

Biomedical Research “Made in Private Practice”

Being applied branches of science, optometric activity, as well as other biomedical specialties, have been examples of close interaction between research and clinical practice. There are several examples of research results obtained from the interaction between two “worlds” necessarily linked. However, is not easy to analyze this question from a formal standpoint.

In order to obtain an estimate of the amount of published research results coming from clinicians in private practice, a search was conducted using Pubmed’s database (www.pubmed.com) and filtering the results by choosing the criterion “affiliation = private practice” in the advanced search facility of this electronic database. This resulted in 704 published papers being retrieved. Those are grouped by publication date back to 1992 (included) as shown in *figure 1*. Note that no restriction regarding date of publication was imposed as searching criterion, but none of the 704 citations was published before 1992. We are aware that this methodology has the limitation that only affiliation data for the first author or for the corresponding author will be considered, which implies that if it is only the coauthor that is affiliated to private practice, the citation won’t be retrieved by the search engine. Despite this, we are considering this only for illustrative purposes rather than to obtain accurate rates of publication by clinicians in private practice.

Figure 2 represents the citations that satisfy the same search criteria (affiliation = private practice and publication date after 1992) and a set of keywords related to several of the areas linked to current optometric activity (quality of vision or visual acuity or eye or vision or refractive surgery or optometry or ocular or contact lens or low vision or visual rehabilitation or cornea or cataract or presbyopia or refractive error or retina or ocular surface). Extending the search to back to 1950 only one additional citation was obtained. Thus, for direct comparison with *figure 1*, only results back to 1992 will be considered.

It can be seen that most of the papers retrieved related to ophthalmology have been published after 2005 (n=36). Those were analyzed in more detail, in an attempt to find potential patterns regarding publication journal, and are presented in *table 1*. Citations identified as coming from private-practice research are relatively rare in the field of optometry and vision sciences, while 36.1% are only marginally related to the field of ophthalmology, being published in the field of dermatology, aesthetic surgery, etc. Particularly

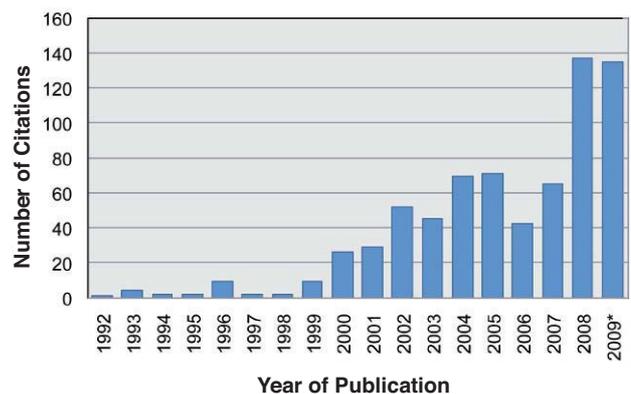


FIGURE 1 Number of citations found in Pubmed in November 2009 using affiliation and publication date as filtering search criteria. *Limited to the date when the search was conducted

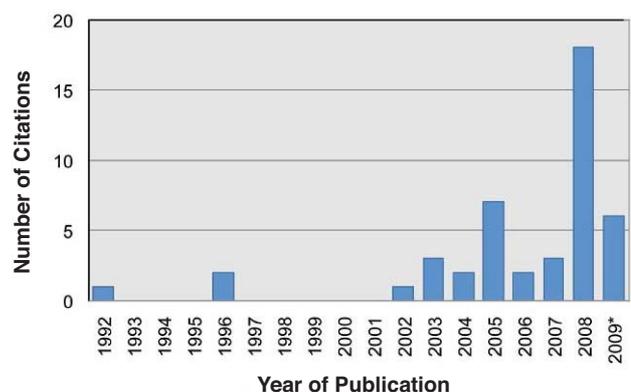


FIGURE 2 Number of citations found in Pubmed in November 2009 using affiliation, publication date and the following words (quality of vision or visual acuity or eye or vision or refractive surgery or optometry or ocular or contact lens or low vision or visual rehabilitation or cornea or cataract or presbyopia or refractive error or retina or ocular surface) as filtering search criteria. *Limited to the date when the search was conducted.

low is the rate of publications retrieved from optometry-oriented journals (5 citations). An exception seems to be found in the refractive surgery field, with the Journal of Cataract and Refractive Surgery accounting for 30.1% of all citations identified and for 48% (11/23) of those articles published in ophthalmology-related journals.

TABLE 1

Citations found from 2005 to 2009 inclusive, grouped by the journal where they were published, listed in alphabetical order

Journal Title (abbreviated)	Number of Citations (2005-2008)	Percentage of Citations (2005-2008)
Br J Ophthalmol	1	2.8
Can J Ophthalmol	1	2.8
Contact Lens & Anterior Eye	1	2.8
J Cataract Refract Surg	11	30.6
J Glaucoma	1	2.8
J Neurophthalmol	1	2.8
J Ocul Pharmacol Ther	2	5.6
Ophthalm Clin North Am	1	2.8
Optom Vis Sci	1	2.8
Optometry	3	8.3
Others (dermatology, maxillofacial, aesthetic surgery, etc.)	13	36.1

The rate of publications coming from private practice in biomedical sciences has increased significantly over the last decade, with an impact also in the ophthalmology-related fields as seen by comparing *figures 1 and 2*. However, this publication rate remains markedly low. This is somewhat in agreement with the known fact that research is mainly conducted in the academic environment when it comes to basic research, but also for applied or clinically-oriented research.

The work of McGhee and Githotra¹ (citing Biros and Adams regarding Medical Students and Research from the Society for Academic Emergency Medicine) highlighted the most common reasons to conduct research: a) to learn about a particular clinical or basic-science question of interest; b) to sample and experience the intriguing concept of research; c) to get a different perspective, other than a clinical rotation, of a specialty; d) to develop and foster future mentorship with a notable researcher; e) to strengthen curriculum vitae application for vocational subspecialty training. Of those, a clinician in private practice won't be much motivated by curricular questions, but certainly they will be interested in all the remaining aspects that have to do with the pursue of knowledge, statistical confirmation of trends observed in their practice, etc. This is particularly relevant for MSc and PhD students already established in clinical activities, which is a reality in Spanish optometry nowadays.² From their post-graduate clinical training those "senior students" will certainly be more motivated to get involved in clinical research activities and will suggest their mentors their particular areas of interest.

Again, we must acknowledge that the limited information available in search engines regarding the affiliation of authors, restricted to the corresponding author, is a limitation itself to the data reported here. However, the approach followed here shows that there is a potential for other fields different from refractive surgery to follow a similar path. Among the advantages of conducting research in a clinical

environment such as a private practice is the fact that the populations involved are more representative of the general population than those taking part in research conducted purely in academic environments. Among the disadvantages to approach clinical research from a private practice could be the limited access to up-to-date literature or the lack of knowledge about methods to approach a clinically-oriented research interest from a scientifically correct standpoint. The clinician in private practice interested in developing a research project might encounter strong barriers to develop his/her ideas, some of which have been already identified in the above-mentioned work of McGee and Gilhotra.¹ Those limitations include aspects such as "assessing their current skills level and research knowledge base"; "identifying a mentor and a research location" or "attending presentations and read papers" just to cite a few examples.

In fact, the limited access to research papers has been a handicap for many professionals for a long time. However, this scenario is changing, and some journals already make their older issues available online, while others follow the entire Open Access philosophy, such as this Journal of Optometry. Regarding mentorship and research location, professionals in the field of biomedical sciences will take advantage of universities or other research facilities near to their places of residency/work. In the particular case of Optometry, most of the research conducted and published in European countries is restricted to the academic environment. In Spain and Portugal (herein described as Iberia) this question might be facilitated by the geographical spread of Schools of Optometry. *Figure 3* shows the distribution of Schools of Optometry across Iberia. It can be clearly seen that despite some clusters near the Mediterranean area and in Madrid, the schools are rather homogeneously scattered across Iberia.

It is at these Schools of Optometry that clinicians in private practice interested in conducting research should seek



FIGURE 3
Distribution of Schools of Optometry in Iberia (Spain & Portugal). Map reproduced from ©World Sites Atlas (www.sites.atlas.com).
Legend: USC: University of Santiago de Compostela; UVA: University of Valladolid; UCM: Complutense University of Madrid; UEM: European University of Madrid; CSP: University CEU San Pablo; UZ: University of Zaragoza; UPC: Polytechnic University of Catalonia; UV: University of Valencia; UA: University of Alicante; UM: University of Murcia; UG: University of Granada; UM: University of Minho; UBI: University of Beira Interior.

for skilled professors that might also be interested and motivated to work with them and provide them with the scientific orientation needed to define, develop and accomplish the goals of a research project. Additionally, access to scientific literature, particularly when it comes to non-Open Access

sources, is usually easier from a University, thus overcoming most of the barriers described above. It is also noteworthy that in a quite small geographical environment, such as Iberia, with a high amount of professionals working near the schools where they completed their graduate or post-graduate degrees, many colleagues will know the academics as being their former colleagues or professors, which will facilitate the first contact and future interactions.

In summary, for those looking for someone to help you to develop your ideas and projects, the opportunity was never so close to you: we strongly encourage you to take the challenge! The Journal of Optometry will be more than happy to receive your future submissions and will help you to have your research published, to share with others colleagues your discoveries in the amazing field of optometry and visual sciences.

REFERENCES

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