Fate of manuscripts rejected by a non-English general medical journal

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Fate of manuscripts rejected by a non-English general medical journal - a retrospective cohort study

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Abstract

Objective

The objective of this study was to determine whether, where and when manuscripts were published following rejection by the Journal of the Danish Medical Association - a general medical journal published in Danish. Similar previous studies have focused on specialty/subspecialty journals published in English.

Design

Manuscripts rejected during a four-year period were searched for in PubMed and Embase in order to assess the percentage of manuscripts subsequently published in other journals. In addition, characteristics of both the published manuscripts and the journals they were published in were evaluated.

Results

Of 198 rejected manuscripts, 21 (10.6%) were eventually published after a median of 685 days (range 209-1463). The majority of these were original research, published in English speciality/subspecialty journals. The median number of citations per article was 2-3 (depending of the database searched).

Conclusions

10.6% of the rejected manuscripts were eventually published in other journals, mainly English specialty journals. This publication rate differs notably from those found in previous studies. Manuscript translation could be a barrier for resubmitting to English journals with larger readerships, thus hindering the dissemination of knowledge to the international community.

Article summary

Article focus

- To determine whether, where and when manuscripts were published following rejection by a general medical journal published in another language than English

Key messages

- 10.6% of the rejected manuscripts were eventually published in other journals; a publication rate differing notably from that found in previous studies.
- Manuscript translation could be a barrier for resubmitting to English journals with larger readerships. Scientific journals publishing in small languages should consider publishing original research in a major language like English in order to facilitate the dissemination of scientific results

Strengths and limitations of this study

- PubMed and Embase were used to search for rejected manuscript eventually published in other (indexed) journals; previous studies have searched only PubMed for rejected manuscripts. However, even when searching both databases, the number of search results (published manuscripts) would most likely be an underestimate as some manuscripts could be published in non-indexed journals.
- This study deals with a general medical journal published in small language; previous studies have focused on speciality/sub-speciality journals published in English.

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

The authors have no relevant conflicts of interest regarding the present paper.

Objective

Since 1839, Journal of the Danish Medical Association (Ugeskrift for Læger - UfL) has been published on a weekly basis. It is one of the oldest general medical journals in the world – and the only Danish, peer-reviewed medical journal indexed in Medline.

The journal publishes editorials, original articles, systematic reviews, non-systematic reviews and case reports with an average of 10 articles per week.

UfL is published in Danish and thus serves a relatively little readership. Yet, the fate of manuscripts rejected by UfL is not only of national interest. This study could disclose that science communicated in a (small) national language may not cross borders. This could be of particular concern when no national alternative for manuscript resubmission exists. Then, language alone precludes the dissemination of knowledge that could otherwise benefit national as well as international scientific communities.

Previous studies about fate of rejected manuscripts have all dealt with speciality or sub-speciality journals published in English (1-11). In these studies, more than half of the manuscripts initially rejected were eventually published in another journal.

The aim of this study was to establish whether the same may be applicable for a general medical journal published in another language than English.

Methods

Using a retrospective cohort study design, access to all rejected manuscripts from the years 2002-2005 was obtained. All unsolicited rejected manuscripts were included in the study, a total of 198. For each manuscript, data about manuscript type, author(s), peer reviewer(s), date of acceptance and date of refusal were available. In addition, a copy of the editorial rejection letter provided information about the reason(s) for rejection.

PubMed and Embase were used to search for rejected manuscript eventually published in other (indexed) journals. By default, only the first author's surname and initials were searched for. If the author had a very common name, a combination of the first author's surname and the last author's surname was tried. If only one author was listed, a combination of the author's surname and a subject keyword was tried.

When searching PubMed and Embase for manuscripts, the time interval was not restricted. In this way, potential attempts at duplication could be detected (authors having submitted their manuscript to another journal (and getting published) in addition to submitting to UfL). A non-restricted time interval would also give a sufficient opportunity for a manuscript to be published elsewhere.

When a search yielded a potential result in PubMed, Embase or both, the abstract was read. If any doubt existed as to whether the publication corresponded to the manuscript once rejected by UfL, the article was downloaded and read thoroughly. If doubt persisted, the corresponding author was contacted asking whether this specific manuscript rejected by UfL had been published elsewhere.

For each year (2002-2005) the number of submitted manuscripts, rejected manuscripts and manuscripts subsequently published in (indexed) journals was counted. The proportion between rejected manuscripts and total number of submissions and also the proportion between manuscripts published elsewhere and rejected manuscripts were then calculated. Finally, the distribution of the manuscript types submitted to UfL and the distribution of the manuscript types published elsewhere were analysed.

For every published manuscript, the following was recorded: manuscript type (original research, systematic review, non-systematic review, case report), reason for rejection by UfL and finally the number of citations in Web of Science and Google Scholar (search performed mid-March 2011) (12;13).

For every publishing journal, the following was recorded: subject of journal, language, and finally the journal impact factor (in the year of publishing) (14).

Results

Table 1 shows the number of submitted manuscripts to UfL, the number of rejected manuscripts, the proportion between rejected manuscripts and submissions, the number of manuscripts published elsewhere and the proportion between manuscripts published elsewhere and manuscripts rejected by UfL. A total of 198 manuscripts were rejected during the years 2002-2005, and of these, 21 were subsequently published elsewhere.

Table 2 shows characteristics of the 19 journals that eventually published the 21 manuscripts. All of the articles were published in English.
17 journals were rated for impact by the Institute for Scientific Information (14).
With regard to subject, the majority of journals would be categorized as speciality/sub-speciality journals.

The median time from submission to UfL to publication elsewhere was 685 days (range 209-1463). Six manuscripts were published within one year of the original submission to UfL, six manuscripts were published within two years and nine manuscripts were published more than two years after the submission to UfL.

Looking at the distribution of the submissions for the years 2002, 2003, 2004 and 2005, UfL received most non-systematic reviews (~32%). Original research, case reports and systematic reviews constituted 27%, 19% and 15% of submissions, respectively. Of the rejected manuscripts that were published elsewhere, the original research manuscripts constituted 43% and case reports, systematic reviews and non-systematic reviews constituted 29%, 14% and 10%, respectively.
Of the rejected manuscripts that were eventually published elsewhere, those of original research constituted 11%.

As a measure of importance, the number of citations that each article received since its publication was also studied. As the number of citations can differ significantly depending on the database searched, it was

considered relevant to search both Web of Science and Google Scholar (last-mentioned providing information about manuscripts published in journals not indexed by Web of Science) (12;14).
For Web of Science, the median number of citations was 2; the inter-quartile range was 0.5-6. The total number of citations was 104. For Google Scholar, the median number of citation was 3; the inter-quartile range was 1.5-9.5. The total number of citations was 153. Only two manuscripts have received more than 10 citations in both Web of Science and Google Scholar (both published in "Basic clinical pharmacology & toxicology").

Discussion

This study found that 10.6% of the manuscripts rejected by a non-English general medical journal were subsequently published in other journals. The majority of these manuscripts were published in speciality/sub-speciality journals. The publication rate of 10.6% differs notably from publication rates found in previous studies (1-11).

The majority of manuscripts submitted to UfL between 2002 and 2005 were non-systematic reviews. However, rejected manuscripts of original research were published more often than other manuscript types. Perhaps, authors of original research do not consider the process of translating and resubmitting as laborious as other authors might do. However, it could also be a reflection of editorial selections or preferences for original research.

The use of impact factor has been widely criticised and there is an ongoing discussion about the usefulness of this citation metric. However, when evaluating the relative importance of journals within the same field, it is at present the most common metric. UfL is not indexed in Journal Citation Reports (JCR) for which obvious reason comparisons of impact factors cannot be made. However, even if UfL was indexed in JCR, it would not make sense to do a comparative analysis of the impact factors since most of the manuscripts rejected by UfL – a general medical journal - were eventually published in English speciality/sub-speciality journals.

Previous studies have dealt with speciality or sub-speciality journals for which reason it has been more obvious to compare impact factors (between journals within the same field). Overall, it seems that publication is attempted first in a journal with a relatively high impact factor. If the manuscript is rejected, it is then submitted to a journal with higher acceptance rate and lower (or no) impact factor, e.g. to national journals publishing in non-English like UfL. If the manuscript is again rejected, there are not many places left to go. This could explain that the proportion between manuscripts published elsewhere and manuscripts rejected by UfL is so much lower than that found in any other study.

Previous studies have searched only PubMed for rejected manuscripts. This involves a risk of missing manuscripts published in journals not indexed in this database. When searching for medical literature, Embase is generally regarded an important supplement to PubMed, especially when it comes to European literature (15-18). Searching both PubMed and Embase was important in the present study as two additional manuscripts were retrieved by searching Embase. However, even when searching both databases, the number of search results (published manuscripts) would most likely be an underestimate as some manuscripts could be published in non-indexed journals.

This study differs significantly from previous studies because it deals with a general medical journal published in small language (Danish is spoken by only 0.08% of the world population). Previous studies have focused on speciality/sub-speciality journals published in English. It seems like a reasonable assumption that language, including translation of manuscripts, could be a potential barrier for resubmission to other journals. In this study, the manuscripts of original research constituted 11% of the total number of rejected manuscripts that were eventually published elsewhere. In other words, 89% of the original research rejected by UfL in this four-year period were probably shelved and never made accessible.

In a broader perspective, this implies that scientific results initially communicated in a small language have international reach only in rare instances. Scientific journals publishing in small languages should consider publishing original research in a major language like English in order to facilitate the dissemination of

scientific results. Since 2009, UfL has not published original research in Danish; all original articles are published in English in the open-access journal Danish Medical Bulletin (19;20).

Author contributions

SV and JR made substantial contributions to conception and design, SV was responsible for acquisition of data and initial analysis, SV and JR participated in the interpretation of data; SV drafted the article, and SV and JR revised it critically for important intellectual content; SV and JR gave final approval of the version to be published.

SV had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1: Manuscripts – submitted, rejected and published elsewhere

Year	*Submitted manuscripts*	*Rejected manuscripts*	*Rejected manuscripts (% of submissions)*	*Manuscripts subsequently published elsewhere*	*Published elsewhere (% of rejected manuscripts)*
2002	555	58	10.5	7	12.1
2003	707	51	7.2	8	15.7
2004	585	52	8.9	4	7.7
2005	593	37	6.2	2	5.4
Total	2440	198	8.1	21	10.6

Table 2: Characteristics of the publishing journals

Journal	*Year of publication*	*Impact factor (year of publication)*	*Subject of journal (21)*	*Language of journal*
Acta Radiologica	2006	0.884	Radiology and nuclear medicine	English
Acupunture in Medicine	2002		Alternative medicine	English
American journal of cancer (ceased)	2004		Oncology	English
American journal of case reports	2008		Medical sciences	English
Archives of gynecology and obstetrics	2006	0.666 (2007)	Obstetrics and gynecology	English
Basic and clinical pharmacology & toxicology*	2003+ 2004	1.489 (2005)	Pharmacy, pharmacology; enviromental studies, toxicology and environmental safety	English
Clinical rheumatology	2008	1.559	Rheumatology	English
Current medical research and opinion	2006	3.062	Medical sciences	English
Homeopathy	2006	1.041 (2008)	Chiropractic, homeopathy, osteopathy	English
International journal for quality in health care	2004	1.138 (2005)	Medical sciences	English
International Journal of Hygiene and Environmental Health	2007	1.621	Public health and safety	English
International urology and nephrology	2007	0.482	Urology and nephrology	English
Journal of clinical densitometry	2005	1.871	Medical sciences	English
Medical hypotheses	2005	0.92	Medical sciences	English
International Journal of Clinical Pharmacy	2006	0.941	Pharmacy and pharmacology	English
Scandinavian journal of infectious diseases	2003	1.308 (2005)	Communicable diseases	English
Scandinavian journal of primary health care	2006	1.541	Nurses and nursing; health facilities and administration	English
Surgical laparascopy endoscopy & percutaneous techniques	2005	0.865	Surgery; gastroenterology; obstetrics and gynecology	English
Vaccine	2004	2.822 (2005)	Allergology and immunology; veterinary science	English
*formerly Pharmacology and Toxicology **formerly Pharmacy world and science				

STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*

Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4
Objectives	3	State specific objectives, including any pre-specified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4-5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	4-5
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	5
		(*b*) Describe any methods used to examine subgroups and interactions	
		(*c*) Explain how missing data were addressed	
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed	

		Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	6
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	
		Cross-sectional study—Report numbers of outcome events or summary measures	
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
Discussion			
Key results	18	Summarise key results with reference to study objectives	7-9
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	7-9
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7-9
Generalisability	21	Discuss the generalisability (external validity) of the study results	7-9
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.
Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Objective

The objective of this study was to determine whether, where and when manuscripts were published following rejection by the Journal of the Danish Medical Association - a general medical journal published in Danish. Similar previous studies have focused on specialty/subspecialty journals published in English.

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Manuscripts rejected during a four-year period were searched for in PubMed and Embase in order to assess the percentage of manuscripts subsequently published in other journals. In addition, characteristics of both the published manuscripts and the journals they were published in were evaluated.

Results

Of 198 rejected manuscripts, 21 (10.6%) were eventually published after a median of 685 days (range 209-1463). The majority of these were original research, published in English speciality/subspecialty journals. The median number of citations per article was 2-3 (interquartile range 0.5-9.5, depending of the database searched).

Conclusions

10.6% of the rejected manuscripts were eventually published in other journals, mainly English specialty journals. This publication rate was considerable lower than previous studies. Manuscript translation could be a barrier for resubmitting to English journals with larger readerships, thus hindering the dissemination of knowledge to the international community.

Article summary

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- To determine whether, where and when manuscripts were published following rejection by a general medical journal published in another language than English

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- 10.6% of the rejected manuscripts were eventually published in other journals; a publication rate considerable lower than previous studies.
- Manuscript translation could be a barrier for resubmitting to English journals with larger readerships. Scientific journals publishing in small languages should consider publishing original research in a major language like English in order to facilitate the dissemination of scientific results

Strengths and limitations of this study

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UfL is published in Danish and thus serves a relatively small readership. Yet, the fate of manuscripts rejected by UfL is not only of national interest. This study could disclose that science communicated in a (small) national language may not cross borders. This could be of particular concern when no national alternative for manuscript resubmission exists. Then, language alone precludes the dissemination of knowledge that could otherwise benefit national as well as international scientific communities.

Previous studies about fate of rejected manuscripts have all dealt with speciality or subspeciality journals published in English (1-11). In these studies, more than half of the manuscripts initially rejected were eventually published in another journal.

The aim of this study was to establish whether the same may be applicable for a general medical journal published in another language than English.

Methods

Manuscripts rejected during the years 2002-2005 were lent to the authors by the editorial office of UfL. All unsolicited rejected manuscripts were included in the study, a total of 198. For each rejected manuscript, an enclosure provided information about date of submission, date of refusal, manuscript type, author(s), commentaries made by peer-reviewers. In addition, copies of editorial rejection letters were obtainable.

PubMed and Embase were used to search for rejected manuscript eventually published in other (indexed) journals. By default, only the first author's surname and initials were searched for. If the author had a very common name, a combination of the first author's surname and the last author's surname was tried. If only one author was listed, a combination of the author's surname and a subject keyword was tried.

When searching PubMed and Embase for manuscripts, the time interval was not restricted. In this way, potential attempts at duplication could be detected (authors having submitted their manuscript to another journal (and getting published) in addition to submitting to UfL). A non-restricted time interval would also give a sufficient opportunity for a manuscript to be published elsewhere.

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For every published manuscript, the following was recorded: manuscript type (original research, systematic review, non-systematic review, case report), reason for rejection by UfL and finally the number of citations in Web of Science, Scopus and Google Scholar (12-15).

For every publishing journal, the name, subject, publication language and impact factor were recorded. 17 journals were rated for impact by the Institute for Scientific Information (16).

Results

Table 1 shows the number of submitted manuscripts to UfL, the number of rejected manuscripts, the proportion between rejected manuscripts and submissions, the number of manuscripts published elsewhere and the proportion between manuscripts published elsewhere and manuscripts rejected by UfL. A total of 198 manuscripts were rejected during the years 2002-2005; the average acceptance rate was 91.8%. Of the manuscripts rejected by UfL, 21 were subsequently published elsewhere.

Based on the editorial rejections letters, 2/3 of the eventually published manuscripts were rejected by UfL because of methodological/scientific reasons. For the rest, the reasons were lack of originality and/or clinical interest.

Table 2 shows characteristics of the 19 journals that eventually published the 21 manuscripts. All of the articles were published in English. With regard to subject, the majority of journals would be categorized as specialty/subspecialty journals.

The median time from submission to UfL to publication elsewhere was 685 days (range 209-1463). Six manuscripts were published within one year of the original submission to UfL, six manuscripts were published within two years and nine manuscripts were published more than two years after the submission to UfL.

Figure 1a shows the relative distribution of submitted manuscripts (2440 in total). Figure 1b shows the relative distribution of the rejected manuscripts eventually published elsewhere (21 in total).

Table 3 shows data for the manuscripts of original research. Overall, 26.8% of the manuscripts *submitted* to UfL were manuscripts of original research. Of all the manuscripts *rejected* by UfL, manuscripts of original research constituted 36.9%. Of all *published* manuscripts initially rejected by UfL, manuscripts of original research constituted 38.1%. The proportion between published manuscripts of original research and manuscripts of original research rejected by UfL was 11.0%.

As a measure of importance, the number of citations that each article received since its publication was also studied. As the number of citations can differ significantly depending on the database searched, it was considered relevant to search both Web of Science, Scopus and Google Scholar (12-14).

For Web of Science, the median number of citations was 2; the inter-quartile range was 0.5-6. The total number of citations was 104. For Scopus, the median number of citations was 2; the inter-quartile range was 0.5-5.5. The total number of citations was 109. For Google Scholar, the median number of citation was 3; the inter-quartile range was 1.5-9.5. The total number of citations was 153. Only two manuscripts have received more than 10 citations in all three databases.

Discussion

This study found that 10.6% of the manuscripts rejected by a non-English general medical journal were subsequently published in other journals. The majority of these manuscripts were published in specialty/subspecialty journals. The publication rate of 10.6% differs notably from publication rates found in previous studies (1-11).

The majority of manuscripts submitted to UfL between 2002 and 2005 were non-systematic reviews. Most of these manuscripts were probably never resubmitted, at least not to international journals. Methodological inadequacies, lack of originality or focus on local issues could be reasons for rejecting such manuscripts - if they were to be resubmitted.

Manuscripts of original research were most often published (c.f. figure 1b and table 3). Authors of original research manuscripts might be more persistent and intent on getting published; the process of translating and resubmitting might not be a barrier for authors who already put a lot of efforts into the research process. For editors, there is an ethical responsibility to publish manuscripts of original research, not least when the findings are of interest to an international audience.

Previous studies have dealt with specialty or subspecialty journals for which reason it has been more obvious to compare impact factors (between journals within the same field). Overall, it seems that publication is attempted first in a journal with a relatively high impact factor. If the manuscript is rejected, it is then submitted to a journal with higher acceptance rate and lower (or no) impact factor, e.g. to national journals publishing in non-English like UfL. If the manuscript is rejected again, there are not many places left to go. In theory, this could explain some of the discrepancies between the findings of this study and those of previous studies (all dealing with high impact journals with low acceptance rates).

Previous studies have searched only PubMed for rejected manuscripts. This involves a risk of missing manuscripts published in journals not indexed in this database. When searching for medical literature, Embase is generally regarded an important supplement to PubMed, especially when it comes to European literature (17-20). Searching both PubMed and Embase was important in the present study as two additional manuscripts were retrieved by searching Embase. However, even when searching both databases, the number of search results (published manuscripts) would most likely be an underestimate as some manuscripts could be published in non-indexed journals – a major limitation to this study.
Another limitation of the study was the potential risk of not identifying all indexed articles. When searching PubMed and Embase, the first author's surname and initials were initially tried. If an author had a very common name – or a long list of publications – a combination with either the last author's name or a subject keyword was tried. This approach should limit the number of overlooked manuscripts; yet, spelling differencies and/or changes in the number or order of authors could lead to an underestimation of the number of manuscripts published in indexed journals.

This study differs significantly from previous studies because it deals with a general medical journal published in small language (Danish is spoken by only 0.08% of the world population (21;22)). Previous studies have focused on specialty/subspecialty journals published in English. It seems like a reasonable assumption that language, including translation of manuscripts, could be a potential barrier for resubmission to other journals.

In a broader perspective, this implies that scientific results initially communicated in a small language have international reach only in rare instances. Scientific journals publishing in small languages should acknowledge this problem and consider possible solutions. Since 2009, UfL has published all original articles in English in the open-access journal Danish Medical Bulletin (23;24). Whether a mono- or bilingual approach is chosen, the aim should be to facilitate the communication of science.

Author contributions

SV and JR made substantial contributions to conception and design, SV was responsible for acquisition of data and initial analysis, SV and JR participated in the interpretation of data; SV drafted the article, and SV and JR revised it critically for important intellectual content; SV and JR gave final approval of the version to be published.

SV had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1: Manuscripts – submitted, rejected and published elsewhere

Year	*Submitted manuscripts*	*Rejected manuscripts*	*Rejected manuscripts (% of submissions)*	*Manuscripts subsequently published elsewhere*	*Published elsewhere (% of rejected manuscripts)*
2002	555	58	10.5	7	12.1
2003	707	51	7.2	8	15.7
2004	585	52	8.9	4	7.7
2005	593	37	6.2	2	5.4
Total	2440	198	8.1	21	10.6

Table 2: Characteristics of the publishing journals

Journal	*Year of publication*	*Impact factor**	*Subject of journal (25)*	*Language of journal*
Acta Radiologica	2006	0.884	Radiology and nuclear medicine	English
Acupunture in Medicine	2002		Alternative medicine	English
American journal of cancer (ceased)	2004		Oncology	English
American journal of case reports	2008		Medical sciences	English
Archives of gynecology and obstetrics	2006	0.666 (2007)	Obstetrics and gynecology	English
Basic and clinical pharmacology & toxicology**	2003+ 2004	1.489 (2005)	Pharmacy, pharmacology; enviromental studies, toxicology and environmental safety	English
Clinical rheumatology	2008	1.559	Rheumatology	English
Current medical research and opinion	2006	3.062	Medical sciences	English
Homeopathy	2006	1.041 (2008)	Chiropractic, homeopathy, osteopathy	English
International journal for quality in health care	2004	1.138 (2005)	Medical sciences	English
International Journal of Hygiene and Environmental Health	2007	1.621	Public health and safety	English
International urology and nephrology	2007	0.482	Urology and nephrology	English
Journal of clinical densitometry	2005	1.871	Medical sciences	English
Medical hypotheses	2005	0.92	Medical sciences	English
International Journal of Clinical Pharmacy***	2006	0.941	Pharmacy and pharmacology	English
Scandinavian journal of infectious diseases	2003	1.308 (2005)	Communicable diseases	English
Scandinavian journal of primary health care	2006	1.541	Nurses and nursing; health facilities and administration	English
Surgical laparascopy endoscopy & percutaneous techniques	2005	0.865	Surgery; gastroenterology; obstetrics and gynecology	English
Vaccine	2004	2.822 (2005)	Allergology and immunology; veterinary science	English

* IF from the year the manuscript was published. If the journal was not yet rated for impact, the "oldest" IF was recorded (year in brackets).
**formerly Pharmacology and Toxicology; ***formerly Pharmacy world and science

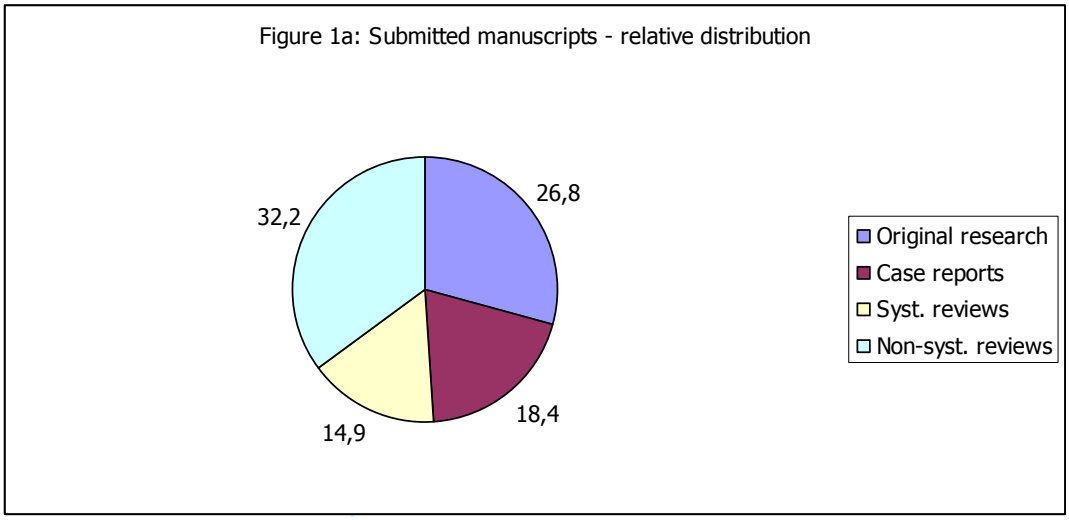
Figure 1a: Submitted manuscripts - relative distribution
26,8
18,4
14,9
32,2
Original research
Case reports
Syst. reviews
Non-syst. reviews

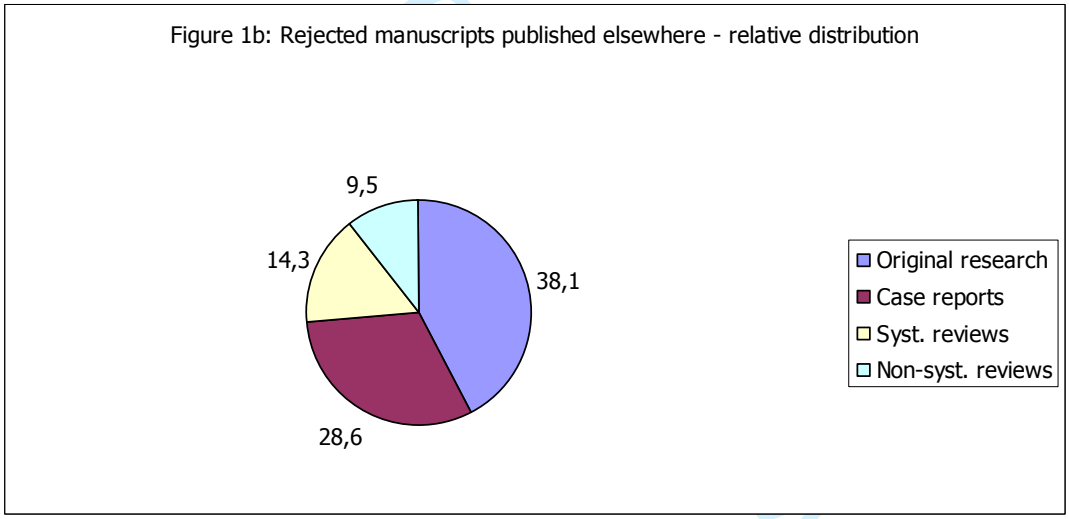
Figure 1b: Rejected manuscripts published elsewhere - relative distribution
9,5
14,3
38,1
28,6
Original research
Case reports
Syst. reviews
Non-syst. reviews

Table 3: Manuscripts of original research

Year	Submitted original manuscripts out of total number of submitted manuscripts (%)	Rejected original manuscripts out of total number of rejected manuscripts (%)	Published original manuscripts out of total number of published manuscripts (%)	Published original manuscripts out of rejected original manuscripts (%)
2002	30,1	32,8	14,3	5,3
2003	27,0	45,1	37,5	13,0
2004	24,8	40,4	75,0	14,5
2005	25,5	27,0	50,0	10,0
Total	**26,8**	**36,9**	**38,1**	**11,0**

STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*
Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4
Objectives	3	State specific objectives, including any pre-specified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4-5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	4-5
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	5
		(*b*) Describe any methods used to examine subgroups and interactions	
		(*c*) Explain how missing data were addressed	
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed	

		Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	6
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	
		Cross-sectional study—Report numbers of outcome events or summary measures	
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
Discussion			
Key results	18	Summarise key results with reference to study objectives	7-9
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	7-9
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7-9
Generalisability	21	Discuss the generalisability (external validity) of the study results	7-9
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.
Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ open

Fate of manuscripts rejected by a non-English-language general medical journal - a retrospective cohort study

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Fate of manuscripts rejected by a non-English-language general medical journal - a retrospective cohort study

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Abstract

Objective

The objective of this study was to determine whether, where and when manuscripts were published following rejection by the Journal of the Danish Medical Association - a general medical journal published in Danish. Similar previous studies have focused on specialty/subspecialty journals published in English.

Design

Manuscripts rejected during a four-year period were searched for in PubMed and Embase in order to assess the percentage of manuscripts subsequently published in other journals. In addition, characteristics of both the published manuscripts and the journals they were published in were evaluated.

Results

Of 198 rejected manuscripts, 21 (10.6%) were eventually published after a median of 685 days (range 209-1463). The majority of these were original research, published in English-language speciality/subspecialty journals.

The median number of citations per article was 2-3 (interquartile range 0.5-9.5, depending of the database searched).

Conclusions

10.6% of the rejected manuscripts were eventually published in other journals, mainly English-language specialty journals. This proportion was considerably lower than that for other journals that have studied the fate of rejected manuscripts. Manuscript translation could be a barrier for resubmitting to English-language journals with larger readerships, thus hindering the dissemination of knowledge to the international community.

Article summary

Article focus

- To determine whether, where and when manuscripts were published following rejection by a general medical journal published in another language than English

Key messages

- 10.6% of the rejected manuscripts were eventually published in other journals, a proportion considerably lower than that for other journals that have studied the fate of rejected manuscripts
- Manuscript translation could be a barrier for resubmitting to English-language journals with larger readerships. Scientific journals publishing in small languages should consider publishing original research in a major language like English in order to facilitate the dissemination of scientific results

Strengths and limitations of this study

- PubMed and Embase were used to search for rejected manuscript eventually published in other (indexed) journals; previous studies have searched only PubMed for rejected manuscripts. However, even when searching both databases, the number of search results (published manuscripts) would most likely be an underestimate as some manuscripts could be published in non-indexed journals.
- This study deals with a general medical journal published in small language; previous studies have focused on speciality/subspeciality journals published in English.

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

The authors have no relevant conflicts of interest regarding the present paper.

Objective

Since 1839, the Journal of the Danish Medical Association (Ugeskrift for Læger - UfL) has been published on a weekly basis. It is one of the oldest general medical journals in the world – and the only Danish, peer-reviewed medical journal indexed in Medline.
The journal publishes editorials, original articles, systematic reviews, non-systematic reviews and case reports with an average of 10 articles per week.

The objective of this study was to determine whether, where and when manuscripts were published following rejection by UfL. The journal is published in Danish and thus serves a relatively small readership. Yet, the fate of manuscripts rejected by UfL is not only of national interest. This study could disclose that science communicated in a (small) national language may not cross borders. This could be of particular concern when no national alternative for manuscript resubmission exists. Then, language alone precludes the dissemination of knowledge that could otherwise benefit national as well as international scientific communities.

Methods

The editorial office of UfL kindly gave access to all manuscripts rejected by the journal. All unsolicited manuscripts rejected during the years 2002-2005 were included in the study, a total of 198. For each rejected manuscript, an enclosure provided information about date of submission, date of refusal, manuscript type, author(s), commentaries made by peer-reviewers. In addition, copies of editorial rejection letters were obtainable.

PubMed and Embase were used to search for rejected manuscript eventually published in other (indexed) journals. By default, only the first author's surname and initials were searched for. If the author had a very common name, a combination of the first author's surname and the last author's surname was tried. If only one author was listed, a combination of the author's surname and a subject keyword was tried.

When searching PubMed and Embase for manuscripts, the time interval was not restricted. In this way, potential attempts at duplication could be detected (authors having submitted their manuscript to another journal (and getting published) in addition to submitting to UfL). A non-restricted time interval would also give a sufficient opportunity for a manuscript to be published elsewhere.

When a search yielded a potential result in PubMed, Embase or both, the abstract was read. If any doubt existed as to whether the publication corresponded to the manuscript once rejected by UfL, the article was downloaded and read thoroughly. If doubt persisted, the corresponding author was contacted asking whether this specific manuscript rejected by UfL had been published elsewhere.

For each year (2002-2005) the number of submitted manuscripts, rejected manuscripts and manuscripts subsequently published in (indexed) journals was counted. The proportion between rejected manuscripts and total number of submissions and also the proportion between manuscripts published elsewhere and rejected manuscripts were then calculated. Finally, the distribution of the manuscript types submitted to UfL and the distribution of the manuscript types published elsewhere were analysed.

For every published manuscript, the following was recorded: manuscript type (original research, systematic review, non-systematic review, case report), reason for rejection by UfL and finally the number of citations in Web of Science, Scopus and Google Scholar (1-4).

For every publishing journal, the name, subject, publication language and impact factor were recorded. 17 journals were rated for impact by the Institute for Scientific Information (5).

Results

Table 1 shows the number of submitted manuscripts to UfL, the number of rejected manuscripts, the proportion between rejected manuscripts and submissions, the number of manuscripts published elsewhere

and the proportion between manuscripts published elsewhere and manuscripts rejected by UfL. A total of 198 manuscripts were rejected during the years 2002-2005; the average acceptance rate was 91.8%. Of the manuscripts rejected by UfL, 21 were subsequently published elsewhere.

Based on the editorial rejections letters, 2/3 of the eventually published manuscripts were rejected by UfL because of methodological/scientific reasons. For the rest, the reasons were lack of originality and/or clinical interest.

Table 2 shows characteristics of the 19 journals that eventually published the 21 manuscripts. All of the articles were published in English. With regard to subject, the majority of journals would be categorized as specialty/subspecialty journals.

The median time from submission to UfL to publication elsewhere was 685 days (range 209-1463). Six manuscripts were published within one year of the original submission to UfL, six manuscripts were published within two years and nine manuscripts were published more than two years after the submission to UfL.

Figure 1a shows the relative distribution of submitted manuscripts (2440 in total). Figure 1b shows the relative distribution of the rejected manuscripts eventually published elsewhere (21 in total).
Table 3 shows data for the manuscripts of original research. Overall, 26.8% of the manuscripts *submitted* to UfL were manuscripts of original research. Of all the manuscripts *rejected* by UfL, manuscripts of original research constituted 36.9%. Of all *published* manuscripts initially rejected by UfL, manuscripts of original research constituted 38.1%. The proportion between published manuscripts of original research and manuscripts of original research rejected by UfL was 11.0%.

As a measure of importance, the number of citations that each article received since its publication was also studied. As the number of citations can differ significantly depending on the database searched, it was considered relevant to search both Web of Science, Scopus and Google Scholar (1-3).

For Web of Science, the median number of citations was 2; the inter-quartile range was 0.5-6. The total number of citations was 104. For Scopus, the median number of citations was 2; the inter-quartile range was 0.5-5.5. The total number of citations was 109. For Google Scholar, the median number of citation was 3; the inter-quartile range was 1.5-9.5. The total number of citations was 153. Only two manuscripts have received more than 10 citations in all three databases.

Discussion

This study found that 21 out of 198 manuscripts rejected by a non-English-language general medical journal were subsequently published in other journals. The majority of these manuscripts were published in specialty/subspecialty journals. Previous studies, dealing with speciality or subspeciality journals published in English, have reported publication rates of more than 40% (6).

The majority of manuscripts submitted to UfL between 2002 and 2005 were non-systematic reviews. Most of these manuscripts were probably never resubmitted, at least not to international journals. Methodological inadequacies, lack of originality or focus on local issues could be reasons for rejecting such manuscripts - if they were to be resubmitted.

Manuscripts of original research were most often published (c.f. figure 1b and table 3). Authors of original research manuscripts might be more persistent and intent on getting published; the process of translating and resubmitting might not be a barrier for authors who already put a lot of efforts into the research process. For editors, there is an ethical responsibility to publish manuscripts of original research, not least when the findings are of interest to an international audience.

Previous studies have dealt with specialty or subspecialty journals for which reason it has been more obvious to compare impact factors (between journals within the same field). Overall, it seems that publication is attempted first in a journal with a relatively high impact factor. If the manuscript is rejected, it is then submitted to a journal with higher acceptance rate and lower (or no) impact factor, e.g. to national journals publishing in non-English like UfL. If the manuscript is rejected again, there are not many places left to go.

In theory, this could explain some of the discrepancies between the findings of this study and those of previous studies (all dealing with high impact journals with low acceptance rates).

Previous studies have searched only PubMed for rejected manuscripts. This involves a risk of missing manuscripts published in journals not indexed in this database. When searching for medical literature, Embase is generally regarded an important supplement to PubMed, especially when it comes to European literature (7-10). Searching both PubMed and Embase was important in the present study as two additional manuscripts were retrieved by searching Embase. However, even when searching both databases, the number of search results (published manuscripts) would most likely be an underestimate as some manuscripts could be published in non-indexed journals – a major limitation to this study.

Another limitation of the study was the potential risk of not identifying all indexed articles. When searching PubMed and Embase, the first author's surname and initials were initially tried. If an author had a very common name – or a long list of publications – a combination with either the last author's name or a subject keyword was tried. This approach should limit the number of overlooked manuscripts; yet, spelling differencies and/or changes in the number or order of authors could lead to an underestimation of the number of manuscripts published in indexed journals.

This study differs significantly from previous studies because it deals with a general medical journal published in small language (Danish is spoken by only 0.08% of the world population (11;12)). Previous studies have focused on specialty/subspecialty journals published in English. It seems like a reasonable assumption that language, including translation of manuscripts, could be a potential barrier for resubmission to other journals.

In a broader perspective, this implies that scientific results initially communicated in a small language have international reach only in rare instances. Scientific journals publishing in small languages should acknowledge this problem and consider possible solutions. Since 2009, UfL has published all original articles in English in the open-access journal Danish Medical Bulletin (13;14). Whether a mono- or bilingual approach is chosen, the aim should be to facilitate the communication of science.

Author contributions

SV and JR made substantial contributions to conception and design, SV was responsible for acquisition of data and initial analysis, SV and JR participated in the interpretation of data; SV drafted the article, and SV and JR revised it critically for important intellectual content; SV and JR gave final approval of the version to be published.

SV had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1: Manuscripts – submitted, rejected and published elsewhere

Year	*Submitted manuscripts*	*Rejected manuscripts*	*Rejected manuscripts (% of submissions)*	*Manuscripts subsequently published elsewhere*	*Published elsewhere (% of rejected manuscripts)*
2002	555	58	10.5	7	12.1
2003	707	51	7.2	8	15.7
2004	585	52	8.9	4	7.7
2005	593	37	6.2	2	5.4
Total	2440	198	8.1	21	10.6

Table 2: Characteristics of the publishing journals

Journal	*Year of publication*	*Impact factor**	*Subject of journal (15)*	*Language of journal*
Acta Radiologica	2006	0.884	Radiology and nuclear medicine	English
Acupunture in Medicine	2002		Alternative medicine	English
American journal of cancer (ceased)	2004		Oncology	English
American journal of case reports	2008		Medical sciences	English
Archives of gynecology and obstetrics	2006	0.666 (2007)	Obstetrics and gynecology	English
Basic and clinical pharmacology & toxicology**	2003+ 2004	1.489 (2005)	Pharmacy, pharmacology; enviromental studies, toxicology and environmental safety	English
Clinical rheumatology	2008	1.559	Rheumatology	English
Current medical research and opinion	2006	3.062	Medical sciences	English
Homeopathy	2006	1.041 (2008)	Chiropractic, homeopathy, osteopathy	English
International journal for quality in health care	2004	1.138 (2005)	Medical sciences	English
International Journal of Hygiene and Environmental Health	2007	1.621	Public health and safety	English
International urology and nephrology	2007	0.482	Urology and nephrology	English
Journal of clinical densitometry	2005	1.871	Medical sciences	English
Medical hypotheses	2005	0.92	Medical sciences	English
International Journal of Clinical Pharmacy***	2006	0.941	Pharmacy and pharmacology	English
Scandinavian journal of infectious diseases	2003	1.308 (2005)	Communicable diseases	English
Scandinavian journal of primary health care	2006	1.541	Nurses and nursing; health facilities and administration	English
Surgical laparascopy endoscopy & percutaneous techniques	2005	0.865	Surgery; gastroenterology; obstetrics and gynecology	English
Vaccine	2004	2.822 (2005)	Allergology and immunology; veterinary science	English

* IF from the year the manuscript was published. If the journal was not yet rated for impact, the "oldest" IF was recorded (year in brackets).
**formerly Pharmacology and Toxicology; ***formerly Pharmacy world and science

Table 3: Manuscripts of original research

Year	Submitted original manuscripts out of total number of submitted manuscripts (%)	Rejected original manuscripts out of total number of rejected manuscripts (%)	Published original manuscripts out of total number of published manuscripts (%)	Published original manuscripts out of rejected original manuscripts (%)
2002	30,1	32,8	14,3	5,3
2003	27,0	45,1	37,5	13,0
2004	24,8	40,4	75,0	14,5
2005	25,5	27,0	50,0	10,0
Total	**26,8**	**36,9**	**38,1**	**11,0**

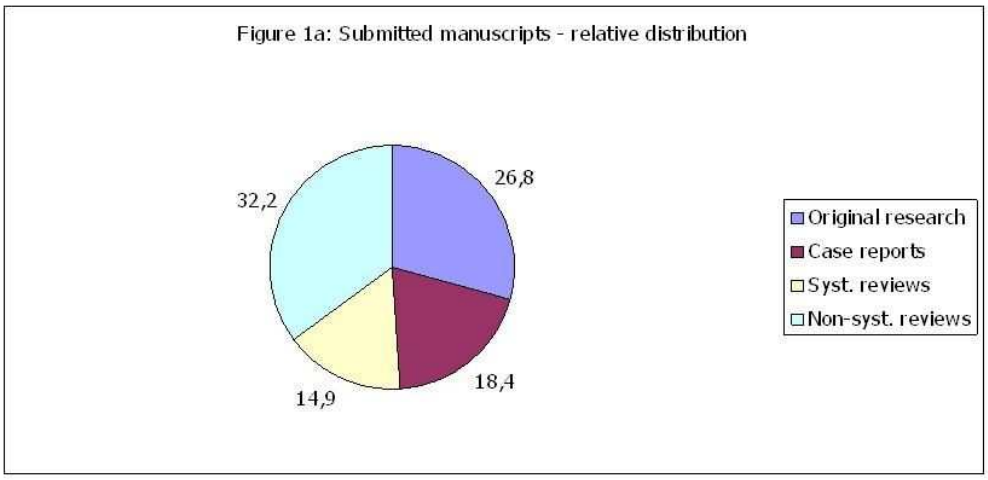
STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*

Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4
Objectives	3	State specific objectives, including any pre-specified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4-5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	4-5
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	5
		(*b*) Describe any methods used to examine subgroups and interactions	
		(*c*) Explain how missing data were addressed	
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed	

		Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	6
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	
		Cross-sectional study—Report numbers of outcome events or summary measures	
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
Discussion			
Key results	18	Summarise key results with reference to study objectives	7-9
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	7-9
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7-9
Generalisability	21	Discuss the generalisability (external validity) of the study results	7-9
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.
Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.



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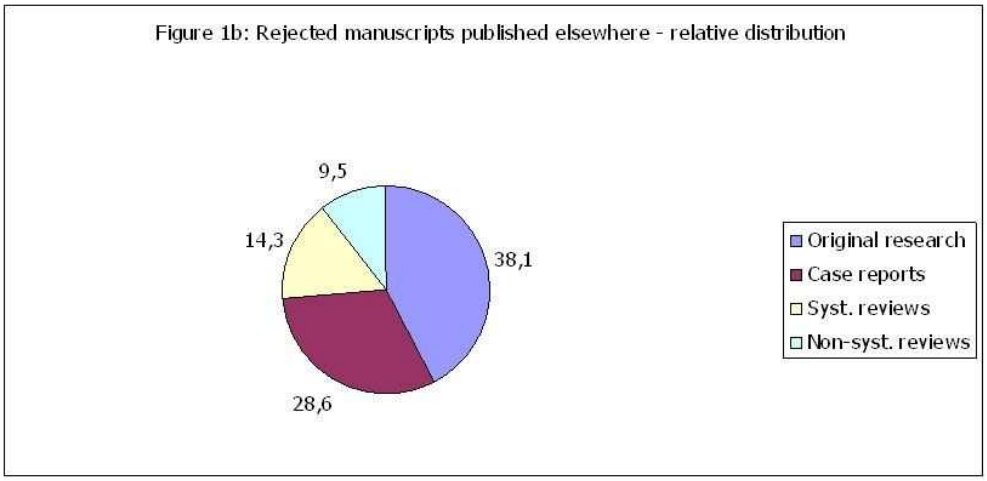

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