

CRITICAL ANALYSIS OF PHYSICAL THERAPY GROUPS PROMOTING SCIENTIFIC RESEARCH IN COLOMBIA. A CROSS SECTIONAL STUDY

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ABSTRACT: Objective. To analyze of physical therapy groups promoting scientific research in Colombia. Material and methods. Were individually analyzed all curricula vitae from researchers in the available field in the COLCIENCIAS database of CvLac-database. We also analyzed the statistical reports on scientific production available on the Scienti-website (<http://www.colciencias.gov.co/scienti/>). Scientific production and level of training was evaluated of 43 curricula during the months of April and May 2012 for the collection of information and this information was analyzed in June 2012. Results. We identified 768 usable records (Biomedical and Health Science). Of all the articles included, 942 were original research reports. The number of publications in Colombia grew ten-fold between 1990 and 2010. Between 1990 and 2003, the growth rate was 9% per year, whereas from 2005 and 2008 the rate dropped to about 10% per year. The average number of included articles published per year was 45 with a range from 12 to 187. A nonlinear, bimodal distribution of articles published per year was observed ($R^2=0.85$), with peak publications in 1992 and 2011. There was a significant difference in publication productivity over the 10 years across ($P<0.001$). Pair-wise comparisons revealed that groups with Master's degree produced significantly more publications (median=19) than any other category, with the exception of Doctoral degree (median=13). Conclusion. This study provides ample direction for future inquiry regarding the status of curriculum and of scholars in physical therapy. However, this production is still lower than that of other Latin American countries having similar socioeconomic and demographic conditions

KEYWORDS: Physical therapy. Education. Research. Colombia.

ANÁLISIS CRÍTICO DE LOS GRUPOS DE TERAPIA FÍSICA PROMOCIÓN DE LA INVESTIGACIÓN CIENTÍFICA EN COLOMBIA. UN ESTUDIO DE CORTE TRANSVERSAL

RESUMEN: Objetivo. Analizar los grupos de terapia física que promueven la investigación científica en Colombia. Material y métodos. Se analizaron de forma individual los curriculum vitae de los investigadores registrados en la base de datos de COLCIENCIAS CvLac-Lattes disponible en el sitio web (<http://www.colciencias.gov.co/scienti/>). La producción científica (número de publicaciones originales en revistas especializadas) y el nivel de formación profesional de 43 planes de estudio fueron analizados, durante los meses de abril y mayo de 2012 para la recopilación de información y posterior análisis junio de 2012. Resultados. Se identificaron 768 registros utilizables (Ciencias biomédicas y Ciencias de la Salud). El número de publicaciones en Colombia se multiplicó por diez entre 1990 y 2010. Entre 1990 y 2003, la tasa de crecimiento fue del 9% anual, mientras que entre 2005 y 2008, la tasa se redujo a alrededor del 10% al año. De todos los artículos incluidos, 942 fueron investigaciones originales. El número medio de artículos publicados por año fue de 45 (rango 12-187). La distribución no lineal y bi-modal de los artículos publicados entre 1992 y 2011 muestran valores de ($R^2=0.85$). No se encontraron diferencias significativas en la productividad científica en los últimos 10 años ($P < 0.001$). El número de publicaciones de fisioterapeutas con Maestría fue mayor (mediana = 19), seguido del Doctorado (mediana = 13). Conclusión. Este estudio ofrece una evaluación crítica del perfil investigador de fisioterapeuta colombiano, en términos de nivel de cualificación profesional y e indicadores de productividad. Sin embargo, esta producción sigue siendo inferior a la de otros países latinoamericanos que comparten similitudes sociodemográficas y económicas.

PALABRAS CLAVES: La terapia física. Educación. Investigación. Colombia

■ 1. INTRODUCTION

Physical therapy in Colombian was established and institutionalized in 1952, as a technique career and its posterior official standardization occurred in 1954^{1,2}. More than twenty years passed for Colombian physiotherapy to be considered a professional career through a university formation^{2,3}. Nevertheless, since 1999, Law 528 defined physiotherapy as a liberal profession of health sciences, with researcher formation and its priorities are the individual, community and the environment where they take place³.

When defining the profile of researcher and scientific production in physiotherapy, international studies have used a combination of bibliographic databases and reports from accredited research lecturers of undergraduate and graduate programs in physical therapy. For example, Holcomb et al.⁴ published findings regarding the scholarly productivity in 130 physical therapy faculties 2 decades ago. Respondents had an overall publication rate of 0.94 article published for every 2 years of employment in higher education. Even though liberal definitions of publications were used, almost one third (30%) of the respondents could not claim authorship of a manuscript. Recently Richter et al.⁵ examined the publication productivity of accredited academic physical therapy programs in the United States and Puerto Rico between 1998 and 2002; the results show that there is a wide variation in the level of productivity and a large number of bibliographic citations during the 5 years studied, however the quantification of the productivity is problematic, especially when using these data to establish baseline performance numbers. This study resulted in several letters to the editor^{6,8} challenging the methodology.

In Latin-American, few studies have examined the scholarly productivity in programs for physical therapy education. Within this perspective, it is helpful to know the profile of the physical therapy researcher, the trends in his training, his scientific production and capacity for training future researchers in order to develop a picture of our current identity and plan future scenarios. Considering that Colombia has a powerful source of information on researchers, the CvLac-Lattes database of online curricula vitae completed by the researchers themselves, we decided to use this source to gather the data used in the present study. This study provides a critical appraisal and analysis the profile of the Colombian physical therapy researcher in terms of qualification level and productive outcomes.

■ 2. Material and Methods

To define the profile of the physical therapy researcher with a different curriculum, were individually analyzed all curricula vitae from researchers in the available field in the COLCIENCIAS database of CvLac-database. We also analyzed the statistical reports on scientific production available on the Scienti-website (<http://www.colciencias.gov.co/scienti/>). The curricula search system in the CvLac-database contains a feature that allows searches according to academic training. However, applying the Training/Academic Level filter, with the term “physical therapy” in the “Subject” field and the “GrupLac” database checked, the result should show the number of researchers with a physical therapy degree. When we performed this search strategy in March 2012, we obtained a result of 43 curricula. Therefore, the system included in its search results researchers which were physical therapists

and had work related to the field of physical therapy. These curricula were accessed again during the months of April and May 2012 for the collection of information and this information was analyzed in June 2012. The selected information was included in the article that was written in December 2011.

Scientific production and level of training were evaluated. The main results were presented descriptively. The chosen quality indicator was the international publication of scientific articles in the Institute for COLCIENCIAS and PUBLINDEX database, which was analyzed on the basis to area of practice and other work and lines of research as possible factors of influence.

3. Results

We identified 768 usable records (Biomedical and Health Science). Of the 43 accredited physical therapy groups eligible for inclusion in the study. Of these 43 groups, 339 (72%) people have a registered physical therapy degree, (Table 1)

Table 1. Physical therapy research groups included in study

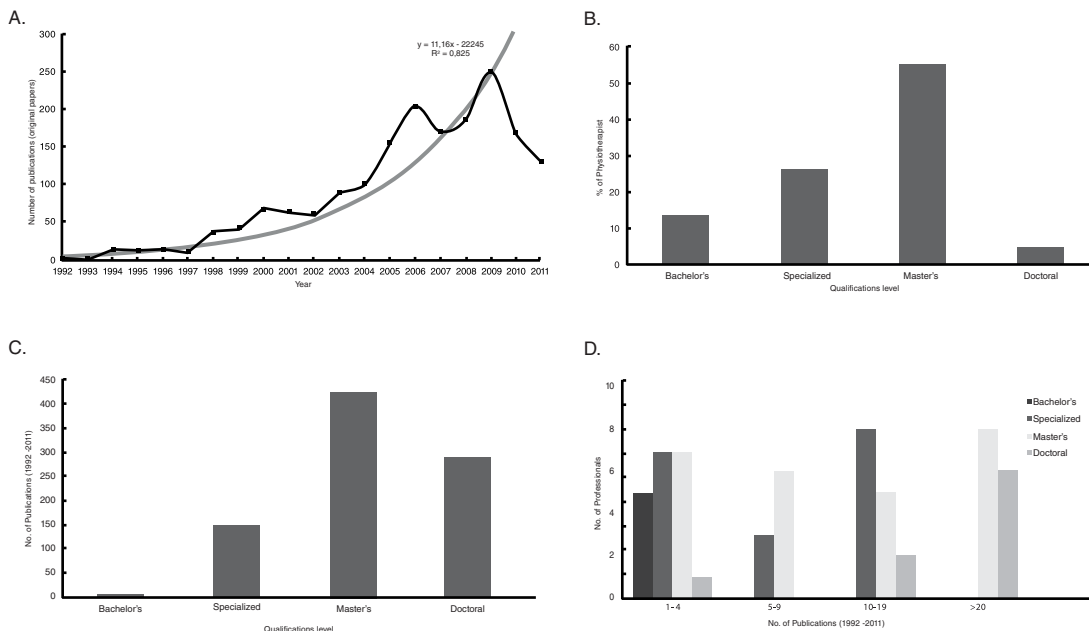
CVLAC Code	Group Name	Physical therapy n=339 (%)	Others degree n=132 (%)
COL0024042	Entropía	12 (4)	1 (1)
COL0029521	Ejercicio físico y deporte	9 (3)	0 (0)
COL0029969	Fisioterapia, cuerpo, movimiento y salud "FICMOS"	12 (4)	3 (2)
COL0029719	Biomecánica y fisioterapia musculoesquelética y tegumentaria	7 (2)	0 (0)
COL0068359	Ejercicio y salud cardiopulmonar	5 (1)	4 (3)
COL0004193	Actividad física y desarrollo humano	19 (6)	4 (3)
COL0058059	Movimiento y salud	15 (4)	1 (1)
COL0058659	Ocupación y realización humana	0 (0)	9 (7)
COL0005851	Grupo de estudio del dolor	3 (1)	1 (1)
COL0060969	Postura y movimiento corporal (POYMOCOR)	8 (2)	0 (0)
COL0055343	Grupo de investigación del tejido conectivo – GITCO	0 (0)	12 (9)
COL0071857	Ocupación e inclusión social	0 (0)	5 (4)
COL0084532	Grupo de investigación en salud pública	22 (6)	1 (1)
COL0123274	Neurosalud: neurofisiatria y plasticidad	2 (1)	0 (0)
COL0040429	Grupo de análisis mecánico y Neuromecánico del movimiento humano	3 (1)	0 (0)
COL0071605	Muévete caribe	7 (2)	10 (8)

COL0055577	GIPPAM	6 (2)	0 (0)
COL0037167	Movimiento humano y salud	6 (2)	2 (2)
COL0105786	Salud y movimiento	11 (3)	2 (2)
COL0016541	CORPS	15 (4)	1 (1)
COL0057839	GISCYT	4 (1)	4 (3)
COL0087991	CIRINEO - Neurorehabilitacion	2 (1)	1 (1)
COL0048625	Profundización en kinesioterapia	5 (1)	1 (1)
COL0037855	Movimiento, armonía y vida	1 (0)	4 (3)
COL0027419	Terapias alternativas	5 (1)	2 (2)
COL0017039	Cuerpo movimiento	6 (2)	10 (8)
COL0032409	FISIOTER: importancia del movimiento en el Desarrollo humano	23 (7)	1 (1)
COL0087688	Salud cuerpo y movimiento	11 (3)	1 (1)
COL0028776	Neurorehabilitación	9 (3)	0 (0)
COL0034746	Promoción de la salud y actividad física	9 (3)	0 (0)
COL0037354	Movimiento corporal humano	13 (4)	0 (0)
COL0052118	Comunidad académica "Conceptualización en Fisioterapia"	12 (4)	1 (1)
COL0026173	GINSO	2 (1)	3 (2)
COL0015438	Ciencias de la rehabilitación	13 (4)	17 (13)
COL0047208	Salud en movimiento	8 (2)	1 (1)
COL0072935	Salud y motricidad humana	5 (1)	3 (2)
COL0043666	Fisioterapia integral	6 (2)	2 (2)
COL0056270	Grupo de investigación en salud ocupacional y Ergonomía	1 (0.5)	3 (2)
COL0032860	Ocupación humana	4 (1)	11 (8)
COL0093102	Grupo de investigación en rehabilitación, trabajo y salud	4 (1)	3 (2)
COL0089610	Gerontología y geriatría	0 (0)	7 (5)
COL0061350	Salud y movimiento	27 (8)	1 (1)
COL0124085	Movimiento Corporal Humano -Universidad de la sabana	7 (2)	0 (0)

Of the articles included, 942 were original research reports. The average number of included articles published per year was 45 with a range from 12 to 187. A nonlinear, bimodal distribution of articles published per year was observed ($R^2=0.85$), with peak publications in 1992 and 2011, (Figure 1A). The conformations of groups included in this study were Bachelor's, Specialized, Master's and Doctoral degree. In Figure 1B show of percentage of physiotherapists according qualification level. Almost half of the participants held the Master as the highest degree, followed by the specialist level. There was a significant di-

ference in publication productivity over the 10 years across ($P < 0.001$), (Figure 1C). Pair-wise comparisons revealed that groups with Master's degree produced significantly more publications (median=19) than any other category, with the exception of Doctoral degree (median=13), (Figure 1D).

Figure 1. Profile of the Colombia physical therapy researcher in terms of qualification level and productive outcomes.



Legend. Figure 1A: Total original articles included in bibliometrical analysis by publication year; Figure 1B: Percentage of physiotherapist at qualification level; Figure 1C: Productivity according to qualification level; Figure 1D: Number of professionals and productivity according to qualifications level.

4. Discussion

Colombian research production has improved considerably during the last few years as shown by the growing numbers of Colombian papers in MEDLINE and LILACS during the period being studied⁹. However, this production is still lower than that of other Latin American countries having similar socioeconomic and demographic conditions¹⁰. It is well known that most of the Colombian physiotherapists focus their professional performance into clinical practice, hence the current research production is weak. The number of items reported in the CvLac-lattes of the physical therapists is compatible with the qualifications level and followed the same trend of growth. The number of complete articles per researcher varied from a published article ($N=339$ researchers) to 942 articles. The overall average of articles per researcher was 2.7, and the median was 3. It should be considered that these numbers refer to all articles reported by researchers in their curriculum as complete articles. An individual analysis of the curricula showed that the information is not always complete because there are articles with no initial and final page numbers, duplicated information, etc. The number of publications in Colombia grew ten-fold between 1990 and 2010. Between 1990 and 2003, the growth rate was 9% per year, whereas from 2005 and 2008 the rate dropped to about 10% per year.

These numbers corroborate an advance in scientific knowledge in the field of physical therapy in Colombia, because there is a clear link between the development of human resources and scientific production. It is considered that the increase in scientific training, among other things, generates further development in research and thus an improvement in the profession, employment and population care. In summary, we have defined the profile of the Colombian physical therapy researcher with regard to training and scientific production. The study provides ample direction for future inquiry regarding the status of curriculum and of scholars in physical therapy.

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