# Searching clinical trial registries in interventional physical therapy systematic reviews: A Pilot Cross-sectional Analysis

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## Abstract

**Background.** Studies with positive findings are more likely to be published compared to those with negative findings. Therefore the latter studies are often disregarded in systematic reviews. This causes an overestimation of a treatment effect size which leads to a misinterpretation of the evidence. Searching clinical trial registries in systematic reviews is a useful source to retrieve unpublished clinical trials leading to the reduction of publication bias. Previous studies in the literature reported inconsistent searching of clinical trial registries in systematic reviews published in several medical fields. Searching clinical trial registries in physical therapy is still unknown. The aim of this cross-sectional analysis is to evaluate the extent of clinical trial registry searching in physical therapy interventional systematic reviews.

**Methods.** Systematic reviews published between January 2017 and January 2018 were retrieved from five reputable physical therapy journals. Interventional systematic reviews that were coherent with the inclusion criteria were included in the analysis.

**Results.** The search yielded 40 systematic reviews. Among these 19 were interventional systematic reviews as well as being consistent with the inclusion criteria and thus were considered for the analysis. After reviewing their search methodology, only two reviews (10.5%) reported searching at least one clinical trial registry.

**Discussion.** The results of this study suggest poor searching of clinical trial registries in physical therapy systematic reviews. Due to the limitations of this study, further research analyzing large samples of interventional physical therapy systematic reviews is required.

## Introduction

Systematic reviews constitute a handy source of evidence for clinicians in the era of evidence based practice(Gopalakrishnan & Ganeshkumar, 2013 ;Medina & Pailaquilén, 2010). This might be due to their ability to summarize large numbers of trial findings (Mallett et al., 2012). However, systematic reviews might be prone to publication bias (also known as selective publishing of studies) represented in the consideration of published trials exhibiting significant results with the disregard of unpublished studies exhibiting non-significant results(Onishi & Furukawa, 2014). Thus this bias can be highly misleading to researchers and clinicians alike at interpreting the evidence(Gilbody et al., 2000 ;Joober et al., 2012) in the form of overestimation of the effects of a specific therapeutic intervention(Crawford, Briggs, & Engeland, 2010). Therefore in order to prevent compromising the validity of systematic reviews, it is imperative for reviewers when conducting a systematic search to include a source that permits the retrieving of unpublished studies.

Searching clinical trial registries is one method utilized to retrieve unpublished studies which would help as well in the reduction of publication bias in systematic reviews. These registries promotes transparency in healthcare research via providing information about clinical trials being conducted irrespective of their results to the general public, patients, researchers, and clinicians. Previous studies have shown that a search strategy targeting clinical trial registries is not routinely present in systematic reviews in different medical fields(Combs, Atakpo, & Vassar, 2018 ;Jones et al., 2014 ;Keil, Platts-Mills, & Jones, 2015 ;Sinnett et al., 2015). In general medicine, a cross sectional study reported that 35% of systematic reviews published in this field stated the utilization of a search strategy targeting at least one clinical trial registry(Jones et al., 2014). This percentage was even lower in systematic reviews published in the fields of emergency medicine (20%) (Keil et al., 2015), obstetrics and gynecology (18.4%) (Bibens, Chong, & Vassar, 2016), dermatology (9.7%) (Combs et al., 2018), and clinical neurology (6.3%) (Sinnett et al., 2015).

Concerning clinical trial registration in the physical therapy field, one study reported that only about 34% of randomized controlled trials published in 2009 and indexed in the Physiotherapy Evidence Database (PEDro) were registered(Pinto et al., 2013). In another study however clinical trial registration of trials published in major physical therapy journals reported a growth from 4.3% in 2008 to 48.2% in 2012(Babu et al., 2014). This growth was attributed due to editorial policy recommendations set by multiple physical therapy journals (Babu et al., 2014).

To the author's knowledge, there exists no published study in the literature that measured the searching of clinical trial registries in physical therapy systematic reviews. Thus the aim of this cross-sectional study is to examine the extent of searching clinical trial registries in therapeutic systematic reviews published in selected reputable physical therapy journals. The author

hypothesize that searching clinical trial registries will be underutilized in physical therapy systematic reviews in a similar fashion to systematic reviews in other medical fields.

## Method

### Data Source

Interventional systematic reviews that were identified were published between January 2017 and January 2018 in five selected reputable journals in the field of physical therapy. These journals consisted of: *Physical Therapy*, *Journal of Physiotherapy*, *Physiotherapy*, *Journal of Orthopedic and Sports Physical Therapy*, and *Journal of Neurologic Physical Therapy*. The reason for selecting the previously mentioned journals is due to the popularity of these journals and thus influencing greatly the physical therapy practice worldwide. Corrigendum of previously published systematic reviews before January 2017 will not be considered in the analysis.

The criteria of including systematic reviews in the analysis are systematic reviews having a predefined clinical question, an explicitly stated inclusion and exclusion criteria, a detailed description of the search strategy utilized, and finally having tested the effectiveness of a specific physical therapy treatment option on a certain condition or illness.

### Study Selection Process

The author conducted a search of the journal issues published between January 2017 and January 2018 to retrieve systematic reviews. The manuscripts will then be screened and systematic reviews that are compliant with the inclusion criteria will be accepted in the analysis. In case the title of the manuscript did not explicitly include the words “systematic review” and/or “meta-analysis”, the abstract of the manuscript will be reviewed in order to determine whether the manuscript is a systematic review. After that, the full text of the review will be screened to determine if the review is consistent with the criteria set previously. Therefore supplement issues containing conference abstracts will be disregarded due to the absence of full texts. In case of consistency, the review will be accepted in the analysis. Systematic reviews employing a search strategy of databases mentioned in previously published reviews or protocols of reviews will as well be included in the analysis.

### Outcome Measures

Following the inclusion of interventional systematic reviews, the author will reexamine the methods section not to mention the online supplements and appendices (if present) of each of the included systematic reviews to determine if at least one clinical trial registry was included in the systematic search. The clinical trial registries included as outcome measures were ClinicalTrials.gov and 17 primary clinical trial registries in the World Health Organization (WHO) Registry Network that meets the requirements of the International Committee of Medical Journal Editors.

In case the authors of an included systematic review included a search strategy targeting at least one of the previously mentioned clinical trial registries, information regarding the name of the

registry, the number of studies retrieved from searching the registries will be extracted, not to mention whether these studies were included or excluded by the review (and if the publication status of the registered trials was the cause of exclusion).

## Results

Searching the previously mentioned five physical journals from January 2017 till January 2018 yielded 40 systematic reviews. After reviewing the full text of these studies, it was determined that only 19 were interventional systematic reviews and were thus included in the analysis.

After examining the search strategy of these interventional systematic reviews, it was revealed that only two systematic review(Hall et al., 2017; Medeiros et al., 2017) of the included 19 (about 10.5%) had search strategies encompassing clinical trial registries. (figure 1)

One (Medeiros et al., 2017) of these was published in the *Journal of Physiotherapy* and the other(Hall et al., 2017) was published in the *Physiotherapy* journal. The systematic review published by Medeiros and colleagues(Medeiros et al., 2017) searched ClinicalTrials.gov while the other systematic review published by Hall and colleagues(Hall et al., 2017) searched the International Standard Randomised Controlled Trial Number (ISRCTN).

None of the previously mentioned systematic reviews did declare information about the number of clinical trials that were retrieved by this search. Thus no additional information can be extracted whether these retrieved studies were included or excluded on the basis of their publication status.

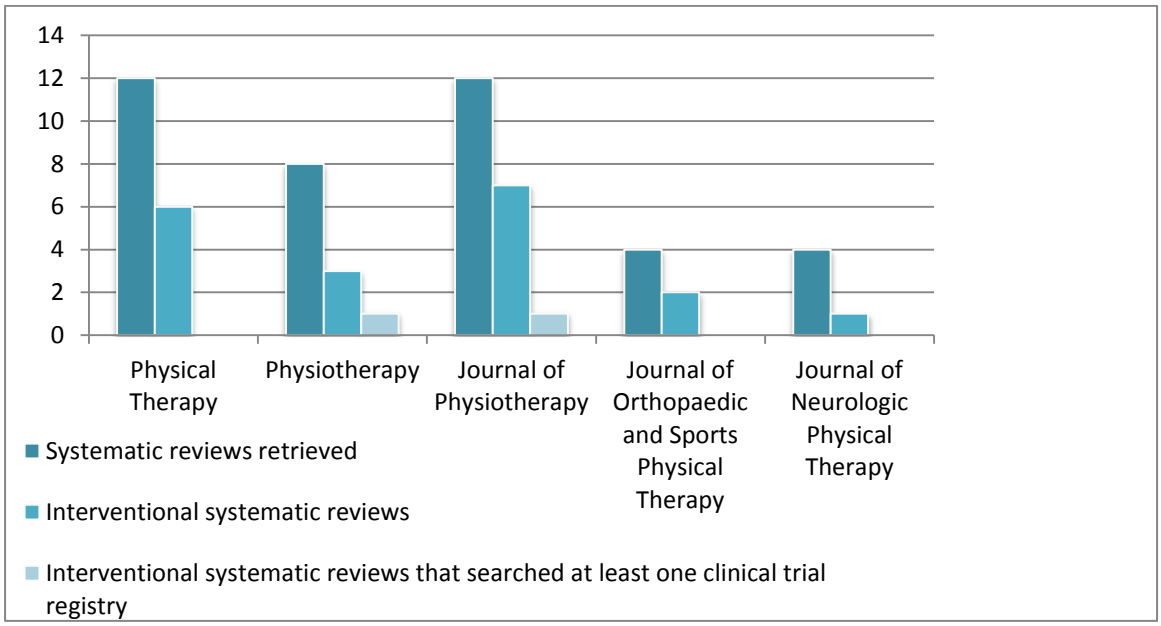


**Figure 1 shows number of systematic reviews retrieved, the number of interventional systematic reviews and the reviews that searched at least one clinical trial registry**

## Discussion

Since systematic reviews constitute have a major role of influencing the practice of physical therapy clinicians worldwide, authors of these reviews should make use of all trial findings regardless of their publication status in order to minimize the harmful effect of publication bias. One the various methods of reducing publication bias in systematic reviews is to search for unpublished studies via clinical trial registries. This study is a novel cross sectional analysis of physical therapy systematic reviews published between January 2017 and January 2018. Five reputable physical therapy journals were selected as a source to retrieve eligible interventional systematic reviews from. Although no similar study has been performed in the physical therapy field, multiple studies have examined the extent of searching clinical trial registries in systematic reviews in other health related fields.

The results show that clinical trial registries are poorly searched in physical therapy systematic reviews. However this study is not prone to limitations. The most important limitation in this cross-sectional study is the small number of physical therapy journals being examined. There exist more physical therapy journals that were not included in the study. In addition to that, multidisciplinary rehabilitation and sports medicine journals were not examined. Therefore it might be difficult to generalize the results obtained to all published physical therapy interventional systematic reviews. Another limitation of the study is characterized in the absence of more than one author to retrieve, include, and examine the systematic reviews. This cross-sectional study only focused on systematic reviews published between January 2017 and January 2018 in the English language. Thus, the results obtained cannot be generalized to physical therapy interventional systematic reviews published before January 2017 and after January 2018 and to reviews published in non-English languages.

## Conclusion

Clinical trial registries were not consistently utilized in interventional physical therapy systematic reviews published between January 2017 and January 2018. Due to the vast limitations of the study, future research should address the limitations listed previously and therefore employ a strategy that shall retrieve larger numbers of physical therapy interventional systematic reviews to be examined. In addition to that, reviewers conducting systematic searches in the field of physical therapy should be encouraged to include a strategy that permits them to search clinical trial registries.

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