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Volume 54, Number 1, janvier 2009

URI: <https://id.erudit.org/iderudit/029798ar>

DOI: <https://doi.org/10.7202/029798ar>

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Publisher(s)

Les Presses de l'Université de Montréal

ISSN

0026-0452 (print)

1492-1421 (digital)

[Explore this journal](#)

Cite this article

Williams, I. A. (2009). A Corpus-based Study of Spanish Translations of the Verb 'report' in Biomedical Research Articles. *Meta*, 54(1), 146–160.  
<https://doi.org/10.7202/029798ar>

Article abstract

This paper describes an empirical contextual study of the Spanish verbs that translate 'report' carried out on an extensive corpus of medical research articles. A quantitative analysis revealed significant differences between the lexical choices made by the translators and those made by native Spanish authors. The contextual analysis showed that reporting occurs in three basic settings, namely, the institutional setting, the community and patient setting, and the research setting. In the latter, research referred to the current study (i.e., the new clinical study presented in the article), to previous research by the same authors, or to other authors' published work. Within these contexts, consideration of linguistic factors such as collocation, sentence structure and specific features of the communicative situation allows the translator to make the appropriate lexical choices for the wide range of uses of the polysemous English verb 'report.'

## A Corpus-based Study of Spanish Translations of the Verb ‘report’ in Biomedical Research Articles

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### RÉSUMÉ

Le présent article fait état d'une étude empirique des traductions du verbe anglais 'report' en espagnol. L'étude a été effectuée à partir d'un vaste corpus d'articles de recherche médicale. Une analyse quantitative révèle des différences significatives entre les choix lexicaux des traducteurs et les choix d'auteurs espagnols écrivant dans leur langue maternelle. L'analyse contextuelle montre que le verbe est employé dans trois cadres fondamentaux, à savoir le cadre institutionnel, le cadre de la communauté et du malade, et celui de la recherche. Dans le dernier cas, il peut s'agir de l'étude clinique présentée dans l'article analysé, des recherches antérieures de ses auteurs, ou des travaux publiés par d'autres auteurs. La prise en compte de facteurs linguistiques tels que les collocations, la structure de la phrase et les caractères spécifiques de la situation communicative, permet de faire des choix lexicaux appropriés afin de traduire les différents usages de 'report', un verbe anglais polysémique.

### ABSTRACT

This paper describes an empirical contextual study of the Spanish verbs that translate 'report' carried out on an extensive corpus of medical research articles. A quantitative analysis revealed significant differences between the lexical choices made by the translators and those made by native Spanish authors. The contextual analysis showed that reporting occurs in three basic settings, namely, the institutional setting, the community and patient setting, and the research setting. In the latter, research referred to the current study (i.e., the new clinical study presented in the article), to previous research by the same authors, or to other authors' published work. Within these contexts, consideration of linguistic factors such as collocation, sentence structure and specific features of the communicative situation allows the translator to make the appropriate lexical choices for the wide range of uses of the polysemous English verb 'report.'

### MOTS-CLÉS/KEYWORDS

medical translation, English-Spanish, corpus-based studies, quantitative analysis, contextual analysis

### 1. Introduction

In biomedical research articles (RAs), the verb 'report' presents translation difficulties for a number of reasons. It is polysemous in that it corresponds to a variety of communicative situations in medical and research settings. It is extremely versatile collocationally since what is reported can be virtually any concept describable, ani-

mate or inanimate, concrete or abstract. And, syntactically, it is associated with a wide range of structures that include a simple noun or noun phrase, a prepositional complement with *on* or *about*, a noun clause introduced by *that*, and, like many other cognitive or reporting verbs, an infinitive structure (X is reported to + infinitive), which is not always easy to render in Spanish.

This enormous pragmatic, collocational and syntactic versatility makes 'report' one of the most frequent lexical verbs in medical RAs.<sup>1</sup> Another important aspect to consider is that the discourse of these articles is characterized by objectivity and impersonal tone. In this regard, 'report' also fits in perfectly in two ways. First, in citations of other researchers' work, the citing author does not pass judgement, since the neutrality of 'report' simply states that the reference exists in black and white. Secondly, in terms of transitivity, 'report' is a verbal process, so that the basic structure will have at most three participants: **sayer + process + verbalization + receiver** (Halliday 1985: 129-130). However, the receiver of the message appears only very rarely in RAs. The participant role **sayer** not only covers animate nouns (named researchers, *authors*, *patients*, etc.) but is often extended to include anything that emits a message, e.g., *articles*, *studies*, or *clinical trials*. In addition, **sayer** is frequently suppressed by using the passive, thus reducing the structure to two basic components: 'report' and the nominal expressing the **verbalization**. While this depersonalization suits the author's needs, it may create further problems for the translator, since ambiguity can arise as to who exactly is reporting in the communicative situation.

In translating 'report' into Spanish in RAs, there is no single verb that will cover the multitude of situational and linguistic contexts. Navarro (2000: 435) offers useful advice but no empirical studies have investigated the contextual use of 'report' and its translation equivalents in Spanish. This paper describes a contextual analysis of these lexical items performed on an extensive corpus of medical RAs. Section 2 outlines the methodology used. In section 3, the main quantitative results are presented and, in section 4, the various communicative situations are analyzed and the translation potential of Spanish verbs is discussed in context.

## 2. Methods

The study was performed on a computerized corpus of 192 RAs (almost 500,000 words of running text) divided into three subcorpora: 64 English source texts (157,650 words), their 64 Spanish translations (185,000 words), and a comparable subcorpus of 64 Spanish native RAs (140,250 words) (for details, see Williams 2006). All instances of the verb 'report' were located with the concordancing program of **Wordsmith Tools** (Scott 1997). The translations of these instances were then found, classified and quantified. Finally, the Spanish comparable texts were searched, and the data obtained were compared with the translation data both quantitatively and qualitatively in the contextual study.

Since the Spanish equivalents of 'report' also translate other verbs, the total frequencies were calculated for the verbs used twice or more for 'report' and for other verbs within the semantic scope of 'report' used only once in the translations. Where possible, these figures were compared with the corresponding frequencies in the Spanish native texts by means of a binomial test. The data are shown in Table 1.

### 3. Results

For the 210 instances of 'report' found in the English source texts (see Table 1), the translators used a total of 27 different verbs, plus the technique of verb-noun transposition (7 instances), or the verb was not translated (16 instances). The left-hand column shows that the most frequent choices were *comunicar* (35) and *describir* (33), with six verbs having frequencies between 10 and 20, and five verbs appearing between twice and nine times. A further 14 verbs were used only once.

TABLE 1

Spanish translations of the verb 'report' and a comparison of the most frequent verbs involved between the translated texts (Tr) and Spanish native texts (Sp)

	No. instances for 'report'	Total instances		P value
		Tr	Sp	
<i>Comunicar</i>	35	42	17	< 0.05
<i>Describir</i>	33	136	93	n.s.
<i>Publicar</i>	18	56	50	n.s.
<i>Referir</i>	15	29	45	< 0.01
<i>Documentar</i>	14	37	3	< 0.001
<i>Observar</i>	14	358	161	< 0.001
<i>Informar</i>	12	46	5	< 0.001
<i>Encontrar</i>	10	135	223	< 0.001
<i>Mencionar</i>	8	26	5	< 0.01
<i>Presentar</i>	6	344	302	< 0.05
<i>Notificar</i>	4	7	0	n.a.
<i>Afirmar</i>	2	18	10	n.s.
<i>Indicar</i>	2	96	62	n.s.
<i>Analizar</i>	1	----	----	
<i>Calcular</i>	1	----	----	
<i>Comentar</i>	1	7	8	n.s.
<i>Concluir</i>	1	----	----	
<i>Decir</i>	1	1	1	n.a.
<i>Demostrar</i>	1	----	----	
<i>Estudiar</i>	1	----	----	
<i>Manifestar</i>	1	17	6	n.s.
<i>Mostrar</i>	1	----	----	
<i>Notar</i>	1	----	----	
<i>Realizar</i>	1	----	----	
<i>Recordar</i>	1	----	----	
<i>Reseñar</i>	1	2	6	n.a.
<i>Señalar</i>	1	10	46	< 0.001
Zero translation	16	----	----	
Noun transposition	7	----	----	
<b>Total</b>	<b>210</b>	<b>1367</b>	<b>1043</b>	<b>n.s.</b>

n.s. = not statistically significant; n.a. = not applicable

The statistical analysis showed no significant differences for the total number of appearances of *describir*, *publicar*, *afirmar*, *indicar*, *comentar*, and *manifestar*, so that translating 'report' by these verbs had no effect on their overall distribution. This is particularly important for *describir* and *publicar*, since they accounted for about 25% of the translations of 'report.'

Excesses in the translated texts were observed for *comunicar*, *documentar*, *observar*, *informar* and *mencionar*. These results suggest that the contexts in which they appear in the translations may not be appropriate. Interestingly, *informar*, which is suggested as a frequent option (Navarro 2000: 435), only appeared five times in the Spanish native texts, four times for doctors informing patients about the experimental nature of a treatment, and only once in a context suitable for 'report.' In the translations, 20 of the 46 instances of *informar* were in the set phrase *consentimiento informado*, but exclusion of these still leaves an overrepresentation of this verb. Spanish translators also overuse *observar* so that this verb should be avoided as an option for 'report' despite its neutral tone (Williams 2007).

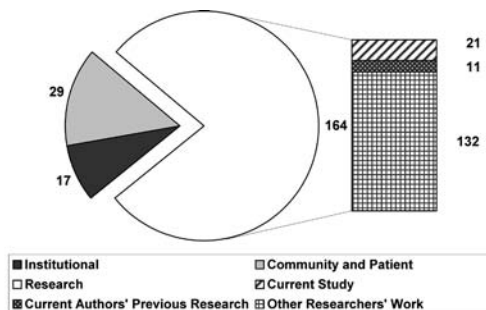
In contrast, deficits were evident in the translations for *referir*, *encontrar*, *señalar* and *presentar*, although this last verb was only slightly underrepresented. These results suggest that many of the excesses noted above could be resolved by resorting to these verbs in the appropriate contexts. Curiously, *encontrar* suffers a fate opposite to that of *observar* in the hands of translators. Owing to its neutral tone, it can be used for 'report,' but it should be remembered that it is not a true reporting verb, and other options may be possible.

#### 4. Contextual analysis

The communicative contexts reflected in the 210 instances of 'report' in the English subcorpus can be broadly grouped into three types. (1) **Institutional setting:** a member of the medical profession notifies an authorized body (e.g., a medical registry) or informs a colleague – doctor or researcher – officially or as part of a protocol. These communicative acts form part of the data collection and documentation stage prior to publication. (2) **Community and patient setting:** a member of the general population or a patient (sometimes a parent in a pediatric setting) in a patient-doctor relationship provides data via questionnaire, interview, medical history, follow-up visits, etc., again as part of the data collection process. (3) **Research setting:** the reporting forms part of the publication process and can refer to various situations within this expert-to-expert communication: 'report' relates to the current study (i.e., the new clinical study), to previous research by the same authors (current authors), and to published work by other researchers. The distribution of the occurrences in the three main settings and for the three research subsettings is shown in Figure 1.

FIGURE 1

Distribution of the 210 instances of 'report' in the English research articles by main setting and subsetting



#### 4.1 Institutional setting

Of the verbs used by translators in these contexts, *informar* appeared five times, *notificar* on four occasions, and *documentar* once; verb-noun transposition was used four times and three instances of ‘report’ were not translated. In one large clinical trial, the instances of *notificar* expressed the reporting of adverse events, including fatal events, to the central committee. In another trial, *documentar* appeared in a similar context. This verb, however, stresses the recording rather than the communication of information, so that *notificar* represents a better choice:<sup>2</sup>

- (1) For cardiovascular events, deaths rather than non-fatal events are used since non-fatal events **were** less reliably **reported** once patients had been lost to follow up.

> *Para los acontecimientos cardiovasculares, se utilizan las muertes antes que los acontecimientos no fatales, dado que los acontecimientos no fatales fueron documentados de una manera menos fidedigna una vez que los pacientes habían sido perdidos para el seguimiento.*

\* *Para los acontecimientos cardiovasculares, se utilizan las muertes y no los episodios no mortales, ya que éstos se notificaron de forma menos fiable en el caso de pacientes ya perdidos para el seguimiento.*

Four instances of *informar* plus a transposition to *información* occurred in a study on risk factors for small-for-gestational-age births. In this setting, the author commented on the different requirements for reporting births and fetal deaths to the relevant authorities in the two countries involved. The meaning of *informar* is too general to describe this context adequately; the Spanish verbs used in this setting are *notificar* and *declarar*, plus their nominalizations:<sup>3</sup>

- (2) In Norway, all products of conception of 16 or more weeks of gestational age **are to be reported**. In Sweden, although all live births **are to be reported**, only fetal deaths of 28 weeks or more gestational age **are to be reported**.

> *En Noruega, todos los productos de la concepción de 16 o más semanas de edad gestacional deben ser informados. En Suecia, aunque deben ser informados todos los nacidos vivos, sólo deben informarse las muertes fetales de edad gestacional de 28 semanas o más.*

\* *En Noruega, es de declaración obligatoria todo producto de 16 semanas o más de gestación. En Suecia, aunque deben notificarse todos los nacimientos vivos, sólo deben declararse las muertes fetales de 28 semanas o más de gestación.*

When data are reported, there may be a tendency to overreport or underreport certain events or phenomena, which can distort the results of a study. The term for this, ‘reporting bias,’ occurred twice and was rendered as *errores de publicación* in one text and as *sesgo de informar* in the second. As both contexts concerned data collection, the equivalent Spanish term is *sesgo de notificación*.<sup>4</sup>

Two identical cases of transposition occurred in a study in which exclusion of certain diseases was based on the radiologist’s report, so that ‘as reported by the radiologist’ became *según el informe del radiólogo*, which is a neat way of dealing with this type of interdepartmental report.

The three cases when ‘report’ was not translated involved ambiguity, as in [3]

- (3) Review of complications of angioplasty **reported** within the 1st 24 h of the procedure revealed that more patients with than without antecedent angina had reocclusion of the infarct-related artery or reinfarction.

> *Una revisión de las complicaciones de la angioplastia s durante las primeras 24 horas del procedimiento reveló que una mayor proporción de pacientes con angina previa que sin ella presentaban una reoclusión de la arteria relacionada con el infarto o un reinfarto.*

In [3], it is not clear whether the reporting was done by the patient or officially by the participating doctor within the study protocol. The translator has chosen not to render 'reported,' but another solution might be to retain the ambiguity by selecting verbs like *referidas* or *señaladas*, which occur in both settings, or *registradas* or *ocurridas*, which focus on the recording and the event itself.

#### 4.2. Community and patient setting

The most frequent verbs used by the translators in this context were *referir* (6 times), *mencionar* (4), *documentar* (3), *afirmar* (2), and *comunicar* (2). Seven verbs (*decir*, *manifestar*, *observar*, *presentar*, *notar*, *recordar*, *señalar*) occurred once each. One noun transposition (*comunicación*) was made, and no translation given for 'report' on four occasions. In contrast, of 23 similar contexts identified in the Spanish native texts, almost half (11) corresponded to *referir*, followed by *afirmar* (3), *admitir* (2), *declarar* (2), with *indicar*, *negar*, *reconocer*, *relatar* and *señalar* each appearing once.

As suggested above, all the situations involving *mencionar* and *documentar* could be expressed by *referir*:

- (4) All but one of the men **reported** having regularly lifted weights of over 25 kg.  
 > *Todos, excepto un individuo, mencionaron haber cargado de una manera regular pesos de más de 25 kg.*  
 \* *Todos, excepto un individuo, referían haber cargado con frecuencia pesos de más de 25 kg.*
- (5) Mild dizziness **was reported** by six patients in each group.  
 > *En cada grupo, seis pacientes documentaron un mareo leve.*  
 \* *Seis pacientes de cada grupo refirieron mareo leve.*

The same is true of the cases of *decir*, *notar*, and *presentar*. The first corresponded to reporting by questionnaire and, in the others, the translator has focussed on the manifestation and experiencing, rather than the reporting, of symptoms. The alternative version exploits coordination and ellipsis to avoid repeating the verb:

- (6) Six patients **reported** mild pain that resolved within the first postoperative week. One patient **reported** a transient foreign-body sensation.  
 > *Seis pacientes presentaron un dolor leve que desapareció dentro de la primera semana postoperatoria. Un paciente notó una sensación transitoria de cuerpo extraño.*  
 \* *Seis pacientes refirieron un dolor leve que se resolvió dentro de la primera semana postoperatoria y otro, una sensación transitoria de cuerpo extraño.*

The instance of *observar* in *dolor de cadera según lo observado en el cuestionario inicial* ('hip pain as reported on the initial questionnaire') is better rendered by *según lo indicado/ señalado* [...], which reflect the communicative aspect and express the neutral tone.

The contexts in which *comunicar* and its nominalized form appeared related to parents reporting about their children, as in [7]. No parallel examples occurred in the Spanish texts, so that *comunicar* may be acceptable. But, when the phenomenon

reported (complications) was taken as a guide, it was seen to collocate with *señalar* in the Spanish subcorpus.

(7) No complications from the procedure **were reported**.

> No hubo **comunicación** de complicación alguna.

\* No **se señaló** ninguna complicación relacionada con la técnica.

The use of *manifestar* for questionnaire reporting seems appropriate, but *afirmar* or *declarar* also fitted the context. The instance of *recordar* was due to recasting by the translator to achieve a more acceptable version:

(8) In 97% of the cases, mothers had recalled the birth weights of previous infants to within 50 grams. The exact birth weight **was reported** by 89% of the mothers.

> En el 97% de los casos las madres habían recordado los pesos de sus hijos con diferencias de 50 g. El 89% de las madres **recordaron** el peso exacto.

Of the omissions, *referir* and *declarar* were indicated in two contexts related to questionnaire reporting, one mention 'Birthweights **reported** by the mothers' was redundant and better expressed as the demonstrative in *Estos pesos*. The final case, shown in [9], involved ambiguity that makes it difficult to find a neat solution with a reporting verb:

(9) Vaginal symptoms such as dryness and discomfort **seem to be most often reported** five to six years after menopause.<sup>6</sup>

> Los síntomas vaginales como sequedad y otras molestias **parecen ser más frecuentes** cinco o seis años después de la menopausia.<sup>6</sup>

Either patients or researchers could be reporting in this context. *Parecen referirse con mayor frecuencia* retains the ambiguity as it covers both settings, but omission seems justified here.

### 4.3. Research setting

#### 4.3.1. Current study

For the current study, the most frequent verb in the translations was *comunicar* (8 times), followed by *presentar* (4), *describir* (3), with *comentar*, *documentar*, *estudiar*, *indicar*, *mencionar* appearing once, and one instance not translated. However, use of *comunicar* was not attested in the Spanish texts, where *presentar* (8) was the preferred choice, with *describir* (5), *aportar* (3), *comentar* (2), *exponer* (2), and *indicar* (1) also used in similar contexts.

About half the cases appeared in the Introduction section to present the new research by stating the aim or by giving a brief description of the study (Swales 1990; Williams 2001).

(10) The primary objective of this paper is **to report** our experience with the use of surfactant therapy in a case series of 49 full-term infants with respiratory failure due to RDS and MAS.

> El objetivo principal del presente artículo es **comunicar** nuestra experiencia sobre el empleo del tratamiento con surfactante en una serie de 49 casos de recién nacidos a término con insuficiencia respiratoria debida al SDR y al SAM.



- (11) **We report** 20 cases of pemphigus foliaceus, all of them involving young women seen from November 1985 through January 1987 in Sousse, Tunisia.  
 > **Comunicamos** *20 casos de pénfigo foliáceo, todos ellos en mujeres jóvenes examinadas entre noviembre de 1985 y enero de 1987 en Sousse (Túnez).*

In view of the reluctance of Spanish writers to use *comunicar* in these contexts, *aportar* or *exponer* were seen to collocate with *experiencia* and are appropriate choices in [10], whereas either *presentamos* or *describimos* are suitable with *casos* in [11].

Elsewhere in the RA, usually in the Discussion, reference is contrastive or metatextual, so that the reader can readily identify the data to be commented on. Occasionally, 'report' refers the reader to a table and, although *describir* is used for this purpose, the most frequent verbs are *exponer*, *recoger* and *mostrar*. For reference to other parts of the RA, both *describir* and *mencionar* are appropriate, but close examination of the text can lead to more descriptive options, as in 'one case of portal vein thrombosis **reported above**,' which was aptly translated as *un caso, ya comentado, de trombosis de la vena porta*. However, this type of reference in English RAs is often the result of the impersonal style: the first-person is avoided because repetition of the obligatory subject pronoun 'we' is considered obtrusive, drawing too much attention onto the authors. This, in turn, affects the frequency of the possessive pronoun 'our.' First-person reference in Spanish occurs in the verb ending, is less obtrusive and, together with associated forms, acts as a useful cohesive device (Williams 1994: 153). If this is exploited textually, it can make verbal references redundant, with *Los hallazgos comunicados en este estudio* ('The findings **reported in this paper**') more simply expressed as *Nuestros resultados*. It can also avoid unfortunate collocations, as in *en el 42% de los pacientes comunicados en este estudio* ('in 42% of **the patients reported here**'), which can be rendered by *en el 42% de nuestros pacientes*. However, recourse to verbs beyond the scope of reporting may be required, so that *los errores comunicados en el presente estudio* ('the **errors reported** in this study') is better expressed as *los errores [de medición] constatados en este estudio*.

#### 4.3.2. Current authors' previous research

The picture is very similar for self-citation. The verbs used by the translators were *describir* (5) and *comunicar* (4) with *presentar* and *publicar* each appearing once. Spanish authors preferred *describir* (4), *publicar* (3) and *recoger* (1), but in some contexts the notion of reporting was expressed by a noun (*trabajo, estudio, artículo, publicación*) in an adjunct followed by a verb of observation (*encontrar, detectar, comprobar*, etc.). The reluctance to use *comunicar* for self-reporting suggests that this verb should be avoided in this setting.

- (12) **We have previously reported**12 that intraoperative echocardiography after valve repair for mitral regurgitation can detect failed valve repair, permitting further surgical treatment during the same thoracotomy.  
 > **Hemos comunicado previamente**12 *que la ecocardiografía intraoperatoria tras la reparación de la válvula por insuficiencia mitral puede detectar una reparación defectuosa, permitiendo tratamiento quirúrgico adicional durante la misma toracotomía.*

The reporting frame in [12] could be *En un trabajo anterior*12 *señalamos que [...]* as *señalar* lies in the semantic scope of 'report' and combines well with reported comments as opposed to reported results.

As mentioned in the Introduction, the use of ‘report’ in depersonalized settings can give rise to ambiguity. In [13], the depersonalized self-citation, in which the identity of the authors lies hidden behind the passive and superindex number, leads on to the presentation of the current study in the third sentence.

- (13) The results of a selective policy of excision based on clinical assessment of tumour thickness using margins of 1, 2 and 3 cm for tumour groups of increasing thickness **were reported**<sup>11</sup> in 1985. It was demonstrated that, in terms of recurrence, the maximum excision margin necessary to achieve local control could confidently be reduced to 3 cm in melanoma >1.50 mm thick and that tumour thickness could be estimated accurately by preoperative clinical assessment. The effect of a further reduction in the maximum width of excision to 2 cm is presented.

> En 1985 **se comunicaron** los resultados de un protocolo selectivo de la escisión, basándose en la valoración clínica del espesor del tumor, utilizando márgenes de 1, 2 y 3 cm para los grupos de tumores de grosor progresivamente creciente<sup>11</sup>. Se demostró que, en términos de recidiva, el margen máximo de escisión necesario para conseguir el control local podía reducirse de forma fiable a 3 cm para los melanomas >1,50 mm de espesor y que el espesor del tumor podía ser calculado de forma segura mediante la valoración clínica preoperatoria. En este estudio se presenta el resultado de una mayor reducción, a 2 cm, en la amplitud máxima de la escisión.

The translator has adjusted the syntax in the first and third sentences, but in Spanish the impersonal tone conveyed by the reflexive passive and past definite tense gives the impression of remoteness, so that the citation does not appear sufficiently relevant to motivate the new study. In fact, the two studies form part of the same research program. The introduction of the first person in a cohesive chain within a reporting frame, as indicated below, would serve to correct this impression:

\* En 1985, nuestro grupo de trabajo publicó los resultados [...]

Demostamos que [...]

En este estudio presentamos [...]

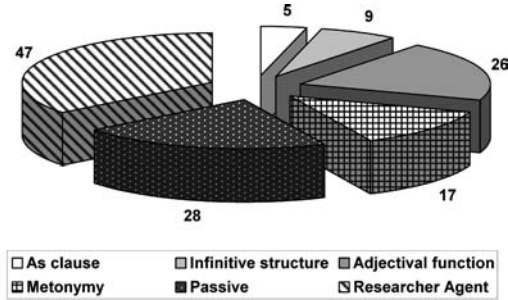
#### 4.3.3. Other researchers’ work

The translation of ‘report’ referring to other researchers’ work depends on the lexical and syntactic environment. The contextual analysis identified six environments: finite and non-finite ‘as’ clauses; infinitive constructions; preposed and postposed adjectival function; metonymy, in which a research noun replaces the researcher; passive sentences with a nuclear structure consisting only of ‘report’ plus reported concept; and contexts involving a researcher agent. The distribution of the 132 instances into these environments is shown in Figure 2.

Finite and non-finite ‘as’ clauses (e.g., as **has been reported** previously/ in other studies/ by other authors) are formulaic expressions and should be translated by equivalent formulae in Spanish. In the Spanish texts, these involved *señalar*, *referir*, *reseñar*, and the non-reporting verbs *suced*er and *ocurrir*. Thus, *según se informó en otros estudios* is better rendered by *como ha sido señalado en otros estudios/ por otros autores*. Spanish tends to prefer the personalized forms, and it is sometimes suitable to recover the named researcher: thus, *como ya se comunicó anteriormente*<sup>8</sup> could become *tal y como ha señalado Ando*<sup>8</sup> (‘as has been reported by Ando<sup>8</sup>’).

FIGURE 2

Distribution of the 132 instances of 'report' for other authors' research by lexical and syntactic environment



English infinitive structures will usually require translation by a sentence-initial reporting verb in the reflexive passive, although other reformulations are possible. For the 9 instances in the corpus, the translators used the reflexive passive (3 times), other reformulations with a reporting verb (3), and three instances were left untranslated. In [14] all that is required is the addition of the reporting frame (in curly brackets) to the proposition:

- (14) Lung volume in infants **has been reported to decrease** even further during apneic pauses<sup>13</sup> and during rapid eye movement sleep.<sup>14</sup>  
 > {*Se ha señalado que*} el volumen pulmonar del lactante *disminuye* aún más durante las pausas apneicas<sup>13</sup> y durante el sueño REM<sup>14</sup>.

If the reporting frame is followed by a noun clause, typical neutral tone verbs are *señalar*, *indicar*, *describir* and *referir*. If a complex nominal subject follows, *describir*, *comunicar*, and *referir* are indicated. In Spanish RAs, the discursive role played by these sentence-initial verbs is important since they orient the reader by indicating the rhetorical status of the message introduced (Williams 2004: 85).

Far more numerous were the contexts with 'report' as a preposed (14 instances) or postposed (12) adjective. Of these, 18 were translated appropriately by *publicar* (7 instances), *describir* (6), *comunicar* (3), *referir* (1), and *calcular* (1). This last case involved the reported confidence interval in a published study, and the shift to the methodological verb was justified because the reporting context was clear.

Choice of verbs in these settings depends on collocation: *publicar* with *casos*, *series*, *estudios*, *resultados* and numerical concepts e.g., *valores*, *frecuencias*; *describir* can also go with abstractions, e.g., *asociación*, *efecto*, *control*; *comunicar* and *referir* are variants when values and some abstractions are involved. Less satisfactory combinations involved *observar* (2 instances with *casos*) and *encontrar* (3). Adjectival use of these verbs is far more common to refer to the current study, and so *publicados* is more appropriate than *observados* in [15]:

- (15) Figure 3 shows the cumulative frequency of **reported cases** of second brain tumours.  
 > La figura 3 muestra la frecuencia acumulada de *casos observados* de tumores cerebrales secundarios.

Where *encontrar* occurred, more appropriate choices would have been *comunicar* or *referir*, as well as *publicar*. In the three instances where 'report' was not translated,

reporting verbs were indicated in two cases, but for the third, shown in example [16], it is necessary to go beyond reporting verbs and insert *reconocida* ('recognized') in front of *morbilidad asociada*:

- (16) [...] the possible circumvention of ECMO seems desirable in view of the **reported associated morbidity** of 25% to 40% of ECMO survivors.<sup>31</sup>  
 > [...] *parece deseable la posibilidad de eludir la ECMO en vista de la s morbilidad asociada del 25-40% entre los supervivientes a esta técnica*<sup>31</sup>.

A further 17 contexts involved what I call "anthropomorphic metonymy," in which the research replaces the researcher as **sayer** in an active verbal process. The collocational restrictions in this type of structure are far greater in Spanish than in English: *estudios* as subject can take *demostrar*, *confirmar*, *poner de manifiesto*, *revelar*, *encontrar*, *referir*, *indicar* and *sugerir* as reporting verbs. However, of these, only *encontrar* (2 instances), *referir* (1) and *indicar* (1) fall within the neutral scope of 'report,' and such cases are extremely rare. Nevertheless, translators tend towards too literal translations, where other strategies are required:

(1) adjunct with research noun + reporting verb:

- (17) Several studies<sup>6-12</sup> **report** that antecedent angina predicts a worse outcome in patients with myocardial infarction.  
 > *Varios estudios*<sup>6-12</sup> **concluyen** que la angina previa predice una evolución peor en los pacientes con infarto de miocardio.  
 \* *En diversos estudios*<sup>6-12</sup> **se ha señalado** que [...]

Within the range of options, *señalar* is a good choice, since it often takes a reported clause and combines well with reported comments or deductions as in [17]. Strategy (4) (see below) could also be used here: *Diversos autores **han señalado** que [...]*.

(2) adjunct with research noun + non-reporting verb, usually observational:

- (18) The SHEP trial **did not report** any excess deaths from cancer in the active treatment group.  
 > *El ensayo SHEP **no documentó** ningún exceso de muertes por cáncer en el grupo de tratamiento activo.*  
 \* *En el ensayo SHEP, **no se halló** ningún exceso de muertes por cáncer en el grupo de tratamiento activo.*

For this strategy, the observational verbs maintain the neutral tone and the notion of reporting is transferred to the research noun in the adjunct. Typical verbs are *encontrar*, *hallar*, *comprobar*, *constatar*, as well as *observar*, which tends to be overused by translators.

(3) adjunct with research noun + statement of result:

- (19) Another study<sup>12</sup> of coronary angioplasty in cardiogenic shock **reported** a 27% hospital mortality rate among patients with a successful procedure.  
 > *Otro estudio*<sup>12</sup> *sobre angioplastia coronaria en el shock cardiogénico **mostró** una tasa de mortalidad intrahospitalaria del 27% en los pacientes con buen resultado del procedimiento.*  
 \* *En otro estudio*<sup>12</sup> *sobre angioplastia coronaria en el choque cardíogeno, la mortalidad intrahospitalaria fue del 27% en los pacientes en los que la técnica se realizó con éxito.*

In [19] the force of *mostrar* (literally 'show') extends beyond the neutrality of 'report' implying acceptance on the part of the citing author (Williams 2008). This can have repercussions on the discourse and should, therefore, be avoided. The alternative has only a reporting frame and a factual statement of result in the past tense.

(4) change research word to *autores / investigadores*:

- (20) Other series **have reported** much lower figures for the metastatic rate of SCC in organ graft recipients.<sup>3,8-12</sup>  
 > *Otros autores han comunicado tasas muy inferiores de SCC metastásicos en pacientes trasplantados*<sup>3,8-12</sup>.

*Estudios* was appropriate as subject of *encontrar* and *indicar* in two contexts and *artículos*, as subject of *comunicar* in another. The remaining 14 contexts required recasting with one of the above strategies, but only two were in fact used by the original translators: strategy (1) on two occasions and strategy (4), as shown in [20].

There were 28 contexts in which passive structures were reduced to 'report' and the phenomenon reported, plus associated circumstances. In Spanish, these contexts typically require the reflexive passive, usually with a postposed subject. In fact, the *Se* reflexive form was used on 24 occasions, with a postposed subject in 21 cases. In the other four instances there were two true passives with *ser* + participle, one case of *estar* + participle, and one noun transposition was used. While the translators dealt appropriately with the syntactic aspect, their lexical choices were not always consistent with those in the Spanish native texts. The verbs selected in these contexts were *publicar* (5), *documentar* (5), *describir* (4), *comunicar* (4), *mencionar* (3), *referir* (2), with *informar*, *observar*, *reseñar*, and *realizar* each appearing once, the remaining case being the transposition.

As we have seen, *documentar*, *mencionar* and *informar* are not selected by Spanish authors, while *observar* and *realizar* involve a change in viewpoint from reporting to observation and performance of the research. As with the adjectival forms, the best guide to lexical choice is collocation between verb and associated concept. *Estudios*, *ensayos* and *resultados* collocate with *publicar*; *casos* with *publicar*, *describir* or *recoger* (in the literature); symptoms (*dolor*, *uveítis*) with *referir* or *describir*; abstractions like *ausencia* with *señalar*; finally *describir* is most often used in negative contexts and first time descriptions.

Nevertheless, for passive structures, apart from appropriate syntactic and lexical choice, attention should also be paid to the discourse. It may be suitable to introduce the occasional named researcher from the references to avoid an excessively impersonal style.

- (21) In patients with serious arrhythmias, focal symptoms **were reported** in only 4 of 290 patients.<sup>20</sup>  
 > *En pacientes con arritmias graves, se describieron síntomas focales en tan sólo cuatro de 290 casos*<sup>20</sup>.  
 \* *En el trabajo de Rai20, sobre pacientes con arritmias graves, tan sólo cuatro de 290 enfermos presentaron síntomas focales.*

In [21] the reporting frame with *trabajo* and the named researcher clearly indicate to the reader that the result that follows is a citation and not from the current study. Since the citation has a supportive function in the discourse, there should be no objection to the inclusion of the cited author's name.

The final environment is the one in which the animate **sayer** is included. Named researchers appeared in 45 contexts, 36 active and 9 passive, and general researcher nouns, ‘authors’ and ‘investigators,’ in two active instances. The verbs used for ‘report’ in the translations were *describir* (11), *observar* (10), *comunicar* (6), *publicar* (4), *referir* (4), *encontrar* (3), *informar* (3), *analizar*, *documentar* and *indicar* (once each), while three passive instances were not translated. Of these verbs, *observar* and *encontrar*, because of their other functions, should be avoided as translations of ‘report’; *informar* is not a normal choice of Spanish writers, and *analizar* involves a change of viewpoint.

From Table 1 it is clear that *señalar*, *referir* are underused by translators and the same is probably true for *comunicar* for this function. An advantage of switching to these communicative verbs is that they can be used in the present tense, as opposed to observational verbs, where the past is normal. This underlines the relevance of the citations to the current research, either to motivate the study in the Introduction or to contextualize the significance of the findings in the Discussion. Use of the present tense also makes the prose lighter. In addition, when several citations occur in close proximity, it is advisable to vary the syntactic structure, as seen above with the metonymies, by using other strategies. The named researcher can be placed in an adjunct attached to a research noun:

(22) Koster<sup>26</sup> **reported**, in her Danish study, that the most common reasons for abandoning treatment were: No effect (28%), side effects (44%), negative attitude (12%) and symptoms relieved (9%).

> *En su estudio realizado en Dinamarca, Koster<sup>26</sup> describió que las razones dadas por las mujeres para abandonar el tratamiento eran: ausencia de efecto (28%), efectos secundarios (44%), actitud negativa (12%) y alivio de los síntomas (9%).*

\* *En el estudio realizado por Koster en Dinamarca<sup>26</sup>, los motivos más frecuentes de abandono del tratamiento eran: ausencia de efecto (28%), efectos adversos (44%), actitud negativa (12%) y alivio de los síntomas (9%).*

Alternatively, the researcher can appear alone in an adjunct with *para* or *según*:

(23) Gartry and colleagues<sup>8</sup> **reported** that the most marked anterior stromal haze occurred in those patients undergoing deeper ablations.

> *Gartry et al<sup>8</sup> informaron que la opacidad estromal anterior más importante aparece en aquellos pacientes que han sufrido ablaciones más profundas.*

\* *Para Gartry y cols<sup>8</sup>, la opacidad estromal anterior más importante aparece en aquellos pacientes que han sufrido ablaciones más profundas.*

In the alternative versions of both [22] and [23], a reporting verb is not necessary.

## 5. Summary and conclusions

The discussion and illustration of a wide range of instances of the verb ‘report’ in the contextual analysis have shown that the lexical choices and strategic options depend on the communicative setting and the linguistic environment.

TABLE 2

**Summary of translation options for the verb 'report' according to the communicative and linguistic setting**

Setting	Typical Selections	Alternative Choices	Occasional Options
Institutional	<i>Notificar</i>	<i>Declarar</i>	<i>Referir</i> <i>Registrar</i>
Community and Patient	<i>Referir</i>	<i>Afirmar</i> <i>Señalar</i>	<i>Declarar</i> <i>Indicar</i>
Current Study	<i>Presentar</i>	<i>Describir</i>	<i>Aportar</i> <i>Exponer</i>
Current Authors' Previous Research	<i>Describir</i>	<i>Publicar</i>	<i>Señalar</i> <i>Presentar</i>
Other Authors' Published Work	'As' clauses	<i>Señalar</i>	<i>Reseñar</i> <i>Referir</i>
	Infinitive Structure	<i>Señalar</i>	<i>Describir</i> <i>Comunicar</i>
	Adjectival Function + Passive Structure	<i>Publicar</i> <i>Describir</i>	<i>Comunicar</i> <i>Referir</i> <i>Señalar</i> <i>Recoger</i>
	Named Researcher	<i>Describir</i> <i>Referir</i>	<i>Publicar</i> * <i>Señalar</i> <i>Comunicar</i> <i>Encontrar</i> <i>Observar</i>

\* Particularly indicated when the named researcher is agent in the passive

Table 2 summarizes the translation potential of most of the verbs discussed and for each category offers the typical lexical selection, together with less frequent alternative choices and appropriate but only occasional options. The adjectival function and passive structure categories have been conflated because of their great similarity in terms of lexical selection. The only category not included is that of anthropomorphic metonymy, where one of the strategies proposed in section 4.3.3. should be applied and this will clearly affect lexical choice. In any case, the table provides only an orientation in terms of typicality and the definitive selection will be conditioned by the other local factors mentioned in the discussion such as collocation, sentence structure or specific features of the communicative situation.

This study has shown that the choices made by translators of RAs often differ considerably from those made by native Spanish authors. Contextual analysis based on extensive corpora is a valuable research tool that can provide translators with quantitative and qualitative information to help them make appropriate choices for polysemous lexical items like 'report.'

**NOTES**

1. If lexical uses of the verbs 'be' and 'have' are excluded, 'report,' with its 210 instances, was the sixth most frequent lexical verb in the corpus after 'use' (414), 'show' (299), 'compare' (266), 'include' (231) and 'perform' (217).
2. The examples show the English original followed by the published translation (indicated by the arrow) and in some cases by a proposed alternative version (indicated by an asterisk). The lexical elements representing 'report' are shown in bold and other details of interest are signalled by underlining or as indicated in the text.
3. In Spain, when the newborn is normal, the birth can be reported to a registry fairly informally by telephone, as well as by letter; however, if a malformation is present or in cases of fetal death, the doctor has to make out and sign a formal document including his collegiate number. In the first

setting, either *notificar* or *declarar* is appropriate but, in the second, *declarar* is indicated, as in 'reportable/notifiable disease' *enfermedad de declaración obligatoria*.

4. In a different setting, '**reporting bias**' refers to the tendency for research that is financially supported by commercial interests to produce more favorable results than independent investigations; the Spanish equivalent for this phenomenon is *sesgo de publicación*.

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