The value of an evidence database for occupational therapists: An international online survey

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Abstract
Background: Online evidence databases can provide access to high quality evidence at the point of care, making evidence-based practice more achievable. A discipline-specific online bibliographic database called OTseeker (www.otseeker.com) was designed for use by occupational therapists. The database is free, and contains citations and abstracts of systematic reviews, and critically appraised randomized controlled trials relevant to occupational therapy.

Objectives: The aim of this study was to investigate search practices of database users, their views on its functionality, and the reported impact, if any, on their practice from using OTseeker.

Design: An online survey, placed on the database website for 30 days.

Sample: Potential participants were users of OTseeker during a 30-day period. A total of 498 people who had used the database more than once from over 40 countries completed the survey.

Results: Three hundred and nine (62%) participants believed that OTseeker had improved their ability to locate research about the effectiveness of occupational therapy interventions, and 92 (19%) agreed that the information in the database had contributed to a change in practice. Those reporting no practice changes agreed that use of OTseeker had improved their knowledge generally (n=189; 38%), confirmed their practice (n=75; 15%), or revealed that there was insufficient research relevant to their search topic (n=92; 19%). Features of the database which helped respondents locate research evidence included: having discipline-specific content, providing critical appraisal ratings for randomized controlled trials, and presenting search results ranked for methodological quality.

Conclusion: This study confirms the value of a discipline-specific, online database for helping occupational therapists locate high quality research evidence. Information located on databases such as OTseeker can help change or confirm practice, and improve knowledge.

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1. Background

Locating clinically relevant research to inform clinical decisions has been likened to finding a needle in a haystack [1]. Not only is the sheer size and spread of health literature problematic, the methodological quality of the research varies enormously. Locating high quality research evidence quickly is difficult for clinicians who want to integrate evidence into practice.

Surveys have found that clinicians perceive lack of time to be a major barrier to evidence-based practice, and have concerns about access to resources and skills for locating and understanding research literature [2,3]. The degree to which employers and organizations support evidence-based practice activities by providing access to resources and encouraging literature searching have also been identified as factors influencing clinicians’ behavior [4]. Within the allied health professions, concern about the limited amount of research evidence available is often raised as a further barrier [3,5].

The Internet and associated technologies offer potential mechanisms to transform the ease with which information may inform clinical practice, providing the information is clinically relevant and of high methodological quality [6]. Improvements in technology have brought about enormous growth in information retrieval systems, not just for clinicians, but also for consumers [7]. As clinicians rarely have sufficient time to search primary databases such as MEDLINE, there is a need for systems that are designed to filter the literature in order to provide collections of high quality research [8]. While The Cochrane Library and Clinical Evidence are key examples of these types of resources, a number of discipline-specific initiatives have also been developed by the allied health professions to simplify access to evidence. These initiatives include PEDro (The Physiotherapy Evidence Database—http://www.pedro.fhs.usyd.edu.au/), an evidence database for physiotherapists; PsycBITE (Psychological Database for Brain Impairment Treatment Efficacy—http://www.psycbite.com), a multidisciplinary evidence database for those interested in brain impairment; and OTseeker (Occupational Therapy Systematic Evaluation of Evidence—http://www.otseeker.com), an evidence database for occupational therapists.

OTseeker was launched in March 2003 and contains citations and abstracts of approximately 4000 randomized controlled trials (RCTs) and systematic reviews (SRs) relevant to occupational therapy. Modelled on PEDro, an important feature of OTseeker is that each RCT has been critically appraised for internal validity and statistical interpretability by two independent raters. The database was made available with free access to maximize international usage. It was created for three reasons: (1) to reduce the time taken to locate and critically appraise occupational therapy research; (2) to raise awareness of existing RCTs and SRs in occupational therapy; (3) to support the development of SRs relevant to occupational therapy. The development and functionality of OTseeker has been described elsewhere [9]. There is now a need to evaluate the use and impact of this database.

To date, evaluation of the use and impact of OTseeker has to date been restricted to a mailed questionnaire of 213 randomly sampled Australian occupational therapists and occupational therapy facilities [10]. The survey found that while most (85.9%) had heard of OTseeker, only 56.6% had accessed the database, with a lack of time being the main reason for not using it. Of the 103 participants who had accessed OTseeker, 63.1% agreed that it had increased their knowledge but only 13.6% said they had changed their practice as a result of information obtained from OTseeker.

Because OTseeker is available worldwide, data from an international sample have the potential to provide further information that could guide future database developments, marketing and training. The aims of this study were to use an online survey to determine the frequency of use of OTseeker, why and where users access the database, perceptions of its functionality, and what effects, if any, use of OTseeker has had on locating evidence and changing practice. Relationships between these variables were also investigated: (1) whether the frequency of database use was related to location of access or employer support; (2) whether improved ability to locate evidence or change in practice was related to location of access, employer support and key features of the database; (3) whether change in practice was related to the frequency of database use.

2. Method

2.1. Design

This study used an online survey to gather information about the use and perceptions of the OTseeker database internationally.

2.2. Target population

The OTseeker database is freely accessible worldwide and was designed primarily for use by occupational therapists and students. The database is marketed accordingly in professional journals, websites and newsletters. The survey was advertised on clinical and academic e-lists within the United States of America (USA), United Kingdom (UK), Australia, and Canada, and through key contacts in professional associations within Europe and Asia. Although it was anticipated that occupational therapy practitioners and students would be the main target group for the survey, anyone who accessed the website during the study could participate. The survey targeted people who had used the database at least once, and asked those visiting the site for the first time not to complete the questionnaire until a subsequent visit. A means for exiting the survey was provided.

2.3. Procedure

A questionnaire was placed on the OTseeker website for 30 days during December 2004 and January 2005. The survey appeared when users selected the ‘Search’ page of OTseeker. The questionnaire could only be submitted after all items had been completed. Completion of the questionnaire was voluntary, and no incentives were offered for completion. Information about the purpose of the study was available on the
website, and approval to undertake the study was provided by a university ethics committee.

2.4. Questionnaire

The questionnaire used in the study was modelled on items from a survey of the Clinical Information Access Programme (CIAP), an online evidence system of databases and resources in New South Wales, Australia [4]. The online questionnaire used in the current study was trialled with a small group of clinicians and minor changes were made prior to it being placed online.

The questionnaire obtained information on participants’ country of origin, main practice role, ability to access the database at work, frequency of use, main reason for using OTseeker, use of other databases, and whether users believed OTseeker improved their ability to locate research evidence relevant to occupational therapy, or contributed to change in practice. To obtain feedback on features unique to OTseeker, three questions asked about the usefulness of having: (1) a database with content relevant to occupational therapy; (2) critical appraisal details available for each RCT; (3) articles ranked for methodological quality. The questionnaire also asked about employers’ support for the use of databases during work, users’ preferences for future additions to OTseeker, and suggestions for change.

The questionnaire contained 14 questions, the majority of which used dichotomous or multiple fixed-response categories. Where appropriate, the categories ‘not applicable’ or ‘other’ were included. For questions regarding key features of OTseeker, participants selected from five fixed-response categories (1 = ‘very useful’, 2 = ‘useful’, 3 = ‘not particularly useful’, 4 = ‘not useful at all’, and 5 = ‘do not know’). During analysis, these five categories were collapsed to three (‘very useful/useful’, ‘not particularly useful/not useful at all’, and ‘do not know’). The questionnaire concluded with an open-ended question inviting suggestions or comments about the database.

2.5. Data analysis

Data were analyzed using the Statistical Package for Social Science (SPSS) for Windows (Version 11, SPSS, Chicago, IL, USA). Survey responses were mostly reported descriptively. The participation rate was calculated by counting the number of people who accessed, but did not necessarily complete the survey, as the denominator [11]. Chi-square analyses were used to examine relationships between variables. Prior to these analyses, some variable categories were recoded due to insufficient cell sizes.

3. Results

Over a 30-day period 952 responses to the questionnaire were received (a 22% participation rate). Although the questionnaire was designed to obtain responses from people who had used the database at least once, 454 (48%) respondents were first time users. Consequently, many of the questions could not be answered sufficiently by this group of respondents. Therefore only the 498 respondents who had used the database previously were included in the analyses, resulting in a participation rate of 12%.

3.1. Use of OTseeker

Respondents were from 41 countries, with the highest proportions being from the USA (28%), Australia (24%), Canada (15%) and the UK (13%). Most respondents (93%) were from the occupational therapy profession and were either students (40%), clinicians (33%), or academics (14%) (see Table 1).

The majority of respondents (52.4%) used OTseeker occasionally (monthly), with 39% using it rarely (less than monthly). Only 8.6% used OTseeker frequently (daily/weekly). Most (91%) were able to access OTseeker at work, with 58% believing their employer or organization supported the use of databases during work time. The relationship between frequency of OTseeker use, and perceived employer support was highly significant ($\chi^2 = 21.26$, d.f. = 2, $p = 0.001$). Those who used OTseeker occasionally/frequently were more likely to feel that their organization or employer supported searching databases during work time than those who used OTseeker rarely. Frequency of OTseeker use was not related to having access to the database at work ($\chi^2 = 0.17$, d.f. = 1, $p = 0.68$).

Respondents’ main reasons for using the database were for student needs (31%), clinical information (27%), and research or research synthesis (26%). A small proportion (6%) used OTseeker for teaching/training or professional development (7%).

3.2. Locating research evidence and use of other databases

Table 2 indicates the databases most frequently used by respondents, with an option to choose multiple databases. Over half indicated they most frequently used MEDLINE (63.3%) or CINAHL (61.4%), while over one third used OTseeker. Respondents were asked to compare the usefulness of OTseeker with other databases, in terms of whether OTseeker was ‘more useful’, ‘just as useful’ or ‘not as useful’. The majority (44%) agreed that OTseeker was just as useful as other databases, 22% more useful, 20% less useful and 15% were unsure.

A primary aim of OTseeker is to improve access to research about the effectiveness of occupational therapy interventions. Two-thirds of respondents (62%) perceived that OTseeker had improved their ability to locate research about the effec-

Table 1 – Main role of respondents who had used OTseeker more than once ($n = 498$)

<table>
<thead>
<tr>
<th>Main role</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student occupational therapist</td>
<td>197 (39.6)</td>
</tr>
<tr>
<td>Clinical occupational therapist</td>
<td>162 (32.5)</td>
</tr>
<tr>
<td>Academic occupational therapist</td>
<td>68 (13.7)</td>
</tr>
<tr>
<td>Manager occupational therapist</td>
<td>20 (4.0)</td>
</tr>
<tr>
<td>Librarian</td>
<td>20 (4.0)</td>
</tr>
<tr>
<td>Researcher</td>
<td>15 (3.0)</td>
</tr>
<tr>
<td>Other health professional/student</td>
<td>7 (1.4)</td>
</tr>
<tr>
<td>Consumer</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Policy/purchasing</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (1.0)</td>
</tr>
</tbody>
</table>
tiveness of occupational therapy interventions. When compared to respondents who did not find the database useful for locating evidence, those who thought OTseeker improved their ability to access evidence were significantly more likely to also report (a) perceived support from organizations or employers to use databases during work ($\chi^2 = 17.9$, d.f. = 2, $p = 0.01$), (b) being able to access the database at work ($\chi^2 = 5.5$, d.f. = 1, $p = 0.02$) and (c) support for specific features of the database, including: having a database with content relevant to occupational therapy ($\chi^2 = 28.2$, d.f. = 2, $p = 0.01$); the provision of critical appraisal details for each RCT ($\chi^2 = 11.05$, d.f. = 2, $p = 0.04$); and having articles ranked for methodological quality ($\chi^2 = 18.43$, d.f. = 2, $p = 0.01$).

3.3. Information provided through OTseeker: impact on practice

Ninety-two respondents (19%) reported that they had changed their practice in some way as a result of information found on OTseeker. The proportion of sub-groups reporting some changes to their practice were as follows: 17% of clinicians ($n = 27/162$), 42% of academics ($n = 26/68$) and 13% students ($n = 25/197$). These self-reported changes in practice, as a result of information found on OTseeker were associated with perceived employer support ($\chi^2 = 7.89$, d.f. = 2, $p = 0.019$), and frequency of OTseeker use ($\chi^2 = 8.32$, d.f. = 1, $p = 0.01$), but not access to OTseeker at work, or to particular features of the database.

The remaining 406 respondents reported that use of OTseeker did not contribute to changes in their practice. However, 38% ($n = 189$) indicated that information provided had generally improved their knowledge, or confirmed what they were already doing ($n = 75$; 15%). When these responses were considered in relation to the main role of respondents, the largest proportion that indicated that information provided had generally improved their knowledge were students ($n = 87$) followed by clinicians ($n = 67$). The largest proportion indicating it confirmed what they were already doing were clinicians ($n = 29$).

A further 19% ($n = 92$) had not changed practice because they were not able to find enough research on OTseeker relevant to their search topic. These mostly included students ($n = 35$) and clinicians ($n = 33$).

3.4. Key features of OTseeker

The usefulness of three features of OTseeker was examined: (1) having a database with content relevant to occupational therapy; (2) having critical appraisal details available for each RCT; (3) having articles ranked for methodological quality. Table 3 shows that most respondents agreed that each of these three features was very useful/useful.

3.5. Future directions

Feedback was sought on which types of research or content would be most helpful to add to OTseeker in the future. Clinical guidelines (31%) and qualitative research (31%) were the two most frequently listed options, followed by studies of outcome assessments (16%), prognostic studies (12%), single case experimental research (5%), consumer education material (4%) and other (1%). When these responses were considered in relation to the main role of respondents, the largest proportion that suggested qualitative research were students (46%). The largest proportion suggesting clinical guidelines was clinicians (53%).

4. Discussion

Users of OTseeker report that the database is a valuable resource. While users reside in over 40 countries, people from the USA, UK, Australia and Canada were the main respondents to this survey. As anticipated, most respondents (93%) were

<table>
<thead>
<tr>
<th>Database</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDLINE</td>
<td>315 (63.3)</td>
</tr>
<tr>
<td>CINAHL</td>
<td>306 (61.4)</td>
</tr>
<tr>
<td>OTseeker</td>
<td>192 (38.6)</td>
</tr>
<tr>
<td>The Cochrane Library</td>
<td>164 (32.9)</td>
</tr>
<tr>
<td>PsychInfo</td>
<td>86 (17.3)</td>
</tr>
<tr>
<td>AMED</td>
<td>77 (15.5)</td>
</tr>
<tr>
<td>PEDro</td>
<td>54 (10.6)</td>
</tr>
<tr>
<td>ERIC</td>
<td>45 (8)</td>
</tr>
<tr>
<td>Embase</td>
<td>37 (7.4)</td>
</tr>
<tr>
<td>Other</td>
<td>36 (7.2)</td>
</tr>
</tbody>
</table>

Table 2 – Databases used most frequently to find information about treatments/interventions relevant to occupational therapy

<table>
<thead>
<tr>
<th>Database</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Index of Nursing and Allied Health (CINAHL); Occupational Therapy Systematic Evaluation of Evidence (OTseeker); Allied and Complementary Medicine Database (AMED); Physiotherapy Evidence Database (PEDro); Education Resources Information Center (ERIC).</td>
<td></td>
</tr>
</tbody>
</table>

a Respondents could choose more than one database.

Table 3 – Usefulness of three features of the OTseeker database ($n = 498$)
from the occupational therapy profession. This finding is not surprising, as OTseeker was designed for, and has been marketed to, occupational therapists internationally, particularly within the USA, UK, Australia and Canada.

OTseeker is used frequently by a minority, and infrequently by the majority of users. This pattern is consistent with findings from a report on the use of online resources in the National Electronic Library for Health (a nationwide digital health library in the UK). According to this report, on average, health professionals search databases every 1–2 months, with a minority using databases more frequently [12]. In the current survey, there was a relationship between the frequency of use of OTseeker, and a respondent’s perception that employers supported the use of databases as part of work practice. This relationship is consistent with findings from a survey of allied health professionals’ use of CIAP in New South Wales, Australia [4]. In that study, the frequency of use of online evidence systems by allied health professionals was related to the perception that their organization supported searching and database use as legitimate work activities.

A qualitative study investigating clinicians’ use of CIAP found use of online databases could be explained to some extent by organizational, as well as professional and cultural factors. For instance, participants who worked in sites where there was high use of CIAP believed searching for evidence was a legitimate part of work. Managers at these high use centres verbalized strong support for access to evidence during work. Conversely, participants who worked in centres where there was lower access to CIAP felt that searching for evidence was not strongly supported by managers and that training was perceived as a low priority [13]. Together, results from these studies and the current survey confirm the importance of attending to organizational factors when implementing information services.

While over half of the respondents in this survey reported that they most frequently used MEDLINE or CINAHL, many also used OTseeker and The Cochrane Library. Similarly, a report on database use within the CIAP found MEDLINE and CINAHL to be the most popular databases with allied health professionals, followed by The Cochrane Library [4]. While it is promising that 38.6% of respondents in the current survey reported frequently using OTseeker, it would be interesting to determine the frequency of use of OTseeker in a more representative sample of occupational therapists.

As with The Cochrane Library, OTseeker focuses on RCTs and SRs, which provide strong evidence about the effectiveness of interventions. OTseeker does not contain research which might help to answer questions about prognosis or patients’ likely concerns and experiences. For such research, clinicians need to search other databases, such as MEDLINE or CINAHL. In this sense OTseeker complements the role of other databases, distilling evidence about treatment effectiveness for use during occupational therapy clinical decision-making.

The majority of respondents felt that OTseeker improved their ability to locate research relevant to occupational therapy interventions, demonstrating that one of the major aims of the database is being achieved. Reporting an improved ability to locate research evidence using OTseeker was related to (a) perceived support from employers, (b) having access to the database in the workplace and (c) respondents’ endorsement of specific features of the database such as discipline-specific, critically appraised research. Free international access to OTseeker is likely to have contributed to increased access at work among Internet users. Free access is an important principle for the OTseeker database in its aim to make information as widely available as possible.

The role of discipline-specific bibliographic databases in simplifying the search process also needs consideration. OTseeker is one of a growing number of allied health databases containing RCTs and SRs relevant to particular disciplines. Although The Cochrane Library plays a crucial role in centralising RCTs and SRs, the Cochrane Central Register of Controlled Trials alone contains over 435,000 RCTs [14], mostly medical in nature. The majority of respondents to this survey indicated that having a database with content broadly relevant to occupational therapy was useful. While OTseeker content is chosen for its relevance to occupational therapists, many of these interventions are also provided by other professions, and content may therefore be of relevance to a range of allied health professions.

Another aim of OTseeker is to help occupational therapists more easily determine the validity of RCTs. OTseeker provides ratings on the methodological quality and statistical reporting contained within each trial. Additionally, entries on the database are ranked for quality. The majority of respondents welcomed these features. The fact that respondents’ support for these three features was also related to reporting an improved ability to locate research evidence relevant to occupational therapy further reinforces their value. It may be that these features reduce the time taken to locate and appraise research evidence. Discipline-specific databases with user-friendly features play an important role in promoting evidence-based practice, together with databases that are broader in scope.

Access to information on OTseeker contributed to a change in practice for 19% of respondents. For others it was perceived to contribute to an improvement in knowledge generally (38%), or confirmed current practice (15%). Realistically, changes in practice as a result of such information are likely to be small, with substantial change requiring more complex interventions that consider social and organizational factors [15]. In this study, frequency of OTseeker use, and perceived support from employers, were related to changes in practice.

Evidence-based practice emphasizes using research evidence to inform rather than necessarily to change practice. The contribution of information contained in OTseeker to improving users’ knowledge generally or confirming practice is therefore also important. There is some indication that when information from online evidence confirms existing knowledge, it may improve clinicians’ confidence, thereby reducing uncertainty and potentially leading to more efficient client management [16].

Studies from other professions have also shown that use of online evidence systems and databases have enabled confirmation of clinical decisions or changes in practice [17,18]. For example, a study that used the telephone to interview 552 physicians about their use of MEDLINE showed that information on MEDLINE helped them to identify, evaluate and choose alternative treatments; adjust the delivery of the treat-
ment and tailor treatments to patient characteristics. On many occasions, these physicians attributed the outcomes of care to the information they had sourced through MEDLINE. Many also used the information to confirm the treatment they had already selected was the most appropriate choice [17].

In our study, 19% of respondents reported no subsequent changes to their practice because they were unable to find enough research relevant to their search topic in OTseeker. While this difficulty may be alleviated to some extent when more SRs and RCTs are added to the database, there will always be some topics not included in the database, due to a lack of research in various fields. Factors contributing to research gaps include difficulty investigating some interventions using an RCT design, research not being published, and the limited availability of resources, such as time and funding, to conduct research [19,20].

### 4.1. Limitations

A number of limitations need to be considered when interpreting the results of this survey. It is well recognized that online surveys using a convenience sample are prone to bias, due to the non-representative nature of people who use the Internet, and the self-selection of participants [11]. This survey targeted users of OTseeker, which can only be accessed via the Internet. Although 93% of respondents were from the occupational therapy profession, only a subset of those who used the database chose to respond, which further limits the external validity of results.

Over a 30-day period, 952 responses to the questionnaire were received, a participation rate of 22%. Only the 498 respondents who had previously used the database were included in the analyses. This lowered the participation rate to 12%. While this percentage is low, online surveys typically result in lower participation rates than postal survey, but have the advantage of being inexpensive [21]. It may be that the timing of the survey, over December/January influenced the participation rate, because many people may have been on holiday.

Interpretation of the results of this study needs to take into account the possibility of response bias and the inaccuracies inherent in self-report. Adams et al. [22] have previously suggested using objective measures, in conjunction with self-report formats, to moderate the possibility of over-estimation of results.

A final limitation of the study is that the characteristics of non-responders are unknown. Despite these limitations, an online survey was considered the most practical way to obtain international feedback and an appropriate method for an Internet-based product.

## 5. Conclusion

This survey suggests there is a place for discipline-specific bibliographic databases such as OTseeker, particularly those designed to make it easier to locate and appraise research evidence. There is some indication that discipline-specific databases complement the more comprehensive databases such as MEDLINE, CINAHL and The Cochrane Library. However, providing information that is accessible and reliable does not necessarily mean it will be utilized. Support from employers, in making the use of information databases a legitimate part of work, may also be important. There is a need for research that more comprehensively investigates organizational factors involved in implementing systems to enhance evidence-based healthcare.

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