ISSN: 0976-3031

International Journal of Recent Scientific Research

Impact factor: 5.114

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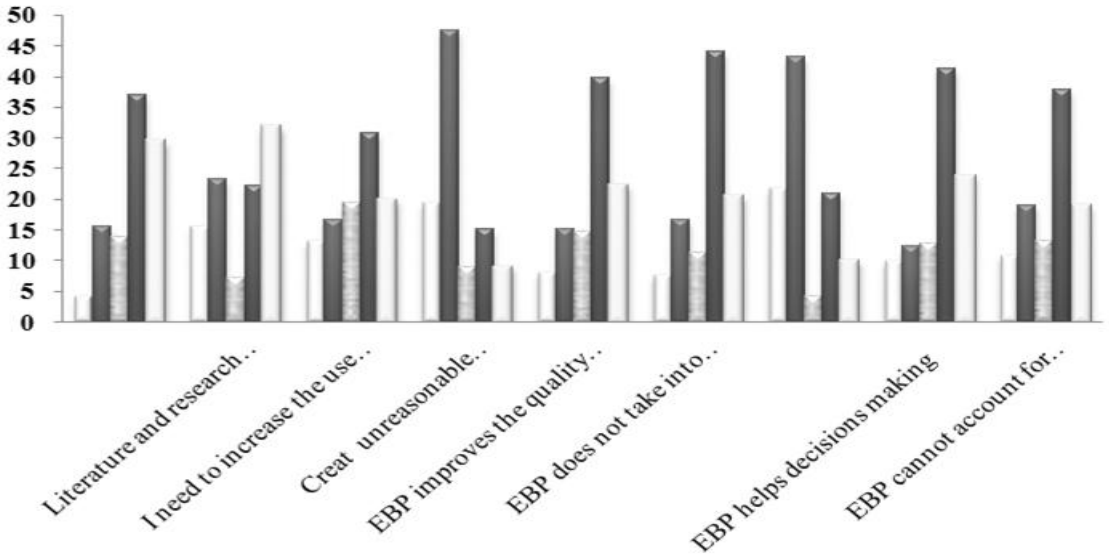

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Volume: 6 Issue: 9

THE PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH
(IJRSR)
http://www.recentscientific.com
E-mail: recentscientific@gmail.com

ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 6, Issue, 9, pp.6044-6054, September, 2015

International Journal of Recent Scientific Research

RESEARCH ARTICLE

EVIDENCE-BASED PRACTICE: BELIEVES, ATTITUDES, KNOWLEDGE AND BEHAVIORS OF PHYSICAL THERAPISTS IN RIYADH

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ARTICLE INFO

Article History:

Received 15th June, 2015
Received in revised form 21st July, 2015
Accepted 06th August, 2015
Published online 21st September,2015

Key words:

Evidence-based practice, Belief Attitudes, Knowledge, Behavior Saudi PTs.

ABSTRACT

Evidence-based practice (EBP) is considered an essential component of clinical service delivery in health care. Up to authors' knowledge no research has been done regarding the beliefs, attitudes, knowledge and behaviors of Saudi physical therapists (PTs) relative to the use of evidence in practice. The purposes of this study were to describe the beliefs, attitudes, knowledge, and behaviors of PT members of the Saudi Physical Therapy Association (SPTA) as they relate to EBP and to generate hypotheses about the relationship between these attributes, personal and practice characteristics of the respondents. Using a cross-sectional survey methodology, a random sample of PT members of SPTA resulted in an 82% return rate and a sample of 211 that was representative of the national membership. Participants completed a questionnaire designed to determine their beliefs, attitudes, knowledge, and behaviors regarding EBP. The results showed that, respondents agreed that the use of evidence in practice is necessary, the literature is helpful in their practices, and the quality of patient care is better when evidence is used. It was concluded that, Saudi PTs had a positive attitude about EBP and were interested in learning or improving the skills necessary to implement EBP.

INTRODUCTION

The physical therapy profession has been undergoing a period of change as a result of pressure from different health professional group in recent times. In order to meet these challenges, PTs have been encouraged to prove the effectiveness of their interventions through scientific evidence known as evidence-based practice (EBP) (Herbert *et al*, 2005).The term EBP has become ubiquitous in physical therapy literatures. The demand for and an interest in applying evidence to physical therapist practice has grown in the past decade as demonstrated in part by publication of a series of systematic reviews in the October 2001 special issue of physical therapy and other articles related to evidence in practice. Also there are continuing offerings on the topic(Jette *et al*, 2003).

Regarding the above, different authors have suggested EBP implies integrating individual clinical experience with the best available external scientific evidence regarding systematic investigation and, on occasions, its inclusion requires change regarding practice, self-directed learning and a favorable work environment (Duran-Palomino, 2013; Ramirez-Velez, 2011). In 2000, Sackett and his colleagues defined EBP as "the integration of the best research evidence with clinical expertise and patient values". They noted that both clinical expertise and clinically relevant research were important component of evidence based practice. In addition Jette and colleagues,2003 defined it as a method for identifying, evaluating, and implementing good clinical data. Recently Duran-Palomino *et al*, 2013, defined EBP as being a process whose objective is selecting the best scientific arguments for resolving problems encountered in daily clinical practice.

There has been a growing emphasis on EBP over the last two decades. The increased awareness about the importance of EBP may be due to higher rates of litigation, demands for greater accountability for clinical practice, and increased public awareness of healthcare associated with improved information technology (Klardie *et al*, 2004; Leach 2006). Moreover, evidence has shown that patient outcomes can be improved where health professional have an evidence-basedapproach to clinical care (Sackett *et al*, 2000). Today, health care practitioners are increasingly urged to ensure that they delivering care which is based on the best current research evidence, as well as they are using evidence based practice that is shifting from practice based on tradition, expert opinion, unsystematic clinical experience and intuition, to practice based on examinations and interventions which are backed by client

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centered research and other scientific studies (Jette *et al*, 2003). Although much has been written about EBP, many authors say that "little of PTs known about how to get research evidence in to practice (Connolly *et al*, 2001), in addition, little research has been done regarding the at titudes toward and use of evidence among PTs.

To our knowledge, no information is available concerning Saudi PTs' attitudes toward and use of EBP. Therefore, the purposes of this study were to describe the beliefs, attitudes, knowledge, and behaviors of physical therapist members of the Saudi Physical Therapy Association (SPTA) as they relate to EBP and to generate hypotheses about the relationship between these attributes and personal and practice characteristics of the respondents.

METHOD

Subjects

The present study sample consisted of cluster random sample of 211 Saudi PTs (70.6 % female, 29.4 % male) who are members of the SPTA practicing in various hospitals and clinics within Riyadh-Saudi Arabia. The randomization sequence was computer generated. The sample included all grades of PTs working in primary health care centers, state government owned hospitals, University Teaching Hospitals, private physical therapy clinics, homes and schools of children with special needs, old people home, sports centers and physical therapy training institutions. A written consent form signed by the participants obtained before starting the study. The participants were given 10 minutes to review the survey for any queries or required explanation.

Procedures

In this cross sectional survey study self-report valid and reliable questionnaire(Jette *et al*, 2003) (Appendix 1)was used to study the attitudes of SPTA 's SaudiPTstoward EBP . The interclass correlation coefficients (ICC) were determined for categorical and ranked items. The ICCs ranged from 0.37 to 0.90, with 50% of the items having ICCs of > 70. Percentage of agreement ranged from 68% to 93% for dichotomous items and from 59% to 80%for ranked items. The questionnaire was designed to explore respondents' attitudes and beliefs about EBP (survey items 1, 2, 4, and 6–11); interest in and motivation to engage in EBP (survey items 3 and 5); educational background and knowledge and skills related to accessing and interpreting information (survey items 25–31); level of attention to and use of the literature (survey items 12–14); access to and availability of information to promote EBP (survey items 18, 19, and 21–23); and their perceived barriers to using evidence in practice (survey item 32). Demographic and practice data were collected. The questionnaire also sought answers about use of and access to practice guidelines (items 15–20). Responses to most items concerning attitudes and beliefs and education, knowledge, and skills related to EBP were addressed using a 5-point Likert scale with "strongly disagree" and "strongly agree" as anchors. Several items related to access to information required "yes/no" responses. The questionnaires were distributed through personal visitation to various physiotherapy departments in hospitals and clinics which represent different types and geographical areas in Riyadh-Saudi Arabia.

Data analysis

The information gleaned from the questionnaires was typed on an Excel spreadsheet (Windows 8) and the SPSS (version 22)was used for processing it. Response frequencies and percentage for the survey questions were determined and displayed in tabular and graphic formats. Logistic regression analyses were used to determine significant associations between variables at 95% confident interval. For 5-point Likert scale items with positive wording (ie, agreement with the statement suggested positive regard for EBP), the "strongly agree" and "agree'" categories were combined, as were the "neutral", "disagree" and "strongly disagree" categories", leaving 1 of 2 categories:"agree" or "disagree". For 5-point Likert scale items with negative wording, the "neutral category" was combined with the "agree" and "strongly agree" categories. Foritems with "yes", "no" and "do not know" response options, "no" was combined with "do not know", as it seems likely, for instance, that not knowing whether internet access was available was as unhelpful as not having internet access.

For items capturing information about the number of times articles were read or databases accessed per month, the lowest category, namely one or no articles per month, was distinguished from higher categories given that it reflects poor attention to the literature which would be inconsistent with EBP principles.

Logistic regression analyses were conducted to examine the following univariate associations: (1) Responses to items measuring attitudes and beliefs interest and motivation; education, knowledge, and skills; and access to and availability of evidence with items measuring age; since licensure, education level (including specialization certification),and whether a respondent was a clinical instructor; years since registration; use of clinical practice guidelines. (2) Responses to items measuring attitudes and beliefs with items measuring types of patient conditions seen in practice and access to information; (3) Responses to items measuring attention to and use of the literature with items measuring number of PTs in the practice setting, number of patients seen in an average day, number of hours worked in an average day, and access to sources of evidence; and (4) Responses toitems measuring access to and availability of evidence with items measuring the type of practice facility and umber of PTs in the practice setting. Odds ratios and their 95% confidence intervals were calculated.

Odds ratios in this studydescribed the likelihood of demonstrating a particular behavior (e.g., reading research evidence) given an individual characteristic (e.g., interest in EBP).

RESULTS

Demographic data

Demographic data and characteristics of participated subjects were presented in Tables 1and 2

Table1 Demographic characteristics of participated subjects

Characteristics	Frequency	Percent (%)
Gender		
Male	62	29.4
Female	149	70.6
Age (y)	98	46.5
20-29	75	35.5
30-39	17	8.1
40-49	21	10
50 +		
Holding a valid license	173	82.0
Yes	38	18.0
No		
Years licensed	75	35.5
< 5	95	45
5-10	19	9
11-15	22	10.4
>15		
Highest degree		
Baccalaureate or Certificate	136	64.45
Entry level post Baccalaureate	29	13.74
Advanced master's or doctorate	46	21.8
Doctorate		
Certified specialist	30	14.22
Cardiovascular-pulmonary	36	17.06
Geriatric	47	22.27
Neurological	44	20.85
Orthopedic	30	14.22
Pediatric	14	6.64
Clinical instructor	10	4.74
Burn and surgery	Riyadh	
Geographical area of practice		

Response rate

A total of 211 survey instruments were returned for a response rate of 82% collected from Saudi physiotherapists in Saudi Arabia, Riyadh city.

Attitudes and beliefs

Respondents stated that they held generally positive attitudes and beliefs regarding EBP, with a majority contending that: they agreed and strongly agreed that EBP is necessary (66.4%), literature is useful to practice (54.1%), EBP improves the quality of patient care (62.1%), evidence helps in decision making (64.4%), EBP can't take into account the limitations of their practice setting (64.5%), increase reimbursement rates (30.9%) and evidence is lack to support aspects of their practice (51.2%).

Respondents were diverse in their beliefs about whether EBP does not take in account patient preferences. Thirty percent stated that they disagreed or strongly disagreed and 56.9% stated they agreed or strongly agreed with the statement. Figure(1) shows the distribution of responses related to attitudes and beliefs about EBP.

Table 2 Characteristics of respondent practice

Characteristics	Frequency	Percent (%)
Hours of work per week		
<20	11	5.2
20-30	42	19.9
31-40	48	22.7
>40	110	52.1
Patients per day		
<5	22	10.4
5-10	98	46.4
11-15	66	31.3
>15	25	11.8
Percentage of time in patient care		
25	13	6.1
25-50	12	5.6
51-75	18	8.7
>75	168	79.6
Setting		
Rural	37	17.5
Urban	152	72.0
Suburban	22	10.4
Type of facility		
Acute care hospital	59	27.96
Acute rehabilitation	35	16.59
Sub-acute rehabilitation	48	22.75
Privately owned outpatient clinic	9	4.27
Facility-based outpatient clinic	24	11.37
Home care	9	4.26
School system	8	3.79
University	19	9.00
Number of physical therapists at facility		
<5	40	19.0
5-10	21	10.0
11-15	33	15.6
>15	117	55.5
Majority of patients and types of problems		
Orthopedic	104	49.3
Neurological	56	26.5
Cardiovascular/pulmonary	19	9.0
Others (Burn and surgery)	26	12.3
No patient care	6	2.8
Age (y)of the majority of patients treated		
Pediatric (≤18)	49	23.2
Adult (19-64)	120	56.9
Geriatric (65+)	11	5.2
Do not treat patients	31	14.7

For the most part, demographic factors were not associated with attitudes and beliefs (Table. 3).However association was found between age and believes that EBP is necessary (χ^2=9.23,P=0.026). Therapists who were younger were more likely to say they agreed that EBP is necessary. We examined each variable separately to account for respondents who may have attended and graduated from professional programs at an older age than traditionally seen. About fifty-one percent of the respondents indicated that they agreed or strongly agreed that they needed to increase the use of evidence in their daily practice. About seventy-nine percent of the respondents indicated that they agreed or strongly agreed that they were interested in learning or improving the skills necessary to implement EBP. Respondents with access to online databases at home were more likely to express an interest in learning or improving their skills in implementing EBP than those who did not have access at home. Furthermore those male therapists were more likely to say they agreed that EBP increase reimbursement rates (61.29%). The gender variable was highly associated (χ^2= 25.87,P=0.000).

Table 3 Factors Associated with Beliefs about Evidence-Based Practice

Attitude or Belief Factor Level	Factor	Level	Odds Ratio (95% CI) [a]	P value	Model $R^{2,C}$	N
Evidence-based practice is necessary	Age	20–29 y	2.42(1.01-5.81)	0.047	0.068	98
		30–39 y	0.414(0.141-1.21)	0.108		75
		40–49 y	0.93(0.31-2.81)	0.893		17
		>50 y	Reference[b]			21
	Years since licensure	<5 y	1.69(0.755-3.78)	0.202	0.040	75
		5–10 y	0.59 (0.19-1.79)	0.349		95
		11–15 y	0.62 (0.218-1.76)	0.370		19
		>15	Reference			22
Evidence-based practice improves the quality of patient care	Years since licensure	<5 y	1.33(0.64-2.79)	0.445	0.016	75
		5–10 y	0.68(0.23-2.06)	0.500		95
		11–15 y	0.72(0.257-2.03)	0.537		19
		>15	Reference			22
Reimbursement will increase with use of evidence in practice	Age	20–29 y	0.86(0.43-1.62)	0.643	0.004	98
		30–39 y	0.72(0.23-2.20)	0.562		75
		40–49 y	1.06(0.40-2.80)	0.907		17
		>50 y	Reference			21
Interested in improving skills	Sex	Male	0.20(0.11-0.38)	.000	0.159	62
		Female	Reference			149
	Access to online databases at home	Yes No or do not know	1.75 (0.57-5.4)	0.333	0.012	197
			Reference			14
Adaption of EBP places Unreasonable demand	Age	20–29 y	0.66(0.34-1.26)	0.207	0.016	98
		30–39 y	1.26(0.44-3.60)	0.666		75
		40–49 y	1.11(0.42-2.93)	0.837		17
		>50 y	Reference			21
	Years since licensure	<5 y	1.35(0.69-2.64)	0.375	0.032	75
		5–10 y	3.06(1.09-8.61)	0.035		94
		11–15 y	1.77(0.66-4.72)	0.255		19
		>15	Reference			23

[a] 95% CI95% confidence interval. [b] In logistic regression, one level of the independent variable serves as a reference against which the odds of the other levels occurring are determined. [c]Nagelkerke R^2.

Generally association was not found between believe of PTs that the adoption of EBP places an unreasonable demand and years of they have been licensed. However the therapists who were had been licensed between 5 and 10 years (44.55%) were more likely to say they agreed that adaption of EBP places an unreasonable demand on them (P=0.035).

Education, Knowledge, and Skill

The respondents were diverse in expressing whether or not they had completed educational sessions either in school or through continuing education on EBP or search strategies. Forty-three percent agreed and 40% percent strongly agreed that they had engaged in educational sessions in the foundations of EBP or in search strategies, respectively. Thirty-nine percent of the respondents agreed or strongly agreed that they were confident they had search skills, and 48.3% of the respondents agreed or strongly agreed that they had knowledge about using databases such as MEDLINE and CINAHL. Forty-six percent of the respondents stated they were educated in critical appraisal of research literature, and 45.5% of the respondents stated they were confident in their abilities in this skill. Figure (2) shows the distribution of responses related to education, knowledge, and skills associated with EBP.

Respondents' reports of their education, knowledge, and skills related to EBP were generally associated with age, years since licensure, and both professional (entry- level) and advanced academic degrees (Table. 4). Learning, familiarity with online databases, and critical appraisal tended to be associated with younger age and fewer years since licensure.

Those therapists with a baccalaureate degree or certificate as their first professional or highest degree were more likely to have training and confidence in these skills than those with a post-baccalaureate professional degree or an advanced master's degree or advanced doctorate as their highest degree. For example, respondents with a baccalaureate professional degree were 5.62 times more likely than respondents with a post-baccalaureate professional degree to be familiar with online databases

The therapists' self-evaluated knowledge of terms associated with EBP is described in Figure 3.Respondents' knowledge of the terms such as "relative risk,""oddsratio,""confidence interval," and "publication bias" was most often associated with the highest degree they attained. Respondents 'self-reported knowledge of meta-analysis was associated with years since licensure and highest degree while confidence intervals was associated with age(χ^2=10.47,P=0.005).

Younger respondents and those with less than 5 years since licensure tended to have more knowledge of the terms than those with greater than 15 years since licensure. Those with less than 5 years' experience were more likely to understand the term "meta-analysis" and younger PTs more likely to understand the term "confidence interval" than older age physiotherapists. Those respondents with baccalaureate degrees as their first professional or highest degree were less likely to understand the terms than those with a post-baccalaureate professional degree or an advanced master's degree or doctorate as their highest degree (Table. 5).

Table 4 Factors Associated With Education, Skills, and Knowledge Necessary for Evidence-Based Practice

Education, Skill, or Knowledge	Factor	Level	Odds Ratio (95% CI)	P value	Model R^2	N
Learned foundations in academic program	Age	20–29 y	2.28(1.19-4.32)	0.01	0.05	98
		30–39 y	2.88(0.88-9.44)	0.08		75
		40–49 y	1.18(0.46-3.05)	0.73		17
		>50 y	Reference			21
	Years since licensure	<5 y	2.17(1.15-4.10)	0.02	0.04	75
		5–10 y	1.50(0.53-4.23)	0.44		94
		11–15 y	0.96(0.38-2.43)	0.92		19
		>15	Reference			23
	Professional degree	Baccalaureate or certificate	2.77(1.08-7.09)	0.03	0.03	181
		Post baccalaureate	Reference			30
	Highest degree	Baccalaureate or certificate	2.88(1.53-7.18)	0.024	0.11	136
		Entry-level post baccalaureate	4.35(1.89-10.01)	0.001		29
		Advanced master's or doctorate	Reference			46
Familiar with online databases	Age	20–29 y	2.38(1.03-5.84)	0.04	0.04	98
		30–39 y	1.51(0.40-5.72)	0.54		75
		40–49 y	1.95(0.53-7.18)	0.32		17
		>50 y	Reference			21
	Years since licensure	<5 y	3.67(1.57-8.61)	0.003	0.09	75
		5–10 y	0.84(0.28-2.51)	0.76		95
		11–15 y	2.59(0.70-9.65)	0.16		19
		>15	Reference			22
	Professional degree	Baccalaureate or certificate	1.59(0.51-4.75)	0.44	0.01	181
		Post-baccalaureate	Reference			30
	Highest degree	Baccalaureate or certificate	4.86(1.10-21.48)	0.04	0.15	136
		Entry-level post-baccalaureate	16.200(2.15-121.86)	0.007		29
		Advanced master's or doctorate	Reference			46
Formal training in search strategies	Age	20–29 y	1.37(0.66-2.83) 0.63(0.21-1.87)	0.39	0.013	98
		30–39 y	1.09(0.36-3.29)	0.40		75
		40–49 y	Reference	0.87		17
		>50 y				21
	Years since licensure	<5 y	2.86(1.36-6.01) 1.40(0.45-4.33)	0.006	0.060	75
		5–10 y	1.14(0.42-3.14)	0.559		95
		11–15 y	Reference	0.795		19
		>15				22
	Professional degree	Baccalaureate or certificate Post baccalaureate	0.86(0.36-2.06)	0.73	0.001	181
			Reference			30
	Highest degree	Baccalaureate or certificate	0.83(0.35-1.99)	0.667	0.046	136
		Entry-level post baccalaureate	3.07(1.13-8.35)	0.029		29
		Advanced master's or doctorate	Reference			46
Formal training in critical appraisal	Age	20–29 y	2.22(1.10-4.48) 2.59(0.69-9.64)	0.025	0.048	98
		30–39 y	0.90(0.34-2.39)	0.155		75
		40–49 y	Reference	0.837		17
		>50 y				21
	Years since licensure	<5 y	3.92(1.91-8.03) 1.61(0.55-4.70)	0.000	0.101	75
		5–10 y	1.39(0.53-3.69)	0.382		95
		11–15 y	Reference	0.502		19
		>15				22
	Professional degree	Baccalaureate or certificate Post baccalaureate	2.99(0.99-8.962)	0.05	0.031	181
			Reference			30
	Highest degree	Baccalaureate or certificate	2.30(0.88-6.03)	.090	0.111	136
		Entry-level post baccalaureate	6.30(2.13-18.60)	.001		29
		Advanced master's or doctorate	Reference			46
Confident in critical appraisal skills	Age	20–29 y	1.72(0.82-3.64)	0.154	0.018	98
		30–39 y	1.61(0.45-6.34)	0.440		75
		40–49 y	1.54(0.47-4.98)	0.476		17
		>50 y	Reference			21
	Years since licensure	<5 y	0.75(0.33-1.59) 0.49(0.16-3.54)	0.456	0.013	75
		5–10 y		0.225		95
		11–15 y	1.09(0.32-3.71)	0.890		19
		>15	Reference			22
	Professional degree	Baccalaureate or certificate	1.46(0.53-4.07)	0.464	0.004	181
		Post-baccalaureate	Reference			30

	Highest degree	Baccalaureate or certificate	1.19(0.42-3.40)			136
		Entry-level post baccalaureate	0.57(0.27-1.21)	0.747	0.018	29
		Advanced master's or doctorate	Reference	0.140		46
	Years since licensure	<5 y	1.48(0.51-4.29)	0.467		75
		5–10 y	0.33(0.095-1.18)	0.088	0.075	95
		11–15 y	0.34(0.10-1.11)	0.073		19
		>15	Reference			22
Confident in search skills	Professional degree	Baccalaureate or certificate	0.497(018-1.36)	0.174	0.015	181
		Post-baccalaureate	Reference			30
	Highest degree	Baccalaureate or certificate	0.89(0.28-2.88)	0.850	0.001	136
		Entry-level post-baccalaureate	1.17(0.41-3.38)	0.770		29
		Advanced master's or doctorate	Reference			46

[a] 95% CI95% confidence interval.[b] In logistic regression, one level of the independent variable serves as a reference against which the odds of the other levels occurring are determined. [c]Nagelkerke R^2.

Table 5 Factors Associated with Understanding of Specific Terms

Term (Partially to Completely Understood)	Factor	Level	Odds Ratio (95% CI)	P value	Model R^2	N
	Years since licensure	<5 y	0.27(0.12-0.64)	0.003		75
		5–10 y	0.92(0.29-2.87)	0.883	0.079	95
		11–15 y	0.54(0.17-1.78)	0.312		19
		>15	Reference			22
Meta-analysis	Professional degree	Baccalaureate or certificate	0.87(0.31-2.42)	.782	0.001	181
		Postbaccalaureate	Reference			30
	Highest degree	Baccalaureate or certificate	0.677(0.239-1.919)	0.463	0.079	136
		Entry-level post baccalaureate	0.148(0.034-0.643)	0.011		29
		Advanced master's or doctorate	Reference			46
	Age	20–29 y	0.45(0.23-0.89)	0.022		98
		30–39 y	0.35(0.09-1.31)	0.120	0.062	75
		40–49 y	0.28(0.08-0.99)	0.049		17
		>50 y	Reference			21
	Years since licensure	<5 y	0.73(0.37-1.407)	0.341		75
		5–10 y	0.92(0.31-2.72)	0.1884	0.028	95
		11–15 y	0.30(0.08-1.11)	0.071		19
Confidence interval		>15	Reference			22
	Professional degree	Baccalaureate or certificate post baccalaureate	0.76(0.31-1.87) Reference	0.543	0.003	181 30
	Highest degree	Baccalaureate or certificate	1.01(0.42-2.40)	0.987		136
		Entry-level post baccalaureate	0.47 (0.20-1.10)	.081	0.024	29
		Advanced master's or doctorate	Reference			46

[a] 95% CI95% confidence interval.[b] In logistic regression, one level of the independent variable serves as a reference against which the odds of the other levels occurring are determined. [c]Nagelkerke R^2.

Attention to Literature

In this category, we included reading literature related to clinical practice, using literature to inform decision making, and searching for relevant literature using online databases. Twenty-eight percent of the respondents reported reading fewer than 2 articles in a typical month. The majority of the respondents (51%)reported reading between 2 and 5 articles in an average month. Thirty-one percent of the respondents reported performing fewer than 2 database searches in a typical month. Thirty-five percent of the respondents reported using professional literature in the process of clinical decision making 5 or fewer times per month Figure (4). Those respondents with access to the internet at home or at work were 4.4 times and 2.9 times more likely, respectively, to state they used online databases more than once per month than those without access to the internet in those places. Those respondents with access at home were 4.7 times more likely to state they read more than one article per month than those without access.

Access to and Availability of Literature

Nearly all of the respondents (67%) reported they had access to professional journals in paperform. Eighty-eight percent of the respondents contended that clinical guidelines relevant to their practice areas were available, and 70% stated that they had access to those guidelines online.

More respondents stated they had access to relevant databases and the Internet at home (83%) than at work (65%). About 88% of the respondents stated they agreed or strongly agreed that their facility supports the use of evidence in practice Figure (5). Access to online databases at work was associated with type of practice setting (χ^2=30.18,P=0.000).

Those therapists in the acute hospital setting, acute rehabilitation, skilled nursing facility and privet outpatients were more likely to state they had access than those working in other facilities (Table. 6).

Table 6 Factors Associated with Access to and Availability of Literature

Type of Attention	Factor	Level	Odds Ratio (95% CI)	P value	Model R^2	N
Access to online databases at facility	Type of facility	Acute care hospital	5.88(2.15-16.08)	0.001	0.183	55
		Acute rehabilitation	2.05(1.58-10.39)	0.004		34
		Sub-acute rehabilitation	1.96(0.18-21-25)	0.581		49
		skilled nursing facility	4.89(1.20-19.93)	0.027		4
		Private outpatient	11.75(3.78-36.46)	0.000		11
		Hospital outpatient	0.65(0.07-5.88)	0.704		24
		Home care	1.47(0.15-14.89)	0.745		10
		School system	2.71(0.80-9.219)	0.110		5
		University	Reference			19

[a] 95% CI95% confidence interval.[b] In logistic regression, one level of the independent variable serves as a reference against which the odds of the other levels occurring are determined. [c]Nagelkerke R^2.

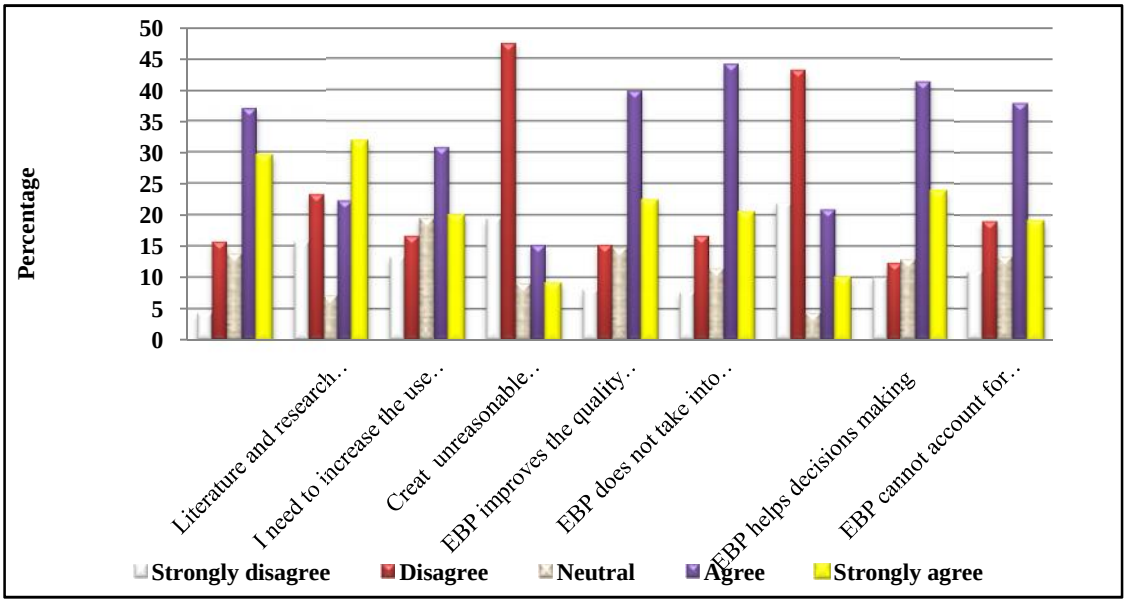

Figure 1 Self-reported attitudes and beliefs about evidence-based practice (EBP).

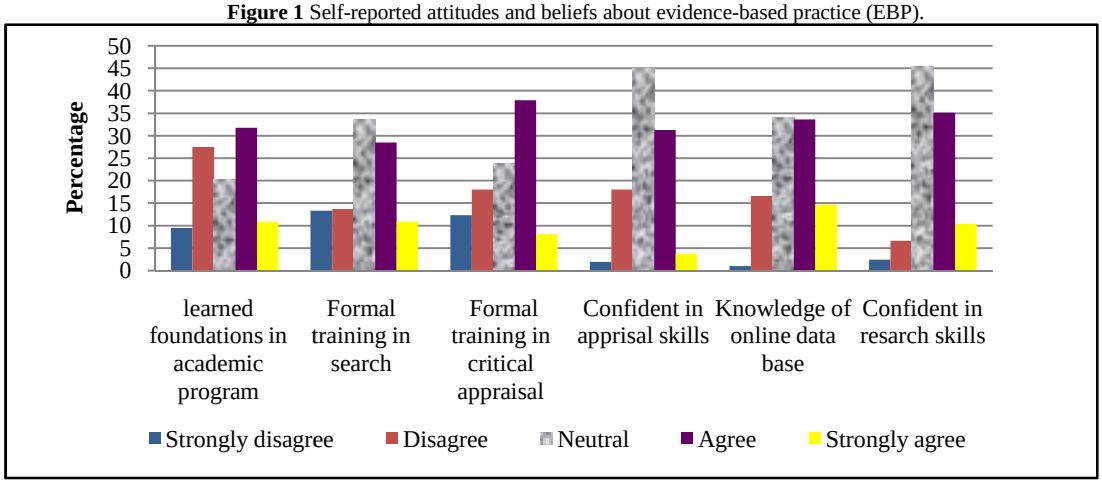

Figure 2 Self-reported education, knowledge, and skills.

Barriers

Fifty-one percent of the respondents indicated insufficient time was the most important barrier to the use of evidence in practice. Nearly 70% of the respondents rated insufficient time as one of the top 3 barriers. Approximately 33% of the respondents rated lack of generalizability of research findings to their specific patient population and the inability to apply findings to individual patients with unique characteristics as important barriers. Lack of interest was chosen as an important barrier by 15% of the respondents.

DISCUSSION

The purposes of this study were to describe the beliefs, attitudes, knowledge, and behaviors of physical therapist members of SPTA as they relate to EBP and to generate hypotheses about the relationship between these attributes and personal and practice characteristics of the respondents

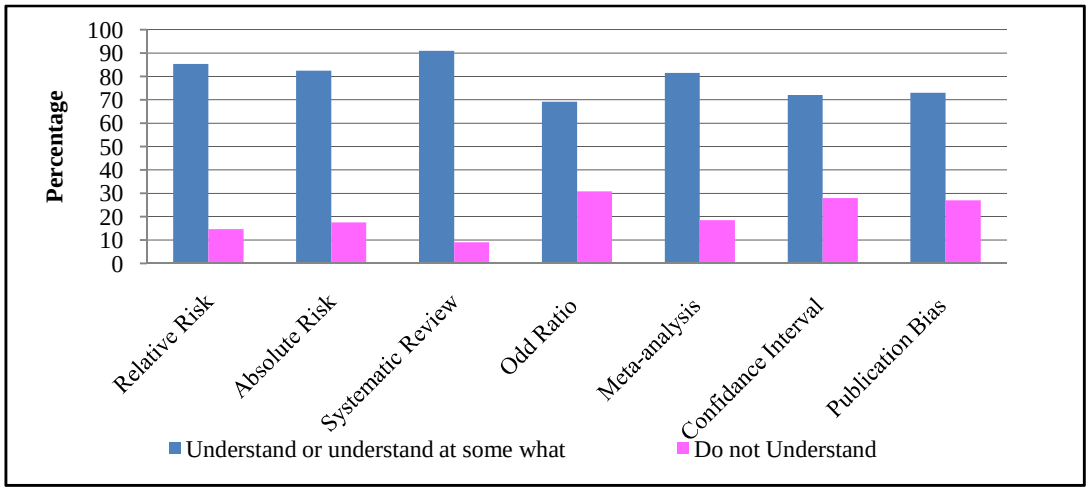

Figure 3 Self-reported knowledge of specific terms.

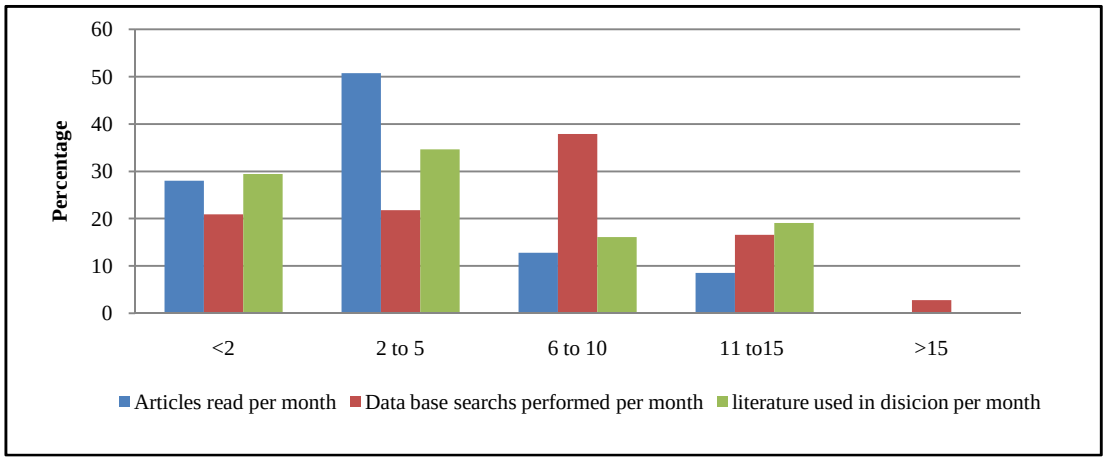

Figure 4 Self-reported attention to literature

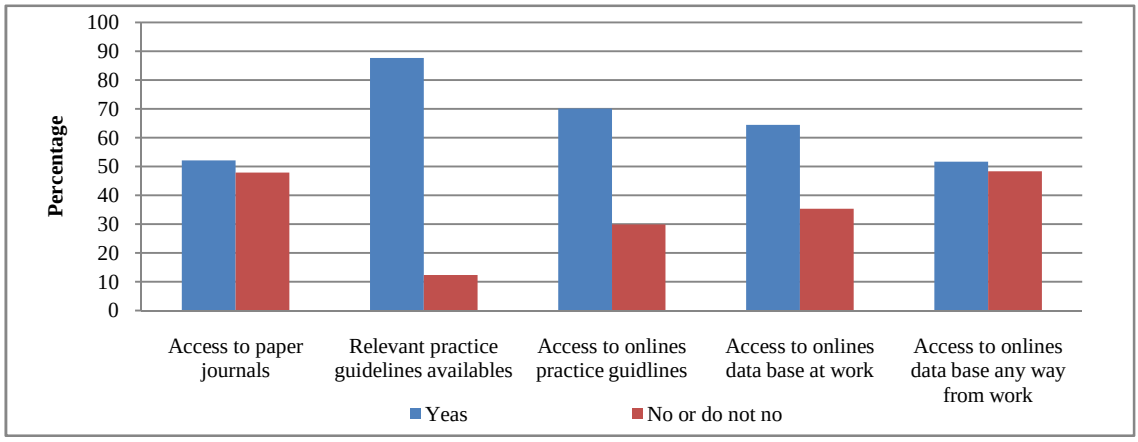

Figure 5 Self-reported access to and availability of literature.

Attitudes and beliefs

The results of the current study showed that the respondents held generally positive attitudes and beliefs regarding EBP, with a majority reported that: they agreed and strongly agreed that EBP is necessary. No associations were found between the beliefs of PTs and all demographic factors except age. In few studies, some researchers suggested that there were association between the respondents 'age and time since registration and their attitudes and beliefs. Furthermore previous studies have shown that older, more clinically experienced respondents were less likely to demonstrate positive attitudes and beliefs towards EBP(Dysart and Tomlin, 2002; Valdes and von der Heyde, 2012). On other hand several previous studies reported positive attitudes and beliefs irrespective of age and clinical practice years (Walker *et al*, 2013; Iles and Davidson, 2006;Dopp*et al*, 2012).

In addition the fact the adoption of EBP places an unreasonable demand on PTs were more likely observed, PTs who had been licensed between 5 to 10 years agreed than those who were recently licensed or had been licensed longer times. We suggested that PTs who had been licensed between 5 to 10 years in our sample had been more believed in their expertise.
In this study the respondents stated that the literature is helpful to them in their practice and decision making, and that quality of patient care is better when evidence is used. These beliefs have been similarly reflected in studies of PTs in UK that generally were found to have a very positive attitude towards EBP ((Stevenson *et al*, 2004). Recently, Ramírez-Vélez *et al*, 2015[(a,b)]showed that most PTs surveyed stated their interest in improving their skills for incorporating EBP in their practice as qualified PTs; such finding coincided with that reported by Jette *et al*, 2003; and Guerra *et al*, 2012, as both authors identified that EBP use by healthcare personnel was necessary and useful in decision-making regarding healthcare practice. Regarding Latin-America, Duran-Palomino *et al*, 2013, examined compliance with British Thoracic Society (BTS) recommendations for cystic fibrosis in 7 regions in Colombia. The results showed that, although qualified PTs mentioned knowing about the importance of EBP as a strategy for maintaining high standards of clinical care, the qualified PTs surveyed preferred to use the traditional model of clinical intervention. (Ramirez-Velez *et al*, 2011; Ramirez-Velez *et al*, 2010)

The respondents in our study were not sure that EBP could not take in account patient preferences, similarly qualitative statements by PTs general practitioners in the United States were recorded (Jette *et al*, 2003). Proponents of EBP however have frequently reiterated that the evaluation of patient preferences, circumstances and values is part of a clinician's decision in determining appropriate intervention (Guyatt *et al*,2000)

A large proportion of our respondents indicated that they were interested in improving their skills related to incorporating evidence into practice and that they needed to incorporate more evidence. This agreed with Jette *et al*, 2003 and Ramírez-Vélez *et al* , 2015 who found that most of PTs they surveyed were "welcoming" toward EBP.

Education, knowledge and skills

It has been suggested that improving EBP in clinical practice may rely on education and training in core EBP competencies including on-line data base search skills and the ability to critically appraise literature in the context of clinical practice(Illes and Davidson ,2006).A work was done by Aarons *et al*. 2012, in the USA, has shown the need for integrating some factors for using EBP, such as a qualified physiotherapist's attitude, postgraduate training and clinical context which, together with scientific associations and networks, should guarantee that qualified PTs could use EBP effectively. Engagement in educational session (either in entry level degree or advanced degree), knowledge of technical terms, and confidence in skills needed to retrieve and critically appraise information were related years since licensure and education level in our sample. Furthermore we found that the PTs who had been entry level degree - baccalaureates (63%) were more likely to claims agree with the EBP does not take into account of the limitation in their clinical practice setting more than who had been had advanced degree. Conversely the respondents in Jette *et al*, 2003 show they were not sure that EBP could not take into account the limitation in their practice setting. Recently Cimoli, 2012 suggested that dedicated education and training in EBP through attendance and participation an EBP professional workshops may be an effective means for PTs in the rehabilitation setting to acquire or extend their skills and knowledge of EBP. Regarding this conflict, we suggest it may be due to differences in teaching strategies, work environment and culture.

Attention of literature

More than half of the PTs in our sample stated they read between 2 to 5 articles in typical month, and 35% of the respondents stated they used literature in their clinical decision making between 2 to 5 times per month. Ina study of reading habits of PTs in United States approximately 17% slightly less reading appeared to occur, they reported reading fewer than 2 articles in typical month (Jette*etal*,2003). In addition studies conducted in UK and Australia showed that, approximately 3 quarter of PTs reported reading about one times per month. Recently Walker *et al*, 2013 showed that the respondents most commonly also read between two to five research articles per month. This level was congruent with the reported rates in studies of orthodontists, occupational therapists, and PTs (Dysart and Tomlin, 2002; Nilsagård and Lhose, 2010;Madhavji *et al*, 2011)

Barriers

Regarding the barriers and limitations of the use of EBP, we found that the primary limitation to implementing EBP was lack of time which is agreed with Ramirez-Velez, *et al*, 2015 who stated that scientific EBP need time for searching for data, analyzing it and using/incorporating it. And he added that such "time" factor is a significant limiting factor regarding EBP use, since most PTs surveyed had a high workload, attending an average of or more patients per day (Chapeton *et al*, 2014) and working an average or more hoursper week (Dysart and Tomlin, 2002).Moreover a study among PTs and occupational therapists revealed that information from peers was considered faster and more "to the point" than other sources such as research literature(Rappolt and Tassone, 2002).Previous studies by Ramirez-Velez *et al*, 2013 and Duran-Palomino *et al*, 2013 in Colombia had identified four essential limitations concerning using tools for implementing EBP: evidence-based guideline use in clinical institutions, little time for preparing and evaluating the available evidence when qualified PTs were working in care centers, the late arrival of effective evidence in clinical practice and being unaware of technological applications for searching for and using the best available evidence in care practice(Chapeton *et al*, 2014).

Concerning study strengths, it is worth highlighting that this is one of the first studies in Saudi Arabia describing the EBP conceptual framework of the PTs in SPTA.A message for researchers may be that not only does a need exist for more

research related to the effectiveness of interventions and diagnostic tools that are used by PTs, but the information generated from the research also needs to be expressed in a manner that assists clinicians in applying data to typical patients in typical clinical settings.

Limitations of the current study deal with the sample, because the sample frame only covered PTs in Riyadh - Saudi Arabia. Also among the limitation of our study were the relatively low responses rates 82%. Furthermore PTs were uncooperative with us. Also this study needs to be more generalizing by applying it among large sample representing all regions of Saudi Arabia and Arabic countries.

CONCLUSION

Physical therapists that are SPTA members stated they have a generally positive attitude toward EBP and reported they are interested in increasing their skills and the amount of evidence used in their practices. Many of the beliefs, skills, and behaviors we examined were related to the gender, years since licensure, and degree level of education attainment of our sample. Those respondents who were licensed between 5 to 10years, and had other than a recently licensed or longer , tended to express the adoption of EBP places an unreasonable demand on physical therapists and stated they has greater skills and confidence related to accessing and critically appraising information. Those male therapists were more likely to say they agreed that EBP increase reimbursement rates.

Reported use of online databases to search the literature and the amount of reading, respondents stated doing in a typical month were related to their computer access at work. Access at work, in turn, was related to the type of practice setting. Lack of time was said to be the most important barrier to using EBP. The findings have implications for the education, clinical, and research communities.

Conflict of interests

The authors declare that there are no conflicts of interest for this study.

Acknowledgements

The authors wish to thank all SPTA members, and clinical instructors who kindly participated in our study.

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How to cite this article:

Afaf a. Shaheen and Amal Mabd el Baky.2015, Evidence-Based Practice: Believes, Attitudes, Knowledge and Behaviors of Physical Therapists in Riyadh. *International Journal of Recent Scientific Research, 6 (9), pp.6044-6054.*

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International Journal of Recent Scientific Research

ISSN 0976-3031