Title:

Becoming evidence based practitioners: A study of final year occupational therapy, speech and language therapy and physiotherapy students at the University of Limerick
Abstract

Background: Health professionals are urged to use evidence-based practice to make valid decisions to optimise client outcomes and clinical efficiency (Rotter et al 2010). Education and fieldwork placement allows health professional students to develop their evidence-base practice knowledge and skills (Stube and Jedlicka 2007). The majority of evidence-base practice studies, focus on qualified healthcare professionals rather than students.

Objectives: This study aims to investigate it final year health professional students, in the University of Limerick, have the perceived knowledge, attitudes and behaviours to become evidence based practitioners.

Methods: A descriptive survey, Knowledge, Attitudes and Behaviours Questionnaire (Johnson et al 2003) was used to collect quantitative data from a convenience sample of University of Limerick students. Forty-eight final year students responded from occupational therapy (87%, n=20), speech and language therapy (92%, n=22) and physiotherapy (21%, n=6). Data was analysed using the Statistical Packages for Social Science version 20 (SPSS Inc., Chicago, USA, 2007).

Results: All students reported a clear understanding of evidence-based practice and (92%, n=44) reported evidence-base practice is a routine part of their learning. Over half (54%, n=26) the students reported evidence-based practice take too much time for busy health professional students. Speech and language students reported higher percentage agreements on four out of six, statistically significant statements.

Conclusion: Students reported positive knowledge, attitude and behaviours towards evidence-based practice. Difficulties using evidence-based practitioners in the future were identified. Results suggest a need to ensure effective teaching strategies are implemented for students to continue to use evidence-based practice as they transition from educational settings to clinical practice. This information could be used to inform EBP teaching and the curriculum, in heath professional programmes, to promote higher quality health care services for clients.
**Introduction**

Evidence based medicine (EBM) has developed since the term was first introduced by Guyatt at McMaster University, this was cited in Medline in 1992 (Straus et al 2005). EBM is defined as the “conscientious, explicit and judicious use of best evidence in making decisions about the care of individual patients” (Mayer, D. (2004), p.9). EBP has followed suit and become a universal standard of practice for health professionals (Crabtree et al 2012). Health professionals’ decisions should be underpinned by the best available evidence (Margarita at al 2012). It is highlighted that healthcare which is not based on current best evidence, is potentially inefficient and ineffective (Grimshaw 2004). State registration in Ireland, promotes standards of professional care which requires on-going professional education, training and competence, to provide best possible outcomes for clients (CORU 2005). Some studies have investigated health professionals’ use of EBP (Margarita et al 2012; Metcalfe et al 2001). An evaluation of a multi-professional course, teaching EBP to health professional students was investigated in Australia (Bennett et al 2011). To date no studies in Ireland have investigated health professional students as a collective group, with regard to EBP.

Within the University of Limerick (UL) health professional student courses include, physiotherapy (PT) which is a four year undergraduate programme and occupational therapy (OT) and speech and language therapy (SLT) which are two year graduate entry programmes. All three discipline programmes have recently merged as one clinical therapies department, however each programme group is taught separately. Students are exposed to EBP practices across research modules and practice education modules, EBP also permeates the curriculum. Practice Education accounts for a significant portion of each course and students are expected to be competent, in applying evidence in a practice setting, by the end of their course. It can therefore be considered timely, to investigate if, final year health professional students in the University of Limerick, have the perceived knowledge, attitudes and behaviours to become evidence based practitioners.
**Literature Review**

EBP is defined as “practice which requires current, relevant, available, valid evidence to inform decisions in health care” (Dawes et al 2005, p.4). EBP is a process in which health professionals integrate current research evidence, clinical expertise and clients views to provide effective services to clients (Mutiah et al 2011). EBP is driven by the importance for health professionals to make valid decisions to optimise client outcomes and promote clinical efficiency (Rotter et al 2010). In Ireland, The Health and Social Care Professionals Act, 2005, established a Health and Social Care Council, which are responsible for health professional registration to promote professional education and competence, to ensure best practice and clinical effectiveness (CORU 2005).

Randomised control trials (RCTs) are considered the gold standard, in the hierarchy of research methods (Turner et al 2002). Medical professions are informed primarily by quantitative studies (Whalley Hammell 2001). EBP has gained much credibility within OT, as highlighted by the number of journals devoted to its understanding and discussion (Bennett et al 2003). OTs are urged to use EBP, to prove effectiveness of interventions (Whalley Hammell 2001). EBP is considered a core catalyst to advance the OT profession and clinical decision-making (Lin et al 2010; American Occupational Therapy Association 2007). OT professionals report challenges to EBP, including, a lack of time, high staff turnover, staff shortages, large caseloads and limited searching and appraisal skills (Lin et al 2010; Bennett et al 2003; Curtin and Jaramazovic 2001; McCluskey 2003). OT’s also report difficulties interpreting and implementing research into practice (Van Lew and Singh 2010). As OT practitioners gain experience, they can rely on clinical reasoning more than, research evidence (Cameron et al 2005).

Similarly, with expectations in OT, using EBP to inform decision making and provide best practice, is pertinent with PT professionals (Stevenson at al 2004). PTs also encounter many difficulties employing EBP, including, time needed to keep up to date, access to comprehensible evidence and a lack of skills to evaluate research evidence (Chan and Clough 2010; Iles and Davidson 2006; Maher et al 2004; Jette et al 2003; Palfreyman et al 2003; Kamwendo 2002). Isolation from peers and a lack of managerial support were also reported as barriers (Iles and Davidson 2006; Grimmer-Somers et al 2007). Many PTs lack skills and confidence to complete critical appraisal or literature searches (Steveson at al 2004). Junior
PT’s and others working in University hospitals, report they have skills required to critique evidence, compared to senior PT’s, who felt they did not possess these skills (Jette et al 2003; Barnard and Wiles 2001).

Encompassing EBP into practice is also highly regarded, in the field of communication disorder (Stephens and Upton 2012). SLT professionals report positive attitudes towards EBP (O’Connor and Pettigrew 2009; Ziploi and Kennedy2005). SLTs’ must endeavour to evaluate evidence, to ensure its relevance and validity (Nail-Chiwetalu and Ratner 2007). O’Connor and Pettigrew (2009) quantitative study in Ireland, reported challenges to using EBP in SLT practice, including, lack of skills to conduct searches, time, and understanding. These barriers were supported, in many studies with SLT professionals (Stephens and Upton 2012; Nail-Chiwetalu and Ratner 2007). McCurtin and Roddam (2012) reports EBP use, in the SLT profession is similar to other health professions, as it continues to be problematic. A decline in and exposure to EBP was noted, as respondents moved from graduate training, to their clinical fellowship year (Stephens and Upton 2012; O Connor and Pettigrew). Training in research skills does not always increase EBP, departments where SLTs work, influences their use of EBP (Pennington et al 2005).

Metcalfe et al (2001) quantitative paper explored healthcare professionals (dieticians, OTs’, PTs’ and SLTs’) in the NHS, with regard to EBP. All participants reported, sourcing research is necessary to develop professional practice. Challenges to EBP include a lack of understanding statistics and evaluating literature and a lack of time. Heiwe et al (2011) completed a similar study with health professionals (dieticians, OTs’ and PTs’) and the same barriers were identified. A positive attitude to EBP and its use to support decisions in healthcare was also reported. Margarita et al (2012) completed a systematic review, on health professionals training in EBP, only three studies reported specifically on allied health professionals, including PTs OTs and social workers. This study highlighted, EBP training for health professionals, significantly improves learning outcomes.

Few studies have addressed health professional students’ knowledge, attitudes and behaviours towards EBP. Lai and Nalliah (2010) investigated medical students’ behaviours toward EBM, students rated their confidence in understanding journals increased, however there was no change in their information seeking behaviour. Browne et al (2010) used the Knowledge, attitudes and Behaviour (KAB) Questionnaire (Johnson et al 2003) to identify
nursing students’ use of EBP, findings suggested, EBP increases with academic level. Stronge and Cahill (2011) also used the KAB questionnaire (Johnson et al 2003) to survey OT students in Ireland, students reported having a clear understanding of EBP and a willingness to use in future practice, barriers to practice included, fieldwork educators not using EBP and time limitations. Bennett et al (2011) pre and post study found teaching EBP skills and concepts to allied health students (OTs’ and PTs) improved their confidence and knowledge.

Dawes et al (2005) advise health care graduates should be able to access and apply knowledge to practice. Stube and Jedlicka (2007) suggest, students are best placed to learn EBP through education and fieldwork placements. Hammon Kellegrew (2005) identified a strong emphasis placed on practical teaching within universities, is parallel to an increased comprehension of EBP. Grad et al (2001) informs there is need to enhance EBP teaching and expand time allocated to teaching EBP skills. Challenges to EBP can offer educators, clues for course content (Crabtree et al 2012). Journal clubs are effective in enhancing positive attitudes towards increasing confidence, with EBP (McQueen et al 2006). Stronge and Cahill (2011) propose audits should be completed, to ensure key elements of EBP are covered in the curriculum. Bennett et al (2011) imply teaching using a multi professional approach, within a University curriculum, improves students’ confidence and EBP knowledge. Collaborative teaching, between a faculty member and librarian, can provide clinically relevant searches and information skills, for health professional students (OTs’ and PTs’) (Boruff and Thomas 2011; Brown et al 2010).

To date there is little research or evidence available to inform on health professional students, with regard to EBP. This study sought to fill the gap and investigate if health professional students in the University of Limerick have the perceived knowledge, attitudes and behaviours to become evidence based practitioners. It is hoped the findings can inform current teaching practice and provide health professional students with the skills and tools necessary to become EBP’s to provide best practice to clients. Any significant differences across discipline groups could highlight opportunities for collaboration on interdisciplinary EBP teaching. It is envisaged the results could inform students on the need to maintain EBP in the future, to continue their professional development and future research and to promote their profession.
**Methodology**

This study is part of an overall project which has two strands. This strand aimed to quantitatively, investigate if final year health professional students in the University of Limerick, have the perceived knowledge, attitudes and behaviours to become evidence based practitioners. Employing quantitative methods allow for a wider scope in population and a greater widespread level of explanation from participants (Payne & Payne 2004). A validated tool the KAB questionnaire (Johnson et al. 2003) was deemed the most appropriate method to gather data to meet study aims and sample size.

**Participants**

A convenience sample strategy was used, which included UL students. The inclusion criterion involved the population, of final year OT, PT and SLT students in UL, Ireland. A potential response rate 64% was achieved. The exclusion criterion involved any population outside this remit, or students who had transferred into their current course, from another third level establishment.

**Ethical Clearance**

Ethical clearance to conduct the study was approved from the University of Limerick Ethics Committee prior to the study commencing. The principal researcher also sought access and was granted permission from, the head of the OT, PT and SLT departments, to access potential participants.

**Research Procedure**

Questionnaires were administered to final year OT, PT and SLT students at the end of class in April 2012. Potential participants were provided with a brief verbal account, on the title and aims of the study. An information sheet was provided, outlining the purpose of the study and how data will be used. Questionnaires were left in the classroom and students were invited to participate. Questionnaires took approximately fifteen minutes to complete and a box was provided for them. The researcher left the room and after thirty minutes, returned to collect completed questionnaires. Returned questionnaires were interpreted as consent for this
study. The data collected was stored in the principal investigators office, in a locked filing cabinet.

**Survey Instrument**

The KAB questionnaire was developed and originally used to explore the knowledge, attitudes and behaviours of medical students, regarding EBP (Johnson et al., 2003). The KAB was selected and deemed the most appropriate tool for gathering information for this study as it addresses knowledge, attitudes and behaviours. The KAB questionnaire was also previously used to explore OT students and nursing students’ knowledge, attitudes and behaviours (Stronge and Cahill 2011; Brown et al 2010).

Permission was sought and granted from the author to use the KAB questionnaire and to modify some phrases within it. The term “‘medical’” was replaced with the appropriate discipline either “occupational therapy”, “physiotherapy” or “speech and language therapy”. The use of the term “patient” was changed to “client” and “consultant” was changed to “therapist” or “educator”. A pilot study was not performed as the KAB questionnaire has previously and successfully been used with students in UL.

This instrument is a self-rated questionnaire with four subscales. EBP and knowledge has five items. EBP and attitudes has six items. Personal application of EBP has six items and the future use of EBP has nine items. The remaining seventeen items address sources of evidence and characteristics of the population involved in the study (Brown et al, 2010). Reliability and validity were not obtained for this study, but they were in the original study. The instrument has internal reliability with Cronbach’s alpha of 0.71-0.88 and construct validity was reported (Johnson et al 2003)

**Likert scale**

Each subscale uses a Likert scale to rate the participant’s answers. Investigating attitudes is a significant area in many questionnaires and one of the most predominately used methods to conduct such an investigation is the Likert scale (Bryman 2008). Within the KAB questionnaire, the Likert scale is used to rate, knowledge and attitudes towards EBP on a six-point scale from 1 (strongly disagree) to 6 (strongly agree). The EBP use subscale is rated on a five-point scale from 1 (never) to 5 (everyday). The future use of EBP subscale ranges from 1 (not at all) to 6 (completely).
Data Analysis

A data analysis was performed using the Statistical Packages for Social Science version 20.0 (SPSS Inc., Chicago, USA, 2007). SPSS can be considered the most frequently used computer software for the analysis of quantitative data for social scientists (Bryman 2008). Data was entered into the SPSS database and descriptive statistics including frequencies and percentages was used to describe data. Chi-squared cross-tabulations were used to identify statistically significant differences between programme disciplines.

Results

The results represent all student responses, which were considered together, as collective responses. A second strand to results represents, items on the questionnaire which illustrated significant differences across students discipline groups. An overall response rate of 64% was achieved, with 48 questionnaires completed and returned from a potential population of 75 students, from final year health professional students, in UL, Ireland. Most students (92%, n=22) responded from SLT programme. A majority of students (87%, n=20) responded from the OT programme. A lower percentage (6%, n=21%) responded from PT programme. Some demographic details including the students’ age range and programme of study were collected. See table I for details.

Table 1. Demographic Characteristics of participants

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21</td>
<td>2(4)</td>
</tr>
<tr>
<td>22-25</td>
<td>16(33)</td>
</tr>
<tr>
<td>26-29</td>
<td>20(42)</td>
</tr>
<tr>
<td>&gt;30</td>
<td>10(21)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Programme</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Therapy</td>
<td>20(42)</td>
</tr>
<tr>
<td>Speech and Language Therapy</td>
<td>22(46)</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>6(12)</td>
</tr>
</tbody>
</table>

Perceived knowledge of evidence practice

All students agreed they have a clear understanding of EBP and that using EBP increases the certainty, that their proposed treatment is effective for a client. All students agreed that EBP
requires the identification and formulation of clinical questions. Almost all the students (98%, n=47) agreed that effective searching skills, access to databases and evidence sources are essential to use EBP. Almost all the students (96%, n=46) agreed critical appraisal skills are required to evaluate research papers. Most students (92%, n=44) agreed critically appraised evidence should be applied to the client, using clinical judgement and expertise. Most students (90%, n=41) agreed research using clinical trials is more reliable than research using observational methods. Chi-squared cross-tabulations were carried out data according to the programme studied and answers given. Statistical significances exist if the p value is < 0.05, representing a calculated probability there is a significant difference across programmes studied. A statistical significance (p value 0.046) was found between the clinical therapy programme studied and the statement that research using clinical trials is more effective than research using observational methods. All SLT students agreed with this statement compared to OT (84%, n=16) and PT (67%, n=4). Table four outlines a summary of statistically significant findings.

**Behaviours towards evidence based practice**

Almost all students (94%, n=45) reported accessing evidence weekly or more often. The majority of students (85%, n=41) considered themselves to be practitioners of EBP. Students (15%, n=6) who did not consider themselves, practitioners of EBP, rated a lack of time and because educators don’t practice, as reasons for not using EBP, (33%, n=1) and (33%, n=1), respectively. Just over half the students (60%, n=35) reported feeling prepared with evidence while on clinical placement. Just over half the students (56%, n= 27), found it easy to access evidence while on placement. On placement, just over half the students (52%, n=25) reported current best evidence about a clinical problem is discussed. Students reported using the internet weekly or more often to access general evidence (90%, n=43). A number of students reported never accessing general evidence, from original research papers, Cochrane database or secondary sources such as journal clubs (8%, n=4) (10%, n=5) and (27%, n=13) respectively. When on clinical placements students used a range of sources to find evidence relating to the clients condition. (See table two for details).
Table 2. Sources used to find evidence relating to a client’s condition

<table>
<thead>
<tr>
<th>Sources to find evidence</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>44(92%)</td>
</tr>
<tr>
<td>Textbooks</td>
<td>41(85%)</td>
</tr>
<tr>
<td>Research Papers</td>
<td>25(52%)</td>
</tr>
<tr>
<td>Cochrane Database</td>
<td>16(33%)</td>
</tr>
<tr>
<td>Journal Club</td>
<td>14(29%)</td>
</tr>
<tr>
<td>Other source</td>
<td>11(23%)</td>
</tr>
</tbody>
</table>

A statistical significance (p value 0.026) was found between the clinical therapy programme studied and the statement, when on placement how frequently is current best evidence about a particular clinical problem at hand discussed. Sixty-seven per cent of SLT students and PT students agreed this was discussed moderately and above, compared to a lower percentage 35% of OT students. (See table four for details).

**Attitudes towards evidence based practice**

Most students (92%, n=44) reported EBP is a routine part of their learning. Most students (90%, n=43) agreed EBP should be an integral part of their course curriculum. Most students (94%, n=45) reported they are willing to practice EBP, as a therapist in the future. Many students (71%, n=34) rated that EBP affected the management and outcomes of clients they seen. Just over half the students (58%, n=28) reported having confidence in their clinical decision making. Table three outlines a summary of students’ responses to other attitudinal questions.
Table 3. Summary of attitudinal responses

<table>
<thead>
<tr>
<th>Attitudinal Responses</th>
<th>Agree n(%)</th>
<th>Disagree n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBP is the future of clinical practice and will become the standard of care</td>
<td>34(71)</td>
<td>12(25)</td>
</tr>
<tr>
<td>EBP takes too much time for busy health professionals</td>
<td>26(54)</td>
<td>21(44)</td>
</tr>
<tr>
<td>EBP ignores the art of clinical therapy</td>
<td>10(21)</td>
<td>37(77)</td>
</tr>
<tr>
<td>EBP is just a fad which will pass with time</td>
<td>4(8)</td>
<td>43(90)</td>
</tr>
<tr>
<td>You personally appreciated the advantages of EBP</td>
<td>37(77)</td>
<td>10(21)</td>
</tr>
<tr>
<td>Previous work experience is more important than research findings in choosing the</td>
<td>21(44)</td>
<td>26(54)</td>
</tr>
<tr>
<td>best treatment for a clients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health professionals should not practice EBP, as health professional practice is about</td>
<td>5(10)</td>
<td>41(85)</td>
</tr>
<tr>
<td>people and clients, not statistics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A statistical significance (p value 0.000) was found between the clinical therapy programme studied and the statement health professionals, in general should not practice EBP, because clinical practice is about people and clients, not statistics. All OT students and most SLT students (95%, n=19) disagreed with this statement, compared to a lower percentage (33%, n=2) of PT students. (See table four for details)
Table 4. Summary of statistically significant findings with regard to EBP and programme of study

<table>
<thead>
<tr>
<th>Statements</th>
<th>Discipline</th>
<th>Agree n (%)</th>
<th>Disagree n (%)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research using clinical trials is more effective than research using observational methods</td>
<td>OT: 16(84)</td>
<td>3(16)</td>
<td>0.046</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 21(100)</td>
<td>0(0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 4(67)</td>
<td>2(33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much has evidence based practice on average, affected the management or outcome of the clients you have seen</td>
<td>OT: 12(67)</td>
<td>6(33)</td>
<td>0.044</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 17(85)</td>
<td>3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 5(83)</td>
<td>1(17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During placements how frequently is current best evidence about the particular clinical problem at at hand discussed</td>
<td>OT: 16(35)</td>
<td>13(78)</td>
<td>0.026</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 14(67)</td>
<td>7(33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 4(67)</td>
<td>2(33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence based practice ignores the art of therapy</td>
<td>OT: 1(5)</td>
<td>19(95)</td>
<td>0.020</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 5(24)</td>
<td>16(76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 4(67)</td>
<td>2(33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health professionals, in general should not practice EBP because health professional practice is about people and clients, not statistics</td>
<td>OT: 0(0)</td>
<td>20(100)</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 1(5)</td>
<td>19(95)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 4(67)</td>
<td>2(33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence Based Practice should be an integral part of health professional students curriculum</td>
<td>OT: 18(90)</td>
<td>2(10)</td>
<td>0.015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT: 20(100)</td>
<td>0(0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PT: 5(83)</td>
<td>1(17)</td>
<td></td>
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</table>

Summary of results

Students reported a positive knowledge, attitude and behaviour towards EBP and had a clear understanding of EBP. Students accessed research weekly or more often and agreed to use EBP as a future therapist, suggesting they are prepared to become evidence-based practitioners (EBP’s) in clinical practice. Difficulties in relation to practicing as EBP’s in the future were identified, including, educators not using EBP, a lack of time, lack of confidence in decision-making and not feeling prepared with evidence. SLT students reported higher percentage agreements in four out of six statistically significant statements. The results suggest that there is a need to ensure effective teaching strategies are implemented for
students to continue to use EBP as they transition from their academic environment to their future practice settings.

Discussion

Perceived knowledge of Evidence-Based practice

Students reported they have a clear understanding and knowledge of EBP and practicing EBP increases the certainty of proposed outcomes for a client. EBP knowledge and clinical effectiveness was further reported in other quantitative studies involving students and health professionals (Margarita et al 2012; Heiwe et al 2011; Stronge and Cahill 2011). Most students also reported effective searching skills, are required to access EBP and critical appraisal skills are required to ensure the quality of research papers. These finding are consistent with other studies, with health professional and student participants (Stronge and Cahill 2011; Brown et al 2010 and Lai and Nalliah 2010; Metcalfe et al 2001).

A statistical significance (p value 0.046) was found between the clinical therapy programme studied and the statement, research using clinical trials is more effective than research using observational methods. All SLT students agreed with this statement, compared to OT (84%, n=16) and PT (67%, n=4). This coincides with Metcalfe et al (2001) statistically significant findings, where SLT and dieticians rated a higher agreement to EBP compared to OT and PT professionals. Within OT much research evidence is gained from qualitative data with less RCT’s available (Hammell 2001; Turner et al 2002). PTs’ also rely on EBP from various methods including personal experience, fellow practitioners and journals (Palfreyman et al 2003). Teaching methods are benefiting students as they report a keen knowledge regarding EBP, however differences in discipline agreement to this statement suggests, potential difference in EBP teaching methods. Curriculum audits could be completed to provide equity for students, in curriculum design and teaching (Stronge and Cahill 2011; Malick et al 2010).

Behaviours towards evidence-based practice

The majority (85%, n=41) of students considered themselves to be EBP’s. Students (15%, n=6) who did not consider themselves EBP’s, rated a lack of time and because educators don’t practice, as reasons for not using EBP. Extensive evidence is available on barriers which prevent health professionals and students using EBP (Stephens and Upton 2012,
Stronge and Cahill 2011; Lai and Nalliah 2010; Brown et al 2010; Chan and Clough 2010; Iles and Davidson 2006). Students often model their practice educator’s clinical practice (Stronge and Cahill 2011). Therefore EBP needs to occur in clinical practice, to promote students attitudes and ability to use EBP (Brown et al 2010). Just over half the students (52%, n=25) reported best evidence about a clinical problem is discussed on placements, (60%, n=35) students reported feeling prepared with evidence. This finding is different to Stronge and Cahill (2011) who reported 98% of OT students are prepared with evidence on placements. Current EBP practice may portray the influence of economic constraints, parallel to a lack of resources, time and managerial support (Chan and Clough 2010; Pennington et al 2005). As registration in Ireland draws for health care professionals, EBP will be an essential feature in practice (CORU 2010). Therefore ensuring students use EBP and overcome barriers, is essential for future clinical practice. Crabtree et al (2012) suggests reported barriers to EBP, should act as clues for course content to teach EBP.

Most students (94%, n=45) reported accessing evidence weekly or more often, the internet was used as the main source to access evidence. Teaching methods promoting internet access as a means of accessing journals and databases ensures greater EBP translation into clinical practice (Reynolds 2010). Collaboration between the librarian and faculty members can be used to teach students EBP skills (Boruff and Thomas 2012). EBP as a core competency in placements would improve EBP. Objectives such as, setting up research journal clubs, is an effective way for students to use and promote EBP, for themselves and colleagues (McQueen 2006).

A statistical significance (p value 0.026) was found between the clinical therapy programme studied and the statement, when on placement how frequently is current best evidence about a particular clinical problem at hand discussed. Sixty-seven per cent of SLT students and PT students agreed this was discussed moderately and above, compared to 35% of OT students. Blending learning with interdisciplinary student groups, could promote more effective EBP skills and practices. Faculty members collaborating to teach interdisciplinary students groups, prepares students to encounter and discuss EBP, in academic and clinical settings. This also increases greater satisfaction among staff and students (Boruf and Thomas 2012; Kruszewski et al 2009). Bennett et al (2012) reported teaching EBP skills to allied health students improved their confidence and knowledge. Using practical teaching within Universities can
translate effectively into fieldwork placements and is parallel to increased EBP comprehension (Crabtree et al 2012; Hammon Kellegrew 2005).

**Attitudes towards evidence-based practice**

Most students (92%, n=44) agreed EBP is a routine part of their learning and (94%, n=45) reported they are willing to practice EBP as a therapist in the future. Many studies suggest a decline in EBP practices from graduate training to clinical practice (Cameron et al 2005; Ziploi and Kennedy 2005; Barnard and Wiles 2001; Jette et al 2003). Enhancing students EBP skills is essential to ensure they maintain EBP behaviours in clinical work (Crabtree et al 2005). Ongoing training regarding research implementation and critical appraisal promotes more effective EBP use (Crabtree et al 2012; Margarita et al 2012; Zipoli and Kennedy 2005; Pennington et al 2004). Just over half the students (58%, n=28) reported having confidence in their clinical decision making. Brown et al (2010) suggests that confidence is a positive predictor of future EBP use and students who have not garnered confidence, only have basic EBP skills. Academic and fieldwork educators should apply strategies to build student confidence with EBP to ensure future use. Crabtree et al (2012) recommended role playing to build confidence and discussion around negotiating times for EBP and how to share evidence in practice. Bennett et al (2012) reported teaching EBP skills to health professional students as a collective group, improves confidence and knowledge, regarding EBP.

A statistical significance (p value 0.000) was found between the clinical therapy programme studied and the statement, health professionals, in general should not practice EBP, because clinical practice is about people and clients, not statistics. All OT students and most SLT students (95%, n=19) disagreed with this statement compared to a lower per cent (33%, n=2) of PT students. Within UL, OT and SLT are graduate entry programmes and PT is an undergraduate programme. Similarly, Iles and Davidson (2006) and Jette et al (2003) found, PTs who have a masters degree or doctorate, have significantly more literate EBP skills. Metcalfe et al (2001) reports, health professionals with higher levels of education have more effective EBP skills. Zipoli and Kennedy (2005) indicated a need for SLTs to proceed to graduate training to increase EBP skills. Promoting further education and providing formal training to therapists can enhance their engagement with EBP (Pennington et al 2005). Future training in research skills promotes more effective EBP (Crabtree et al 2012; Margarita et al 2012; Pennington et al 2004).
Limitations

A convenience sampling strategy, to survey health professional students in UL, including OT, PT and SLT was used. Findings represent health professional student responses from UL and therefore cannot be assumed to represent health professional students as a whole population. A major limitation to the study was the response rate (21% n=6) which was achieved from the PT population, in UL. The time of year the survey was conducted may have impacted on PT response rates, as it was the week before their final exams and end of their semester. Another limitation to the study was the reliance on self-report from student groups. What students do and report could potentially be very different. Survey participants often overestimate the right answer as opposed to facts and their beliefs. Dempsey and Dempsey (2000) stated participants often do not take time to read questions and may rush through likert scales, to complete the survey. The survey instrument KAB (Johnson et al 2003) was used as it is relevant to health professional and student participants, with regard to EBP. A large number of items on the survey instrument were randomly inserted and students may have interpreted this as complicated or time consuming and therefore completed the survey quickly.

Future Research

Few studies focus on health professional students and often studies are completed on one discipline area alone. This study focused on health professional students from UL population alone. An opportunity to complete a study with health professional students from various universities in Ireland would provide greater validity for results. A longitudinal study, following students into clinical practice would be useful to highlight, if EBP declines in clinical practice and further highlight the need for student graduates and health professionals to continue EBP lifelong learning (Strong an Cahill 2011), which would benefit the professional and clients. An investigation into interdisciplinary teaching strategies and blended learning (Boruff and Thomas 2012; Kruszewski 2009) would be useful, to inform curriculum for the best way forward and explore if this approach provides students with more effective skills to use EBP.
Implications for teaching and practice

Students reported a strong knowledge of EBP but responses varied towards their attitudes and behaviours to use EBP, many differences existed between discipline programmes studied and students’ responses to EBP. Students reported the most difficulty when implementing EBP into clinical practice. Interdisciplinary teaching (Boruff and Thomas 2012; Kruszewski 2009) in this area could provide best practice, to inform practical teaching skills and curriculum. Students have the knowledge to apply EBP but their behaviour on clinical practice is not often reflective of the same. Fieldwork placement modules are components of each discipline programme, EBP competencies could be part of students’ assessment on fieldwork placement. In class opportunities to increase EBP discussion, can improve students confidence, which is a predictor of using EBP skills (Brown et al 2010). Role play can be used, to prepare students to promote EBP while on clinical placements (Crabtree et al 2012). The more prepared students are to use EBP in practice the greater the opportunity to maintain EBP as professionals and provide effective decision making and quality services for clients (CORU 2010; Rotter et al 2010).

Conclusion

Preparing health professional students to use and implement EBP promotes more effective outcomes and quality services for clients (Dawes et al 2005). This study provides an opportunity to understand health professional students’ knowledge, attitudes and behaviours to EBP, from final year OT, PT and SLT students in UL, Ireland. The results suggest health professional students are knowledgeable about EBP and indicated to use EBP in future practice. Although students were generally positive, a strong hold reported some difficulty putting EBP knowledge, into practice. Some challenges reported include a lack of confidence in clinical decision making and not feel prepared with evidence on placement. Statistically significant differences offer an insight into how students from different discipline programmes, varied their responses to statements. SLT students reported higher percentage answers in agreement with EBP statements.

To promote best practice, EBP curriculum requires strategies to ensure EBP transitions from teaching in the classroom, to therapy in the clinical room. Collaborating to teach EBP to interdisciplinary groups (Boruff and Thomas 2012; Kruszewski 2009) provides a
combination of best teaching strategies and an interdisciplinary approach, which students encounter on fieldwork placements. Practical teaching can be used to build confidence and discussion around evidence and this translates effectively into placements (Crabtree et al 2012; Brown et al 2010). Encompassing EBP into fieldwork assessment as a core competency or objective could ensure students are using EBP to their advantage and the clients’ advantage. Using current relevant and appropriate evidence to guide clinical decision (rotter et al 2010) should be a core philosophy, grounded in all health professional students, prior to clinical practice. EBP is a dominant force in our healthcare era of clinical audits, cost effectiveness and state registration. To justify our therapy and ensure effectiveness, clinical practice needs to be grounded in quality evidence.
References


