

Psychologists' Attitudes Toward Evidence-Based Practices: An Online Study with Child Mental Health Psychologists

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Abstract

Psychologists' attitudes towards Evidence-Based Practices (EBPs) may have an impact in adhering to such practices. The purpose of this study was to analyse the psychometric characteristics of the Portuguese version of the Evidence Based Practice Attitude Scale (EBPAS) (Aarons, 2004). This study also aims to characterize the attitudes of psychologists working in the field of child mental health and analyze the differences in these attitudes according to therapeutic approaches and professional experience. A sample of 71 (93% female) Portuguese psychologists (age $M=37.07$, $SD=10.68$) completed an online assessment protocol that included the EBPAS and a questionnaire assessing sociodemographic information, therapeutic approaches, and professional experience. The results support the construct validity and reliability of the measure. Portuguese psychologists seem to have more favorable attitudes towards EBPs compared to samples from other countries. When evaluating the differences in these attitudes considering the different variables, the results indicate that psychologists adopting a Cognitive-Behavioral orientation and with less years of professional experience show more favorable attitudes towards EBPs. This research contributes to a wider understanding about the factors that may influence psychologists' attitudes towards EBPs and thus allow for more effective dissemination and implementation efforts.

Keywords: evidence-based practice; ebpas; psychometric characteristics; portuguese psychologists' attitudes; child mental health.

Resumen

Las Actitudes de los Psicólogos Hacia las Prácticas Basadas en la Evidencia (PBE): Un estudio online con psicólogos de salud mental infantil. Las actitudes de los psicólogos hacia las Prácticas Basadas en la Evidencia (PBE) pueden tener un impacto en la adhesión a dichas prácticas. El propósito de este estudio fue analizar las características psicométricas de la versión portuguesa de la Escala de Actitudes hacia las Prácticas Basadas en la Evidencia (EBPAS) (Aarons, 2004). Este estudio también pretende caracterizar las actitudes de los psicólogos que trabajan en el área de la salud mental infantil y analizar las diferencias en estas actitudes según los enfoques terapéuticos y la experiencia profesional. Una muestra de 71 (93% mujeres) psicólogos portugueses (edad $M=37.07$, $DP=10.68$) completaron una evaluación online, incluyendo un cuestionario para recoger información relacionada con las características socio-demográficas del psicólogo, su formación académica y experiencia profesional y el EBPAS. Los resultados apoyan la validez de constructo y la fiabilidad de la medida. Los psicólogos portugueses parecen revelar actitudes más favorables hacia los EBP en comparación con las muestras de otros países. Al evaluar las diferencias en estas actitudes considerando las diferentes variables, los resultados indican que los psicólogos que adoptan una orientación cognitivo-conductual y con menos años de experiencia profesional muestran actitudes más favorables hacia las PBE. Esta investigación contribuye a un mayor conocimiento de las variables que pueden influir en las actitudes de los psicólogos hacia las PBE y, por tanto, permite realizar esfuerzos de difusión e implementación más eficaces.

Palabras clave: práctica basada en la evidencia; ebpas; características psicométricas; actitudes de los psicólogos portugueses; salud mental infantil.

Evidence Based Practices (EBPs) derive from the concept of Evidence Based Medicine (EBM), which emerged in Canada in 1981 (Singh & Oswald, 2004). EBM aims to guide practitioners toward

interventions based on scientific knowledge and push them away from practices that are not based on such knowledge (Lilienfeld, 2019). EBM practice is about integrating individual clinical experience and patient

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preferences and characteristics with the best available results from systematic scientific research (Singh & Oswald, 2004; Ward et al., 2022).

Attitudes towards Evidence-Based Practice are an important factor to consider, as a direct relationship between attitudes and the adoption of EBP has been observed. For example, the results of Nelson and Steele's (2007) study indicate that professionals' attitudes toward efficacy research predict self-reported use of EBPs, with attitudes explaining 21.3% of EBP use.

Although much of the research on attitudes toward EBPs has been conducted with health professionals other than psychologists, the latter appear to be more strongly oriented toward EBPs compared to other professionals (Higa-McMillan et al., 2015). For example, in Berke and colleagues' (2011) study, conducted with 549 clinical psychologists from the Society of Clinical Psychology, 73.1% of participants reported using EBPs.

Correlates of attitudes related to Evidence-Based Practices and Evidence-Based Treatments

Previous research has examined the correlates of attitudes related to evidence-based practices. Some studies point to a more advanced academic background being associated with more favorable attitudes (Aarons, 2004; Aarons & Sawitzky, 2006). The studies by Nakamura and colleagues (2011) and Reding and colleagues (2014) indicate, more specifically, that Doctorates hold the most favorable attitudes toward EBPs.

Another important dimension is the therapeutic approach endorsed by psychologists. The results of several investigations indicate that there are differences between therapeutic orientations and, more specifically, that therapists of cognitive-behavioral orientation have more favorable attitudes toward EBPs (Berke et al., 2011; Higa-McMillan et al., 2015; Reding et al., 2014). Still, Nakamura and colleagues (2011) report finding no differences between therapeutic approaches, although this may be due to the fact that few people indicated their primary therapeutic orientation or because most of them selected "cognitive-behavioral".

Finally, another variable that has been examined is psychologists' work experience, with studies showing different results. Several studies indicate that early career therapists, thus with less work experience, demonstrate more favorable attitudes toward EBPs (Berke et al., 2011; Hamill & Wiener, 2018). In the same way, Aarons and colleagues (2004) found that more years of experience seems to be associated with less favorable attitudes. However, Reding and colleagues (2014) present inconsistent results, indicating that therapists with more favorable attitudes toward EBPs are those with more clinical experience. Finally, there is also research indicating that the professional experience has no influence on attitudes (Barnett et al., 2017; Burgess et al., 2017; Nakamura et al., 2011).

Assessment instruments of attitudes toward Evidence-Based Practices

Evaluating psychologists' attitudes toward EBPs is very important. Therefore, validated measures that can serve this purpose are necessary. The Evidence-Based Practice Attitude Scale (EBPAS) (Aarons, 2004) was developed to assess the attitudes of mental health and social service professionals toward adopting EBPs. From an extensive literature review and consultation with mental health professionals and researchers, Aarons and colleagues (2004) extracted four relevant domains of attitudes toward EBPs: Attitudes Toward Organizational Requirements; Openness to Innovation; Intuitive Appeal; Perceived Divergence of Research-Based Innovation. These four dimensions formed the subscales of this instrument, which assess different aspects of attitudes towards EBPs. In total, it consists of 15

items, with the total score representing the overall attitude toward the adoption of EBPs.

Previous research indicate adequate validity and reliability of the EBPAS. The study conducted by Aarons and colleagues (2010), in the United States of America, with 1089 mental health service providers, supports the factor structure and the reliability of the subscales and the total score of the EBPAS, and indicates that it may be generalizable to various professional contexts, not only applicable to psychologists. The psychometric characteristics of this instrument have been studied in several countries worldwide, such as South Africa (Padmanabhanunni, 2018), Brazil (Baumann et al., 2022), the United States of America (Aarons, 2004; Aarons et al., 2007; 2010; Ringle et al., 2019), Norway (Egeland et al., 2016), the Netherlands (van Sonsbeek et al., 2015), and Sweden (Santesson et al., 2020). These studies show good levels of internal consistency for both the total scale and the subscales (Aarons, 2004; Aarons et al., 2010; Borntrager et al., 2009; Burgess et al., 2017; Higa-McMillan et al., 2015; Nakamura et al., 2011), with the subscale regarding Divergence showing the lowest values (Aarons, 2004; Aarons, et al., 2010; Barnett et al., 2017; Nakamura et al., 2011).

One of the advantages of the EBPAS is that it allows us to assess mental health professionals' attitudes related to elements of professional practice that may facilitate or hinder the adoption of EBPs in real-life settings (Aarons, 2004). The brevity of the scale is also an advantage, as it allows real contexts of professional practice to be analyzed considerably quickly so that it is possible to better understand the conditions of services before proceeding to the dissemination and implementation phases of EBPs (Aarons, 2004).

Current study

Attitudes towards EBPs are currently the most studied individual characteristic contributing to therapists' use of EBPs (Burgess et al., 2017). However, there is little research on this topic, both in Portugal and internationally. Therefore, this research is relevant as it aims to explore the role of attitudes towards the adoption of EBPs and analyze the differences in these attitudes according to several variables of interest (e.g., years of professional experience). Understanding the possible influence of these factors on the adoption of EBPs will improve the quality of mental health care, as it will be possible to adapt dissemination and implementation methods aimed at promoting the use of EBPs by psychologists so that they promote more favorable attitudes towards this type of practice.

The main goals of this research were to characterize the attitudes towards EBPs among Portuguese psychologists working in the mental health area with children and adolescents and to study the psychometric properties of a measure (EBPAS) to assess these attitudes in the Portuguese population. Specifically, we intended to study the construct validity and reliability of the Portuguese version of the EBPAS; to compare the attitudes of Portuguese psychologists towards EBPs with the attitudes of psychologists from other countries; to assess the differences in attitudes towards EBPs according to the main therapeutic approach and years of work experience.

Method

Procedure

Data collection began after the approval by the Ethics and Deontology Committee of the Faculty of Psychology of the University of Lisbon. Participants were recruited through several means: social networks; emails of the website of the Portuguese Psychologists' Board;

direct contacts with psychologists, health institutions and clinics. Before participating, participants were informed about the goals of the study and ethical issues were secured by ensuring anonymity and confidentiality of the responses. 203 people started answering to the questionnaire, but only 71 completed the EBPAS and were, therefore, included in the present study. The inclusion criteria were being a psychologist working in the field of child mental health (which includes working with adolescents and/or parents).

Sample

The sample is comprised of 71 Portuguese psychologists. The main characteristics of the sample are described in Table 1. The number of years of professional experience varies between zero and 37 years ($M = 11.20$).

Measures

Sociodemographic questionnaire

This questionnaire included various questions, with the purpose of collecting the following information from the participants: age; sex; nationality; academic background; advanced specialty in Psychology; main therapeutic approach; number of years of professional experience; district (region) of the workplace; main place of professional activity; workplace in a rural or urban environment.

Evidence-Based Practice Attitude Scale (EBPAS-15)

The EBPAS consists of 15 items that assess several aspects of attitudes toward EBPs: Appeal (e.g., "If you were trained in a therapy or intervention that was new to you, how likely would you be to adopt it if "it made sense to you? "); Requirements (e.g., "If you were trained in a therapy or intervention that was new to you, how likely are you to adopt it if it was required by the institution where you work?"); Openness (e.g., "I am willing to try using new types of therapy/intervention, even if I have to follow a treatment manual"); and Divergence (e.g., "Clinical experience is more important than using a manualized therapy/intervention"). The participants indicate the level of agreement with each item, using a five-point Likert scale (0 = "strongly disagree" to 4 = "strongly agree"). The total score can vary between 0 and 4, with highest scores indicating more favorable attitudes. It is relevant to note that psychologists are asked about EBPs in the context of manualized treatments ["A "manualized therapy" refers to any intervention that has specific guidelines and/or components that are described in a manual and/or must be followed in a structured or predetermined manner" (Pereira & Moreira, 2021)]. For this study, permission was requested from the author of the original instrument (Aarons, 2004) to translate it into Portuguese. Then, the translation process from English to Portuguese was carried out independently by two psychologists. Finally, a third bilingual element performed retroversion and the equivalence of both versions was checked, resulting in the final instrument that was applied to the sample of this study.

Data analysis

For the data analysis, we used the Statistical Package for the Social Sciences (SPSS) statistical analysis software, version 27, for Windows. We performed a preliminary analysis of the EBPAS in order to determine its factor structure. The 15 items were subjected to a Principal Components Analysis, without prior factor determination. The determination of the number of factors was based on the analysis of the eigenvalues of the components and the scree plot. The inclusion of a given item in a factor was defined according to the criterion of the

Table 1. Sociodemographic, academic and professional background variables

	n	%
Sex		
Female	66	93
Male	5	7
Age		
24 to 29	24	33.8
30 to 40	24	33.8
41 to 65	23	32.4
Area of residence		
Urban	59	83.1
Rural	12	16.9
Academic training		
Bachelor (5 years) or Master	65	91.5
PhD	6	8.5
Specialization		
Clinical and Health Psychology	52	73.2
Education Psychology	17	23.9
Organizational Psychology	1	1.4
Junior Psychologists	5	7
No Specialization	6	8.5
Therapeutic Approach		
Cognitive-behavioral	41	57.7
Psychodynamic	10	14.1
Systemic	7	9.9
Integrative	10	14.1
Humanist	3	4.2
Years of professional experience		
0 - 3 years	23	32.4
4 - 15 years	24	33.8
16 - 37 years	24	33.8
Place of professional activity		
Health Facilities	10	14.1
Private Practice	29	40.8
School	19	26.8
Other places	13	18.3
Professional activities performed by psychologists		
Clinical psychological intervention with children and/or adolescents	59	83.1
Clinical psychological intervention with adults	33	46.5
Psychological evaluation services	48	67.6
Vocational/school guidance	19	26.8
Teaching	7	9.9
Research	16	22.5
Instructor	17	23.9
Clinical supervision	6	8.5
Other professional activities	4	5.6

Note. The professional activities performed by psychologists are not mutually exclusive (e.g., the psychologist can practice clinical psychology simultaneously with children and adults)

load value being greater than 0.30. In order to study the psychometric qualities of the EBPAS, the reliability of the four subscales that resulted from the factor analysis was analyzed by calculating the Cronbach's alpha coefficient. The correlations between the subscales and between the subscales and the EBPAS as a whole were also analyzed. Finally, we analyzed the differences in attitudes according to the several variables under study, using ANOVA and t-tests for independent samples, after verifying the assumptions for parametric analysis.

Results

Validity and reliability study of the EBPAS' Portuguese version

Five factors with eigenvalues greater than 1 emerged from the exploratory factor analysis. However, the scree plot suggested the existence of four factors. In order to make the Portuguese version of the EBPAS resemble to the original, it was decided to respect the extraction of four factors. These factors translated into four relevant domains of attitudes towards EBPs: Intuitive Appeal; Attitudes Toward to Organizational Requirements; Openness to Innovation; and Perceived Divergence of Research-Based Innovation (the items of this subscale were inverted).

Thus, the items were distributed in a balanced number across the four factors (Table 2), presenting a high loading in each one of them (between .34 and .90), similarly to the original instrument (Aarons, 2004; Aarons et al., 2010). The percentage of variance of the EBPAS responses explained by each factor ranged from 7.80 to 32.18 (Table 4), with the four factors explaining 67.24% of the variance.

Table 2. Factorial load of each EBPAS item and percentage of variance explained by each factor

	Factor 1	Factor 2	Factor 3	Factor 4
Requirements				
State required	.90			
Agency required	.88			
Supervisor required	.70			
Colleagues happy with the intervention	.65			
Openness				
Like new therapy types		.81		
Therapy developed by researchers		.74		
Will follow a treatment manual		.67		
Therapy different than usual		.65		
Appeal				
Makes sense			.89	
Intuitively appealing			.77	
Get enough training to use			.69	
(Less) Divergence				
Clinical experience more important				.79
Will not use manualized therapy				.78
Know better than researchers				.68
Research based treatments not useful				.34
% of variance explained	32.18	15.70	11.56	7.80

Contrary to the original version of the instrument (Aarons, 2004; Aarons et al., 2010), item 14 ("If you were trained in a therapy or intervention that was new to you, how likely would you be to adopt it if it were being used by colleagues who were satisfied with it?") appeared to load more heavily on the Requirements factor in the Portuguese version than on the Appeal factor, in which it was included in the original version. Due to the difference in the loading values in each factor (.65 and .42, respectively) and taking into account that its theoretical content is related to the Requirements subscale, we decided to include it in the Requirements subscale.

The internal consistency was .83 for the complete scale. A higher Cronbach's alpha value was observed in the Divergence subscale with the elimination of item 5 (.66). However, we decided to retain this item in the scale, in order to keep it as similar as possible to the original. Table 3 details the values for each subscale and for the total EBPAS.

Table 3. Internal Consistency analysis (Cronbach's alpha) of the EBPAS' Portuguese version

	Number of items	Cronbach Alpha
Total Scale	15	.83
Requirement subscale	4	.87
Openness subscale	4	.77
Appeal subscale	3	.84
Divergence subscale	4	.60

As regards the correlations between the subscales and the total EBPAS score, small, moderate and high (respectively) positive and significant associations were found between the subscales: Requirements and Divergence; Requirements and Appeal; Openness and Appeal. Similarly, there was a positive and significant association, of high magnitude, between all subscales and the total EBPAS (Table 4).

Table 4. Correlations between subscales and EBPAS total

	Total	Requirements	Openness	Appeal	(Less) Divergence
Total	.73**				
Requirements		.68**			
Openness			.21		
Appeal				.79**	
(Less) Divergence					.46**
					.52**
					.22
					.18

Nota. * $p < .05$; ** $p < .01$

Characterization of the attitudes of Portuguese psychologists regarding EBPs

To achieve the second goal, the answers given by the sample were analyzed and, consequently, compared with those of previous research conducted in other countries (Table 5). Statistically significant differences were observed between the mean level of attitudes of the Portuguese sample compared to the samples from South Africa (Padmanabhanunni, 2018), Brazil (Baumann et al., 2022), United States of America (Aarons, 2004; Aarons et al., 2007; 2010; Ringle et al., 2019), Norway (Egeland et al., 2016) and the Netherlands (van Sonsbeek et al., 2015) (Table 5). Compared to the Swedish sample, there were no significant differences, although the attitudes of the Portuguese psychologists were slightly more favorable. The sample from the study conducted in South Africa (Padmanabhanunni, 2018) was the only one that verified more favorable attitudes than the Portuguese sample.

Table 5. Differences between answers to the EBPAS' Portuguese version and those of other countries

Escala total	M	SD	t	df	Cohen
Portuguese version (2022) (n = 71)	2.94	0.44	-	-	-
Original version (Aarons, 2004) (n = 322)	2.30	0.45	10.89**	391	1.44
Aarons et al. (2007) (n = 220)	2.77	0.05	5.64**	289	0.54
Aarons et al. (2010) (n = 1089)	2.73	0.49	3.52**	1158	0.45
van Sonsbeek et al. (2015) (n = 270)	2.67	0.41	4.86**	339	0.13
Egeland et al. (2016) (n = 249)	2.77	0.47	2.73**	318	0.23
Padmanabhanunni (2018) (n = 186)	3.47	0.49	-7.97**	255	1.14
Ringle et al. (2019) (n = 135)	2.82	0.42	1.92*	204	0.28
Santesson et al. (2020) (n = 565)	2.92	0.42	0.38	634	0.05
Baumann et al. (2022) (n = 362)	2.44	0.51	7.72**	431	1.05

Note. * $p < .05$; ** $p < .01$

Differences in attitudes according to therapeutic approaches

We opted to compare the Cognitive-Behavioral orientation with the remaining orientations, given the small number of psychologists that endorsed other therapeutic approaches. The results suggest statistically significant differences, of moderate size, among psychologists regarding Openness and in the total EBPA score, pointing to more favorable attitudes on the part of psychologists of Cognitive-Behavioral orientation (Table 7).

Table 6. Differences according to main therapeutic orientation

	Cognitive-behavioral (<i>n</i> = 41) <i>M</i> (<i>SD</i>)	Others (<i>n</i> = 30) <i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	Cohen's <i>d</i>
Total	3.06 (0.44)	2.79 (0.39)	2.69**	69	0.65
Requirements	2.76 (0.77)	2.55 (0.63)	1.20	69	0.29
Openness	2.95 (0.51)	2.56 (0.63)	2.89**	69	0.69
Appeal	3.40 (0.57)	3.13 (0.71)	1.74	69	0.42
(Less) Divergency	3.13 (0.53)	2.91 (0.59)	1.65	69	0.40

Note. *N* = 71; * *p* < .05; ** *p* < .01

Differences in attitudes according to work experience

As for years of professional experience, statistically significant differences were observed between groups in the Divergence, Requirements, and the total EBPA scores (Table 6). In Divergence, the zero to three years and the four to 15 years groups showed more favorable attitudes compared to the 16 to 37 years group. In Requirements, the zero to three year old group showed more favorable attitudes compared to the 16 to 37 year old group. Finally, in the total EBPA score, the zero- to three-year-old and the four to 15 year old groups were shown to have more favorable attitudes than the 16 to 37 year old group.

Table 7. Differences according to number of years of work experience

	0 to 3 years (<i>n</i> = 23) <i>M</i> (<i>SD</i>)	4 to 15 years (<i>n</i> = 24) <i>M</i> (<i>SD</i>)	16 to 37 years (<i>n</i> = 24) <i>M</i> (<i>SD</i>)	<i>F</i>	<i>df</i>
Total	3.07 (0.45)	3.02 (0.45)	2.75 (0.37)	3.85*	2, 68
Requirements	2.92 (0.65)	2.72 (0.69)	2.38 (0.72)	3.83*	2, 68
Openness	2.83 (0.67)	2.88 (0.50)	2.66 (0.61)	0.89	2, 68
Appeal	3.39 (0.66)	3.24 (0.73)	3.24 (0.55)	0.45	2, 68
(Less) Divergency	3.12 (0.54)	3.25 (0.54)	2.74 (0.49)	6.09**	2, 68

Note. *N* = 71; * = *p* < 0.05; ** = *p* < 0.01

Discussion

Psychologists' attitudes toward EBPs appear to influence their behavior regarding adherence to these practices (Hamill & Wiener, 2018; Jensen-Doss et al., 2009; Nelson & Steele, 2007). For this reason, it is important to promote favorable attitudes on the part of professionals. For this to be possible, it is necessary to study their attitudes towards EBPs using validated instruments in order to better understand which factors influence these attitudes.

This exploratory study had three goals: to study the validity and reliability of the Portuguese version of the EBPA; to characterize the attitudes towards EBPs in a sample of Portuguese psychologists and compare them with samples from other countries; to evaluate the dif-

ferences in attitudes towards EBPs according to variables related to professional experience.

With regard to the first goal, we performed analyses to assess the psychometric characteristics of the Portuguese version of the EBPA. According to the principal components analysis, the factor structure of the original version (Aarons, 2004; Aarons, 2007; Aarons et al., 2010) was replicated, with a correspondence between the factors of the Portuguese version and the factors of the original version: Requirements; Openness; Appeal; Divergence. With regard to the distribution of the items by factors, all items, with the exception of item 14, were included in the same factors of the original version of the EBPA.

The level of internal consistency, measured by the Cronbach's alpha coefficient, was high, with the Cronbach's alpha of the total scale being higher in the Portuguese version of the EBPA when compared to the original instrument (Aarons, 2004; Aarons et al., 2010). The subscales showed similar values to those of the original measure (Aarons, 2004; Aarons et al., 2007; Aarons et al., 2010). With regard to the correlations between the subscales and the total EBPA score, significant, small, moderate and high associations (respectively) were found between the subscales: Requirements and Divergence; Requirements and Appeal; Openness and Appeal. Finally, all subscales showed significant associations of high magnitude with the total EBPA score. Therefore, the Portuguese version of the EBPA seems to present satisfactory psychometric characteristics in the Portuguese population.

Regarding the second goal, the results reveal more favorable attitudes toward EBPs by Portuguese psychologists compared to previous studies conducted in other countries (Aarons, 2004; Aarons et al., 2007; Aarons et al., 2010). This finding may be due to a multitude of factors. First, the Portuguese study is more recent than most of the others. When looking at the mean values of the responses to the EBPA total, it could be said that psychologists' attitudes have been increasingly favorable over time, which may stem from the more current efforts to disseminate these practices. For example, both the APA Task Force (2006) and the Code of Ethics of the Portuguese Psychologists' Association (Ordem dos Psicólogos Portugueses, 2016) advocate that professionals should develop their activity based on scientific evidence. Nevertheless, one should be cautious in interpreting these findings, as the Portuguese sample is comparatively smaller than the previous studies conducted in other countries.

To achieve the third goal, we assessed the differences in attitudes according to variables related to therapeutic orientation and professional experience. Concerning the main therapeutic approach, this study found that professionals whose orientation is Cognitive-Behavioral show more openness to the use of EBPs and more favorable attitudes in general, which is in line with the findings of the majority of previous studies (Berke et al., 2011; Higa-McMillan et al., 2015; Reding et al., 2014). Cognitive-behavioral interventions contain many manualized interventions whose effectiveness has been studied and supported and thus constitute the approach with the strongest evidence. So much so that, according to Mulder and colleagues (2017), Cognitive-Behavioral Therapy can almost be considered synonymous with Scientific Evidence-Based Psychotherapy, as this therapeutic approach has become dominant worldwide.

Additionally, a negative correlation was observed between years of work experience and favorable attitudes toward EBPs. One possible explanation is that older therapists were trained before the EBPs era (Lillienfeld et al., 2012). Also, as therapists progress through their careers, they turn to interventions with which they are already familiar and which have been, in their perception, shown to be effective

in the past (Hamill & Wiener, 2018). Another explanation may lie in the time and expertise (e.g., to be familiar with statistical analysis and research methods) it takes to gather scientific evidence, which may further push these professionals away from EBPs (Lilienfeld, 2013).

Despite its contributions, the present study has some limitations. One of them is related to the use of a small sample, which makes it difficult to generalize the results to the general population. Also, the sample was composed almost exclusively of female psychologists (93%). Nevertheless, according to the latest census conducted by The Portuguese Psychologists' Association (2014), the percentage of women in the present study follows the distribution of registered psychologists. Second, most of the participants were specialists in Clinical and Health Psychology, working in private practice, and adopting a cognitive-behavioral orientation. Therefore, in the future, it is important to replicate the study in a larger and more representative sample. Another suggestion for future studies would be to complement quantitative research with qualitative research, to gather more knowledge about the barriers to the adoption of EBPs so that it becomes simpler for professionals to introduce them into daily practice.

Moving on to the implications of this research, this is the first validation study of the EBPAS for the Portuguese population. Because this is an instrument that allows assessing the attitudes of professionals towards EBPs that is already widely validated in other countries, extending its use to the Portuguese population is significant as it will contribute to the literature that seeks to better understand psychologists' attitudes towards EBPs, so that it is possible to intervene and positively shape them. In addition, this study allowed us to obtain some indicators about which variables may be involved in the attitudes towards EBPs among Portuguese psychologists, pointing out that professionals with a cognitive-behavioral orientation and fewer years of work experience present more favorable attitudes.

In terms of implications for the promotion of more positive attitudes towards EBPs among Portuguese psychologists, professionals with more years of experience seem to be an important group to target. It is possible that some psychologists feel that researchers do not understand the complexity of professional practice (Lilienfeld et al., 2013). This can be more pronounced for professionals with more years of experience, since they have been away from the academy for longer, which may be at the root of the less favorable attitudes. Therefore, it is important to increase the cooperation between research-oriented psychologists and psychologists more dedicated to clinical practice so that it is possible to consider both sides when disseminating information regarding EBPs. Also, Lilienfeld and colleagues (2013) highlight that much of the resistance to EBPs stems from misconceptions that are susceptible to correction. The articulation between research-oriented psychologists and psychologists would also make it easier to decrease these biases. Finally, to implement evidence-based practices, professionals should be capable of acquiring empirical relevant evidence and appraising a considerable amount of evidence in the light of client and contextual conditions (Ward et al., 2022). Psychologists who finished their academic training more years ago may find this more difficult, preventing them from using empirical evidence as a source to update their knowledge. Therefore, it is essential to place at the disposal of professionals easy-to-read summaries of the findings regarding science-informed interventions in order to support their clinical decision-making.

Conflict of interest

The authors have declared that no competing interests exist.

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References

- Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The Evidence-Based Practice Attitude Scale (EBPAS). *Mental Health Services Research*, 6(2), 61-74. <https://doi.org/10.1023/B:MHSR.0000024351.12294.65>
- Aarons, G. A., Glisson, C., Hoagwood, K., Kelleher, K., Landsverk, J., & Cafri, G. (2010). Psychometric properties and US national norms of the Evidence-Based Practice Attitude Scale (EBPAS). *Psychological Assessment*, 22(2), 356. <https://doi.org/10.1037/a0019188>
- Aarons, G. A., & Sawitzky, A. C. (2006). Organizational culture and climate and mental health provider attitudes toward evidence-based practice. *Psychological Services*, 3(1), 61. <https://doi.org/10.1037/1541-1559.3.1.61>
- Aarons, G. A., McDonald, E. J., Sheehan, A. K., & Walrath-Greene, C. M. (2007). Confirmatory factor analysis of the Evidence-Based Practice Attitude Scale (EBPAS) in a geographically diverse sample of community mental health providers. *Administration and Policy in Mental Health and Mental Health Services Research*, 34(5), 465-469. <https://doi.org/10.1007/s10488-007-0127-x>
- APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *The American Psychologist*, 61(4), 271-285.
- Ball, H. L. (2019). Conducting Online Surveys. *Journal of Human Lactation*, 35(3), 413-417. <https://doi.org/10.1177/0890334419848734>
- Barnett, M., Brookman-Frazer, L., Regan, J., Saifan, D., Stadnick, N., & Lau, A. (2017). How intervention and implementation characteristics relate to community therapists' attitudes toward evidence-based practices: A mixed methods study. *Administration and Policy in Mental Health and Mental Health Services Research*, 44(6), 824-837. <https://doi.org/10.1007/s10488-017-0795-0>
- Baumann, A. A., Vázquez, A. L., Macchione, A. C., Lima, A., Coelho, A. F., Juras, M., Ribeiro, M., Kohlsdorf, M., & Carothers, B. J. (2022). Translation and validation of the evidence-based practice attitude scale (EBPAS-15) to Brazilian Portuguese: Examining providers' perspective about evidence-based parent intervention. *Children and Youth Services Review*, 136, 106421. <https://doi.org/10.1016/j.childyouth.2022.106421>
- Berke, D. M., Rozell, C. A., Hogan, T. P., Norcross, J. C., & Karpiak, C. P. (2011). What clinical psychologists know about evidence-based practice: familiarity with online resources and research methods. *Journal of Clinical Psychology*, 67(4), 329-339. <https://doi.org/10.1002/jclp.20775>
- Borntrager, C. F., Chorpita, B. F., Higa-McMillan, C., & Weisz, J. R. (2009). Provider attitudes toward evidence-based practices: are the concerns with the evidence or with the manuals?. *Psychiatric Services*, 60(5), 677-681. <https://doi.org/10.1176/ps.2009.60.5.677>

- Burgess, A. M., Okamura, K. H., Izmirian, S. C., Higa-McMillan, C. K., Shimabukuro, S., & Nakamura, B. J. (2017). Therapist attitudes towards evidence-based practice: A joint factor analysis. *The Journal of Behavioral Health Services & Research*, 44(3), 414-427. <https://doi.org/10.1007/s11414-016-9517-8>
- Egeland, K. M., Ruud, T., Ogden, T., Lindstrøm, J. C., & Heiervang, K. S. (2016). Psychometric properties of the Norwegian version of the Evidence-Based Practice Attitude Scale (EBPAS): to measure implementation readiness. *Health Research Policy and Systems*, 14(1), 1-10. <https://doi.org/10.1186/s12961-016-0114-3>
- Hamill, N. R., & Wiener, K. K. K. (2018). Attitudes of Psychologists in Australia towards evidence-based practice in psychology. *Australian Psychologist*, 53(6), 477-485. <https://doi.org/10.1111/ap.12342>
- Higa-McMillan, C. K., Nakamura, B. J., Morris, A., Jackson, D. S., & Slavin, L. (2015). Predictors of use of evidence-based practices for children and adolescents in usual care. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(4), 373-383. <https://doi.org/10.1007/s10488-014-0578-9>
- Lilienfeld, S. O. (2019). What is “evidence” in psychotherapies?. *World psychiatry : official journal of the World Psychiatric Association (WPA)*, 18(3), 245-246. <https://doi.org/10.1002/wps.20654>
- Lilienfeld, S. O., Ritschel, L. A., Lynn, S. J., Cautin, R. L., & Latzman, R. D. (2013). Why many clinical psychologists are resistant to evidence-based practice: Root causes and constructive remedies. *Clinical Psychology Review*, 33(7), 883-900. <https://doi.org/10.1016/j.cpr.2012.09.008>
- Moreira & Pereira (2021). *EBPAS versão portuguesa* [Manuscrito não publicado]
- Nakamura, B. J., Higa-McMillan, C. K., Okamura, K. H., & Shimabukuro, S. (2011). Knowledge of and attitudes towards evidence-based practices in community child mental health practitioners. *Administration and Policy in Mental Health and Mental Health Services Research*, 38(4), 287-300. <https://doi.org/10.1007/s10488-011-0351-2>
- Nelson, T. D., & Steele, R. G. (2007). Predictors of practitioner self-reported use of evidence-based practices: Practitioner training, clinical setting, and attitudes toward research. *Administration and Policy in Mental Health and Mental Health Services Research*, 34(4), 319-330. <https://doi.org/10.1007/s10488-006-0111-x>
- Ordem dos Psicólogos Portugueses. (2014). *Os números da Ordem – Resultados do Censo dos Membros Efektivos*. <https://www.ordemdospsicologos.pt/pt/noticia/1246>
- Ordem dos Psicólogos Portugueses. (2016). *Código Deontológico da Ordem dos Psicólogos Portugueses*. https://www.ordemdospsicologos.pt/pt/cod_deontologico
- Padmanabhanunni, A. (2018). The psychometric properties of the Evidence-Based Practice Attitudes Scale in a sample of South African mental health care providers working with survivors of trauma. *Journal of Evidence-Based Psychotherapies*, 18(1), 69-80. <https://doi.org/10.24193/jebp.2018.1.6>
- Reding, M. E., Chorpita, B. F., Lau, A. S., & Innes-Gomberg, D. (2014). Providers' attitudes toward evidence-based practices: Is it just about providers, or do practices matter, too?. *Administration and Policy in Mental Health and Mental Health Services Research*, 41(6), 767-776. <https://doi.org/10.1007/s10488-013-0525-1>
- Ringle, J. L., James, S., Ross, J. R., & Thompson, R. W. (2019). Measuring youth residential care provider attitudes: A confirmatory factor analysis of the Evidence-Based Practice Attitude Scale. *European Journal of Psychological Assessment*, 35(2), 241-247. <https://doi.org/10.1027/1015-5759/a000397>
- Santesson, A. H. E., Bäckström, M., Holmberg, R., Perrin, S., & Jarbin, H. (2020). Confirmatory factor analysis of the Evidence-Based Practice Attitude Scale (EBPAS) in a large and representative Swedish sample: is the use of the total scale and subscale scores justified?. *BMC medical research methodology*, 20(1), 1-12. <https://doi.org/10.1186/s12874-020-01126-4>
- Singh, N. N., & Oswald, D. P. (2004). Evidence-based practice. Part I: General methodology. *Journal of Child and Family Studies*, 13(2), 129-142. <https://doi.org/10.1023/B:JCF5.0000015703.80773.7e>
- van Sonsbeek, M. A., Hutschemaekers, G. J., Veerman, J. W., Kleinjan, M., Aarons, G. A., & Tiemens, B. G. (2015). Psychometric properties of the Dutch version of the evidence-based practice attitude scale (EBPAS). *Health research policy and systems*, 13(1), 1-12. <https://doi.org/10.1186/s12961-015-0058-z>
- Ward, T., Haig, B. D., & McDonald, M. (2022). Translating science into practice in clinical psychology: A reformulation of the evidence-based practice inquiry model. *Theory & Psychology*, 32(3), 401-422. <https://doi.org/10.1177/09593543211059816>