

Factors influencing attitudes toward, education, skills, barriers, and application of evidence-based practice among physiotherapists in South Korea

DOI: <https://doi.org/10.5114/pq.2022.116448>

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Abstract

Introduction. This study aimed to identify whether sociodemographic factors of physiotherapists had a significant effect on attitudes toward, education, skills, barriers to, and clinical applications of evidence-based practice (EBP) in South Korea.

Methods. A questionnaire-based survey was conducted among 971 physiotherapists working in the clinical field. The survey was performed online by using a Google form.

Results. Among the sociodemographic characteristics, age, educational background, and working experience had a significant effect on EBP attitude, education, and skills, while age, educational background, type of facility, patients per day, and number of physiotherapists at the facility had a significant effect on the EBP barrier. In addition, socio-demographic factors such as gender, age, and educational background exerted a significant impact on EBP clinical application.

Conclusions. These findings suggest that sociodemographic factors of physiotherapists can influence the EBP attitudes, education, skills, barriers, and clinical applications. Therefore, it is necessary to develop various educational programmes that deal with EBP components and procedures in physiotherapy. In addition, extensive support and resources from institutions may help to improve the quality of physiotherapy in health care and medical fields.

Key words: clinical application, evidence-based practice, physiotherapy, sociodemographic factors

Introduction

Physiotherapists are health professionals who play an important role in restoring the mobility and functionality in people with physical impairments, thereby contributing to their independence and improving their quality of life [1]. Currently, the paradigm toward evidence-based practice (EBP) has been accepted as the best model to provide successful outcomes in the rehabilitation of various injuries and diseases, highlighting its use in clinical decision-making processes to develop optimal solutions [2]. Furthermore, recommendations from the World Confederation for Physical Therapy have focused on applying EBP in clinical practice to reap the benefits from physiotherapy.

EBP is a useful source for establishing proper diagnosis and treatment plans [3], which helps to make physiotherapy more valuable as a medical service targeting functional improvement. This concept has a great impact on health and medical fields. EBP involves a series of processes that integrate evidence from systemic research, clinical expertise, and patient values [3], and research data have been used extensively to obtain therapeutic flow in the best possible manner [4]. With this process, physiotherapists can increase therapeutic quality and fidelity by raising diagnostic precision [5]. In particular, given that this helps to integrate numerous information on patients' expectations, cultural beliefs, and behavioural preferences for clinical reasoning, therapeutic effects are more augmented by preventing the mismatch of symptom and intervention and inhibiting improper

use of treatment [6, 7]. For these reasons, physiotherapists have widely used EBP to extend the positive effects of the intervention [8]. Nowadays, the viewpoint has gradually changed toward increased interest in EBP, which began with the enlargement of educational courses to promote EBP application in clinical practice [9].

Recent physiotherapy curricula in college and graduate schools support efficient learning of professional techniques and knowledge, which involves a literature review for their application in clinical settings, thus facilitating the EBP use [10]. In the context of these trends, questions related to EBP have been included in the national examination for physiotherapist, with the aim to analyse scientific evidence of therapeutic effects [11]. However, given that the attitudes of physiotherapists frequently depend on their own preferences and beliefs in therapeutic techniques and skills rather than focus on applying research-based evidence [8, 12], recognition of EBP is insufficient among physiotherapists in South Korea. Moreover, the dilemma in the EBP application results from insufficient time and the lack of employer support and resources to find evidence, as well as the lack of understanding of the EBP procedures for generalizing statistical data and results from available studies [13, 14].

Although numerous reports have been broadly published to provide scientific evidence of intervention effects, it is more important that physiotherapists have better attitudes toward EBP and use it efficiently in real situations [15]. This needs to develop educational programmes that extend the opportunity to merge information from research and practi-

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Received: 09.06.2021

Accepted: 20.09.2021

Citation: Lee Y-S, Oh D-W, Kim S-S. Factors influencing attitudes toward, education, skills, barriers, and application of evidence-based practice among physiotherapists in South Korea. *Physiother Quart.* 2022;30(3):19–26; doi: <https://doi.org/10.5114/pq.2022.116448>.

cal knowledge [16], which is a useful framework to promote the competency of physiotherapists as professionals in the health and medical fields [17]. To support this requirement, research might be important to illustrate the clinical aspects associated with the entire process of EBP, including its recognition, exploration, and application. In particular, it should be considered that there are sociodemographic factors influencing EBP application in the field of physiotherapy. However, in South Korea, there has not been enough research on EBP-related factors such as attitudes, education, barriers, skills, and application in clinical practice. In addition, the clinical relevance of sociodemographic factors in EBP remains unclear. Accordingly, this study aimed to identify the impact of sociodemographic factors on EBP attitudes, education, barriers, skills, and application among physiotherapists in South Korea.

Subjects and methods

Participants

This study lasted for 8 weeks, from July 20 to September 12, 2020. Upon online sampling by using a Google survey form, data were collected from licensed physiotherapists working at private clinics or general hospitals for the care of orthopaedic and neurological conditions. They were all members of the Korean Physical Therapy Association. Table 1 shows the sociodemographic factors of the respondents. Response rates were higher for younger physiotherapists (63.44%) and those with shorter work experience (53.24%). Additionally, more than 70% of the participants practised in either rehabilitation or private clinics, and the majority (53.7%) worked > 41 hours per week. Initially, the subjects returned 994 questionnaires; however, survey data of 971 physiotherapists were included in the final analysis because 23 questionnaires were not eligible for selection criteria, that is, they were completed by respondents who were not involved in clinical practice (Figure 1).

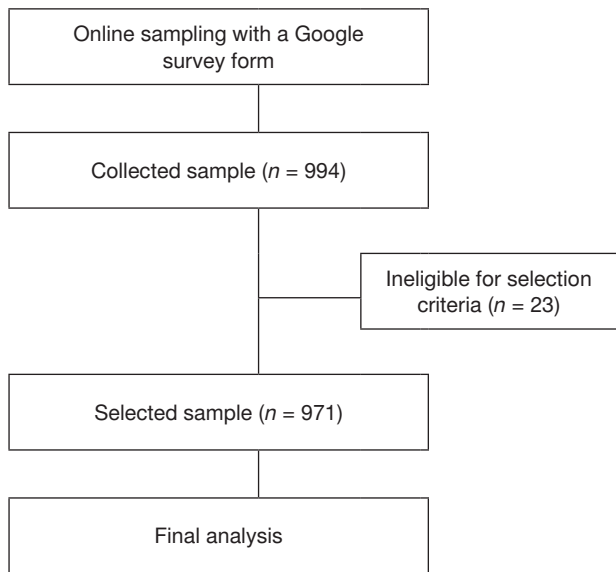


Figure 1. Flow chart of the study

Questionnaire

The questionnaire used in this study, presented in the Appendix, was modified from a study by Jette et al. [8] and obtained with their permission. It was a self-reporting questionnaire, and it was suggested that all items were mandatory to increase the accuracy of the survey responses. To raise

Table 1. Sociodemographic characteristics of respondents

Variables	n	%
Gender		
Female	583	60.04
Male	388	39.96
Age (years)		
≤ 29	616	63.44
30–39	283	29.15
≥ 40	72	7.42
Educational background		
Associate degree	309	31.82
Bachelor’s degree	522	53.76
Master or doctoral degree	140	14.42
Work experience (years)		
≤ 5	517	53.24
6–10	311	32.03
11–15	85	8.75
≥ 16	58	5.97
Type of facility		
Senior general hospital	90	9.27
Quasi-general hospital	159	16.37
Rehabilitation hospital	390	40.16
Private clinic	332	34.19
Working hours per week		
≤ 20	30	3.09
21–30	35	3.60
31–40	385	39.65
≥ 41	521	53.66
Patients per day		
≤ 5	142	14.62
6–10	345	35.53
11–15	393	40.47
≥ 16	91	9.37
Number of physical therapists at facility		
≤ 5	222	22.86
6–10	240	24.72
11–15	119	12.26
≥ 16	390	40.16
Professional fields		
Orthopaedic	453	46.65
Neurological	518	53.35
Total	971	

survey participation, modifications were made to simplify the contents of the questions and to reduce their number by integrating similar questions to avoid repetition. The closed-ended questionnaire consisted of 26 questions from the EBP-related 6 sections: sociodemographic factors (questions 1–9), attitudes (questions 10–14), education (questions 15–16), skills (questions 17–19), barriers (questions 20–25), and clinical application (question 26) toward the EBP. All responses to questions concerning attitudes, education, skills, and application toward EBP were addressed with a 5-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, and 5 – strongly agree). Related to barriers of the EBP, questions 20–24 were addressed by selecting one of 3 items (1 – yes, 2 – no, and 3 – do not know), with yes and no responses scoring 1 and 0 points for data analysis, respectively. In question 25, 3 of 9 items were selected, but the response was not included in the data analysis.

Data analysis

In this study, data were analysed by using the Windows SPSS (Statistical Package for the Social Sciences) software, version 21.0 (IBM SPSS Statistics). Sociodemographic factors of respondents were presented with descriptive statistics. To identify differences in attitudes, education, skills, barriers, and application pertaining to EBP considering sociodemographic factors, an independent *t*-test and one-way analysis of variance (ANOVA) were used, with a post-hoc test with Bonferroni adjustment for multiple comparisons when statistical significance was found in one-way ANOVA. Furthermore, by converting nominal and ordinal scales to dummy parameters, sociodemographic factors influencing attitudes, education, skills, barriers, and application toward EBP were analysed with multiple regression analysis. Statistical significance was set at $p < 0.05$.

Ethical approval

The research related to human use has complied with all the relevant national regulations and institutional policies, has followed the tenets of the Declaration of Helsinki, and has been approved by the Institutional Review Board of the National Traffic Injury Rehabilitation Hospital (approval No.: NTRH-20012).

Informed consent

Informed consent has been obtained from all individuals included in this study.

Results

Differences in EBP attitudes, education, skills, barriers, and application considering sociodemographic factors of physiotherapists

Table 2 illustrates the differences in EBP attitudes, education, skills, barriers, and application considering sociodemographic factors. The attitudes toward EBP showed significant differences in gender, educational background, and the number of physiotherapists at the facility ($p < 0.01$), indicating more positive attitudes in males, with higher educational background, and with more physiotherapists working at the facility. Regarding education, there were significant differences in age, educational background, and work experience ($p < 0.01$), suggesting that more education was received in younger age groups, with higher educational backgrounds, and with shorter work experience. The skills toward EBP showed significant differences in educational background,

work experience, type of facility, working hours per week, and numbers of physiotherapists at the facility ($p < 0.01$), indicating better skills associated with higher educational backgrounds, longer work experience, senior general hospital, fewer working hours per week, and more physiotherapists at the facility. The barriers toward EBP revealed significant differences in age, educational background, work experience, number of patients per day, and number of physiotherapists at the facility ($p < 0.05$), suggesting greater barriers in the older age group, as well as with higher educational background, longer work experience, more patients per day, and fewer physiotherapists at the facility. The clinical application of EBP appeared to be significantly different when considering gender, educational background, type of facility, and working hours per week ($p < 0.05$), suggesting more frequent application in males and with higher educational background, senior general hospitals, and less working hours per week.

Sociodemographic factors affecting EBP attitudes, education, skills, barriers, and application among physiotherapists

Table 3 illustrates the sociodemographic factors influencing the EBP attitudes, education, skills, barriers, and application among physiotherapists. Regression models showed statistically significant differences in attitudes ($F = 3.833$, $\text{adj-}R^2 = 0.058$), education ($F = 8.806$, $\text{adj-}R^2 = 0.145$), skills ($F = 9.954$, $\text{adj-}R^2 = 0.162$), barriers ($F = 4.745$, $\text{adj-}R^2 = 0.075$), and application ($F = 5.095$, $\text{adj-}R^2 = 0.081$) ($p < 0.001$). In all EBP-related factors, variance inflation factors to quantify multicollinearity appeared to be < 10 for all independent variables, indicating that the regression results were reliable [18]. The results suggested that attitudes were significantly dependent on gender, age, educational background, work experience, and number of physiotherapists at the facility ($p < 0.05$), and that education was correlated with age, educational background, work experience, working hours per week, and number of physiotherapists at the facility ($p < 0.05$). Furthermore, sociodemographic factors influencing skills were age, educational background, work experience, type of facility, and working hours per week ($p < 0.05$), and as for the barriers, significant effects were found for age, educational background, type of facility, patients per day, and number of physiotherapists at the facility ($p < 0.05$). Significant impacts on EBP application were given by gender, age, and educational background ($p < 0.05$).

Discussion

This study aimed to demonstrate the impact of sociodemographic factors on attitudes, education, skills, barriers, and application of EBP among physiotherapists in South Korea. The results suggested that the significant factors were age, educational background, and work experience for the attitudes, education, and skills; and age, educational background, type of facility, patients per day, and number of physiotherapists at the facility for barriers. Furthermore, gender, age, and educational background had a significant impact on the clinical application of EBP.

The World Confederation for Physical Therapy has emphasized that EBP is a leading paradigm to optimize the benefits of evaluation and treatment since 2001. In turn, the Korean Physical Therapy Association endeavours to supply available resources for EBP and to make it more readily accessible in clinical practice [19]. For example, publication of EBP guidebooks and establishment of EBP-related educational programmes have been implemented to enhance

Table 2. Differences of the attitudes, education, skills, and barriers toward evidence-based practice depending on sociodemographic factors

Variables	Attitudes	<i>t</i> or <i>F</i>	Education	<i>t</i> or <i>F</i>	Skills	<i>t</i> or <i>F</i>	Barriers	<i>t</i> or <i>F</i>	Application	<i>t</i> or <i>F</i>
Gender										
Male	4.03 ± 0.62	4.154**	3.18 ± 1.00	−0.122	3.09 ± 0.81	3.055	2.20 ± 1.49	0.484	3.22 ± 0.84	5.209***
Female	3.87 ± 0.53		3.19 ± 0.96		2.94 ± 0.75		2.15 ± 1.55		2.95 ± 0.78	
Age (years)										
≤ 29	3.91 ± 0.57	1.546	3.30 ± 0.91 ^a	20.942***	2.96 ± 0.74	1.749	1.93 ± 1.51 ^b	20.614***	3.02 ± 0.78	2.417
30–39	3.98 ± 0.59		3.11 ± 1.04 ^b		3.06 ± 0.85		2.56 ± 1.44 ^a		3.14 ± 0.87	
≥ 40	3.96 ± 0.50		2.55 ± 1.01 ^c		3.06 ± 0.81		2.63 ± 1.55 ^a		3.06 ± 0.89	
Educational background										
Associate degree	3.79 ± 0.58 ^c	21.692***	2.98 ± 0.88 ^c	19.785***	2.82 ± 0.71 ^b	80.72***	2.00 ± 1.60 ^b	3.949*	2.97 ± 0.77 ^{bc}	30.831***
Bachelor's degree	3.96 ± 0.56 ^b		3.20 ± 0.99 ^b		2.91 ± 0.73 ^b		2.19 ± 1.50 ^{ab}		2.98 ± 0.81 ^b	
Master or doctoral degree	4.15 ± 0.52 ^a		3.59 ± 1.00 ^a		3.71 ± 0.73 ^a		2.43 ± 1.39 ^a		3.54 ± 0.76 ^a	
Work experience (years)										
≤ 5	3.92 ± 0.59	1.434	3.37 ± 0.87 ^a	17.424***	2.99 ± 0.73 ^{ab}	3.078*	1.92 ± 1.54 ^b	10.506***	3.03 ± 0.78	2.268
6–10	3.93 ± 0.55		3.08 ± 1.03 ^b		2.94 ± 0.81 ^b		2.41 ± 1.41 ^a		3.04 ± 0.84	
11–15	3.99 ± 0.59		2.88 ± 1.08 ^{bc}		3.18 ± 0.93 ^a		2.52 ± 1.53 ^a		3.25 ± 0.86	
≥ 16	4.07 ± 0.50		2.61 ± 1.03 ^c		3.17 ± 0.75 ^a		2.59 ± 1.55 ^a		3.17 ± 0.86	
Type of facility										
Senior general hospital	4.04 ± 0.56	2.035	3.11 ± 0.97	1.116	3.17 ± 0.81 ^b	2.647*	2.50 ± 1.34	1.901	3.24 ± 0.77 ^a	2.285*
Quasi-general hospital	3.98 ± 0.62		3.19 ± 1.01		3.01 ± 0.87 ^{ab}		2.13 ± 1.56		3.14 ± 0.85 ^{ab}	
Rehabilitation hospital	3.93 ± 0.53		3.25 ± 0.97		3.02 ± 0.72 ^{ab}		2.08 ± 1.49		3.03 ± 0.78 ^b	
Private clinic	3.89 ± 0.60		3.13 ± 0.97		2.92 ± 0.79 ^a		2.19 ± 1.59		3.00 ± 0.84 ^b	
Working hours per week										
≤ 20	3.72 ± 0.71	2.274	3.63 ± 0.87	2.496	3.36 ± 0.81 ^a	4.448**	1.73 ± 1.72	1.195	3.30 ± 0.99 ^{ab}	3.292*
21–30	3.80 ± 0.73		3.20 ± 0.93		3.17 ± 0.81 ^{ab}		2.09 ± 1.58		3.34 ± 0.76 ^a	
31–40	3.94 ± 0.57		3.21 ± 0.99		3.05 ± 0.78 ^{ab}		2.13 ± 1.53		3.09 ± 0.79 ^{ab}	
≥ 41	3.95 ± 0.55		3.14 ± 0.97		2.93 ± 0.77 ^a		2.23 ± 1.51		3.00 ± 0.82 ^b	
Patients per day										
≤ 5	3.92 ± 0.55	1.143	3.25 ± 1.00	0.531	2.95 ± 0.77	1.294	1.94 ± 1.55 ^{bc}	7.929***	3.00 ± 0.83	1.919
6–10	3.97 ± 0.59		3.21 ± 0.93		3.06 ± 0.73		1.98 ± 1.44 ^c		3.12 ± 0.78	
11–15	3.93 ± 0.56		3.14 ± 1.00		2.98 ± 0.79		2.29 ± 1.51 ^{ab}		3.05 ± 0.80	
≥ 16	3.85 ± 0.60		3.17 ± 1.04		2.94 ± 0.93		2.73 ± 1.67 ^a		2.91 ± 0.98	
Number of physical therapists at facility										
≤ 5	3.83 ± 0.59 ^b	4.029**	3.08 ± 0.99	1.449	2.96 ± 0.79 ^b	4.076**	2.50 ± 1.58 ^a	5.561**	3.01 ± 0.86	0.959
6–10	3.92 ± 0.61 ^{ab}		3.18 ± 0.96		2.97 ± 0.82 ^b		2.08 ± 1.48 ^b		3.05 ± 0.83	
11–15	3.97 ± 0.56 ^{ab}		3.26 ± 1.07		3.23 ± 0.79 ^a		2.24 ± 1.61 ^{ab}		3.17 ± 0.87	
≥ 16	4.00 ± 0.53 ^a		3.23 ± 0.95		2.97 ± 0.74 ^b		2.00 ± 1.47 ^b		3.05 ± 0.76	
Professional fields										
Orthopaedic	3.94 ± 0.61	0.215	3.13 ± 0.96	−1.743	2.97 ± 0.80	−1.210	2.23 ± 1.56	1.242	3.08 ± 0.83	0.894
Neurological	3.93 ± 0.53		3.24 ± 0.99		3.03 ± 0.76		2.11 ± 1.49		3.03 ± 0.81	

Post-hoc analysis: Scheffé or Dunnett T3, ^a > ^b > ^c
* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table 3. Sociodemographic factors influencing the attitudes, education, skills, barriers, and application of evidence-based practice

Variables	Attitudes (β)	Education (β)	Skills (β)	Barriers (β)	Application (β)
Gender					
Female					
Male	0.096***	−0.016	0.048	−0.042	0.145***
Age (years)					
≤ 29					
30–39	−0.033	−0.028	−0.048	0.166***	−0.070
≥ 40	−0.129*	−0.140**	−0.112*	0.115*	−0.158**
Educational background					
Associate degree					
Bachelor’s degree	0.121***	0.129***	0.064	0.079*	−0.018
Master or doctoral degree	0.194***	0.363***	0.428***	0.042	0.219***
Work experience (years)					
≤ 5					
6–10	0.004	−0.172***	−0.079*	0.042	0.000
11–15	0.036	−0.167***	0.007	−0.007	0.070
≥ 16	0.120*	−0.170**	0.008	−0.005	0.088
Type of facility					
Senior general hospital					
Quasi-general hospital	0.036	−0.055	0.016	0.099*	0.041
Rehabilitation hospital	0.045	−0.005	0.048	0.063	0.067
Private clinic	0.023	0.032	0.117*	0.092	0.074
Working hours per week					
≤ 20					
21–30	0.014	−0.067	−0.054	0.019	0.001
31–40	0.154	−0.158	−0.201*	0.070	−0.129
≥ 41	0.175	−0.199*	−0.231**	0.147	−0.167
Patients per day					
≤ 5					
6–10	−0.037	−0.030	0.009	−0.004	0.016
11–15	−0.048	−0.069	−0.027	0.124*	0.015
≥ 16	−0.047	0.052	0.018	0.112**	−0.033
Number of physical therapists at facility					
≤ 5					
6–10	0.056	0.053	0.004	−0.117**	0.001
11–15	0.063	0.085*	0.059	−0.095*	0.021
≥ 16	0.143**	0.051	−0.053	−0.219***	0.010
Professional fields					
Orthopaedic					
Neurological	0.059	−0.040	0.000	0.025	0.081
Adj- <i>R</i> ²	0.058	0.145	0.162	0.075	0.081
<i>F</i>	3.833***	8.806***	9.954***	4.745***	5.095***

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

the insights of physiotherapists as to EBP. This highlights the importance of providing physiotherapy interventions based on the highest level of evidence by integrating extensive information from numerous studies [4]. To pursue this goal, all aspects of EBP should be directly learned in the field of education, such as college and graduate school, helping to raise the quality of clinical practice [20]. Given that recent educational courses in physiotherapy schools involve the learning of professional techniques and knowledge associated with an EBP process to expand the clinical application of EBP, most physiotherapists know EBP well and show positive attitudes toward its clinical utilization [10]. In the context of this trend, a variety of EBP-related questions have increasingly been implemented in national examinations for the license of physiotherapist in South Korea, which becomes fundamental to support clinical decision-making processes based on scientific evidence of intervention effects [11].

As found in our study, gender was a significant factor that influenced the clinical application of EBP: men use EBP more. In South Korea, 64.13% of individuals who are professionally active registered physiotherapists are women [21]. However, cultural background should be considered, as it can influence people's attitude and belief. Traditionally, social demands made women less active. At present, this has improved owing to extending of women's roles in the society; however, they still often report some difficulties in performing various social activities. We believe that our finding might be relevant to societal roles. Furthermore, this study revealed that attitudes toward EBP were positive for younger age and with higher educational background. This indicates that education plays an important role in altering attitudes toward EBP. In fact, the 30–39-year age group has the highest proportion (38.85%) of registered physiotherapists in South Korea [21]. However, in our study, the 20–29-year age group showed the highest rate of respondents (63.44%). Young physiotherapists are relatively accessible to online systems because they have advanced knowledge regarding updated information provided at schools. That is, current educational courses for students and continuing educational programmes for physiotherapists may provide an opportunity to have positive attitudes toward EBP by enabling physiotherapists to know the necessity of EBP in clinical practice [22]. Nevertheless, EBP is often not effectively applied in the professional field, even though physiotherapists understand it well [23]. Therefore, it is necessary to develop systematic education for physiotherapists, including basic components and procedures of EBP to facilitate its application in clinical conditions [24], thus helping to maintain positive attitudes toward EBP in clinical settings.

In South Korea, it is likely that physiotherapists with longer work experience will not have many opportunities for EBP-related education because of the lack of EBP classes in school. As indicated by this study, this may be associated with insufficient skills for EBP. However, in spite of this disadvantage, our results showed that good attitudes toward EBP were attained by longer work experience. This represents the efforts to compare benefits and limits from experience-based knowledge, and thereby to find the EBP for optimal treatment. Accordingly, continuing education programmes and resources related to EBP are required to support these efforts in clinical practice. On the other hand, in this study, the EBP education and skills were positive for younger age and shorter work experience. A previous study [25] reported that physiotherapists with < 5 years of work experience were more familiar with searching data for EBP and more skilful in using EBP data. Similarly, our results revealed

that education and skills toward EBP were most positive with work experience < 5 years.

EBP skills imply finding optimal evidence related to the intervention by searching the literature, reviewing it critically, and interpreting results [26]. It requires enough time to meet this goal [27]; however, physiotherapists frequently report that there is not enough time to follow this process because of excessive work burdens. As found in this study, EBP education and skills were positive for fewer working hours per week. The lack of time has been recognized as the greatest barrier in applying EBP in clinical practice [8, 9, 28]. For example, physiotherapists must treat more than 11 patients per day on average, which indicates working > 31 hours per week in South Korea. Similarly, our results showed that the limitation in clinical application of EBP was greater among physiotherapists working > 41 hours per week than those working < 20 hours per week. An increased number of working hours not only directly or indirectly affect the quality of rehabilitation therapy [29], but also contribute to a high risk of work-related musculoskeletal disorders [30]. Therefore, better treatment should be started from sufficient time to access the research database and literature review at work [31].

In this study, a higher educational background was significantly associated with a positive impact on EBP. In South Korea, some physiotherapists enrol in a higher educational programme, such as a master's or doctorate degree, for further study on advanced physiotherapy, although the academic requirements for a physiotherapist include completing a 3-year or 4-year educational course at a university. A previous study reported that physiotherapists who learned about EBP had more opportunity to use scientific research evidence in the clinical reasoning process [8, 32]; this contributes to improved attitudes and skills toward EBP [33]. However, opportunities for EBP education (33.10%) and therapists' ability to critically review the literature (21.5%) might be inadequate in South Korea [34]. Therefore, it is necessary to amplify educational courses related to EBP at college and graduate school, and to constantly develop continuing education programmes for EBP to support the effects of therapeutic techniques [35] and thus to eliminate dependence on private experience and biased beliefs about treatment.

Limitations

We acknowledge several limitations that should be addressed in future studies. First, given that this study used an online survey form to collect data, our results cannot describe the results of physiotherapists who are not accessible through an online system. Second, the results of a self-reported questionnaire might not be free from incorrect responses due to misunderstanding of questions. Third, the facility types and professional fields of the questionnaire respondents hardly represent all health and medical situations among physiotherapists. Despite these limitations, this study may be advantageous in identifying the impacts of sociodemographic factors on attitudes, education, skills, barriers, and application regarding EBP in South Korea, which have not been investigated until now. The study provides valuable information to promote the expertise of physiotherapists by recognizing EBP and applying it in clinical practice. Further research is required to facilitate EBP application.

Conclusions

EBP may be the best strategy to manage physical illness and disability toward full recovery of functional mobility. It im-

proves the quality of treatment and cost-effectiveness by developing rehabilitation plans with precise diagnosis and evaluation based on scientific evidence and applying them in clinical practice. However, there are numerous factors that affect the EBP application in clinical physiotherapy settings, and recognition of these factors is important to improve the position of physiotherapists as professionals to guide functional recovery. This study investigated the influence of sociodemographic factors on the attitudes toward, education, skills, barriers, and application of EBP among physiotherapists in South Korea. The results showed that attitudes, education, and skills toward EBP depended significantly on age, educational background, and work experience; barriers to EBP were significantly associated with age, educational background, type of facility, patients per day, and number of physiotherapists at the facility. Furthermore, significant influences on clinical application of EBP were shown by sociodemographic factors such as gender, age, and educational background. These findings suggest that sociodemographic factors of physiotherapists can influence the attitudes toward, education, skills, barriers, and clinical applications of EBP. The study implies that it is necessary to expand educational programmes and institutional support by adjusting workload to facilitate access to research data in clinical practice as a way to promote the EBP-related factors of physiotherapists.

Disclosure statement

No author has any financial interest or received any financial benefit from this research.

Conflict of interest

The authors state no conflict of interest.

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Appendix

The questionnaire for physiotherapists' evidence-based practice

Section 1: Sociodemographic data

What is your gender?
☐ Male ☐ Female

What is your age group?
☐ 20–29 years ☐ 30–39 years ☐ 40–49 years ☐ ≥ 50 years

What is your final academic degree?
☐ Associate degree ☐ Bachelor's degree ☐ Master or doctoral degree

How many years have you worked as a licensed physiotherapist?
☐ ≤ 5 years ☐ 6–10 years ☐ 11–15 years ☐ ≥ 16 years

What type of facilities do you work at?
☐ Senior general hospital ☐ Quasi-general hospital
☐ Rehabilitation hospital ☐ Private clinic

How many hours do you work in a week on average?
☐ ≤ 20 hours ☐ 21–30 hours ☐ 31–40 hours ☐ ≥ 41 hours

How many patients do you treat per day on average?
☐ ≤ 5 ☐ 6–10 ☐ 11–15 ☐ ≥ 16

How many physiotherapists are working at your current facility?
☐ ≤ 5 ☐ 6–10 ☐ 11–15 ☐ ≥ 16

What is your professional area in practice?
☐ Musculoskeletal ☐ Neurologic ☐ Cardiopulmonary ☐ Other

Section 2: Personal attitudes

EBP is necessary in the practice of physiotherapy.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

I am interested in applying EBP into my practice.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

EBP helps in the decision-making process in physiotherapy.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

EBP enhances the quality of patient care.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

There is a clear difference between theoretical research and actual clinical practice.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

Section 3: Education

I learned the basics of EBP as part of my college curriculum.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

I have trained in search strategies to find research related to my practice.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

Section 4: Skills

I am familiar with medical search engines.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

I can search the relevant literature to answer clinical questions.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

I can review professional literature critically.
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

Section 5: Barriers

I can access the Internet at my workplace and search related databases.
☐ Yes ☐ No ☐ Do not know

My workplace supports the use of the recent research materials in clinical practice.
☐ Yes ☐ No ☐ Do not know

I have enough time to review and evaluate the literature at my workplace.
☐ Yes ☐ No ☐ Do not know

Workplaces provide financial support to participate in EBP-related education or academic conferences.
☐ Yes ☐ No ☐ Do not know

Colleagues are active in applying new EBP.
☐ Yes ☐ No ☐ Do not know

Identify barriers that most affect the use of EBP in clinical practice (number 1–9).
☐ Lack of information resources
☐ Inadequate time
☐ Lack of interest
☐ Lack of support from my colleagues in workplace
☐ Inability to apply research findings to patient care
☐ Lack of research skills
☐ Lack of critical thinking in literature
☐ Language restrictions on reviewing international papers
☐ Other

Section 6: Clinical application

Do you adequately use EBP for physiotherapy interventions in your patients?
☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree