

# Beliefs, Attitudes, and Behaviors of Saudi Physiotherapists Toward Evidence-Based Practice: A Multicenter, Cross-Sectional Study

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## Abstract

**Background:** Evidence-based practice (EBP) has gained significant importance in clinical practice worldwide, including physiotherapy, but there are limited studies that have assessed the knowledge, attitude, and behaviors of Saudi physiotherapists toward EBP.

**Objective:** To determine the beliefs, attitudes, knowledge, and experience of Saudi physiotherapists in public hospitals of the Eastern Province of Saudi Arabia toward EBP as well as identify barriers that limit the integration of EBP in clinical practice.

**Materials and Methods:** This cross-sectional design included all Saudi physiotherapists working in four major tertiary hospitals in the Eastern Province of Saudi Arabia. The Evidence-Based Practice Questionnaire was used to elicit responses. The association between attitudes, awareness, and knowledge scores and the demographic data such as age group, years of experience, and level of education was assessed.

**Results:** The questionnaire was distributed to a total of 171 physiotherapists, of which 118 (69%) responded. About 90% of the participants agreed or strongly agreed that EBP is necessary for clinical practice. However, about 25%, 19%, and 18% of the participants reported that EBP does not consider clinical limitations, support physiotherapy intervention, or consider patients' physiotherapy preferences, respectively. The most common barrier in the implementation of EBP in daily clinical practice was insufficient time (>50%), followed by self-efficacy in retrieving evidence from the literature and translating research findings into clinical practice. Years of experience, age, and gender were significant factors associated with physiotherapists' beliefs and attitudes toward implementing EBP.

**Conclusions:** Although EBP was favored, several barriers exist that hinder its adoption by physiotherapists. Institutional support and research skill development may help accelerate EBP adoption levels and should be considered by policymakers.

**Keywords:** Attitude, barriers, evidence-based practice, knowledge, physical therapy

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## INTRODUCTION

Evidence-based practice (EBP) is defined as the implementation of the best research evidence, clinical expertise, and patient preferences in clinical practice. EBP can lead to safe, effective, and, consequently, cost-effective intervention.<sup>[1]</sup> These factors have led EBP to gain significant importance in clinical practice, including physiotherapy.<sup>[2]</sup> However, the literature suggests that significant barriers have hindered the adoption of EBP by physiotherapists.<sup>[3]</sup> A systematic review found that while physiotherapists from Western countries mostly have a positive attitude toward EBP in daily patient care and decision making, yet a sizeable proportion rely on personal experience, educational courses, and in-service training for patient care decision making.<sup>[4]</sup>

The most commonly reported factors that have limited physiotherapists' use of EBP in their daily practice are lack of time, workload, difficulties in understanding and translating research results into clinical practice, and lack of resources.<sup>[4-6]</sup> In addition, cohort effects have also been found to influence physiotherapists' attitudes toward EBP. For example, work experience was shown to lower the perception of EBP relevance in physiotherapists compared to levels when they had graduated,<sup>[7]</sup> and previous research experience and a positive attitude toward conducting research in the future predict a positive attitude toward implementing EBP.<sup>[8]</sup>

There are numerous studies in the literature that have investigated the perception of EBP among medical professionals and students, but only few such studies are available from Saudi Arabia.<sup>[9-13]</sup> Specifically, Alshehri *et al.*<sup>[9]</sup> and Hasani *et al.*<sup>[12]</sup> reported a significant gap between knowledge, attitude, and implementation of EBP in the general clinical practice by physiotherapists in Saudi Arabia. Both the studies had a heterogeneous population, as they included physiotherapists from across the country, of all nationalities, and from both public and private hospitals. However, practices can differ regionally, between nationalities depending on the training received during education, and between public and private hospitals. A recent scoping review found that addressing local barriers to knowledge translation is most effective in increasing uptake of EBP by physiotherapists.<sup>[14]</sup> Such data are currently lacking from Saudi Arabia. Therefore, the objective of the current study was to provide a more focused understanding of the beliefs, attitudes, knowledge, and experience of Saudi physiotherapists working in major public hospitals of the Eastern Province of Saudi Arabia toward EBP. Findings of this study would assist regional

policymakers in developing strategies for integrating EBP in the clinical practice of physiotherapy.

## MATERIALS AND METHODS

### Study design, settings, and participants

This cross-sectional questionnaire study was carried out among practicing physiotherapists from four tertiary hospitals in the Eastern Province of Saudi Arabia between June 1, 2016, and May 31, 2017. The Institutional Review Board of Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, approved the study protocol.

The hospitals chosen for this study were as follows: King Fahd Hospital of the University, King Abdulaziz Airbase Military Hospital, Security Forces Hospital – Dammam, and King Fahd Military Medical Complex. These hospitals were chosen because they are the largest public hospitals in the region and provide highly specialized health care. All Saudi physiotherapists from the selected hospitals with a valid registration certificate from Saudi Commission for Health Specialties were eligible for the study.

The Raosoft website was used to identify the required sample size.<sup>[15]</sup> The Saudi Commission for Health Specialties statistics have shown that 6028 physiotherapists practice in Saudi Arabia.<sup>[16]</sup> Considering the geographical and population distribution in the country, it was assumed that about one-third of these therapists (i.e., 2000) would be working in the Eastern Province of Saudi Arabia. Based on this, it was determined that a random sample of 100 physiotherapists would be required to provide a 9.5% margin of error that can be tolerated with a confidence interval level of 95%. A 15% no-response was anticipated, and accordingly the final sample was calculated as 115.

### Data collection

Data were collected using the Evidence-Based Practice Questionnaire (EBPQ) [Appendix I].<sup>[17]</sup> The EBPQ comprises four sections with 42 statements: 11 items relate to attitudes toward the use of evidence, perceived benefits, and limitations of EBP; 3 items explore the practice of EBP in a typical month; 6 items focus on the employment and understanding of clinical practice guidelines; 12 items examine the availability of resources to access information and the skills required for the use of those resources; and 10 items cover demographic information, including age, gender, and level of education. Most items are scored on a five-point Likert scale, ranging from strongly disagree = 1 to strongly agree = 5.

The questionnaire was distributed and collected by the heads of physiotherapy departments at the four chosen hospitals.

All practicing physiotherapists were included, and the questionnaire responses were collected within 1 month from distribution. Participation was voluntary and no benefits were provided for responding. In addition, participants were assured of data confidentiality and anonymity, and all participants returned the questionnaire and a signed consent form in a sealed envelope.

### Data analysis and statistical methods

Data analysis was conducted using SPSS version 17 (IBM Corp, Armonk, NY, USA). Dichotomous items of the EBPQ are presented as frequencies and percentages. To explore factors that influence physiotherapists' attitudes toward the implementation of EBP, responses to the 11 related items were dichotomized. Strongly disagree, disagree, and neutral responses were considered 0, and agree and strongly agree were considered 1. The chi-square test was used to explore the strength of the association between attitude, awareness, and knowledge scores and the demographic data, such as age group, years of experience, and level of education.

## RESULTS

The questionnaire was distributed to a total of 171 physiotherapists, of which 118 completed the survey (69%). The characteristics of the respondents are described in Table 1. Most of the respondents were female (56%), belonged to the <40-year-old age group (88%), and had a bachelor's degree (85%). Almost half of respondents were specialized in musculoskeletal disorders (46%) and had <5 years of experience (42%).

**Table 1: Characteristics of the participants (N=118)**

Variable	Demographics	n (%)
Gender	Male	52 (44)
	Female	66 (56)
Age (years)	20-29	53 (44.9)
	30-39	51 (43.2)
	40-49	10 (8.5)
	>50	4 (3.4)
Highest degree	BSc	99 (83.9)
	MSc	15 (12.7)
	PhD	4 (3.4)
Subspecialty	MSK-PT	54 (45.8)
	Neuro-PT	13 (11)
	Pedia-PT	4 (3.4)
	OB/Gyn-PT	2 (1.7)
	Cardiopulmonary-PT	3 (2.5)
	Other	42 (35.6)
Experience (years)	<5	50 (42.4)
	5-10	22 (18.6)
	11-15	27 (22.9)
	>15	19 (16.1)

PT - Physiotherapy; MSK-PT - Musculoskeletal PT; Neuro-PT - Neurological PT; Pedia-PT - Pediatrics PT; OB/Gyn-PT - Obstetrics/gynecological PT

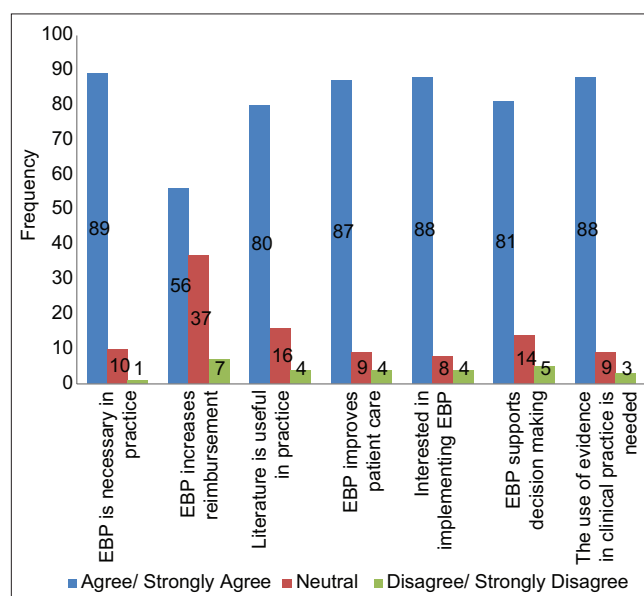
### Personal beliefs, attitudes, and knowledge toward evidence-based practice

In terms of physiotherapists' attitudes and beliefs toward the benefits of implementing EBP in daily clinical practice, about 90% agreed or strongly agreed that EBP is necessary for clinical practice. Furthermore, 88% showed an interest in implementing EBP in their patient care process and believed that implementing EBP in the clinical practice would improve the condition of patients. Finally, 80% reported that reviewing the literature would positively contribute to their clinical practice decision making [Figure 1].

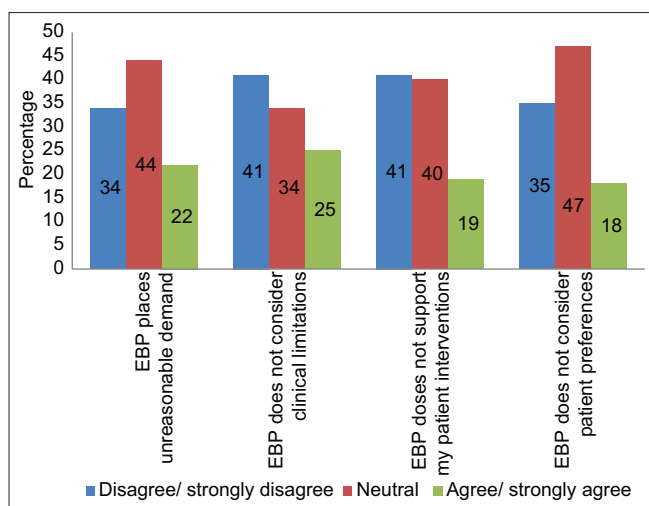
About half of the respondents had a negative or neutral attitude toward the implementation of EBP [Figure 2]. Although there was no consensus about the disadvantages of EBP, around one-third of the participants reported that EBP does not consider clinical limitations, does not support physiotherapy intervention, and does not consider patients' physiotherapy preferences.

### Barriers to the implementation of evidence-based practice

Figure 3 shows factors that limit physiotherapists' implementation of EBP. Fifty-one percent of the respondents identified insufficient time as the most significant barrier preventing the implementation of EBP in their daily clinical practice. Lack of research skills and an inability to apply research findings to individual patients were equally reported by around 40% of the respondents. In addition, almost 30% of the participants identified not understanding statistical analysis and a lack of information



**Figure 1:** Physical therapists' attitude toward positive responses related to evidence-based practice



**Figure 2:** Attitude toward negative responses related to evidence-based practice

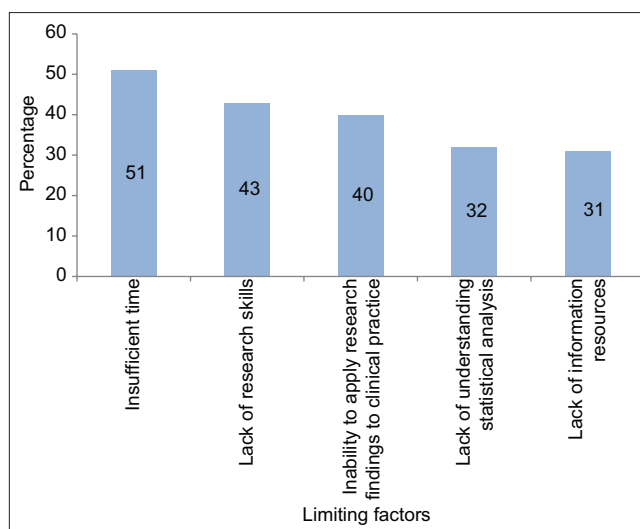
resources as main obstacles to applying EBP in clinical practice.

### Factors influencing physiotherapists' attitudes toward the implementation of evidence-based practice

Table 2 demonstrates the association between the physiotherapists' attitudes toward EBP and their demographic characteristics. The analysis revealed a significant impact of years of experience on the conception of implementing EBP in daily practice ( $P = 0.02$ ), literature and research findings as a useful factor in day-to-day practice ( $P = 0.02$ ), and an individual's learning skills required to incorporate EBP into practice ( $P = 0.03$ ). Age was also statistically significantly associated with the belief that EBP helps physiotherapists make decisions ( $P = 0.03$ ) and drives the interest in learning about EBP ( $P = 0.01$ ). Finally, gender was found to be significantly associated with the implementation of EBP in clinical practice: female physiotherapists found adoption of EBP places an unreasonable demand on physiotherapists ( $P = 0.018$ ) and that EBP does not help in making decisions about patient care ( $P = 0.03$ ). However, female physiotherapists agreed that EBP considers the limitations of clinical practice settings ( $P = 0.02$ ).

## DISCUSSION

This study found that overall, physiotherapists from the Eastern Province of Saudi Arabia have a positive attitude toward EBP, as they considered it a necessary element in clinical practice. However, the positive attitude did not necessarily translate into implementation, as about half the respondents had a negative or neutral attitude toward integrating it in their clinical practice. Insufficient time was reported as the most common limiting factor, while years



**Figure 3:** Factors limiting the implementation of evidence-based practice

of experience, age, and gender were significantly associated with beliefs and attitudes toward the integration of EBP in practice.

The findings of the current study are consistent with similar studies conducted from Saudi Arabia<sup>[9,12]</sup> as well as those of a systematic review that found that physiotherapists from Western countries had a positive attitude toward EBP and that they believed EBP informs clinical decision making.<sup>[4]</sup> Similarly, the lack of time was reported as the most common barrier to implementing EBP. This is unsurprising given that time insufficiency has also been reported as a primary barrier in implementing EBP by other health professionals, such as physicians, nurses, pharmacists, and occupational therapists.<sup>[18-20]</sup>

In our study and those in the literature, it has been found that physiotherapists believe that EBP is time-consuming, does not consider the current setting, and that the evidence level is uncertain.<sup>[5,12,20]</sup> This often results in physiotherapists relying on their own experiences and that of their peers and other trusted sources in preference to literature.<sup>[21]</sup> In the present study, self-efficacy in retrieving evidence from the literature and in interpreting, appraising, and applying findings from the literature to clinical practice was another limiting factor, which is in concurrence with the findings of other studies.<sup>[14,20]</sup> Relatedly, recent studies have shown that while physiotherapists from the Saudi Arabia, United Arab Emirates, and Kuwait claimed awareness about EBP, their knowledge of key terms were limited.<sup>[12,22,23]</sup> Collectively, this is suggestive of a call-to-action to engineer change in the self-efficacy of physiotherapists regarding EBP not only in Saudi Arabia, but also in the Gulf region.

**Table 2: Association between physiotherapist's characteristics and attitudes toward evidence-based practice**

Characteristic	Variable	Yes	No	$\chi^2$	P
Years of experience	Application of EBP is necessary in the practice of physiotherapy				
<5		42	8	8.15	0.03
5-10		20	2		
11-15		25	2		
>15		18	1		
Years of experience	Literature and research findings are useful in my day-to-day practice				
<5		34	16	9.09	0.02
5-10		18	4		
11-15		24	3		
>15		17	2		
Gender	The adoption of EBP places an unreasonable demand on physical therapists				
Male		18	34	5.60	0.018
Female		57	9		
Age group	I am interested in learning or improving the skills necessary to incorporate EBP into my practice				
20-29		41	12	8.84	0.03
30-39		46	5		
40-49		10	0		
>50		3	1		
Years of experience					
<5		39	11	8.81	0.03
5-10		21	1		
11-15		26	1		
>15		18	1		
Gender	EBP does not take into account the limitations of my clinical practice setting				
Male		27	25	4.71	0.02
Female		23	43		
Work domain	My reimbursement rate will increase if I incorporate EBP into my practice				
Clinician		50	4	5.83	0.01
Researcher		57	7		
Gender	EBP helps me make decisions about patient care				
Male		27	25	4.12	0.03
Female		22	44		
Age group					
20-29		40	13	10.90	0.01
30-39		45	6		
40-49		10	0		
>50		3	1		

EBP - Evidence based practice

The findings of this study clearly indicate the need for knowledge translation strategies. Multipronged approaches that address local barriers have recently been found to be most effective in increasing the uptake of EBP by physiotherapists.<sup>[14]</sup> Based on the findings of the current study, few immediate actionable points are that administrators of public hospitals in the Eastern Province of Saudi Arabia should encourage EBP behaviors and support physiotherapists by providing them time and accessibility to relevant knowledge extraction tools. The current study also found that the respondents did not

have a thorough knowledge of research and statistical interpretations. Given that the respondents in the current study were Saudi nationals who had completed their bachelor's degree and initial training from Saudi Arabia, this finding is indicative of a weak focus toward EBP in the curriculum being taught in the country, which may be a major factor limiting its adoption, and thus requires the attention of policymakers.<sup>[8,21,24]</sup> Interestingly, in a longitudinal study that assessed the EBP knowledge, attitudes, and behavior of health professional graduates who were transitioning into the workforce, it was found that perceptions toward EBP were reduced 1 year after joining the workplace.<sup>[7]</sup> This indicates that the true effect of education on practice may be limited. Therefore, to compressively identify remedial measures, future studies from Saudi Arabia can also be conducted using knowledge-to-action strategies.<sup>[25]</sup>

### Limitations

A limitation of this study is that it only focused on physiotherapists who were working in the four major public hospitals. Moreover, the study was carried out before the COVID-19 pandemic; therefore, a more recent study would help understand if the pandemic resulted in any changes in the attitude and knowledge of physiotherapists toward EBP. Finally, despite the current study exploring the beliefs, attitudes, knowledge, and experience of Saudi physiotherapists, it did not assess the practitioners' adherence to clinical guidelines, which is an essential aspect of EBP.

### CONCLUSION

This study found that physiotherapists from the Eastern Province of Saudi Arabia have a positive attitude toward the benefits of EBP, yet several barriers exist that hinders its adoption in clinical practice. Years of experience, age, and gender were significantly associated with physiotherapists' attitudes toward implementing EBP. Self-efficacy in retrieving evidence from the literature and in interpreting, appraising, and transferring the acquired knowledge to clinical practice were factors that hindered the integration of EBP in clinical practice.

### Ethical considerations

The study received approval from the Institutional Review Board of the Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia (Reference no.: IRB-2015-03-212) on December 07, 2015. All respondents provided signed consent before participation. The study was conducted in adherence with the guidelines of Declaration of Helsinki, 2013.

### Data availability statement

The datasets generated during and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

### Peer review

This article was peer-reviewed by four independent and anonymous reviewers.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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**APPENDIX I**

**This section of the questionnaire inquires about personal attitudes toward, use of, and perceived benefits and limitations of EBP.**

For the following items, place a mark X in the appropriate box that indicates your response

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Application of EBP is necessary in the practice of physical therapy					
2. Literature and research findings are useful in my day-to-day practice					
3. I need to increase the use of evidence in my daily practice					
4. The adoption of EBP places an unreasonable demand on physical therapists					
5. I am interested in learning or improving the skills necessary to incorporate EBP into my practice					
6. EBP improves the quality of patient care					
7. EBP does not take into account the limitations of my clinical practice setting					
8. My reimbursement rate will increase if I incorporate EBP into my practice					
9. Strong evidence is lacking to support most of the interventions I use with my patients					
10. EBP helps me make decisions about patient care					
11. EBP does not take into account patient preferences					

EBP - Evidence based practice

For the following items, place a mark X in the appropriate box that indicates your response for a typical month

Question	<1 article	2-5 articles	6-10 articles	11-15 articles	16+ articles
12. Read/review research/literature related to my clinical practice					
13. Use professional literature and research findings in the process of clinical decision making					
14. Use MEDLINE or other databases to search for practice-relevant literature/research					

**The following section inquires about personal use and understanding of clinical practice guidelines.** Practice guidelines provide a description of standard specifications for care of patients with specific diseases and are developed through a formal, consensus building process that incorporates the best scientific evidence of effectiveness and expert opinion available.

For the following items, place a mark v in the appropriate box that indicates your response

Question	Yes	No	Do not know
15. Practice guidelines are available for topics related to my practice			
16. I am aware that practice guidelines are available online			
17. I am able to access practice guidelines online			

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
18. I actively seek practice guidelines pertaining to areas of my practice					
19. I use practice guidelines in my practice					
20. I am able to incorporate patient preferences with practice guidelines					

**The following section inquires about availability of resources to access information and personal skills in using those resources.**

For the following items, place a mark X in the appropriate box that indicates your response. In items referring to your “facility,” consider the practice setting in which you do the majority of your clinical care

Question	Yes	No	Do not know
21. I have access to current research through professional journals in their paper form			
22. I have the ability to access relevant databases and the Internet at my facility			
23. I have the ability to access relevant databases and the Internet at home or locations other than my facility			

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
24. My facility supports the use of current research in practice					
25. I learned the foundations for EBP as part of my academic preparation					
26. I have received formal training in search strategies for finding research relevant to my practice					
27. I am familiar with the medical search engines (eg., MEDLINE, CINAHL)					
28. I received formal training in critical appraisal of research literature as part of my academic preparation					
29. I am confident in my ability to critically review professional literature					
30. I am confident in my ability to find relevant research to answer my clinical questions					

EBP - Evidence based practice

For the following item, place a mark v in one box in the row for each term

31. My understanding of the following terms is:

Terms	Understand completely	Understand somewhat	Do not understand
a. Relative risk			
b. Absolute risk			
c. Systematic review			
d. Odds ratio			
e. Meta-analysis			
f. Confidence interval			
g. Heterogeneity			
h. Publication bias			

For the following items, rank your top 3 choices by placing numbers in the appropriate boxes (1 most important).

32. Rank your 3 greatest barriers to the use of EBP in your clinical practice.

- Insufficient time
- Lack of information resources
- Lack of research skills
- Poor ability to critically appraise the literature
- Lack of generalizability of the literature findings to my patient population
- Inability to apply research findings to individual patients with unique characteristics
- Lack of understanding of statistical analysis
- Lack of collective support among my colleagues in my facility
- Lack of interest

**The following section inquires about personal demographic information.**

*For the following items, place a mark v in the appropriate box next that indicates your response.*

33. What is your sex?  Male  Female
34. What is your age group?  20–29 y  30–39 y  40–49 y  +50 y
35. Do you currently hold a valid physical therapy license?  Yes  No
36. Years of experience



37. What is your Specialty?  Physiotherapist  Occupational therapist  
 Student  Intern  Other\_\_\_\_\_
38. What is your subspecialty?  Musculoskeletal  Neuro  Ortho  Pedia  
 OB/Gyn  Hand therapy  Lymphedema  
 Cardiovascular/pulmonary  Other \_\_\_\_\_
39. Work sector  Private  Government
40. Work domain  Clinician  Researcher
41. Are you currently studying?  Yes  No
42. What is your highest degree attained?  
 BSc  MSc  PhD