Documentation of ethical conduct of human subject research published in Saudi medical journals

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توثيق السلوك الأخلاقي للبحوث على البشر المنشورة في المجلات الطبية السعودية

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الخلاصة: قد قيَّم الباحثون توثيق السلوك الأخلاقي (بحصولهم على موافقة مجلس المراجعة في المؤسسة، وموافقة المشاركين واتباع الدلائل الإرشادية الأخلاقية)، في دراسات البحوث على البشر التي نشرت في مجلات طبية سعودية بين عامي 1979 و2007. وقسم الباحثون الدراسات إلى دراسات استعادية، أو دراسات استقبالية غير تدخلية، أو دراسات تدخلية، أو دراسات مسح ومقابلات. وشملت الدراسة 1838 دراسة نشرت في 286 عدداً من 11 مجلة طبية سعودية، وكان 0.9٪ منها قد وُثِّق من حيث اتباعه للدلائل الإرشادية الأخلاقية، وتَبِعَهُ معدل مرتفع بمقدار يُعْتَد به للدراسات التي نشرت بعد عام 2000 (1.7٪). ومن بين 821 دراسة تطلبت موافقة مجلس المراجعة في المؤسسة، وثقت 8.6٪ منها حصولها على تلك الموافقة وعلى الموافقة المستنيرة للمشاركين، مع معدلات مرتفعة بمقدار يُعْتَد به للدراسات التدخلية (19.4٪) والدراسات بعد عام 2000 (19.7٪)، والدراسات التي أجريت خارج المملكة العربية السعودية (15.9٪). ويشير انخفاض معدل التوثيق إلى افتقار المحررين للدلائل الإرشادية الصارمة، أو جهل الباحثين لها، أو كليهما معاً. كما يشير ارتفاع معدل التوثيق بعد عام 2000 إلى تحسُّن متواصل.

ABSTRACT We evaluated the documentation of ethical conduct (obtaining institutional review board approval and consent and following ethical guidelines) of human subject research studies published in Saudi Arabian medical journals between 1979 and 2007. Studies were classified as retrospective, prospective non-interventional, interventional or survey/interview. Of 1838 studies published in 286 journal issues of 11 Saudi Arabian medical journals, only 0.9% documented the ethical guidelines followed, with a significantly higher rate for studies published after year 2000 (1.7%). Of 821 studies requiring institutional review board approval, 8.6% documented obtaining the approval and informed consent, with a significantly higher rate for interventional studies (19.4%), post-year 2000 studies (19.7%) and studies performed outside Saudi Arabia (15.9%). The low documentation rate suggests editor's lack of rigor and/or investigators' ignorance of guidelines. The higher documentation rate after year 2000 suggests an ongoing improvement.

Justification du respect des règles éthiques dans la conduite de recherches impliquant des personnes publiées dans des revues médicales saoudiennes

RÉSUMÉ Nous avons évalué les pièces à l'appui du respect de ces règles (obtention de l'approbation d'un comité d'examen institutionnel et d'un consentement, et observation des directives éthiques) dans la réalisation d'études de recherche impliquant des personnes publiées dans des revues médicales saoudiennes entre 1979 et 2007. Les études ont été classées selon leur type : rétrospectives, prospectives non interventionnelles, interventionnelles ou enquêtes/entretiens. Sur 1838 études publiées dans 286 numéros de 11 revues médicales saoudiennes, seules 0,9 % apportaient la justification du respect des directives éthiques. Ce taux est supérieur (1,7 %) pour les études publiées après 2000. Sur 821 recherches nécessitant l'approbation d'un comité d'examen institutionnel, 8,6 % disposaient de la documentation prouvant son obtention et de celle d'un consentement éclairé. Ce taux est nettement supérieur pour les études interventionnelles (19,4 %), les études postérieures à l'année 2000 (19,7 %), et celles menées hors de l'Arabie saoudite (15,9 %). Le faible taux d'études pouvant justifier le respect des règles éthiques suggère que le rédacteur manque de rigueur et/ou que les chercheurs ignorent les directives. La hausse du taux après l'année 2000 est le signe qu'une amélioration est en cours.

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Received: 11/04/11; accepted: 26/06/11

Introduction

Investigators have a primary responsibility to safeguard the rights and welfare of subjects participating in research studies. This responsibility is shared by the institutions where the studies are conducted and the editors of the journals publishing the results [1]. The available means of protection of human subjects in research include obtaining informed consent and approval of the study proposal and consent form by an independent institutional review board (IRB) [1,2]. Written informed consent is the default standard for any research involving human subjects [1,2]. However, it can be waived by the IRB in well-defined circumstances [1]. Consent for publication is required when it is necessary to publish information that identifies individuals [1]. Ethical requirements to protect human subjects apply to a much broader range of research than many investigators may realize. For example, it applies to research that uses individually identifying private information even if the information was not specifically collected for the study in question, to research on bodily materials, cell lines or DNA samples that can be associated with an individual source even if the investigator him/herself did not collect these materials, and to research on left-over diagnostic specimens [1].

The International Committee of Medical Journal Editors (ICMJE) established its first guidelines for manuscript submission in 1978 [3]. Its 1981 edition required authors to indicate procurement of IRB approval [4], the 1991 edition added the requirement to indicate if informed consent was obtained [5] and the latest 2004 edition stated that authors should indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee and with the Helsinki Declaration [6]. While most international peer-reviewed journals subscribe to these guidelines [7], there is evidence that these guidelines are not universally followed [8–13].

There are 64 medical journals published in Saudi Arabia (scientific journals, bulletins and newsletters), of which 20 are in the English language [14]. The compliance of Saudi medical journals with ICMJE guidelines has not been studied before. We reviewed documentation of compliance with ethical guidelines in human subject research studies published in 11 Saudi medical journals between 1979 and 2007 and explored the factors associated with such documentation.

Methods

Sample

The sample was original research studies using human subjects published between 1979 and 2007 in 286 journal issues of 11 Saudi medical journals (Table 1), accessible electronically in full or available at the authors institution's medical library. A human subject was defined as an individual about whom an investigator obtains data through interventional or interaction with the individual or identifiable private information [1].

Procedure

Using a structured data collection tool, the research studies were classified into: retrospective studies (based on pre-existing medical records or biological samples), prospective non-interventional studies (based on medical records or biological samples), interventional studies, surveys or interviews. They were also classified into studies requiring both IRB approval and informed consent (interventional studies, prospective medical records or

Table 1 Medical journals in Saudi Arabia publishing in English language and reviewed for the present study (*n* = 1838)

Journal title (launch year)	Journal issues per year	Original studies per journal issue	Review period	Human subject research studies identified	
	No.	No.		No.	%
Annals of Saudi Medicine (1985)[a]	4 (before 1988) 6 (1988–)	6	1981–2007	339	18.4
Annals of Thoracic Medicine (2006)	2 (2006) 4 (2007–)	4	2006–07	23	1.3
Journal of Family and Community Medicine (1994)	2 (1994–99) 3 (2000–)	4	1997–2007	133	7.2
Journal of the Saudi Heart Association (1998)	2–3	5	1995–2007	53	2.9
Neurosciences (2000)	4	6	2000–07	141	7.7
Pan Arab Journal of Neurosurgery (1997)	2	3	1999–2001	6	0.3
Saudi Dental Journal (1989)	3	4–6	1984–2007	136	7.4
Saudi Journal of Anaesthesia (2007)	3	3	2007	9	0.5
Saudi Journal of Gastroenterology (1995)	3	6	2004–2007	40	2.2
Saudi Medical Journal (1979)	12	8–11	1979–2007	943	51.3
Saudi Pharmaceutical Journal (1993)	4	5	2003–06	15	0.8

[a] *From 1980–84 it was entitled KFSH&RC Medical Journal, in 1985 it became the Annals of Saudi Medicine.*

Table 2 Classification of identified human subject research studies according to study type and ethical documentation required

Type of study	Total		Information documented											
			Ethical guidelines used				IRB approval + informed consent required				IRB approval required				Publication consent required			
			Yes		No		Yes		No		Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Retrospective																		
Medical record	600	32.6	3	0.5	597	99.5	n/a	–	–	–	11	1.8	589	98.2	0	0.0	6	100.0
Biological sample	73	4.0	2	2.7	71	97.3	n/a	–	–	–	1	1.4	72	98.6	n/a	–	–	–
Prospective																		
Interventional	341	18.6	6	1.8	335	98.2	66	19.4	275	80.6	n/a	–	–	–	0	0.0	1	1000
Survey	279	15.2	1	0.3	278	99.6	n/a	–	–	–	8	2.9	271	971	n/a	–	–	–
Medical record	251	13.7	3	1.2	248	98.8	1	0.4	250	99.6	n/a	–	–	–	0	0.0	2	100.0
Biological sample	229	12.5	1	0.4	228	99.6	4	1.7	225	98.3	n/a	–	–	–	n/a	–	–	–
Interview	65	3.5	0	0.0	65	100.0	n/a	–	–	–	3	4.6	62	95.4	n/a	–	–	–
Total	1838	100.0	16	0.9	1822	99.1	71	8.6	750	91.4	23	2.3	994	97.7	0	0.0	9	100.0

IRB = institutional review board; n/a = not applicable.

biological samples-based studies) or studies requiring IRB approval only, in which informed consent could have been possibly waived by the IRB (retrospective medical records or biological samples-based studies, surveys and interviews).

The following information was also collected for each study: publication year, country where the study was performed (Saudi Arabia or other country), publication of individually identifying information (and documentation of consent to publish such information) and the presence of a statement about the ethical guidelines that were followed. Uncertainties about the classifications were resolved by discussion among the authors.

This study was reviewed and approved by the research ethics committee of the author's institution.

Statistical analysis

The data were analysed using *SPSS* for Windows, version 13.0. The chi-squared test was used to study associations. All reported *P*-values are 2-sided.

Results

We identified 1838 human subject research studies that were published in English between 1979 and 2007 in 286 journal issues of 11 Saudi medical journals (Table 1). There were 383 (20.9%) published from 1979–89, 612 (33.3%) from 1990–99, and 843 (45.9%) from 2000–07. Most (1369, 74.5%) were conducted in Saudi Arabia and 469 (25.5%) outside Saudi Arabia. One-third (673, 36.6%) were retrospective and 1165 (63.4%) were prospective.

Documentation of ethical guidelines followed

Only 16 (0.9%) of the 1838 studies reported the ethical guidelines that had been followed (Table 2). The type of study was not associated with the documentation rate ($P = 0.16$). There was a significant association, however, between documentation rate and year of publication (1.7% for studies published in 2000–07, 0.3% for studies published in 1990–99, and 0% for studies published in 1979–89) ($P = 0.003$) (Table 3). The location of study was not associated with the documentation rate ($P = 0.26$) (Table 3).

Studies requiring both IRB approval and informed consent

A total of 821 studies were judged to require both IRB approval and informed consent; 71 (8.6%) documented

Table 3 Classification of identified human subject research studies according to publication period, study location and ethical documentation required

Period/location	Total		Information documented											
			Ethical guidelines used				IRB approval + informed consent required				IRB approval required			
			Yes		No		Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Publication period														
1979-89	383	20.8	0	0.0	383	100.0	0	0.0	211	100.0	1	0.6	171	99.4
1990–99	612	33.3	2	0.3	610	99.7	4	1.5	266	98.5	1	0.3	341	99.7
2000–07	843	45.9	14	1.7	829	98.3	67	19.7	273	80.3	21	4.2	482	95.8
Study location														
Outside Saudi Arabia	469	25.5	6	1.3	463	100.0	40	15.9	211	84.1	8	3.7	210	96.3
Inside Saudi Arabia	1369	74.5	10	0.7	1259	92.0	31	5.4	539	94.6	15	1.9	784	98.1

IRB = institutional review board.

obtaining both. Documentation rate was associated with study type ($P < 0.001$, with the highest rate for interventional studies) (Table 2). It was also associated with year of publication (19.7% for 340 studies published in 2000–07, 1.5% for 270 studies published in 1990–99 and 0% for 211 studies published in 1979–89) ($P < 0.001$) and study location (15.9% for 251 studies conducted outside Saudi Arabia versus 5.4% for 570 studies conducted in Saudi Arabia) ($P < 0.001$) (Table 3).

Studies requiring IRB approval only

Out of 1017 studies that were judged to require IRB approval only 23 (2.3%) had documented obtaining it (Table 2). Documentation rate was not associated with study type ($P = 0.42$) (Table 2) or with location ($P = 0.12$) (Table 3). It was associated, however, with year of publication (4.2% for 503 studies published in 2000–07, 0.3% for 342 studies published in 1990–99 and 0.6% for 172 studies published in 1979–89) ($P < 0.001$) (Table 3).

Documentation of consent to publish

None of the 9 studies containing individually identifying information documented that they had obtained consent to publish.

Discussion

We found that the documentation rate of ethical conduct in human subject research studies published in Saudi medical journals was exceedingly low. Although the observed rate could be artificially low because of convenient sampling, inclusion of studies published since 1979 and a high percentage of non-interventional studies, we think that the true rate is low; the journals reviewed represent 55% of Saudi medical journals published in English, and the rate of documentation for IRB approval and informed consent remained low at 19.7% for studies published after 2000 and 19.4% for interventional studies. For comparison, the documentation rate of obtaining informed consent and IRB approval was 62% and 49% respectively for clinical trials published in 1993–94 in 4 Western gerontology journals [8], and 72.6% and 69.4% for clinical trials and other studies published in 3 Western journals of paediatrics in January to December 2000 [9]. A statement about IRB approval or informed consent was documented in 61% of child health studies of all designs (97% for clinical trials) published in 1999 [10]. Finally, the documentation rate of obtaining both informed consent and IRB approval was 64% for clinical trials published in 6 Western physiotherapy journals in 1996–2001 [11].

The low overall documentation rate could be due to failure to report (rather than obtain) IRB approval/informed consent, unavailability of an IRB at the investigator's institution or the investigators' ignorance about when IRB approval/informed consent are required. The later may explain the lower documentation rate for non-interventional studies and the higher documentation rate for studies conducted outside Saudi Arabia, which may be related to investigators' training or participation in multicentre or industry-sponsored studies. This issue was not explored in our study. Other potential causes include failure on the part of peer reviewers and journal editors due to lack of capacity or overload. The latter is unlikely given the reasonable number of research articles published per year.

We found a significant increase in the documentation rate after year 2000, consistent with previous studies [12,13]. The documentation rate of informed consent and IRB approval respectively was 74% and 69% before 1997, 82% and 82% after 1997 [12] and 87% and 93% in 2003 for articles on clinical trials published in 5 major

Western medical journals [13]. It is of note that a Saudi national research regulatory oversight system, the National Bioethics Committee, was established in 2001 [15].

In conclusion, the documentation rate of ethical conduct in human subject research studies published in Saudi medical journals was low, suggesting editors' lack of rigor and/or investigators' ignorance of guidelines. The lower documentation rate for non-interventional studies and for studies conducted in Saudi Arabia suggests unawareness of the scope of human subject research, whereas the higher documentation rate after year 2000 suggests an ongoing improvement.

Acknowledgements

We thank Dr Sahar Attallah for her valuable assistance in data collection.

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