why time constraints are viewed as primary obstacles from the perspective of participating investigators. These findings emphasize the need for strategic measures to allocate more time for clinicians to participate in research and facilitate multicenter studies in emergency and critical care. With limited research time, tasks such as data entry and ethical reviews can be significant barriers. To address these issues, consider measures such as thorough initial research design assessments, restricting the required variables, and centralized reviews to reduce the workload.[6,8] Ideally, dedicated personnel could assist with administrative tasks, such as data entry and ethical reviews. However, the availability of resources for such roles is often limited by insufficient research funding, which has similarly been reported as a predominant barrier for emergency medicine researchers in Canada.[24] Therefore, it is vital to establish additional support structures through the collaborative efforts of multiple stakeholders to secure funding from academic societies, corporations, and government-based clinical research support systems.[8-10,25]

TABLE 2 The perceived barriers of participating multicenter clinical studies.

Barriers	Overall	Clinical experience		Hospital type		Research experience	
		PGY < 10	PGY ≧ 10	Nonuniversity hospital	University hospital	Number of papers < 10	Number of papers ≧10
N	348	108	240	234	114	321	27
Absence of a research invitation	145 (42 [36–47] %)	61 (56 [47–66] %)	84 (35 [29–41] %)	104 (44 [38–51] %)	41 (36 [27–46] %)	142 (44 [39–50] %)	3 (11 [2.9–30] %)
Insufficient rapport with the principal investigator	138 (40 [35–45] %)	51 (47 [38–57] %)	87 (36 [30–43] %)	93 (40 [33–46] %)	45 (39 [31–49] %)	129 (40 [35–46] %)	9 (33 [17–54] %)
Inadequate personal knowledge	158 (45 [40–51] %)	73 (68 [58–76] %)	85 (35 [29–42] %)	111 (47 [41–54] %)	47 (41 [32–51] %)	151 (47 [41–53] %)	7 (26 [12–47] %)
Low perceived feasibility of the research	102 (29 [25–34] %)	31 (29 [21–38] %)	71 (30 [24–36] %)	62 (26 [21–33] %)	40 (35 [27–45] %)	89 (28 [23–33] %)	13 (48 [29–68] %)
Lack of scientific interest in the research question	125 (36 [31–41] %)	25 (23 [16–32] %)	100 (42 [35–48%)	76 (32 [27–39] %)	49 (43 [34–53] %)	107 (33 [28–39] %)	18 (67 [46–83] %)
Requirements for the collection of routine clinical specimens (blood and urine)	165 (47 [42–53] %)	41 (38 [29–48] %)	124 (52 [45–58] %)	108 (46 [40–53] %)	57 (50 [41–59] %)	146 (45 [40–51] %)	19 (70 [50–86] %)
Requirements to collect unique clinical specimens (eg, bronchoalveolar lavage specimens or pathological tissues)	176 (51 [45–56] %)	43 (40 [31–50] %)	133 (55 [49–62] %)	114 (49 [42–55] %)	62 (54 [45–64] %)	156 (49 [43–54] %)	20 (74 [53–88] %)
Excessive data entry requirements	249 (72 [66–76] %)	70 (65 [55–74] %)	179 (75 [68–80] %)	170 (73 [66–78] %)	79 (69 [60–77] %)	227 (71 [65–76] %)	22 (81 [61–93] %)
Research requires invasive procedures (eg, computed tomography scan) and/or interventions (eg, medication allocation)	175 (50 [45–56] %)	46 (43 [33–52] %)	129 (54 [47–60] %)	113 (48 [42–55] %)	62 (54 [45–64] %)	155 (48 [43–54] %)	20 (74 [53–88] %)
Insufficient protocol explanation	114 (33 [28–38] %)	35 (32 [24–42] %)	79 (33 [27–39] %)	73 (31 [25–38] %)	41 (36 [27–46] %)	100 (31 [26–37] %)	14 (52 [32–71] %)
Financial burden from research participation	122 (35 [30–40] %)	30 (28 [20–37] %)	92 (38 [32–45] %)	84 (36 [30–42] %)	38 (33 [25–43] %)	108 (34 [29–39] %)	14 (52 [32–71] %)
Time constraints on meetings	204 (59 [53–64] %)	63 (58 [48–68] %)	141 (59 [52–65] %)	147 (63 [56–69] %)	57 (50 [41–59] %)	189 (59 [53–64] %)	15 (56 [36–74] %)
Unclear participation processes	134 (39 [33–44] %)	54 (50 [41–59] %)	80 (33 [27–40] %)	88 (38 [31–44] %)	46 (40 [31–50] %)	128 (40 [35–45] %)	6 (22 [9.4–43] %)
Difficulties in securing workplace cooperation	133 (38 [3–44] %)	30 (28 [20–37] %)	103 (43 [37–49] %)	73 (31 [25–38] %)	60 (53 [43–62] %)	114 (36 [30–41] %)	19 (70 [50–86] %)
Challenges in obtaining informed consent from the participants	154 (44 [39–50] %)	30 (28 [20–37] %)	124 (52 [45–58] %)	101 (43 [37–50] %)	53 (46 [37–56] %)	135 (42 [37–48] %)	19 (70 [50–86] %)
The requirement for an ethical review process at each facility	174 (50 [45–55] %)	47 (44 [34–53] %)	127 (53 [46–59] %)	105 (45 [38–51] %)	69 (61 [51–69] %)	154 (48 [42–54] %)	20 (74 [53–88] %)
Personal circumstances affecting participation (such as childcare, caregiving, and illness)	117 (34 [29–39] %)	39 (36 [27–46] %)	78 (32 [27–39] %)	74 (32 [(26–38] %)	43 (38 [29–47] %)	108 (34 [29–39] %)	9 (33 [17–54] %)

Note: Data are presented as *n* (% [95%confidence intervals]).

Abbreviation: PGY, postgraduate year.

TABLE 3 The perceived incentives of participating multicenter clinical studies.

Incentives	Overall	Clinical experience					
		PGY < 10	PGY ≧ 10	Nonuniversity hospital	University hospital	Number of papers < 10	Number of papers ≧10
n	348	108	240	234	114	321	27
Credit received from academic societies	214 (61 [56–67] %)	63 (58 [48–68] %)	151 (63 [56–69] %)	144 (62 [55–68] %)	70 (61 [52–70] %)	202 (63 [57–68] %)	12 (44 [26–64] %)
The potential to receive research support from academic societies and similar entities	220 (63 [58–68] %)	67 (62 [52–71] %)	153 (64 [57–70] %)	143 (61 [55–67] %)	77 (68 [58–76] %)	204 (64 [58–69] %)	16 (59 [39–77] %)
The possibility of using the research data set for a secondary analysis	226 (65 [60–70] %)	63 (58 [48–68] %)	163 (68 [62–74] %)	138 (59 [52–65] %)	88 (77 [68–84] %)	204 (64 [58–69] %)	22 (81 [61–93] %)
Authorship of publication in the primary analysis	194 (56 [50–61] %)	58 (54 [44–63] %)	136 (57 [50–63] %)	114 (49 [42–55] %)	80 (70 [61–78] %)	172 (54 [48–59] %)	22 (81 [61–93] %)
Group authorship of publication in the primary analysis	180 (52 [46–57] %)	53 (49 [39–59] %)	127 (53 [46–59] %)	109 (47 [40–53] %)	71 (62 [53–71] %)	163 (51 [45–56] %)	17 (63 [42–80] %)
Acknowledgment in the main analysis	112 (32 [27–37] %)	35 (32 [24–42] %)	77 (32 [26–38] %)	73 (31 [25–38] %)	39 (34 [26–44] %)	105 (33 [28–38] %)	7 (26 [12–47] %)
Opportunity to join the team for secondary analysis and receive mentorship through research participation	199 (57 [52–62] %)	69 (64 [54–73] %)	130 (54 [48–61] %)	127 (54 [48–61] %)	72 (63 [54–72] %)	186 (58 [52–63] %)	13 (48 [29–68] %)
The availability of feedback, such as sharing research outcomes	219 (63 [58–68] %)	76 (70 [61–79] %)	143 (60 [53–66] %)	146 (62 [56–69] %)	73 (64 [54–73] %)	205 (64 [58–69] %)	14 (52 [32–71] %)
The possibility of building a network with other doctors through research participation	243 (70 [65–75] %)	74 (69 [59–77] %)	169 (70 [64–76] %)	158 (68 [61–73] %)	85 (75 [65–82] %)	227 (71 [65–76] %)	16 (59 [39–77] %)
Financial reward for participation	131 (38 [33–43] %)	49 (45 [36–55] %)	82 (34 [28–41] %)	82 (35 [29–42] %)	49 (43 [34–53] %)	121 (38 [32–43] %)	10 (37 [20–58] %)

Note: Data are presented as *n* (% [95% confidence intervals]).

Abbreviation: PGY, postgraduate year.

Moreover, factors such as heavy workloads, frequent burnout episodes, and scant sleep among emergency physicians in Japan add to the challenge of securing adequate research time.[13] Consequently, there is a pressing need for profound reforms in the working environment.

In multicenter collaborative research, networking opportunities among participating researchers have emerged as the most significant incentives, more than financial benefits. This finding aligns with previous studies suggesting that financial incentives may only provide temporary and partial effectiveness in recruiting physicians, underscoring the importance of nonmonetary benefits.[26,27] Notably, the establishment of collaborative networks fosters mutual relationships that facilitate the initiation of multicenter research. Moreover, feedback mechanisms that enhance transparency such as sharing research outcomes are highly valued. Such practices align with physicians' desire to apply their research findings to everyday clinical practice.[28]

Barriers to participation varied notably based on factors such as postgraduate and research experience, suggesting the necessity of tailoring barrier-reduction strategies to the target population instead of using a blanket approach. Strategies for less experienced doctors could include conducting clinical research workshops, helping clarify research protocols, and providing a supportive infrastructure to address their concerns. Providing better research training may effectively maintain the interest in the academic careers of emergency medicine residents.[29] However, for seasoned researchers, it may be essential to fine-tune research design and establish collaborative research structures within each facility.

At the research group level, considering strategies to closely examine data collection items and streamline the data acquisition process using electronic methods might help diminish barriers to research participation. Building research expertise, providing educational sessions for young physicians, and emphasizing the benefits of research initiatives that serve as central networking figures for future studies might enhance the efficacy of research groups. Nationally, or within professional societies, there is a pressing need to address the limited time dedicated to research and the existing support system gaps. Initiatives should be introduced to reward participation in multicenter research more significantly. For example, mandating case enrollment for retaining specialist or facility accreditation, coupled with endorsing the role of clinical research coordinators, can bolster research involvement across facilities.

The strengths of this study are its broad nationwide coverage, accurate response rate determination, and significant response rate in core emergency medicine training facilities. The distribution of experience and sex of the participants closely aligns with data from the JAAM website, suggesting that our sample maintains the representativeness of the targeted emergency physician population in Japan.[15] However, potential limitations such as selection bias during recruitment should be considered. The high research appreciation observed among participants suggests that those with a strong research interest might have been more likely to participate, potentially limiting the applicability of our findings to populations less interested in research. Therefore, the actual incidence of perceived barriers may be higher than that in our findings. Our sample size may not have been sufficiently large to thoroughly examine the link between participants' detailed backgrounds and individual research barriers. Further studies are warranted to understand how interventions addressing these barriers and facilitators may alter participants' perceptions. Moreover, our study design excluded those engaged in full-time research without clinical duties as well as graduate students in emergency and critical care. Additional research is required to understand the unique barriers to research relating to these individuals.

CONCLUSIONS

Despite recognizing the importance of clinical research, emergency physicians frequently face considerable challenges in participation, with limited research time emerging as a primary obstacle. Encouraging shared contributions through networking and dissemination of research findings can serve as potent motivators. These insights offer valuable guidance for developing sustainable strategies to boost collaborative clinical research in emergency and critical care in Japan.

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CONFLICT OF INTEREST STATEMENT

MY and AS are research interns at TXP Medical Co. and TG is the Chief Scientific Officer of TXP Medical Co. YK is an Editorial Board member of AMS Journal and a coauthor of this article. To minimize bias, they were excluded from all editorial decision making related to the acceptance of this article for publication.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Approval of the research protocol: This study was approved by the Nagoya University Hospital Institutional Review Board (approval number 2022–0366).
Informed consent: The participants provided pre-enrollment consent to participate in the study.
Registry and the registration no. of the study/trial: N/A.
Animal studies: N/A.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

A.1 | Contributor Information

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