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Original Article

Speech-Language Pathologists and Evidence-Based Practice: Navigating Attitudes, Exposure, and Barriers

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What is already known on this topic?

- *In Türkiye, the field of speech and language pathology is newly established and developing. Although it is in its early stages, SLP departments are being opened in many cities. When the national literature is examined, evidence-based studies are observed.*

What this study adds on this topic?

- *This study identifies whether Turkish speech pathologists follow current national and international literature, what information sources they consult when undecided about their clients' diagnosis and/or therapy process, and to what extent they benefit from their clinical experience.*
- *This investigation reveals that exposure to evidence-based practice (EBP) should be heightened either in workplaces or during internships, and the SLP curriculum followed in Turkiye should incorporate more courses on EBP. Furthermore, it helps to establish the current trajectory and raise awareness for EBPs among Turkish SLPs.*

ABSTRACT

Objective: This preliminary study aims to determine whether Speech and Language Pathologists (SLPs) in Türkiye utilize evidence-based practices (EBP) and their attitudes toward EBP. The information sources SLPs use for clinical decision-making, and the relevant barriers they encounter are also among the objectives.

Methods: This study employed a descriptive research design and included 88 SLPs. Data were collected using a four-section, 46-item questionnaire, which was administered online through alumni groups of university speech and language therapy departments and the email group of the Turkish Association of Speech and Language Therapists. Data collection took place between December 2022 and March 2023.

Results: Participants showed a strong consensus (91.3%) regarding the importance of EBP in clinical settings. Those with postgraduate degrees demonstrated more positive attitudes toward EBP than those with only a BA, and overall attitudes were positively correlated with both exposure to and use of EBP ($P < .05$). No significant difference was observed in the use of EBP resources between the 2 educational groups. The main barriers identified were quality and the quantity of research, and time constraints.

Conclusion: SLPs in Türkiye highly value EBP despite challenges related to resources and time. Increasing opportunities for EBP exposure—through workplace training and internship experiences—and integrating more EBP-related coursework into university curricula could further strengthen its implementation in the field.

Keywords: Evidence-based practice, speech and language pathology, attitude, barrier

Introduction

Evidence-based practice (EBP) refers to the application of therapy approaches based on the evidence produced through research, clinical experience, and informed preferences of clients/caregivers.[1,2,3] Clinical expertise regards the knowledge, judgment, and critical reasoning gained through education/training and professional experience. In the same vein, external evidence refers to the knowledge distilled from the data sets reported in the relevant literature. The last, but not least, component of EBP—personal preferences of the clients and primary caregivers—refers to cultural features, values, priorities, and expectations. The aim of EBP can be summarized as the provision of high-quality services that reflect the clients' interests, values, needs, and preferences.[1,4]

Though the foundation of EBP dates back to hundreds of years, the recent rise of EBP can be attributed to the development of a bio-psycho-social perspective in the health domain and to the increase of relevant

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scientific research and teamwork. The initial step in this sense was taken through evidence-based medicine launched by a study group at McMaster University during the early 1990s.[5] The following decade was the time when EBP started to expand. Accordingly, rehabilitation professionals embraced evidence-based practice, websites were developed, and virtually all scientific journals turned their focus onto EBP.[6] Similarly, research endeavors on EBP (attitudes toward EBP, use of EBP, encountered barriers in EBP, etc.) spiked during those years.

EBP has emerged from the larger movement of evidence-based medicine[5] and has gradually spread throughout rehabilitation sciences and allied health professions, including physical therapy[7] and occupational therapy,[8,9] and nursing.[10,11,12] In the field of speech-language pathology, professional organizations like the American Speech-Language-Hearing Association (ASHA) and Speech Pathology Australia have emphasized the importance of EBP as an ethical and professional standard that guides clinical decision-making.[4,13] Regarding EBP, speech-language pathologists (SLPs) operate within a structured clinical decision-making framework encompassing assessment, goal selection, planning, implementation, and evaluation. At every stage of this process, the information collected—such as evaluating a client's skills and needs—coupled with the methodologies employed, like testing an intervention, and the data gathered during progress monitoring, all contribute to an evidence-based decision-making approach.[13]

Early studies highlighted both the benefits and challenges of adopting EBP among SLPs.[14,15,16] All these have consistently shown that SLPs value EBP and consider it essential for effective intervention. Besides, based on the results of Zipoli and Kennedy (2005) regarding the SLPs' EBP use, personal clinical experiences and colleagues' opinions are the most, and case studies and audio-video recordings are the least utilized sources of information among SLPs.[16] The same study also concludes that familiarity with EBP during the training or internship is directly proportionate to making use of EBP. On the other hand, SLPs face barriers that hinder its full implementation. Those barriers include limited time, lack of access to research databases, and insufficient research skills. In addition, access to relevant information and a lack of funding are frequently reported as the barriers impeding the use of EBP by SLPs.[17,18,19,20,21,22,23]

Although extensive research exists in international literature on the utilization of EBP among SLPs, there is a lack of studies specifically focusing on SLPs in Türkiye. Speech and language pathology is an emerging profession in Türkiye. The study conducted by Toğram et al. (2020) revealed that the number of SLPs in Türkiye remains limited.[24] Furthermore, the clinical experience periods of these professionals are very short, and their distribution across the country has not yet reached an adequate level. The sectors (locations) in which they work, and the variety of cases are limited. In addition, these professionals have higher expectations regarding the use of their expertise, that their caseloads and workloads are heavy, and that there is no clear framework for the ideal distribution and management of time allocated to the services they provide. The recent growth of undergraduate programs commenced at the faculties of health sciences across various cities and regions has considerably increased the number of SLPs in the country. However, the extent to which graduates of these programs incorporate EBP into clinical assessment and therapy remains unanswered in the relevant literature. Given that the first graduates of a post-graduate speech and language pathology program started to work during the early 2000s, it is important to examine whether the SLPs in Türkiye stay up to date with both the national and international literature, if they have subscriptions to any relevant periodicals, what sources of information they refer back when making clinical decisions regarding the diagnosis and therapy programs of their clients, to what extent they rely on their clinical experiences, and if they consider the opinions of their clients.

Accordingly, the study aims to examine the extent to which Turkish SLPs engage in EBP, the factors (e.g., exposure, educational background) that influence their attitudes and use of EBP, and the perceived barriers.

Methods

Research Design

This preliminary study has been conducted in line with the survey method—a descriptive research model. Upon this design, the dependent variables are attitudes towards EBP, use of EBP, and barriers, whereas the independent variables are clinical seniority, type of degree, and exposure to EBP during either training or internship. The research received approval from the Board of Ethics for Scientific Research and Publication in Health Sciences at Anadolu University (Approval No.:443005, Date: November 30, 2022). It was conducted in accordance with the Declaration of Helsinki.

Participants

The participants include Turkish SLPs working at special education and rehabilitation centers, state or private hospitals, universities, their own clinics, or at a private clinic. The inclusion criteria for the participants are (i) holding an undergraduate or graduate degree in speech and language pathology in Türkiye and (ii) working as an SLP in Türkiye. Consequently, a total of 88 speech and language pathologists between the ages of 22 and 51 have participated in the current research. A post hoc power analysis using G*Power 3.1 indicated that the achieved power for detecting a medium effect size ($r = 0.35$) at $\alpha = .05$ with $n = 88$ was 0.92, suggesting that the sample size was adequate for the correlation-based analyses.[25] Relevant demographic information of participants is given in Table 1.

Survey Development

The survey employed by Zipoli and Kennedy (2005) was translated into Turkish by the authors of the current study. Two of these authors had backgrounds in linguistics and English language teaching, and all had high proficiency in English. Each researcher independently translated the original English version into Turkish. During the adaptation process, items incompatible with the labor system in Türkiye (e.g., ASHA membership, Certificate of Clinical Competence [CCC]) were removed. After completing their independent translations, the researchers evaluated the items' clarity and relevance to establish content validity. The Content Validity Ratio (CVR) ranged from .80 to 1.00, and the Content Validity Index (CVI) was 0.92, indicating satisfactory content validity.[26] This consensus version was finalized as the Turkish adaptation of the survey. To ensure objectivity, an independent person with an academic background in English education performed the back-translation. The original English version and the back-translated Turkish version were carefully compared to evaluate accuracy and ensure conceptual equivalence. A pilot study with three SLPs was conducted to assess the Turkish version of the survey. During this pilot, it was confirmed that all items were clearly understood and caused no confusion among participants.

As a result, the final version of the survey consists of four sections with 46 items in total (see Appendix): (1) 3 items on participants' demographic and professional background, (2) 16 items on exposure and attitudes toward EBP, (3) items assessing the frequency of using 11 information sources in the past 6 months, and (4) 5 items addressing perceived barriers to EBP. While the first section included short-answer or multiple-choice items, the remaining sections used a 5-point Likert scale (1 = Strongly Disagree/Never, 5 = Strongly Agree/Always). Lastly,

Table 1. Demographic Information and Caseload Characteristics of the Participants

Characteristic	Speech-Language Pathologists n = 88	
	n	%
Education		
Undergraduate	43	48.9
Graduate	45	51.1
Workplace		
Rehabilitation center	36	40.9
More than one setting (such as private clinics, home services, hospitals, and universities)	52	59.1
Years in profession		
<12 months	9	10.2
12-36 months	21	23.9
37-60 months	24	27.2
>60 months	34	38.6
Working time (hours in a week)		
< 10 hours	22	25.0
11-20 hours	9	10.2
21-30 hours	16	18.2
31-40 hours	29	33.0
41-50 hours	11	12.5
>50 hours	1	1.1
Type of disorder groups		
Speech sound disorder	74	84.1
Developmental/delayed language disorder	73	83.0
Fluency disorder	62	70.5
Secondary language impairment	50	56.8
Motor speech disorders	25	28.4
Acquired language disorder	27	30.7
Voice disorders	22	25.0
Cleft lip and palate	11	12.5
Swallowing disorder	10	11.4

there is an open-ended item at the end of the survey for suggestions and comments on EBP.

The internal consistency of the 12 items in the Turkish version probing attitudes toward research and EBP (Items 5–16 in Section II) was examined using Cronbach's alpha. A composite of these 12 questions was planned as the dependent measure for attitude. The overall reliability coefficient was 0.722, indicating acceptable internal consistency across the items.[27]

The survey and informed consent were digitalized via Google Forms and sent online to the potential participants listed in the e-mail group of the National Association of Speech and Language Therapists. It was also shared through the social media accounts of the researchers. All participants signed an informed consent form, and 88 participants completed the survey. The convenience sampling method used in this study involved selecting participants who were easily accessible and willing to take part. This method was chosen for its practicality in reaching the target population within the available time and resources. The survey was accessible to the participants for three months.

Data Analysis

The research data was processed via Statistical Package for the Social Sciences (SPSS) 22.0 (IBM SPSS Corp.; Armonk, NY, USA) and jamovi version 2.6 for analysis.[28] Descriptive statistics were calculated for all parts of the survey. The seniority of the participants and the use of EBP sources were clarified by items #2 and #13, respectively, in the first part. Exposure to EBP was calculated by summing the scores of the first four questions of the second section (min. 4 – max. 20 points). On the other hand, overall attitude scores (min. 12 – max. 60 points) were determined by the responses given to the 12 items in the second section. When calculating the use of resources, the scores given to all items in the third section were averaged. Finally, the perceived barrier score consists of the sum of the answers given to the five questions in the fourth section (min 5 – max. 25 points).

For the overall attitude and use of EBP resources variables, the Shapiro–Wilk test indicated normal distributions within both the Bachelor (BA) and graduate groups ($P > .05$). Therefore, parametric analyses (independent samples *t*-tests) were conducted for group comparisons. In contrast, the variables included in the correlation analysis—attitudes, seniority (years of professional experience), and exposure to EBP—did not meet the normality assumption ($P < .05$). Consequently, Spearman's rho correlation was used to examine the associations among these variables.

Results

This study aims to (a) assess how frequently Turkish SLPs utilize evidence-based practice, (b) evaluate their exposure to EBP, (c) investigate their attitudes towards EBP, (d) analyze the information sources that SLPs use for clinical decision-making, (e) identify the barriers they face regarding EBP, (f) determine the impact of educational background on attitudes and EBP resource utilization, and (g) examine correlations among the variables of attitudes, seniority, exposure to EBP, and EBP usage.

The participants' demographic data revealed an average age of 29.77 (Range: 22-51; SD = 7.135) among 88 SLPs trained and currently working in Türkiye who participated in the study. Regarding their educational background, 49% hold a BA degree while 51% have a graduate degree (43% MSc., 8% Ph.D.). Most participants (78.4%) are members of the Turkish Association of Speech and Language Therapists.

All the participating SLPs underlined working around a busy weekly schedule. To be more precise, 33% have weekly therapy sessions between 31 and 40, and 12.5% conduct 41-50 sessions in a week. The SLPs doing therapy fewer than 10 sessions in a week comprise 25% of the participants.

All were asked if they were or had been a part of a research and if they were following any scientific publications. Consequently, 35.22% (n = 31) reported completing 1 case study; 44.31% (n = 39) stated completing an independent research project under the supervision of their professor; and 54.54% (n = 48) said they had participated in a research project during their speech and language pathology training. Around two-thirds (65.2%) of the participants noted reading articles and applying the clinical findings in those publications in their therapies during their training. Besides, the participants also mentioned having subscriptions to scientific publications, among which are the Turkish Journal of Speech, Language, and Swallowing Research (85.9%), the American Journal of Speech-Language Pathology (64.1%), and the Journal of Speech, Language, and Hearing Research (43.5%).

The first research aim, which examined the frequency of EBP use by Turkish SLPs, was answered using descriptive statistics. Regarding using EBP, 38% replied with always, 45.7% often, 13% sometimes, and 3.3% seldom. The findings of the descriptive statistics to address the second objective examining exposure to EBP are shown in Table 2.

Table 2 shows that 78.4% noted that their professors made use of current research findings in their classes during their speech and language pathology training years. Additionally, 72% underscored the emphasis

Table 2. Speech and Language Pathologists' Exposure to EBP

Exposure to EBP	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Total			
	f	%	f	%	f	%	f	%	f	%	f	%	M	SD
Contemporary research findings were a part of the courses during my SLP training	0	0	5	5.7	14	15.9	36	40.9	33	37.5	88	100	4.10	0.87
Use of research findings when making clinical decisions was clearly emphasized during my SLP training	0	0	5	5.7	19	21.6	27	30.7	37	42	88	100	4.09	0.93
The SLP I observed for my internship was keen on utilizing research findings	3	3.4	11	12.5	33	37.5	22	25	19	21.6	88	100	3.48	1.07
During my clinical internship as part of my SLP training, use of research findings when making clinical decisions was clearly emphasized	2	2.3	7	8	22	25	31	35.2	26	29.5	88	100	3.81	1.023

on research findings when making clinical decisions in their speech and language pathology training. However, 37.5% of the participants could not make up their minds as to whether the intern-SLPs they had observed during their internship were utilizing research findings or not. The percentage of the participants who agreed with "Considering research findings when making clinical decisions has been clearly emphasized during the internship in the SLP department" sums up to 64.7. Descriptive statistics conducted to explore the attitudes of Turkish SLPs towards EBP, as shown in Table 3, indicate that most of the participants (90.9%) believe that EBP should play a role in clinical practice and 91% believe that EBP has a positive influence on therapy outcomes. Likewise, 90.9% of the participants also think EBP can help make clinical decisions. Furthermore, 71.6% disagreed with the idea that the findings of the articles published in journals are not relevant to clinical practice and experience. The percentage of the participants who consider research studies as a responsibility of SLPs is 72%7, and 87.5% see it necessary to take either the clients' or the caregivers' opinions into account during the therapy process.

Descriptive analyses were conducted regarding the fourth research aim, which examined the information resources employed by SLPs to make clinical decisions. As depicted in Table 4, those who had always fallen back on their clinical experiences when making clinical decisions within the last 6 months comprised 53.4% of the participants. Other than this, research studies (42%), books (34.1%), course materials (31.8%), training outside the workplace (23.9%), and colleagues' opinions (21.6) are the sources that the participants had utilized to make clinical judgments. Audio and video recordings are also commonly employed by the participating SLPs (40.9%). Almost half of the participants (45.5%) stated that they had never attended any seminars or in-service training provided by their employers.

As illustrated in Table 5, the descriptive statistics about the barriers SLPs face in accessing and using EBP, reveal that 36.4% are not sure but 43.2% agree with the idea that they have the time to apply evidence-based practice. SLPs who think that both the quality and quantity of research studies on their topics of interest are adequate to apply EBP comprise 46.6% of the participants. Concerning the requirements of administering EBP, 68.2% noted they had the necessary knowledge and skills, and 75% stated they had the infrastructure, such as accessing the Internet and databases. Moreover, 59.1% mentioned having sufficient command of a foreign language to stay updated with the international literature.

An independent samples t-test was employed to answer the sixth question regarding whether the educational background influenced the overall attitude and use of EBP resources. The results indicated that those participants with a graduate degree (M = 50.2, SD = 5.179, Mdn = 51.00, IQR = 8.00) had a more positive view towards EBP compared to those with a BA degree (M = 47.44, SD = 5.17, Mdn = 47.00, IQR=9.00), t(86) = -2.241, p = .017, d = 0.521). Yet, no significant difference was found between the groups in the use of EBP resources (BA:

Table 3. Attitudinal Patterns Among SLPs Toward EBP

Items About Attitudes Toward EBP	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Total			
	f	%	f	%	f	%	f	%	f	%	f	%	M	SD
EBP should have a role in clinical practice.	0	0	1	1.1	7	8	34	38.6	46	52.3	88	100	4.42	0.69
EBP eliminates my authenticity in clinical practice.	28	31.8	39	44.3	16	18.2	5	5.7	0	0	88	100	4.00	0.88
EBP contributes positively to therapy outcomes.	0	0	0	0	8	9.1	40	45.5	40	45.5	88	100	4.36	0.64
EBP should be utilized to help with clinical decisions.	0	0	0	0	8	9.1	33	37.5	47	53.4	88	100	4.44	0.65
EBP is not always practical.	6	6.8	16	18.2	36	40.9	26	29.5	4	4.5	88	100	2.93	0.96
EBP reduces the importance of skills necessary to take client history and to conduct an assessment.	42	47.7	30	34.1	12	13.6	2	2.3	2	2.3	88	100	4.22	0.93
Clinical practice should be based on scientific research findings that evaluate the effectiveness of a specific intervention program or method.	0	0	4	4.5	14	15.9	36	40.9	34	38.6	88	100	4.13	0.84
Research findings published in professional journals are not compatible with my own clinical practice and experience.	24	27.3	39	44.3	19	21.6	6	6.8	0	0	88	100	3.92	0.87
Staying up to date with the current SLP literature is a lifelong responsibility of speech and language pathologists.	0	0	4	4.5	1	1.1	20	22.7	63	71.6	88	100	4.61	0.73
Clinical practice should be based on therapy protocols employed by therapists and experts for years.	5	5.7	13	14.8	25	28.4	31	35.2	14	15.9	88	100	2.59	1.10
Research is a responsibility of speech and language pathologists.	5	5.7	5	5.7	14	15.9	26	29.5	38	43.2	88	100	3.98	1.15
SLPs should consider the opinions of their clients and/or caregivers.	0	0	2	2.3	9	10.2	31	35.2	46	52.3	88	100	4.37	0.76

Table 4. Information Resources Employed by the SLPs to Make Clinical Decisions

Items About the Use of EBP, I Have Utilized the Following Information Resources to Make Clinical Decisions Within the Last 6 Months	Never		Seldom		Sometimes		Often		Always		Total			
	f	%	f	%	f	%	f	%	f	%	f	%	M	SD
My own clinical experience	0	0	2	2.3	5	5.7	34	38.6	47	53.4	88	100	4.43	0.70
My colleagues' opinions	0	0	9	10.2	21	23.9	39	44.3	19	21.6	88	100	3.77	0.90
Expert consultation	9	10.2	17	19.3	19	21.6	29	33	14	15.9	88	100	3.25	1.23
Educational seminars or in-service training sponsored by the employer	40	45.5	16	18.2	11	12.5	14	15.9	7	8	88	100	2.22	1.37
Training outside the workplace	11	12.5	2	2.3	15	17	39	44.3	21	23.9	88	100	3.64	1.23
Course materials	3	3.4	8	9.1	19	21.6	30	34.1	28	31.8	88	100	3.81	1.08
Books	1	1.1	5	5.7	16	18.2	36	40.9	30	34.1	88	100	4.01	0.92
Audio or video recordings	17	19.3	16	18.2	21	23.9	20	22.7	14	15.9	88	100	2.97	1.35
Internet resources	5	5.7	7	8	19	21.6	21	23.9	36	40.9	88	100	3.86	1.20
Case studies	5	5.7	14	15.9	21	23.9	31	35.2	17	19.3	88	100	3.46	1.14
Research studies	1	1.1	6	6.8	15	17	29	33	37	42	88	100	4.07	0.98

M = 2.943, SD = 0.951, Mdn = 2.857, IQR =1.43; Graduate: M = 3.273, SD = 1.012, Mdn = 3.285, IQR=1.36; *P* = .120).

Spearman's rho correlation coefficient was employed to examine if there was any significant correlation among the variables of attitudes, seniority, exposure to EBP, and the use of EBP. A significant positive relation was identified between both overall attitude and exposure ($r = 0.351$, $P = .001$) and overall attitude and the use of EBP resources ($r = 0.388$, $P < .001$). This means that an increase in positive attitudes is reflected in using EBP resources. Likewise, more exposure to EBP means more positive attitudes toward EBP. On the other hand, no relation was found between seniority and overall attitude ($r = 0.066$, $P = .542$), overall exposure ($r = -0.69$, $P = .525$), and the use of EBP resources ($r = -0.20$, $P = .856$).

In the last section of the survey, there was an open-ended item to which the participants were supposed to add their comments and suggestions about EBP. When the responses for this item were analyzed thematically, 6 themes emerged. These were "Time Constraints," "Insufficiency of Turkish Resources," "Problem in Access to Scientific Researches," "Individual Characteristics of Clients," "Working Conditions," and "EBP is Important."

SLPs report that they face time constraints when trying to incorporate EBP into their clinics. Some participant responses related to the Time Constraints theme include: "*Time constraints during rehabilitation center and family difficulties in obtaining anamnesis,*" "*It is not always possible to spare time for EBP,*" "*Time is a big problem for those working in the field,*" "*Due to the working conditions (40-minute sessions with 20-minute breaks), sometimes it's difficult to do research. I think adding time for research during working hours could be a solution,*" and "*Lack of sufficient time in the hospital environment.*"

Another barrier for Turkish SLPs was the lack of Turkish resources, and some responses to this issue included: '*Especially in the field of pediatric feeding disorders, the lack of publications labeled as SLP is an obstacle. We need more resources in areas like voice, cleft lip and palate, and swallowing. Additionally, the fact that only aphasia comes to mind when discussing Neurogenic Disorders contributes to a cycle of challenges in this field.*" '*We need more work with Turkish-speaking individuals.*", "*In the field I work in (fluency disorders), the elements of the international literature on EBP are not always applied correctly, and I believe the national literature on EBP should be strengthened to address culture-specific issues.*', "*I did extensive research to support EBP, but my biggest obstacle was the lack of Turkish resources in the field. It prevented me from staying well-informed.*"

In addition to the limited Turkish resources, SLPs also face challenges in accessing international resources. Some responses to the theme 'Problem in Access to Scientific Researches' included: *'The difficulty we have in accessing scientific studies, which is a component of EBP, makes it hard for us to stay updated with the latest EBPs. For example, we cannot access many resources free of charge from ASHA journals.', 'The fact that some articles are paid (in dollars) makes access difficult.', 'Lack of library access for SLPs working in the field.', 'Access to training in evidence-based practices for all speech and language disorders is limited due to financial and physical barriers.'*

Table 5. Barriers the SLPs Encounter about EBP

Barriers About EBP	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Total			
	f	%	f	%	f	%	f	%	f	%	f	%	M	SD
I have the time to apply EBP	7	8	11	12.5	32	36.4	32	36.4	6	6.8	88	100	3.21	1.02
I have relevant knowledge and skills to practice EBP (literature review, critical thinking about the research method, etc.)	2	2.3	4	4.5	22	25	40	45.5	20	22.7	88	100	3.81	0.91
I have adequate command of a foreign language to follow the literature on EBP	6	6.8	11	12.5	19	21.6	34	38.6	18	20.5	88	100	3.53	1.15
I can access the necessary sources for EBP (access to Internet, databases, and libraries)	1	1.1	8	9.1	13	14.8	29	33	37	42	88	100	4.05	1.02
The quantity and quality of the research studies within my clinical interest are adequate	2	2.3	16	18.2	29	33	30	34.1	11	12.5	88	100	3.36	0.99

In the current study, some SLPs emphasized the importance of individual client characteristics. Their responses to this theme included: *'In evidence-based practices, the individual differences of the person in therapy methods with a clear roadmap make it difficult to provide exactly as it should be. For this reason, I believe that conducting a therapy process that adopts a certain therapy method, which incorporates individual differences but also allows for additions and subtractions, yields better efficiency and success rate results. Evidence-based practices that are theoretically applicable are influenced by factors such as the client's living and financial conditions and those of their relatives in many different ways. Therefore, I prefer to proceed with my individual therapy methods based on scientific knowledge and therapist experience.', 'When the expectations of families differ from what EBP suggests, they tend to give up on therapy because their expectations are not quickly met, and we lose the chance to observe at what point and how much EBP is effective. EBP can provide limited information in the qualitative aspects of family counseling and therapy process management. However, this is greatly impacted by the diversity of speech and language disorder cases and their uniqueness.'*

Some SLPs also mentioned that their working conditions were not conducive to EBP. Responses from some SLPs regarding the 'Working Conditions' theme included: *'Working conditions may prevent these practices.' and 'I think that professionals who provide evidence-based practices should be competent in these practices and should be able to combine evidence-based research, the views of the case/caregiver, and their own expertise. I think that it is difficult to meet this requirement in clinical working conditions, and that the literature can be mastered while working academically, but the possibility of implementation is limited.'*

Although SLPs reported barriers to EBP, the significance of EBP was highlighted with the theme 'EBP is Important' as follows: *'It is obvious that EBP is important for the removal of existing barriers in the field. Thank you for the good work.'*

Discussion

This study aimed to investigate EBP use by Turkish SLPs, the information sources they use for clinical decision-making, their attitudes towards EBP, the barriers they encounter, and the correlations among the variables of attitudes, seniority, exposure to EBP, and EBP usage.

The research in which 88 SLPs partook reveals that most SLPs in the current study maintain a demanding work schedule while also demonstrating a strong engagement with research and evidence-based resources. A considerable proportion of the participants reported involvement in research activities during their education, including case studies, independent projects, or supervised research experiences. More than half had participated in at least one research project during their training, and the majority indicated reading and applying findings from scientific publications in their clinical practice. Furthermore, participants' subscriptions to both national and international journals—such as the *Turkish Journal of Speech, Language, and Swallowing Research, the American Journal of Speech-Language Pathology, and the Journal of Speech, Language, and Hearing Research*—reflect their ongoing efforts to stay up to date with current evidence. These findings suggest that SLPs in Türkiye are generally exposed to research processes early in their professional development and continue to engage with scientific evidence throughout their careers. Consistent with this, most participants emphasized the critical role of EBP in clinical practice, acknowledging that evidence-based approaches contribute to positive therapy outcomes and that the perspectives of clients and caregivers should also be incorporated into the therapeutic process.

The findings have shown that the participants appeal to their clinical experiences, books, and research articles – from the most to the least – when making clinical decisions. Yet, time stands as the most challenging limitation in terms of using EBP. Significant differences were also observed between attitudes toward EBP and educational background, with participants holding graduate degrees demonstrating higher overall attitude scores than those with undergraduate degrees. Another noteworthy finding indicates that greater exposure to EBP is linked to more positive attitudes, promoting increased use of EBP. Overall, participants exhibited favorable attitudes toward EBP, implying that speech and language pathology assessment and intervention practices in Türkiye are perceived as being aligned with evidence-based principles. This finding is compatible with previous research studies reporting that SLPs' attitudes towards research and EBP are overall positive.[16,19,20,22,23] Collectively, these results highlight the increasing importance of evidence-based practice as a vital and respected part of rehabilitating speech and language disorders.

The current research found that SLPs most frequently rely on their own clinical experiences, textbooks, and research articles when making clinical decisions. In contrast, educational seminars sponsored by employers and audio-video recordings were the least used sources. This pattern aligns with previous findings indicating that SLPs often prioritize personal clinical experience and colleagues' opinions over formal case studies or multimedia resources.[16,20] The limited use of audio and video recordings may reflect a shift in the modern information and communication environment, where such formats are perceived as less practical. Conversely, easy-access internet databases and peer-reviewed research articles have become more popular due to their immediacy and relevance to clinical decision-making. The current findings also highlight the need for training programs to focus on practical strategies for locating and evaluating high-quality research, ensuring that SLPs can incorporate traditional sources, such as clinical experience, and contemporary evidence-based resources into their practice. In this sense, Zipoli and Kennedy (2005) propose that ASHA require candidates for the CCC-SLP to conduct a focused review of research literature and demonstrate the application of best evidence to guide clinical decision-making through a case study during their clinical fellowship.[16] In addition, the researchers recommend creating elective 1- or 2-day training programs that help clinical fellowship mentors promote EBP. Accordingly, the official professional organization in Türkiye may also organize lifelong learning, training, or fellowship programs for Turkish SLPs to encourage more EBP use. Similarly, as stated in Evidence-Based Practice for Speech Pathology in Australia (2021), SLPs should commit to lifelong learning.[29] Moreover, as suggested by Hoffman et al. (2013), SLPs can enhance their tools and resources for implementing EBP by connecting with other professionals within an EBP network.[30] Clinicians can start this process by identifying a partner or forming a small group of colleagues to collaborate in an EBP focus group.

As stated earlier, a significant correlation was found between overall attitude and exposure and between overall attitude and EBP use. This suggests that greater familiarity with EBP contributes to more positive attitudes. Previous research has similarly reported that exposure to EBP during pre-service education predicts SLPs' attitudes toward EBP.[20] Consistent with this, one of the current study's findings indicates that positive attitudes toward EBP are linked to increased use of EBP among SLPs, a relationship also confirmed by earlier studies.[2,16] The likelihood of developing favorable attitudes toward EBP appears higher among SLPs with greater exposure to EBP content during graduate training. It is likely that when SLPs learn about EBP and recognize its importance, they develop more positive perceptions and are more inclined to apply evidence-based methods in their clinical work. Conversely, SLPs who

have not been exposed to EBP are less likely to hold such attitudes and thus less likely to implement EBP principles.

The current findings indicate that educational background significantly influences SLPs' attitudes toward EBP. Participants with graduate-level training demonstrated higher overall attitude scores, which may be linked to the inclusion of EBP-focused courses in graduate curricula. This underscores the importance of educational exposure in cultivating positive attitudes toward EBP. Systematically adding EBP principles into undergraduate curricula—such as theoretical classes, practical training, research participation and publication, discussions of current research in lectures, and including recent studies on speech and language disorders—could similarly promote more positive attitudes among SLPs. Including EBP-related content during internships and clinical placements gives students practical experience in applying research evidence to patient care, building both knowledge and confidence in evidence-based decision-making. In addition, Spek et al. (2013) also recommended in their study involving students in the speech-language pathology department that curricula should emphasize strategies to improve EBP self-efficacy among speech-language pathology students.[31] Therefore, enhancing EBP exposure through comprehensive educational strategies may support the ongoing use of evidence-based interventions in clinical practice.

The use of EBP among SLPs is influenced not only by individual factors but also by institutional and systemic conditions. Time constraints, identified as the most significant obstacle in both previous studies[22,23,30] and the current research, are worsened by heavy workloads and insufficient staffing, reflecting systemic scheduling and resource distribution issues. Zipoli and Kennedy (2005) highlight that many SLPs perceive a lack of time as the primary barrier to implementing EBP.[16] This finding underscores the need to provide clinicians with access to the best evidence in concise, user-friendly formats, such as clinical practice guidelines and critically appraised topics. It is important for the national association in Türkiye to create user-friendly, concise brochures that include recent, evidence-based studies, enabling SLPs to access information quickly. In addition to time, SLPs encounter barriers such as limited access to both local and international research resources, including restricted database subscriptions, paid journals, and evidence-based tools. The lack of formal clinical guidelines and structured continuing education programs also limits the implementation of EBP. Economic factors, like inadequate funding for training or essential equipment, add further challenges. As Skeat and Roddam (2010) emphasized, organizations employing SLPs have a duty to ensure staff have access to vital evidence and resources, and strong leadership is crucial in cultivating a workplace culture that supports EBP and promotes research integration into daily practice.[32] These findings highlight that barriers to EBP are not solely personal but are closely connected to organizational, economic, and policy-level factors, indicating that systemic interventions are necessary to improve evidence-based practices in clinical settings. It may now be advisable for educational and research institutions, such as universities, health organizations (e.g., the Ministry of Health), and professional associations, to advocate for support in accessing subscription-based journals and funding for training or essential equipment.

As stated in the study, one of the main limitations of this preliminary study involving 88 participants is the small sample size. While this figure provides valuable insights, it is essential to note its potential limitations in terms of generalizability. Another limitation of the study is the data collection process. Although the association's mailing list and social media accounts were utilized, responses remained limited, and it cannot be ascertained that participants paid sufficient attention, a factor that may be regarded as introducing an element of bias. Although an exploratory regression analysis (e.g., predicting EBP use from exposure and attitudes) could provide further insight, such modeling was not conducted in the present study. The main aim of this research was descriptive—to provide an initial overview of Turkish SLPs' engagement with EBP, their exposure, and attitudes—rather than predictive. Given the study's preliminary nature and the modest sample size (n = 88), conducting a regression analysis would risk overfitting and violating assumptions of model stability. Future studies with larger and more representative samples are encouraged to employ multivariate models to explore predictive relationships among these variables.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: This study protocol was reviewed and approved by the Board of Ethics for Scientific Research and Publication in Health Sciences at Anadolu University (Approval No.: 443005 Date: November 30, 2022). The principles of the Declaration of Helsinki were followed.

Informed Consent: Written informed consent was obtained from individuals who participated in this study.

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Appendix-SurveySection I: Demographics and Professional Experience

1. Age:
2. How many years have you been working as an SLP:
3. The last degree as SLP:

a. Bachelor
b. Master's
c. PhD

4. Are you taking or planning to take further training in SLP or a related field?

a. Yes
b. No

5. Are you a member of any SLP association?

a. DKTD (Turkish National SLP Association)
b. OKSUD (Turkish Audiology Association)
c. SKYBD (Voice, Speech, and Swallowing Disorder Association)
d. Other (please specify)

6. Which of the following institutions do you work for?

a. University (Academic staff)
b. Hospital
c. Rehabilitation Center
d. Private Clinic
e. Nursing home
f. Home service

7. Which disorder groups do you work with the most (please check all that apply)?

a. Developmental/ Delayed language disorder
b. Speech Sound Disorders
c. Secondary Language Disorders (Autism, Down Syndrome, etc.)
d. Acquired Language Disorders (Aphasia, TBI, etc.)
e. Swallowing Disorders
f. Motor Speech Disorders
g. Cleft Lip and Palate
h. Voice Disorders
i. Fluency Disorders
j. Other (please specify)

8. Weekly therapy hours

a. Less than 10 hours
b. 11-20 hours
c. 21-30 hours
d. 31-40 hours
e. 41-50 hours
f. More than 50 hours

9. In addition to the research methods course, during my SLP training (please check all that apply):

a. I have rarely looked at research papers or been directed to do so
b. I have sometimes looked at research papers or been directed to do so
c. I read research papers and was asked to use the findings in my assignments
d. I read research papers and was asked to apply the findings in therapy
e. I have not looked at research papers or been directed to do so

10. During my Speech and Language Pathology education (please check all that apply):

a. I criticized published research
b. I wrote a research proposal, although I did not implement it
c. I took part in a research project

d. I completed a case study
e. I completed an independent research project under the supervision of faculty members
f. I didn't do any of the above

11. During my internship (please check all that apply):

a. I completed a group or individual research project
b. I took part in a research project, but didn't complete it
c. I directly applied research findings to my clinical work
d. I read research articles without trying to apply their findings directly
e. I didn't do any of the above

12. I regularly follow the following journals or periodicals:

a. American Journal of Speech-Language Pathology
b. Language, Speech, and Hearing Services in Schools
c. Journal of Speech, Language, and Hearing Research
d. Topics in Language Disorders
e. Seminars in Speech and Language
f. Advance for SLPs & Audiologists
g. Turkish Journal of Speech, Language, and Swallowing Research
h. Other (Please specify)

13. Please rate how much you use evidence-based practices (EBP) in the clinic:

1: Never 2: Seldom 3: Sometimes 4: Often 5: Always

Section II: Exposure and Attitudes

Please express your views on the following statements

Exposure to EBP	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Contemporary research findings were a part of the courses during my SLP training.					
Use of research findings when making clinical decisions was clearly emphasized during my SLP training.					
The SLP I observed for my internship was keen on utilizing research findings.					
During my clinical internship as part of my SLP training, use of research findings when making clinical decisions was clearly emphasized.					
Attitudes toward EBP					
EBP should have a role in clinical practice.					
EBP eliminates my authenticity in clinical practice.					
EBP contributes positively to therapy outcomes.					
EBP should be utilized to help with clinical decisions.					
EBP is not always practical.					
EBP reduces the importance of skills necessary to take client history and to conduct an assessment.					
Clinical practice should be based on scientific research findings that evaluate the effectiveness of a specific intervention program or method.					
Research findings published in professional journals are not compatible with my own clinical practice and experience.					
Staying up to date with the current SLP literature is a lifelong responsibility of speech and language pathologists.					
Clinical practice should be based on therapy protocols employed by therapists and experts for years.					
Research is a responsibility of speech and language pathologists.					
SLPs should consider the opinions of their clients and/or caregivers.					

Section III. Information Resources

Please express your views on the following statements

Items about the use of EBP, I have utilized the following information resources to make clinical decisions within the last 6 months.	**Never**	**Seldom**	**Sometimes**	**Often**	**Always**
My own clinical experience					
My colleagues' opinions					
Expert consultation					
Educational seminars or in-service training sponsored by the employer					
Training outside the workplace					
Course materials					
Books					
Audio or video recordings					
Internet resources					
Case studies					
Research studies					

Section IV. Barriers about EBP

Barriers about EBP	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I have the time to apply EBP.					
I have relevant knowledge and skills to practice EBP (literature review, critical thinking about the research method, etc.).					
I have adequate command of a foreign language to follow the literature on EBP.					
I can access the necessary sources for EBP (access to Internet, databases, and libraries).					
The quantity and quality of the research studies within my clinical interest are adequate.					

Please provide your thoughts or comments on evidence-based practice or barriers to it: _____