Identifying Barriers and Areas of Focus to Improve the Publication Practices among Paediatricians in Nepal

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ABSTRACT

Background: Medical research publications in Nepal have remained relatively uncommon over the last decade. However, recent growing research interest among clinicians in Nepal has emphasised the need to identify and address key barriers to strengthen the research-publication process. This study aimed to identify these barriers and focus areas for improving publication practices among paediatricians in Nepal.

Methods: A cross-sectional study was conducted among Nepali paediatricians from 15 January to 15 May 2024 using a semi-structured questionnaire distributed via Google Forms. The survey included Likert-scale, open-ended, and closed-ended questions on research-publication barriers, research practices, motivation, and recommendations for improvement.

Results: A total of 293 participants (male: 60.1%) responded to the survey. Of these, 35.2% worked in government hospitals, 38.6% were subspecialists, and 54.9% had additional responsibilities beyond their paediatric work. Furthermore, 77.5% of paediatricians had publications, with 78% and 95.15% as principal authors and co-authors, respectively. Systematic reviews and meta-analyses were deemed to be the most challenging, whereas cross-sectional studies were the easiest to conduct. Academic recognition (73.7%) was the primary motivation for publishing, whereas the most significant barrier was being overwhelmed by clinical work (64.5%). Time management (96.1%) and clinical work responsibilities (93.2%) were the main challenges in the manuscript preparation. Ghost authorship (14%) and gift authorship (32.6%) were the most common issues related to authorship. Most participants (80.5%) believed that training in manuscript writing and research methodology could improve the quality and quantity of the research publications.

Conclusions: Paediatricians in Nepal face several publication barriers, which can be addressed through increased funding, improved resources, and enhanced research training.

Keywords: Barriers; Nepal; paediatrician; publication; research.

INTRODUCTION

Medical research advances medical science, generates clinical evidence for patient care, and drives innovation, benefiting patients, physicians, the scientific community, and society. 1,2 Postgraduation offers essential training for Nepali paediatricians to acquire medical research skills and build research competency. Many paediatricians continue research to boost academic opportunities, advance their careers, pursue personal interests, and meet subspecialty enrolment or degree completion

requirements. There is a decline in research interest among Nepali physicians parallel to a gradual decline in research interest among physicians worldwide, impacting medical advancements and innovation.³⁻⁵ This decline in research interest may be due to research barriers, lack of motivation, and limited understanding of the significance of a research career.⁶ The literature review also identified a significant knowledge gap about research practices and factors affecting the quality of paediatric research in Nepal. This study aimed to identify the barriers to conducting research and pinpoint critical

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areas to improve the practices on publication conducted by paediatricians in Nepal.

METHODS

This questionnaire-based descriptive cross-sectional study was conducted between 15 January 2024 and 15 May 2024 among Nepali paediatricians working in various health facilities or organisations in Nepal. As of December 2022, official statistics from the Nepal Medical Council indicated that there were 781 paediatricians in Nepal.⁷ To calculate the sample size, the study projected a 25% increase in the number of paediatricians since December 2022, estimating a current total of 976. Based on this population, with a presumed proportion of 50%, a 95% confidence level, a 5% margin of error, and a 10% non-response rate, the calculated sample size was 281.

The study collected data using a semi-structured English-language questionnaire that included a fivepoint Likert scale and open- and closed-ended questions. Most questions in the questionnaire were developed from a thorough literature review.^{5, 8-12} In addition, specific questions assessing perceptions of the research publication process were adapted from a study conducted in a similar setting with a comparable population. 6 The questionnaire gathered information about respondents' demographics, number and type of publications, barriers to conducting research, and perceptions of the research publication process. Furthermore, other aspects of publication practices such as ethical research conduct, scientific methodology, and journal metric awareness were assessed. The participants' recommendations for improving research quality and quantity were also collected. The questionnaire was evaluated by content experts and pre-tested with 15 paediatricians to ensure clarity and readability of the questions.

A Google Form link containing the questionnaire and consent form was emailed to paediatricians. The consent form outlined the purpose of the research, potential benefits, the voluntary nature of participation, and the option to decline responding to the questionnaire. To maintain participant anonymity, names and email addresses were not collected during the survey. The study was approved by the Institutional Review Committee of the KIST Medical College and Teaching Hospital (IRC number: 2080/81/26). The questionnaire took approximately 15 minutes to complete, and participants were allowed to submit their responses only once to ensure data accuracy and integrity. Data collected from Google Forms was imported into Microsoft Excel spreadsheets and exported to the Statistical Package for

Social Sciences (SPSS Inc., version 16, Chicago, IL, USA). Categorical data were reported as frequencies and percentages, whereas continuous data were presented as means and standard deviations.

RESULTS

Although the calculated sample size was 281, 293 participants responded to the questionnaire. Among them, 176 (60.1%) were male and 117 (39.9%) were female. The mean age of the participants was 40.6 years (SD ± 6.7 years), with ages ranging from 28 to 67 years. The age distribution was as follows: 150 participants (51.2%) were between 28 and 40 years old, 135 participants (46.1%) were between 40 and 60 years old, and 8 participants (2.7%) were over 60 years old. Most participants were married, totalling 272 (92.8%). Eighteen participants (6.1%) were unmarried, two (0.7%) were divorced, and one (0.3%) was separated. Among the respondents, 163 (55.6%) were from joint families and 130 (44.4%) belonged to nuclear families.

Of the participants, 103 (35.2%) worked in government hospitals, 83 (28.3%) in medical colleges, 69 (23.5%) in private hospitals, 15 (5.1%) in community hospitals, 12 (4.1%) in private clinics, 10 (3.4%) in non-governmental organisations (NGOs)/international NGOs (INGOs), and 1 (0.3%) in government health administration. According to the respondents, 131 (44.7%) worked as consultants, while 127 (43.3%) were faculty members at medical colleges. Within the faculty category, the distribution was as follows: Assistant professors (15.4%), lecturers (10.9%), associate professors (10.2%), and professors (6.8%). Additionally, 32 respondents (10.9%) were senior residents or registrars, 2 (0.7%) were administrative consultants, and 1 (0.3%) was a researcher.

The study found that the majority of respondents, 180 (61.4%), worked in general paediatrics and 113 (38.6%) were subspecialists. Among the subspecialists, the most common were neonatologists (n = 28, 9.6%), cardiologists (n = 19, 6.5%), haemato-oncologists (n = 11, 3.8%) and nephrologists (n = 9, 3.1%). Additionally, there were nine (3.1%) paediatric critical care specialists, six (2.0%) gastroenterologists, six (2.0%) allergy and asthma specialists, four (1.4%) developmental paediatricians, four (1.4%) neurologists, three (1%) paediatric nutrition experts, three (1%) pulmonologists, three (1%) vaccinologists, and three (1%) paediatric surgeons. Conversely, specialists in endocrinology, infectious diseases, palliative care, paediatric immunology/ rheumatology, and public health accounted for only 0.3%, with one respondent in each field.

Three participants (1%) had less than one year of work experience. In contrast, the majority had varying levels of experience: 87 participants (29.7%) had 1 to 5 years, 112 (38.2%) had 6 to 10 years, 73 (24.9%) had 11 to 20 years, and 18 (6.1%) had more than 20 years. Regarding daily work hours, 50 respondents (17.1%) worked up to seven hours per day, 204 (69.6%) worked between seven and 12 hours, and 38 (13%) worked for more than 12 hours. Additionally, one participant (0.3%) was either retired or not currently working. Furthermore, 161 respondents (54.9%) held additional roles beyond their primary role as paediatricians. The most common additional roles included participation in hospital or health committee duties (67.1%), working in medical education departments (54%), involvement in research units (42.9%), participation in institutional review committees or ethical review boards (16.8%), hospital administrative tasks (13.7%), and membership in journal editorial boards (0.6%).

A total of 174 respondents (59.4%) reported receiving training in manuscript and scientific paper preparation. Among the surveyed participants, 227 (77.5%) had published research articles in various journals. Of these, 179 (78%) had published as principal investigators, while 216 (95.15%) had contributed as co-authors. Among the 179 principal investigators, the distribution of published articles was as follows: 131 (73.1%) had published between one and five articles, 36 (20.1%) had published between six and ten, 10 (5.5%) had published between 11 and 20, and two (1.1%) had published more than 21. Regarding the timing of their most recent publication as a principal investigator, 45 (25.1%) had published within the last year, 98 (54.7%) had published between one and five years ago, 31 (17.3%) between six and ten years ago, and five (2.7%) between 11 and 20 years ago.

Among the 216 co-authors, 139 (64.3%) had published between one and five articles, 47 (21.7%) between six and ten, 19 (8.7%) between 11 and 20, and 11 (5.0%) more than 20. Regarding the timing of their last publication as a co-author, 70 (32.4%) had published within the past year, 114 (52.7%) between one and five years ago, 26 (12.0%) between six and ten years ago, and six (2.7%) between 11 and 20 years ago.

The types of published studies included cross-sectional studies (63.9%), case reports/series (52.9%), casecontrol studies (22.0%), randomised controlled trials (20.3%), cohort studies (17.6%), review articles (15.9%), qualitative research (15.4%), medical education articles (7.5%), meta-analyses or systematic reviews (5.7%), editorials (5.7%) and viewpoints (4.4%). Very few paediatricians have published quasi-experimental research (3.1%). Most participants—283 (96.6%) considered publishing research articles essential for a successful medical career. The primary motivation for publication, reported by 73.7% of paediatricians, was academic recognition by universities and regulatory bodies (Table 1).

At the time of the study, 270 (92.2%) paediatricians planned to conduct research in the future, while 158 (53.9%) had initiated research in the past but discontinued it before completion. During the study period, 125 (42.7%) participants were involved in the research or had submitted a manuscript for publication. Among the paediatricians, 65 (22.2%) applied for research grants in the past, while only 38 (13.0%) received grants. Among paediatricians, 65 (22.2%) had applied for research grants in the past, but only 38 (13.0%) received funding. Most paediatricians sought research assistance from online sources (68.6%), journal articles (64.8%), expert colleagues (58.0%), friends (44.0%), and research textbooks (26.6%). Clinical workload and personal commitment were the primary factors preventing or delaying the research (Table 2).

Paediatricians hold varying opinions regarding their research skills across different types of research (Table 3). Similarly, the participants reported facing distinct challenges in writing different sections of medical research articles, leading to varying levels of difficulty in each section (Table 4). Among the 227 participants who published articles, 125 (55%) used reference management software and 100 (44%) manually managed references during manuscript preparation. Additionally, 2 participants (1%) combined both methods. The different stages of manuscript preparation and publication were examined, revealing that the perceptions of these steps varied depending on the specific tasks involved (Table 5).

Participants considered several factors when selecting journals for publication. The most significant factors were journal reputation, a high citation index, and a high impact factor (74.1%), as these elements influence visibility, credibility, and overall research impact. Other considerations included the absence of publication fees (73.4%), PubMed indexing (72.0%), and whether the journal was an international (63.1%) or national (58.4%) peer-reviewed publication. Some participants also valued journals affiliated with professional societies or associations (44.0%), journals that publish multiple issues per year (23.2%), and paid journals that offer rapid publication (3.8%). Participants also provided information on various factors that affects research integrity and publication quality, such as their understanding of scientific practices, journal metrics, publication misconduct, and plagiarism (Table 6). Training in the development of a new generation of clinical scientists is essential for future research in Nepal. Notably, only half (50.2%) of the respondents thought that they could mentor aspiring researchers on the basis of their current knowledge. Furthermore, participants offered various strategies that could be implemented by different stakeholders to enhance both the quality and quantity of research publications among Nepali paediatricians (Table 7).

Table 1. Motivations for publishing research articles among paediatricians.				
Factors	Percentage of participants			
For academic accomplishments or recognition	73.7%			
To improve clinical skills or practice of evidence-based medicine	66.9%			
For academic promotion in a post or career advancement	59.4%			
For continuing medical education or conference presentations	40.3%			
To contribute to the advancement of medical science	38.9%			
Out of self-interest in research	28.7%			
As a part of the training or thesis	28.0%			
To increase the chance to enrol in specialised courses or fellowships	16.0%			
Due to peer pressure to do research	7.8%			
Not interested in research or publications	3.4%			

Table 2. Factors preventing paediatricians from conducting research.	
Factors	Percentages of participants
Overwhelmed with clinical work	64.5%
Personal work, family life, and social obligations	53.2%
Lack of mentorship, training or support, or team	43.0%
Lack or inadequate funding	42.0%
Lack of research culture, work environment, and behaviours conducive to research	36.5%
Lack of the necessary skills	30.4%
Limited research resources, tools, equipment, and infrastructure	29.4%
No rewards, motivation, or incentives for research	28.3%
Strict rules and regulations for conducting research	13.0%
Fear that research is complex and stressful	12.6%
Too few patients to conduct research	11.3%
Disinterest in research	6.1%
Currently, there are no barriers to research	3.1%

Table 3. Perceptions of the ability to conduct and publish various types of study.					
	Definitely yes	Probably	Possibly	Probably not	Definitely not
Case report or Case series	204 (69.6%)	66 (22.5%)	21 (7.2%)	1 (0.3%)	1 (0.3%)
Cross-sectional studies	154 (52.6%)	90 (30.7%)	40 (13.7%)	7 (2.4%)	2 (0.7%)
Case-control or Cohort studies	86 (29.4%)	128 (43.7%)	62 (21.2%)	10 (3.4%)	7 (2.4%)

Table 3. Perceptions of the	ability to conduct	and publish vai	rious types o	of study.		
	Definitely yes	Probably	Possib	oly	Probably not	Definitely no
Randomised Controlled Trial or experimental research	46 (15.7%)	111 (37.9%)	93 (31	1.7%)	32 (10.9%)	11 (3.8%)
Qualitative research	61 (20.8%)	90 (30.7%)	106 (3	36.2%)	28 (9.6%)	8 (2.7%)
Systematic review or Meta- analysis	24 (8.2%)	82 (28.0%)	118 (4	40.3%)	48 (16.4%)	21 (7.2%)
Review articles	80 (27.3%)	92 (31.4%)	92 (31	1.4%)	23 (7.8%)	6 (2.0%)
Medical Education articles	71 (24.2%)	100 (34.1%)	94 (32	2.1%)	21 (7.2%)	7 (2.4%)
Viewpoint on topic	66 (22.5%)	116 (39.6%)	84 (28	3.7%)	23 (7.8%)	4 (1.4%)
Table 4. Opinions on writing	different section	s of the researc	h article.			
	Very difficult	Difficult	Neutra	al	Easy	Very easy
Abstract	4 (1.4%)	72 (24.6%)	158 (53	3.9%)	55 (18.8%)	4 (1.4%)
Introduction or background	2 (0.7%)	41 (14.0%)	159 (54	4.3%)	81 (27.6%)	10 (3.4%)
Methods	10 (3.4%)	107 (36.5%)	122 (4	1.6%)	53 (18.1%)	1 (0.3%)
Results / statistical findings	48 (16.4%)	141 (48.1%)	76 (25.	.9%)	27 (9.2%)	1 (0.3%)
Discussion	16 (5.5%)	103 (35.2%)	131 (4	4.7%)	42 (14.3%)	1 (0.3%)
Conclusions	9 (3.1%)	59 (20.1%)	150 (5 ⁻	1.2%)	70 (23.9%)	5 (1.7%)
Limitations and Bias	15 (5.1%)	85 (29.0%)	131 (44	4.7%)	57 (19.5%)	5 (1.7%)
Recommendation	8 (2.7%)	72 (24.6%)	146 (49	9.8%)	60 (20.5%)	7 (2.4%)
Reference and Citation	10 (3.4%)	63 (21.5%)	145 (49	9.5%)	59 (20.1%)	16 (5.5%)
Table 5. Paediatricians' Perd	eptions on Manus	script Preparatio	on and Publi	cation.		
		Strongly agree	Agree	Undecid	ed Disagree	Strongly disagree
Organising the time to write challenging	and publish is	135 (46.1%)	148 (50.5%)	7 (2.4%)	3 (1.0%)	0 (0%)
Clinical work or duties affect publish scientific work.	t the ability to	131 (44.7%)	142 (48.5%)	10 (3.4%)	10 (3.4%)	0 (0%)
Personal, familial, and socia affect engagement in publis	•	104 (35.5%)	144 (49.1%)	24 (8.2%)	19 (6.5%)	2 (0.7%)
The author and co-authors vequally on various tasks throarticle-writing process.	•	58 (19.8%)	136 (46.4%)	56 (19.1%)	35 (11.9%)	8 (2.7%)
Clinicians require training a research and academic writ		180 (61.4%)	104 (35.5%)	7 (2.4%)	1 (0.3%)	1 (0.3%)
Starting to write is the easion manuscript preparation.	est part of	54 (18.4%)	132 (45.1%)	65 (22.2%)	34 (11.6%)	8 (2.7%)
Writing and publishing reseatinglish is challenging.	rch articles in	30 (10.2%)	105 (35.8%)	75 (25.6%)	63 (21.5%)	20 (6.8%)
Access to research-writing t software, and technology ha you to publish.		54 (18.4%)	155 (52.9%)	59 (20.1%)	18 (6.1%)	7 (2.4%)

Table 5. Paediatricians' Perceptions on Manus	script Preparati	on and Public	cation.		
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Selecting the right journal for publishing an article is an easy task.	11 (3.8%)	70 (23.9%)	76 (25.9%)	123 (42.0%)	13 (4.4%)
Publication fees are a barrier to the publication of articles.	71 (24.2%)	132 (45.1%)	49 (16.7%)	36 (12.3%)	5 (1.7%)
Submitting a paper to a journal is a time consuming and complex process.	69 (23.5%)	173 (59.0%)	34 (11.6%)	16 (5.5%)	1 (0.3%)
The current peer-review process of journals is perfect and flawless.	12 (4.1%)	87 (29.7%)	124 (42.3%)	54 (18.4%)	16 (5.5%)
Publishing a study may face challenges or rejection if its outcomes or results differ from those of the previous studies.	31 (10.6%)	138 (47.1%)	77 (26.3%)	43 (14.7%)	4 (1.4%)
The rejection of my articles motivated me to enhance the quality of my manuscript.	30 (10.2%)	147 (50.2%)	71 (24.2%)	40 (13.7%)	5 (1.7%)
A lengthy publication process discourages researchers from conducting further research.	64 (21.8%)	163 (55.6%)	51 (17.4%)	13 (4.4%)	2 (0.7%)
The entire publishing process is smooth and straightforward.	6 (2.0%)	66 (22.5%)	80 (27.3%)	106 (36.2%)	35 (11.9%)
Table 6. Understanding research ethics, plagi	iarism, and scie	ntific integri	ty.		
Are you aware that the primary author and th	e co-author of a	an article hav		Yes 172 (58.7%)	No
legal obligation and authorship?				172 (30.7%)	121 (41.3%)
Have you ever modified the 'research data' t	o achieve a spe	cific study go	oal? *	34 (15.0%)	193 (85.0%)
Have you ever modified the 'research data' the Have you contributed to research, data analy credited in the author list or acknowledged?	•			34 (15.0%) 120 (41.0%)	193 (85.0%) 173 (59.0%)
Have you contributed to research, data analy	rsis, or manuscr	ipt writing b	ut were not	<u> </u>	<u> </u>
Have you contributed to research, data analy credited in the author list or acknowledged?	rsis, or manuscr	ipt writing bu	ut were not e research?*	120 (41.0%)	173 (59.0%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sig Have you ever granted authorship to someon	rsis, or manuscr enificantly contr	ipt writing but the contribute s	ut were not e research?*	120 (41.0%) 32 (14.1%)	173 (59.0%) 195 (85.9%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sig Have you ever granted authorship to someon to the research?*	rsis, or manuscr enificantly contr ne who did not ted to your rese	ipt writing but the contribute sarch?*	e research?*	120 (41.0%) 32 (14.1%) 74 (32.6%)	173 (59.0%) 195 (85.9%) 153 (67.4%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sig Have you ever granted authorship to someout to the research?* Do you disclose any conflicts of interest relat Have you ever copied text, tables, or grap	rsis, or manuscr gnificantly contr ne who did not ted to your rese whics from an a	ipt writing but the contribute sarch?*	e research?* significantly ut citing or	120 (41.0%) 32 (14.1%) 74 (32.6%) 143 (63.0%)	173 (59.0%) 195 (85.9%) 153 (67.4%) 84 (37.0%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sign that the search authorship to some of to the research?* Do you disclose any conflicts of interest related that the you ever copied text, tables, or grapparaphrasing it?*	rsis, or manuscr gnificantly contr ne who did not ted to your rese whics from an a	ipt writing but the contribute sarch?*	ut were not e research?* significantly ut citing or script?*	120 (41.0%) 32 (14.1%) 74 (32.6%) 143 (63.0%) 20 (8.8%)	173 (59.0%) 195 (85.9%) 153 (67.4%) 84 (37.0%) 207 (91.2%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sign thave you ever granted authorship to someout to the research?* Do you disclose any conflicts of interest related thave you ever copied text, tables, or grapparaphrasing it?* Do you use software or other tools to help you	rsis, or manuscr gnificantly contr ne who did not ced to your rese whics from an a	ipt writing but the contribute sarch?*	ut were not e research?* significantly ut citing or script?*	120 (41.0%) 32 (14.1%) 74 (32.6%) 143 (63.0%) 20 (8.8%) 143 (63.0%)	173 (59.0%) 195 (85.9%) 153 (67.4%) 84 (37.0%) 207 (91.2%) 84 (37.0%)
Have you contributed to research, data analy credited in the author list or acknowledged? Have you ever received authorship without sign that the research?* Do you disclose any conflicts of interest related that you ever copied text, tables, or grapparaphrasing it?* Do you use software or other tools to help you be you regularly read medical articles?	rsis, or manuscr enificantly contr ne who did not eed to your rese whics from an a	ipt writing but the contribute sarch?*	ut were not e research?* significantly ut citing or script?*	120 (41.0%) 32 (14.1%) 74 (32.6%) 143 (63.0%) 20 (8.8%) 143 (63.0%) 239 (81.6%)	173 (59.0%) 195 (85.9%) 153 (67.4%) 84 (37.0%) 207 (91.2%) 84 (37.0%) 54 (18.4%)

 $^{{}^*\}mathsf{Calculated}$ among those who had published articles

Table 7. Recommendations for strengthening research and publication by Nepali Paediatricians.			
	Percentage of participants		
Provide training in manuscript writing and research methodology	80.5%		
Ensure accessibility of academic research tools, equipment, and infrastructure	78.5%		
Provide research grants or funding.	76.5%		
Encourage teamwork and research collaboration	66.6%		
Honour outstanding research with recognition or an award	60.1%		
Have senior faculty members guide and support young scholars	57.3%		
Simplify the research approval process	56.0%		
Researchers should be trained on work-life balance to create space for research	49.8%		
Hire research staff or personnel to facilitate the research	46.8%		
Foster a research culture	45.1%		
Make research a prerequisite for academic jobs or promotions.	41.6%		
Offer paid leave or sabbatical for research work from clinical work	41.3%		

DISCUSSION

Nepali paediatricians have reported that research is essential for their medical careers and academic growth. Academic recognition, career advancement, and the enhancement of clinical skills served as motivating factors, whereas excessive clinical workload, personal obligations, and a lack of guidance posed significant obstacles to conducting research. According to paediatricians, training in manuscript writing and research methodology, improved access to research tools, and funding are important strategies for improving publications in Nepal.

The majority of respondents in this study had published articles. Many were in the process of writing, had submitted articles for publication, or planned to conduct research soon at the time of the survey, indicating their recognition of the importance of the publication. At the same time, many paediatricians reported that they began their research but did not complete it. This trend of discontinuing research indicates that clinicians in Nepal may have experienced demotivation in conducting research or encountered significant barriers that hinder their efforts. Consistent with our current study, previous research 5, 6, 8 have also identified considerable obstacles and demotivating factors related to research. These factors could have contributed to the declining interest among physicians worldwide 3.5, including paediatricians in Nepal. Long working hours and excessive tasks, alongside clinical work in medical education, responsibilities in research units, and leadership roles in administration can negatively impact research interests. A recent stimulating study has also shown that multiple responsibilities or jobs are a potential barrier to research, confirming the findings of the previous study. 13 More than half (54.9%) of the paediatricians surveyed in this study had additional responsibilities beyond their primary clinical work.

Despite these significant challenges, many paediatricians regularly publish cross-sectional studies, case reports, and case series. However, at the time of the survey, only a few meta-analyses and quasi-experimental studies had been published. Paediatricians often viewed meta-analyses and RCTs as more complex to plan and conduct than case reports and cross-sectional studies, consistent with findings from previous research.¹⁴ A significant psychological barrier for clinicians engaging in research is the perception that conducting research is complex or challenging, which was evident in this study (12.6%). Another barrier is money and resources. Grants and financial support from funding agencies and governmental and non-governmental bodies are critical for promoting financial sustainability of research and overcoming funding-related barriers. Many paediatricians stated that they had never applied for research grants or received research grants to conduct research. Possible reasons for not applying for a research grant include ignorance or insufficient funding, a complicated grant application process, or a suboptimal research environment. 15 Many paediatricians have stated that they have never applied or received research grants to conduct research. Possible reasons for not applying for a research grant include ignorance or insufficient funding, a complicated grant application process, or a suboptimal research environment.¹⁵ Seeking help from the Internet,

online videos, journal articles, and expert colleagues to address challenges in various aspects of research is often a productive approach, as shown in this study.

The participants in this study found that writing the 'Results' section was the most challenging part of manuscript preparation probably due to lack of training in academic writing. Previous studies have shown that regular manuscript writing and publishing workshops could resolve such difficulties.¹⁶ Time management, excessive clinical work, personal commitments, lack of coordination between authors, difficulty in writing in English, and the need for knowledge to access research tools were other challenges identified in this study during manuscript preparation. These findings were similar to those of previous studies conducted in similar settings.⁶ Although manuscript preparation was challenging, paediatricians found the publication process even more complicated, similar to previous studies. 12, 17 This study also had respondents who faced challenges with time commitment, complicated submission procedures, publication fees, and journal selection. Many paediatricians in this study considered the absence of publication charge, the impact factor of the journal, and PubMed-indexed journals as criteria for research publications because they promote extensive visibility of research. This study's findings on the challenges faced by participants in the research publication process support previous findings. 18-20

Scientific misconduct in medical research has become a global pandemic in the scientific community.²¹ In a recent study, 65.3% of scientific paper retractions were due to scientific misconduct related to plagiarism.²¹ The study participants knew that the principal investigator and the co-author had the same legal obligations and shared authorship. Most participants stated that they obtained authorship solely through significant contributions to research. However, onethird of the participants reported granting authorship to individuals who did not significantly contribute to the research. Other problems, such as non-listing in the author list or acknowledgements (41%), plagiarismrelated issues (8.8%), and data manipulation (15%), were also prevalent among the participants, consistent with previous literature.21 These results suggest that research workshops should focus on exchanging ideas of good ethical research behaviour and scientific practice.

Our study showed that many paediatricians had used software or tools to assist them in writing and editing their manuscripts, consistent with the recent recommendation to integrate artificial intelligence

tools into various aspects of scientific writing.²² Many paediatricians reported that they had good academic skills, such as reading medical articles, critically appraising them, and conducting reviews for research in journals. Paediatricians reported familiarity with journal ratings, citation indices, and journal impact factors. Knowledge of these scientific practices helps choose appropriate journals for publication and assesses the impact of scientific work, advance careers, and secure research funding and awards.²³ Despite adhering to good scientific practices, paediatricians felt they lacked sufficient knowledge and skills to mentor medical professionals in research. As in other studies, the approach, such as training workshops on research methodology, manuscript preparation, and funding, was considered a crucial step in improving the quality and quantity of research.5

The main limitation of the study was that the respondents' views were obtained at one time and changes in their views were not assessed. In addition, some respondents may have answered the questions without thoroughly reading or understanding them. However, the diverse responses from participants across various locations in Nepal, institutions, and professional backgrounds strengthen this study and increase the likelihood that its conclusions can be generalised to all paediatricians.

CONCLUSIONS

The main problems that prevent Nepalese paediatricians from conducting and publishing research are research barriers such as clinical work overload, personal commitment, and a lack of supervision. Securing funds, addressing challenges, holding workshops on research and publication processes, and focusing on ethical practices are measures Nepali paediatricians can employ to improve the quality and quantity of research.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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