

ORIGINAL ARTICLE

Barriers to writing research papers and getting them published, as perceived by Turkish physicians – a cross sectional study

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Abstract

Background: Many physicians in Turkey are both clinicians and researchers, and publishing their research contributes to better patient care as well as to career advancement.

Objective: To identify the barriers faced by Turkish physicians to writing research papers and getting them published.

Methods: Respondents were asked, through eight multiple-choice questions, about the difficulties they faced in writing research papers and in getting them published in journals. We also searched published literature for accounts of similar difficulties and answers to the question ‘What is your purpose in writing scientific publications?’

Results: A total of 18% (155 of 871) of physicians completed the questionnaire. About the difficulties faced in writing, 82 out of the 155 participants, or 57%, reported problems in finding financial support; 58 (40%), in obtaining required permissions and clearances; 65 (45%), in acquiring relevant skills, especially those related to data analysis or statistics; and 42 (29%), in language-related skills. About the difficulties in getting their papers published in journals, 85 (60%) said that they tried to overcome the difficulties by searching for appropriate solutions on the internet; 66 (47%) sought help from experienced colleagues; and 47 (33%) needed professional help in English translation and editing. Need for financial support was reported by a significantly ($p = 0.04$) larger proportion of associate professors or full professors (69%) than that of residents (47%) and fellows (45%).

Conclusion: The main problems that Turkish physicians face in preparing scientific manuscripts were lack of financial support, inadequate knowledge of data analysis and statistics, and the paperwork involved in obtaining required approvals and permissions—problems that were common to the departments of internal medicine and of surgery. The primary motivation for writing and publishing was career advancement, especially through promotion to a higher academic rank.

Keywords: academic writing, language barriers, English as a second language, medical research, physicians as researchers, barriers to publishing research papers

Introduction

Publishing your research in medical journals is a hard task with its own rules and conventions and yet, clinical research is not only an essential part of the progress of science and contributes to better care of patients but writing up that research in the form of a scientific paper and publishing it are essential for career advancement of clinical researchers.¹ The Interuniversity Board Presidency in Turkey (UAK) is a supra-university academic body founded in 1946, and among the criteria that it stipulates for promotion from a medical doctor to an associate professor are that the candidates should have been principal collaborators in many publications and should have engaged in other scholarly activities such as teaching, delivering presentations, and contributing chapters to multi-authored books.¹ One of the main tasks of the UAK is to evaluate the publications and research work of candidates and, on that basis, awarding the title of Associate Professor to successful candidates.¹ The productivity of a researcher is measured in terms of the number of publications and their quality, which is determined mainly on the basis of the impact factors of journals in which the contributions were published or the coverage of those journals by reputable indexing services such as Web of Science.²

In Turkey, clinical studies can be conducted after notifying or applying to the relevant authorities. The first regulations governing clinical research were published in 2008 and revised as needed based on ethical guidelines.³ The guidelines on good clinical practice⁴ were last updated in 2020 by the Ministry of Health in Turkey. Most physicians in university hospitals in Turkey are involved in both patient care and research simultaneously. Most of research publications today are in English,⁵ and our search of relevant literature showed that many problems in academic writing and publishing are common internationally, language being a common problem especially in non-Anglophone countries.^{5,6} Studies from Japan and France have focused on editing in English.^{5,6} Reported barriers to writing and publishing include lack of time, heavy workload, lack of knowledge about academic writing, and limited skills in English.⁵⁻⁸ French researchers reported lack of time to write, limited skills in English, limited skills in writing, and the need for technical support, especially in revising the papers written in English.⁵ However, we found no study on the difficulties on writing and publishing faced by Turkish physicians.

Apart from researchers in medicine, those pursuing other branches of science from developing countries also faced such barriers as difficulty in accessing the literature, limited funding, insufficient guidance from experienced scholars, poor training in writing, and inadequate research infrastructure including chemicals and equipment and limited access to the internet.⁹ One study reported that one in five surgical randomized trials are discontinued and one in three completed trials remain unpublished.¹⁰ We hypothesized that different subject domains or fields of studies and working conditions in medical and surgical departments may also affect the performance of physicians in terms of academic writing and publishing. We therefore sought to identify the barriers to academic writing and publishing faced by Turkish physicians and their motives for publishing research papers and to determine whether those barriers vary depending on the academic degree of the researchers and their affiliation (whether they work in departments of surgery or those of internal medicine).

Methods

We undertook a cross-sectional observational study of physicians working in different departments of many hospitals in Turkey. The departments were categorized as either those of surgery or of internal medicine to compare the two. The first category (surgery) encompassed obstetrics and gynaecology, general surgery, urology, paediatric surgery, ophthalmology, aesthetic plastic surgery, etc. whereas the second category (internal medicine) consisted mostly of paediatrics, family medicine, radiology, chest diseases, oncology, haematology, psychiatry, physical medicine and rehabilitation, genetics, etc.

We conducted an online survey from 26 to 30 April 2021 through Google documents. (<https://drive.google.com>) and using a questionnaire comprising questions that were modified versions of questions found in the literature.^{2,5,6,8} Sumi et al.⁶ conducted a survey, asking the respondents about the benefits of and the difficulties in conducting clinical research. Duracinsky et al.⁵ developed a 39-item electronic questionnaire based on literature analysis and analysed the difficulties in medical writing and the need for external support in publishing research papers.⁵ The questions related to sources of funding and main obstacles to producing high-quality publications were edited from the study by Paiva *et al.*²

A list of barriers, listed in the form of multiple-choice questions, was compiled by analysing the questionnaires from published sources.^{2,5,6,8}

Questionnaire

Information on the aims of the study and the likely time to complete the survey (less than 3 minutes) was given upfront. The questionnaire consisted of eight questions: five on basic information (age, gender, academic degree, years from graduation from medical school, and department of speciality), two on the barriers to medical writing and publishing, and one on motivation for writing or the purpose of writing. Although each question was to be answered by choosing one answer from the multiple choices listed, an additional option was provided, which offered space for any other comments or opinions. These comments or opinions were grouped thematically (by RGSY and PK) and analysed accordingly.

Procedure

Residents, faculty with academic degrees, and physicians were invited to participate through WhatsApp groups of medical doctors from many hospitals in Turkey. Each participant received the same link to a Google form to fill out the questionnaire online. Most of the participants were from the same institution as ours, namely the University of Health Sciences in İstanbul. The questionnaire remained online for 5 days (26–30 April 2021).

Statistical analysis

The data were expressed as numbers, percentages, or as median, the range, and mean \pm SD values, as needed. For each answer, the survey software automatically calculated the absolute numbers as well as the percentage (proportion in the total number of people who answered a given question).

We used the Kolmogorov–Smirnov test for normality analysis and the Mann–Whitney U and Kruskal Wallis tests to compare the variables between the groups of two and three, respectively. For categorical variables, we performed a binary comparison using the χ^2 test (results given in Table 3).

Statistical analyses were performed using SPSS ver. 17 (IBM SPSS Statistics, Chicago, Illinois, USA), and a value of $p < 0.05$ was taken to indicate a significant statistical difference.

Ethics

This study was approved by the ethics committee of Zeynep Kamil Maternity and Childrens Diseases Training and Research Hospital (in April 2021; Approval number 80). We used WhatsApp groups to distribute the survey, and those who wished to participate simply filled out the questionnaire; no specific written consent was obtained.

Results

The questionnaire was sent out to 871 physicians, of which 155 (18%) completed the questionnaire. These respondents represented 24 different specialities (Table 1). All participants were native Turkish speakers.

Table 1. Demographic and occupational profile of respondents (n = 155)

Variable		Mean ± SD	Median (range)
Age, years (n = 153)		43.6 ± 9.7	44 (25–63)
Years of practice (n = 153)		19.0 ± 10.3	21 (1–41)
		n	%
Gender (n = 153)	Women	91	58
	Men	64	41
Speciality (n = 150)	Departments of internal medicine	93	62
	Departments of surgery	57	38
Associate Professor or Professor		50	32
Resident		84	54
Research Fellow		21	13

Answers to the three questions related to difficulties in writing and publishing are summarized separately: answers to the question ‘What are the problems physicians encounter in writing scientific manuscripts?’ in Table 2; ‘How do physicians overcome the difficulties they encounter in the process of publishing scientific manuscripts?’ in Figure 1; and ‘What are the physicians’ primary reasons for writing and publishing?’ in Figure 2. Answers from the two departments (internal medicine and surgery) showed no significant difference (Table 3), whereas the proportion of respondents expressing the need for financial support was greater among associate professors and full professors than that among residents and fellows ($p = 0.04$) (Table 4). Comments to the additional question were related mostly to lack of time and greater workload.

Table 2. Problems encountered by Turkish physicians in preparing scientific manuscripts (n = 142)^a

Problem	n (%)
Language problems: my English is not good enough	42 (29)
I cannot find a study subject	17 (12)
I cannot find teammates to work with	42 (29)
I have problems collecting data.	42 (29)
I have insufficient knowledge of data analysis or statistics	65 (45)
Paperwork to obtain approval by ethics committee and permissions for clinical research is difficult	58 (40)
I cannot obtain financial support (government, university hospital grant, industry, etc)	82 (57)

^aten respondents reporting no interest in academic writing or publishing excluded from analysis

Table 3. Demographics of respondents and problems encountered by them in preparing manuscripts, by affiliation (internal medicine or surgery)

Demographics and choice of answer to the survey question median (range)		Internal medicine	Surgery	p value
		N = 93	N = 57	
		median (range)	median (range)	
Age, years		44 (26–61)	46 (25–63)	0.735
Years of practice (n = 153)		20 (1–37)	21.5(1–41)	0.786
		n (%)	n (%)	p value
Gender (n = 150)	Women	61 (65)	25 (43)	0.009
	Men	32 (34)	32 (56)	
What are the problems physicians encounter in preparing scientific manuscripts? (n = 147)				
I am not interested in academic writing		9 (10)	8 (14)	0.486
Language problems: my English is not good enough		28 (31)	13 (23)	0.274
I cannot find a study subject		11 (12)	4 (7)	0.310
I cannot find teammates to work with		24 (26)	16 (28)	0.852
I have problems collecting data		24 (26)	18 (31)	0.521
I have insufficient knowledge of data analysis and statistics		35 (38)	26 (45)	0.420
Paperwork to obtain approval by ethics committee and permissions for clinical research is difficult		37 (41)	21 (36)	0.606
I cannot obtain funding (government, university hospital grant, industry, etc)		54 (60)	27 (47)	0.134

Table 4. Demographics of respondents and problems encountered by them in preparing manuscripts, by academic title

Demographics and choice of answer to the survey question		Associate Professor or Professor	Resident	Research Fellow	p value
		Median (range)	Median (range)	Median (range)	
Age, years		50 (36–63)	42 (28–60)	30 (25–45)	<0.001
Years of practice (n = 153)		25 (10–41)	17 (4–38)	5 (1–21)	<0.001
		n (%)	n (%)	n (%)	p value
Gender (n = 150)	Women	33 (69)	40 (47)	9 (45)	0.039
	Men	15 (31)	44 (52)	11 (55)	
What are the problems physicians encounter in preparing scientific manuscripts? (n = 147)					
I am not interested in academic writing		1 (2)	14 (16)	2 (10)	0.037
Language problems: my English is not good enough		9 (19)	25 (30)	8 (40)	0.164
I cannot find a study subject		1 (2)	13 (15)	3 (15)	0.054
I cannot find teammates to work with		10 (20)	26 (31)	6 (30)	0.443
I have problems collecting data		12 (25)	24 (28)	6 (30)	0.878
I have insufficient knowledge of data analysis and statistics.		15 (31)	37 (44)	13 (65)	0.035
Paperwork to obtain approval by ethics committee and permissions for clinical research is difficult		20 (41)	27 (32)	11 (55)	0.139
I cannot find funding (government, university hospital grant, industry, etc)		33 (69)	40 (47)	9 (45)	0.044

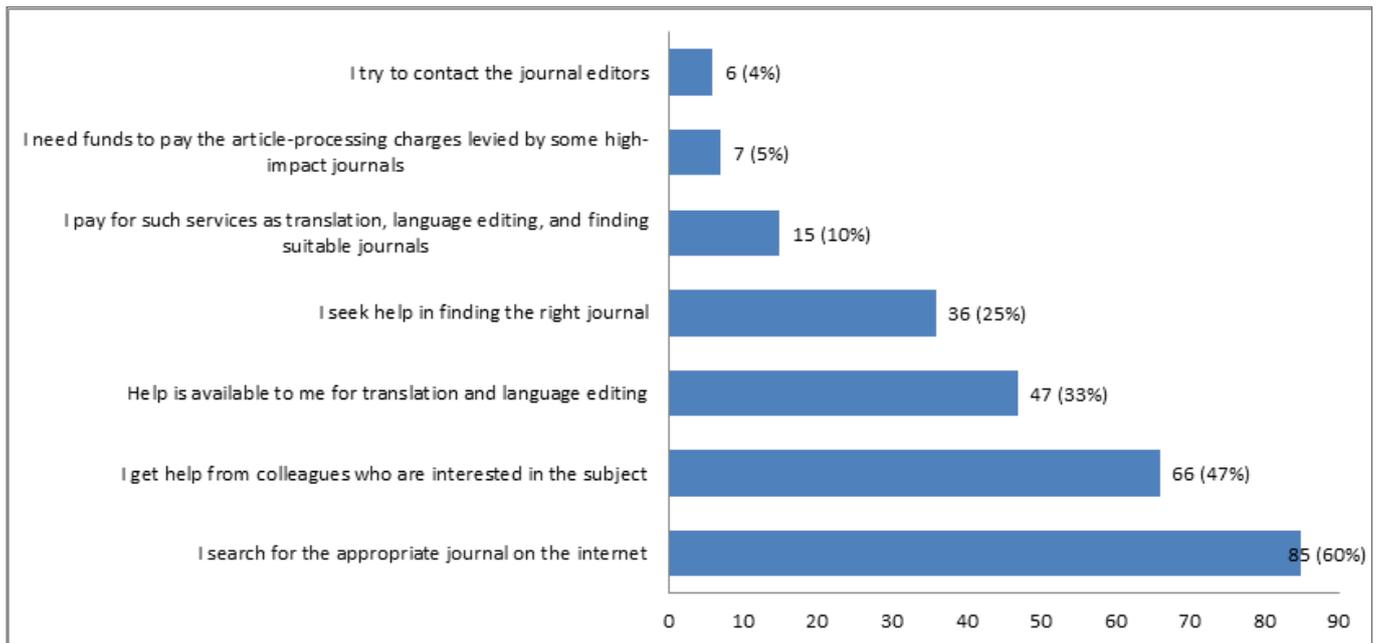


Figure 1. Means by which Turkish physicians overcome difficulties in publishing their research (n = 140)

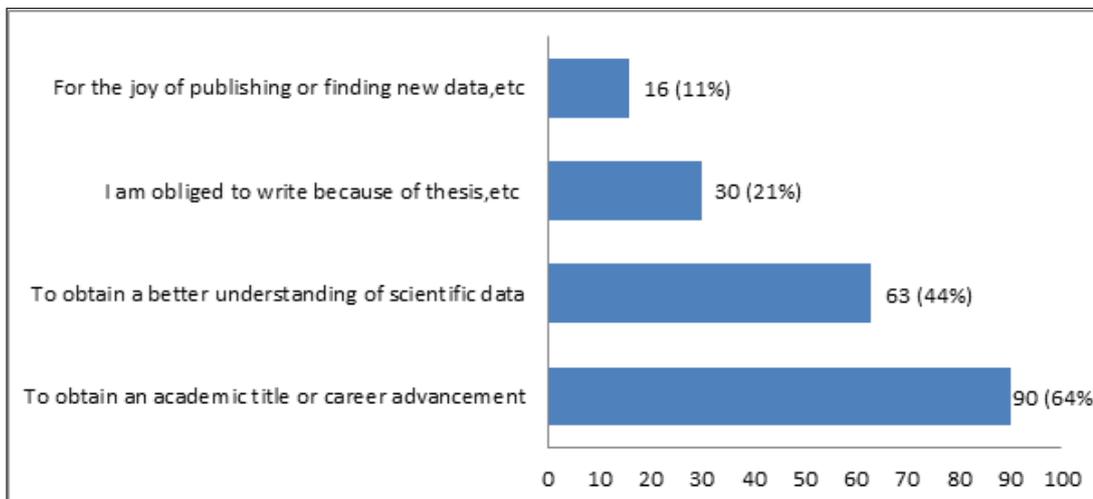


Figure 2. Primary motivation for Turkish physicians to write and publish their research (n = 141; ten respondents reporting no interest in academic writing or publishing excluded from analysis)

Discussion

Clinical medicine and research are hard to combine with a heavy daily workload and shortage of time. The major barriers faced by Turkish physicians in writing up their research and publishing it were related to funding, obtaining permissions, paperwork, statistical analysis, and language.

Most of the participants reported problems related to funding, obtaining permissions, and insufficient competence in data analysis, statistics, and use of English—findings that are consistent with earlier reports. Funding and data analysis are perceived as obstacles even in developed countries.^{5,8} Paiva et al., from Brazil, sought to distinguish between those who publish in high-impact journals and those who publish in low-impact journals in terms of the personal and professional characteristics of the researchers (N = 269; response rate 17%) and found that living in an anglophone country and the amount of time that could be devoted to research were factors associated with a greater chance of publishing in high-impact journals.² The more common barriers reported in that study were lack of time, inadequate funding, insufficient support from the host institution, and lack of cooperative and trained staff.²

A cross-sectional survey of 310 physicians (response rate 51%) in 31 departments in Kyoto University Hospital in Japan investigated the attitudes towards clinical research.⁶ As in the present study, residents, faculty, and physicians with a medical degree were invited to participate. A total of 96 medical doctors employed in internal medicine and 137 in surgery departments filled out the questionnaire. When queried about the benefits of conducting clinical research, 255 physicians (47.3%) cited obtaining a better understanding of disease.⁶ In the present study, obtaining a better understanding of scientific data was the second most-cited motivation, next only to promotion.

Paperwork and lack of time were the most-cited obstacles to conducting clinical research.⁶ Most physicians (93.2%) felt a need to acquire skills in clinical research and wanted to attend lectures on statistical analysis, writing protocols, completing the required paperwork, and cost management in clinical research.⁶

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Duracinsky *et al.* conducted an online survey about barriers to publishing in biomedical journals and reported the need for support, especially in dealing with problems caused by having to write in a foreign language: the study, with 1191 participants (a response rate of 15%), showed that most of the respondents needed help in revising their papers as required by journals (79%), especially when the revisions were critical (63%); the main barriers were lack of time to write (79%), limited proficiency in English (40%), and obtaining funding support to pay such professionals as translators, manuscript editors (to work on language, namely English), medical writers, and colleagues other than co-authors and also to pay the publication fee.⁵ In the present study, the most frequently mentioned barriers were inadequate knowledge of statistical methods and lack of funds. As mentioned in the literature and also observed in the present study, funding was required to pay for translation, editing, publication fees, consultations, etc. The main reason for inadequate knowledge of statistical methods may be the curriculum of medical schools in Turkey, which offer no formal instruction in academic writing, nor is such instruction a part of any residency programmes. Lack of time as an obstacle was also consistent with the literature.^{2,5,8}

As to the choice of the journal, 5% of the respondents in the study by Duracinsky *et al.* said that acquaintance with one of the editors was the main reason for choosing that journal.⁵ In the present study, 4% of the respondents declared that they would try to contact journal editors to ascertain whether a given journal was appropriate for a particular manuscript. Duracinsky *et al.* also reported that some authors try to influence editors' decisions and, by contacting the editors, try to increase the chances that the manuscripts are accepted by the journal—fortunately, nearly 95% of the participants said they refrained from contacting journal editors. The same study also listed the urge to share the results of research more widely and to improve the practice of medicine as the main motives in publishing.⁵ In the present study, the main motivation was career advancement: being promoted enhances one's standing in society and in the hospital, offers better working conditions, and increases income.

Being a non-English-speaking author was a factor in manuscripts being rejected by reviewers.⁵ Primary-care physicians in Bahrain also mentioned lack of time (76.5% of the respondents), insufficient financial support (63%), and lack of statistical support (50%) as major barriers to conducting research.¹¹ For Turkish academician and physicians, language can be a barrier to a successful academic career.¹ Ehara *et al.*¹² concluded that among the main reasons for manuscripts being rejected are a poorly defined study question and inappropriate study design and that although papers by authors who were native speakers of English recorded higher acceptance rates than those by authors who were not native speakers of English, language was *not* the main reason for rejection.¹²

Oshiro *et al.*⁸ surveyed those who had registered voluntarily for workshops on scientific publishing at the Mayo Clinic: although the institution provided many services to authors, including literature searches, statistical analyses, editing, and copy-editing to support scholarly activity, 57% of the respondents nevertheless listed multiple barriers in preparing manuscripts for academic medical journals. Writing, organization of study data, effective phrasing, compliance with the journal's format, and appropriate responses to reviewers were matters of concerns for the researchers and even for experienced authors.⁸

A cross-sectional survey from University of Jordan assessed the obstacles faced by biomedical researchers.¹³ The study included 82 researchers with five or more years of experience who were struggling with a stagnant research project: the most common personal barriers were lack of time (65%) and increased work load (81%), and the most common institutional barriers were lack of funds (36) and inadequate incentives for research (44%). The study covered five schools in the university, namely medicine, dentistry, pharmacy, nursing, and rehabilitation. The school of medicine accounted for 19 participants (23.2% of the total number of participants), who listed lack of funds and inadequate incentives for research (9, 47.4%) as institutional barriers, along with complex paperwork and approval requirements (6, 31.6%), lack of quality data and documentation (3, 31.6%), and poor communication between departments and with colleagues (1, 5.3%).¹³

Tanzania Fisheries Research Institute embedded an 8-week online course (AuthorAID) into their website to equip researchers with adequate skills in writing proposals and research papers.⁹ The course was followed by face-to-face workshops for two days. The researchers had published only a small number of contributions in peer-reviewed journals. A total of 47 participants completed the course and the workshops. To measure how effective the training had been, the number of successful proposals and published articles were counted. The average number of publications per year increased from 10 to 31 after the AuthorAID intervention.⁹ Among the factors that limited the rates of participation and completion were responsibilities in the field, limited access to the internet, and lack of support from technicians.⁹ Salas-Lopez *et al.*⁷ suggested that writing groups can be a useful tool to overcome barriers to academic publishing: colleagues from the same hospital but from different disciplines and playing different roles within the health network collaborated on identifying potential topics for manuscripts, literature search, and manuscript preparation. As papers were accepted and published in peer-reviewed journals, the satisfaction of being authors of published papers increased the motivation of the group.⁷ Writing-support programmes provided the necessary skills, motivation, and encouragement.^{7,14}

A surprising observation in the present study was that it was the residents, not associate professors or full professors or fellows, who were mostly the ones declaring that they had no interest in writing ($p = 0.037$), although in our practice, residents are the cornerstones in health care and bear most of the workload.

Our study has some limitations. We used WhatsApp groups to distribute the questionnaire, which meant that we had no data on those who did not respond. Also, most of the WhatsApp groups consisted of graduates from the same medical schools or colleagues from the same hospital or university, and the online survey was available for five days only. The results are therefore likely to be dominated by a certain age group or speciality and are not necessarily representative of all physicians in Turkey. The numbers and quality of the respondents' publications were not evaluated either, so we have no data on the participants' success in publishing, whether perceived or real.

In Turkey, many medical schools and residency programmes offer no formal instruction in academic writing and publishing. The Scimago Institutions Rankings 2021 listed 132 universities and research institutions from Turkey out of the world total of 7533. Among the 82 medical universities and institutions included in the ranking, those represented in the present study were within the first 20, with the University of Health Sciences at the 15th place. We think that university hospitals should develop standardized training programmes on clinical research methodology and biostatistics and provide targeted support, especially in English and statistics, to overcome the barriers to scientific writing and publishing faced by physicians in Turkey.

The main problems encountered by physicians in Turkey in preparing scientific manuscripts were inadequate funds, insufficient knowledge of data analysis and statistics, and the complex paperwork required to obtain approvals and permissions—problems that were similar whether the respondents were drawn from departments within internal medicine or surgery. In publishing scientific manuscripts, the internet and colleagues were the most consulted sources in overcoming these barriers. The primary motivation for writing and publishing was career advancement.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

RGSY and PK conceived the study and participated in the design, data analysis, and preparation of the manuscript; SKE and AC participated in study design and participant recruitment; and all the authors read and approved the final manuscript.

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