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RESEARCH

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Clinician attitudes towards adoption of evidence-based practice: a nationwide multiprofessional cross-sectional study of child and adolescent mental health services in Sweden

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Abstract

Background Implementation of evidence-based practice (EBP) in child and adolescent mental health services (CAMHS) is a priority to improve service delivery and outcomes. Clinicians' EBP attitudes are likely to play a crucial role in implementation but are poorly understood. This study aimed to assess variation in EBP attitudes in a large national sample of CAMHS clinicians in Sweden, and to compare these findings to findings from the United States of America (USA).

Methods CAMHS clinicians (*n* = 799; 60% response rate) completed the Evidence-Based Practice Attitude Scale (EBPAS) and items from the Organizational Readiness for Change Scale (ORC) ahead of an EBP for depression implementation effort across Sweden. EBPAS scores were compared with the USA study. Predictors of global and specific attitudes (gender, age, working years, education, profession, perceived benefit of diagnosis and organizational readiness and type of service) were examined using simple and multiple linear regressions.

Results Clinicians had positive attitudes towards EBP on the four-dimensional subscales of the EBPAS, somewhat more so than their American counterparts. Clinician and organizational characteristics were related to at least one attitudinal dimension in both models, with perceived utility of diagnosis being the strongest and most consistent predictor across dimensions and models.

Conclusions Results from this large-scale national study underscore the need to consider cultural, contextual, and individual variations in attitudes towards EBP when planning implementation efforts. Such efforts may need to be tailored to the working contexts, needs, and values of CAMHS clinicians, particularly their views on the utility of diagnosis.

Keywords Evidence-Based Practice (EBP), Attitudes, Evidence-Based Practice Attitude Scale (EBPAS), Implementation, Mental health, Child-and Adolescent Mental Health Service (CAMHS)

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Introduction

Despite years of research on their development and testing, empirically supported methods of assessment and treatment are not reaching enough of the youth seen in child and adolescent mental health services (CAMHS) across countries [1-3]. Consequently, governments, policymakers and healthcare providers have re-prioritized their efforts to disseminate, and improve the uptake of, empirically supported methods in CAMHS [4, 5]. Such efforts can be seen as part of a larger effort across child and adult mental health to improve clinical outcomes at the local level by helping clinicians to improve their decision making and practice by integrating the latest scientific findings, often summarized in national or local care guidelines, with the needs and values of their patients; referred to as Evidence-Based Practice (EBP) [6]. EBP originates from Evidence-Based Medicine and involves 'the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients' [6]. The definition of EBP was adopted and adapted by the Institute of Medicine and further refined to 'the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences' in the context of psychology [7-9]. EBP is a comprehensive concept that encompasses, but is not limited to, the use of empirically supported treatments (ESTs) or assessments. An accurate diagnosis is crucial for clinical decision-making and may act as a facilitator to receive appropriate ESTs [10]. However, it may also act as a barrier due to the complexity of cases in ordinary practice and the corresponding difficulty and time lag in obtaining an accurate diagnosis [10]. The usefulness of diagnosis and diagnostic aids for treatment selection and prognosis in ordinary clinical practice has therefore been questioned by practicing clinicians [11]. How perceptions of diagnosis utility relate to attitudes towards EBP remains unclear.

A key factor in the uptake of EBPs at the local level, is the readiness of the clinicians and organization to adopt "new" practices [12–14]. Clinicians are particularly important stakeholders, as their attitudes towards EBP broadly, and the adoption of particular methods, will influence their willingness to adopt new ways of working with patients [15, 16]. There is a small but growing body of evidence suggesting that positive EBP attitudes are significantly related to EBP adoption, but varying along individual (age, gender, educational attainment, experience), organizational (leadership, resources, levels of stress, support, service type), and patient characteristics (age, diagnosis, complexity) [5, 17, 18]. However, more research is needed to understand the interplay between these factors [5].

The Evidence-Based Attitude Practice Scale (EBPAS) is a widely used, 15-item measure of clinician's EBP attitudes along four dimensions: the intuitive appeal of EBP; the likelihood of adopting EBP given requirements to do so; openness to new practices; and perceived divergence between research-based/academically developed interventions and current practice [13]. The scale has been shown to have satisfactory validity and reliability [13, 19–25]. Importantly, total and subscale scores have been found to be related to initial adoption, fidelity, and sustained use of EBP in mental health settings [5, 13, 26, 27]. National norms are available for the United States of America (USA) that can be used for benchmarking across countries [19, 21, 22].

Clinicians working in mental health settings are heterogenous in relation to background, roles, disciplines, positions, and workplace characteristics, all of which may influence their EBP attitudes [28]. Studies employing the EBPAS have found that women, younger, and less experienced, but more highly educated mental health providers tend to report more favourable EBP attitudes, although results are somewhat inconsistent across studies [13, 14, 19, 23, 24, 29]. The clinician's discipline may be expected to influence EBP attitudes, as some disciplines place greater emphasis on combining research and practice during training and post-qualification [13, 19, 28]. Such variation has been found with social workers reporting more positive EBP attitudes [13, 14]. Differences between disciplines outside the USA remains poorly understood owing to few studies, sampling procedures or small sample sizes [23, 24, 30, 31].

Implementation frameworks suggest a complex interplay between organizational and individual implementation determinants [32]. More positive EBP attitudes are found in individuals working in more proficient, engaged, supportive and less stressful work environments, but varying between public vs. private, academic vs nonacademic organizations and leadership style [12, 14, 30, 33, 34]. It is likely that organizational factors impact on clinician EBP use, interact with clinician characteristics, including knowledge of and attitudes towards EBP, with more research needed on this topic [35–37].

The EBPAS has been used in a variety of settings, countries and cultures, most notably within the area of behavioural health, but no study outside the USA has surveyed a nationally representative sample [14, 23, 24, 30]. This includes Sweden, where no study has examined EBP attitudes in clinicians working in CAMHS. Results from a Norwegian study found significant differences in EBP attitudes, showing more positive attitudes toward EBP adoption when it was appealing, greater

openness to innovation, and less divergence, when compared with normative data from the USA [23]. Given the similarities between Norway and Sweden in terms of the healthcare training and delivery, similar differences may exist between Sweden and the USA for EBP attitudes in CAMHS clinicians. Partly consistent with such a view, a Swedish study of 345 clinicians working in inpatient and outpatient CAMHS in Stockholm were more positively disposed towards standardized assessments and diagnosis than normative data from the USA using the same questionnaires [38]. The authors also found a good deal of variability in attitudes towards assessment based on clinician and organizational characteristics. These studies utilized t-tests for comparison, even without direct access to the original data, as this approach is widely accepted for benchmarking normative data across different populations in this field.

In summary, there is preliminary evidence that clinicians' attitudes towards EBP are a key factor in the success of EBP implementation efforts. These attitudes appear to vary according to clinician and workplace characteristics, but firm conclusions are limited by the number of studies and sampling procedure and sample size issues. The present study aimed to address a gap in the literature with respect to EBP attitudes among clinicians working in routine CAMHS in Sweden. To address some of the methodological limitations of previous studies, the EBPAS was administered to a nationally representative sample of CAMHS clinicians in Sweden and their responses were compared to normative data from the USA. Based on the available literature, we hypothesized that: a) CAMHS clinicians would be positive towards EBP; b) would be more positive compared to normative data for the EBPAS from the USA; c) EBPAS scale scores would vary by sex, age, educational attainment, experience, profession, attitude toward diagnosis, organizational readiness, and service setting; and d) some of these background and organizational factors would remain significant predictors of EBP attitudes when controlling for sex, age, educational attainment, experience attitude to diagnosis and organizational readiness, and service setting.

Methods

Design and setting

Data from the present cross-sectional study was collected at baseline in a large multi-CAMHS implementation study of child and adolescent depression guidelines in Sweden [25, 39, 40]. All Swedish publicly (state) funded CAMHS were invited and 16 of 31 eligible CAMHS. These participating CAMHS serve about 66% of Swedish youth participate, covering a similar-sized catchment area and approximately 62,000 (25,000–250,000) children, as compared to the remaining CAMHS, which serve about 64,000 (29,000–450,000) children. A web-based survey was administered to 1350 outpatient CAMHS clinicians from October 2014 to June 2018. Two to five reminders were sent, and no compensation was offered to the clinicians. The survey included questions about the clinician's age, gender, professional discipline, highest educational level, number of years worked in CAMHS, followed by the EBPAS, questions from the Organizational Readiness for Change (ORC) and a single question about the usefulness of psychiatric diagnosis [13, 41]. This single not previously used question about the usefulness of psychiatric diagnosis (Likert scale 1–5 with an additional "Not applicable option") was developed specifically for the purpose of this study. (Supplemental table S3).

Participants

A total of 812 clinicians completed the survey (a 60% response rate). Of these, twelve were excluded because of missing all items on the EBPAS and one because all responses were the same, leaving 799 participants (Table 1). Missing data was less than 5% for demographic data (Table 1), EBPAS items (Supplemental table S1), and items from the Organizational Readiness for Change (ORC) [13, 41] (Supplemental table S2) and the item about utility of diagnosis (S3). The typical participant was female (84%), 35–45 years old (28%), a psychologist (33%) with less than 5 years' experience of child and adolescent psychiatry (44%) (Table 1).

Measure/s

EBP Attitudes

EBP attitudes were measured with the Swedish version of the 15-item EBPAS [25]. Items are rated on a 5-point scale ranging from 0 (not at all) to 4 (to a very great extent) with four subscales measuring: 1) the intuitive appeal of EBP (Appeal, four items); 2) the likelihood of adopting EBPs given requirements to do so (Requirements, three items); 3) openness to new or more structured practices (Openness, four items); and 4) perceived clinical usefulness of and divergence between researchbased developed interventions and current practice (Divergence, four items, reverse scored) [13]. Subscale means and a total scale score are computed, with higher total and subscale means indicating more positive EBP attitudes and less divergence between EBP and current practice. Previous studies report adequate internal consistency for the English language original [13, 19, 20]. Psychometric properties of the Swedish version were on par with the English language original [25]. In the present sample, the internal consistency values were as follows: EBPAS total scale $\alpha = 0.83$; Requirements $\alpha = 0.89$; Appeal $\alpha = 0.78$; Openness $\alpha = 0.78$; and Divergence $\alpha = 0.63$.

Table 1 Background characteristics of respondents (n = 799)

	n	%
Gender		
Male	128	16.2
Female	660	83.8
Age Group		
< 35 years	167	21.2
35–44 years	216	27.4
45–55 years	196	24.9
>55 years	209	26.6
Education		
< University	21	2.7
Bachelor	521	65.8
Master	220	27.8
PhD	30	3.8
Profession		
Auxiliary nurse	27	3.4
Nurse	11	13.9
Social worker	207	26.0
Psychologist	263	33.0
Psychiatrist*	104	13.0
Other	85	10.7
Tenure Child Mental health		
<5 years	345	43.7
5–10 years	138	17.5
11–15 years	98	12.4
16-20 years	82	10.4
> 20 years	126	16.0
Type of workplace /Service		
Non academic	489	61.2
Academic	310	38.8

Sample sizes vary slightly because of missing data. < University refers to secondary school (mandatory to age 16) or gymnasium (age 16–19 years)

* Psychiatrists include Child Psychiatrists, residents, and MDs without any specialist training

Organizational readiness

Items from the Organizational Readiness for Change (ORC) [41] were used to assess clinicians' perceptions of organizational readiness. The ORC is comprised of 115 items scored on a 5-point scale (1=strongly disagree, 5=strongly agree), representing 18 content domains of organizational readiness for implementation. The ORC includes four subscales measuring motivational factors, program resources, and organizational climate at the organizational level and staff attributes at the individual practitioner level [41]. To reduce the item load of the overall survey, participants completed nine ORC items assessing organizational readiness: one item from each of the six subscales of the Organizational Climate scale, two items from the Motivation for Change scale; and one item from the Resources scale (staff turnover). To ensure

that the most representative and relevant aspects of the subscales' constructs were included, items were selected through a consensus procedure based on their content and the strongest factor loadings in a validated Swedish-language version was used in this study [42]. See supplemental table S2 for individual items. Internal consistency for the nine ORC items used in the present study was $\alpha = 0.71$.

Data analysis

The reporting of results was guided by the Standards for reporting Implementation studies (STaRI) and the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statements respectively [43, 44]. All statistical analyses were carried out using Version 27 of SPSS [45]. We applied a Bonferroni correction to all analyses to control for Type 1 error given multiple comparisons. Prior to analyses, we examined the accuracy of data entry, missing values, normality, nonlinearity, and heteroscedasticity and influential cases for grouped and ungrouped data. We used independent sample t-tests to compare means on the four subscales of the EBPAS to USA norms. To estimate the magnitude of observed relationships, we used Cohen's d with d=0.20 corresponding to small, d=0.50 to medium, and d=0.80 to large effect sizes [46]. Intra class coefficients (ICC's) were used to estimate the variance in EPBAS and ORC scores that could be attributed to individual CAMHS. All ICCs were low indicating that EBPAS and ORC scores should represent clinician-level and not CAMHS-level constructs. The highest ICCs were 0.021 for the Requirement subscale of the EBPAS and 0.06 for the nine-items from the ORC used in this study.

We conducted simple regressions, with listwise deletion, using the EBPAS scales as the dependent variables (DVs) and the following independent variables (IVs) for all regressions: gender, age, experience, highest level of education, profession, attitude towards psychiatric diagnosis, type of workplace (academic-non-academic), and organizational readiness (total score on the 9-item ORC). Next, we conducted multiple regressions using the same IVs and DVs. Since the ICCs were low, we replicated Aarons et al. (2004, 2010) multiple regression analyses, in line with the Norwegian and Dutch studies of the EBPAS [13, 19, 23, 24]. For the multiple regression analyses, squared semipartial correlation was used to estimate the unique relationship between IVs and DVs. These squared semipartial correlations and R2 from simple regressions enable comparison of effect sizes for each predictor, while the beta coefficients assist comparison of the strengths of predictors across models. The following benchmarks were used to estimate the strengths of the regression

coefficients: $R^2 = 0.02$ —small: $R^2 = 0.13$ – medium, and $R^2 = 0.26$ – large [46].

Data preparation

Three univariate outliers (*z* scores > 3.0) on the EBPAS and ORC scales were replaced with one unit less extreme [47]. No influential cases (Cook's distance < 1) were found. The following categorical predictors with three or more categories were dummy coded: age (<45 years vs \geq 45 years), educational attainment (bachelor's degree and lower vs master's degree and higher), and clinical experience (<5 years vs \geq 5 years). Scale scores were the means of test items, provided at least 50% of scale items had valid data.

Results

Clinicians' attitudes toward EBP adoption

Table 2 presents the means and standard deviations for the total and subscale scores on the EBPAS for the present sample and norms from the USA, t-test comparisons, and effect sizes. Overall, participants in this study expressed favourable EBP attitudes. Mean values were high for most of the positively phrased EBPAS items and generally lower for negatively phrased items (in the Divergence scale) (S1). Mean scores for the EBPAS scales (Divergence scale reversed) were all over a neutral score of 2; a higher score indicates more positive attitudes towards adopting EBP (Table 2). The Appeal subscale had the highest score followed by the Openness, Divergence (when reversed) and Requirement subscales.

Comparison with norms from the USA

Compared to USA norms, participants in this study had significantly higher total and subscale scores, except for the Divergence subscale (Table 3). The effect size differences were small (Requirement and Openness) or moderate (Appeal and EBPAS Total scale).

Differences in attitudes due to individual and organizational factors

Table 3 presents the means and standard deviations for the total and subscale scores on the EBPAS by groups defined by clinician characteristics. Significant betweengroup differences are indicated by values with different subscripts. These variables as well as attitude toward diagnosis, type of service and organizational readiness was studied as predictors of attitudes by simple and multiple regression models and are presented in Table 4. All differences between groups were in general small in relation to differences between individuals, explaining about 2.0% of the variance in the unadjusted models (Table 4).

Females scored significantly higher than males on all EBPAS's scales (Divergence scale scores are reversed) except Openness. However, when controlling for multiple comparisons, only the comparisons for Requirements, Appeal, and EBPAS total scales remained significant (Tables 3 and 4). Younger clinicians scored higher (lower for Divergence) than older clinicians on all scales except Requirements. Staff with a bachelor's degree or lower scored significantly lower than those with a master's degree or higher on the Openness, Divergence (when reversed), and EBPAS total scale. A significant difference between professional disciplines was observed only for the Requirement scale after controlling for multiple comparison. Nurses had higher Requirement scores than psychologists. Those with shorter experience in child psychiatry scored significantly higher on the Openness, lower on the Divergence, and higher on the EBPAS total scale (Table 4). Finally, attitude towards diagnosis correlated with attitude towards EBP adoption across all domains (Table 4).

Respondents working at academic services reported significantly higher Appeal scores than those working in non-academic services. Organizational readiness for change (ORC- short form scale) had weak and negative

Scale	Swedish		USA Norm	ıs ¹	t	Df	Cohen's d
	М	SD	М	SD			
Requirements	2.70	.80	2.41	.99	6.68***	1834.63	0.31
Appeal	3.23	.54	2.91	.68	10.90***	1851.93	0.49
Openness	2.91	.60	2.76	.75	4.81***	1862.04	0.22
Divergence	1.19	.62	1.25	.70	-1.63	1796.66	-0.08
EBPAS total	2.93	.44	2.73	.49	8.52***	1878	0.40

Table 2 Comparison between EBPAS scale scores in Swedish CAMHS and USA norms^a

EBPAS Evidence Based Practice Assessment Scale, CAMHS Child and Adolescent Mental Health Services. Scores range from 0 to 4

*** *p* < .0001

^a Aarons [14]

EBPAS scales	Requiren	nents	Appeal		Openne	ss	Diverge	nce	EBPAS t	otal
	м	SD	М	SD	м	SD	м	SD	М	SD
All	2.69	0.81	3.22	0.55	2.90	0.60	1.20	0.62	2.92	0.46
Gender										
Female	2.74 _a	0.80	3.26 _a	0.55	2.92 _a	0.60	1.18 _a	0.62	2.95 _a	0.45
Male	2.43 _b	0.83	3.04 _b	0.52	2.53 _a	0.60	1.31 _a	0.60	2.76 _b	0.46
Age										
<45	2.66 _a	0.79	3.31 _a	0.52	3.03a	0.56	1.10 _b	0.58	2.99 _a	0.41
≥45	2.71 _a	0.83	3.13 _b	0.56	2.79 _b	0.62	1.29a	0.65	2.85 _b	0.48
Profession										
Other ^a	2.79 _b	0.87	3.18 _a	0.57	2.83 _a	0.66	1.28 _a	0.65	2.89 _a	0.51
Nurse	2.96 _b	0.76	3.24 _a	0.54	2.81 _a	0.64	1.20 _a	0.67	2.95 _a	0.48
Social worker	2.66 _a	0.74	3.23 _a	0.54	2.88 _a	0.59	1.21 _a	0.62	2.91 _a	0.43
Psychologist	2.58 _a	0.85	3.27 _a	0.56	2.99 _a	0.58	1.17 _a	0.60	2.95 _a	0.45
Psychiatrist ^b	2.65 _a	0.77	3.11 _a	0.54	2.93 _a	0.57	1.17 _a	0.61	2.90 _a	0.42
Education										
Bachelor or lower	2.70 _a	0.83	3.22 _a	0.56	2.86 _a	0.62	1.26 _a	0.63	2.89 _a	0.47
Master or higher	2.67 _a	0.78	3.24 _a	0.54	3.00 _b	0.56	1.05 _b	0.57	2.99 _b	0.41
Experience										
<5 years	2.71 _a	0.81	3.28 _a	0.52	3.01 _a	0.61	1.12 _a	0.57	2.99 _a	0.43
>5 years	2.68	0.81	3.18,	0.57	2.83 _b	0.59	1.26 _b	0.65	2.87 _b	0.46

Table 3 Means and standard deviations for EBPAS scale scores by clinician characteristics

Scale scores are mean scores provided that at least 50% of items had valid data. Means not sharing subscripts (a or b) differ significantly at p < 0.01

^a Others are auxiliary nurses and others

^b Psychiatrist include child psychiatrists, residents, and MDs without any specialist training

correlations with the Requirement and Total scales, respectively.

Differences in attitudes when controlling for the other individual and organizational factors

Table 4 presents the results of multiple regressions to test whether sex, age, educational attainment, profession, experience, attitude to diagnosis, type of service, and organizational readiness would remain significant predictors of EBP attitudes, following the analytical plan of the original EBPAS studies (Aarons 2004, 2010), rather than the more complicated two-level analytic plan of Aarons 2012 (Aarons 2012). Semipartial correlations (also called part correlations) indicate the "unique" contribution of an IV to the DV. Specifically, the squared semipartial correlation indicates how much R^2 will decrease if that variable is removed from the regression equation. The supplementary material provides a detailed description of the results regarding predictors for each attitudinal domain.

When controlling for other individual and organizational factors in the adjusted models, the results regarding *females, younger clinicians*, respondents working at *academic services*, and, not least, *attitude towards diagnosis* remained the same (Table 4). *Experience* in child psychiatry remained significant only for Openness, *educational level* only for the Divergence scale and *organizational readiness for change* only for the Requirement scale. For *professional discipline*, compared to psychologists, the 'others' group, in addition to nurses, scored higher on the Requirement scale, while psychiatrists scored lower on the Appeal scale in the adjusted models.

Discussion

This study aimed to address several knowledge and methodological gaps in the literature about EBP attitudes among CAMHS clinicians, and how clinician and organizational characteristics might relate to these attitudes. To date, this is the first study carried out in Sweden of CAMHS clinician's EBP attitudes towards both EBP interventions and assessment, and one of the largest studies of EBP attitudes among CAMHS clinicians in any country. Overall, we found that CAMHS clinicians across Sweden and from various disciplines (n=799)reported generally favourable attitudes towards EBP, with subgroup differences mainly at the clinician rather than the organizational level (discussed below). EBP adoption attitudes in this sample were similar to those assessed by the EBPAS in a Norwegian study and somewhat more positive than USA norms for EBPAS [19, 23]. The best

	Req	uirement	ts		Appe	al			Open	ness			Diverger	JCe		1	otal			
	Sim	ple	Multiple R ² =.099		Simp	e	Multiple R ² =.107		Simpl	a	Multiple R ² =.115	ĺ	Simple	2 &	lultiple 2=.124	S	imple	Σœ	lultiple ² =.172	
Characteristic Gender	R ² .021	β .145***	Sr Unique .13	β .125***	R ² .022	β .147***	Sr Unique .13	β 122***	R ² ns	β ns	Sr Unique	β Su	R ² β.	s1*	' Unique β	~ Q	² β 155	Sr Sr	Unique B	5 117***
Age	ns	ns		ns	.024	- .155***	- - -	122**	<u>40</u>	- .205***	12	128**	.022 .14	***8	-	18** .C	16 - 16	י **	- 10	.109**
Educational level	SU	ns		ns	SU	ns	ns	ns	.013	.113**		SU	.025 - .15	- ***	1	18** .0	360. 014	**	S	S
Experience	ns	ns		ns	.007	086*	ns	ns	.024	- .154***	.11	117**	.011 .11	2**	SU .	0.	.129	.u ***6	S	SI
Profession	.024				ns				.013				ns			C	S			
Other		.092*	960.	.104**		ns	ns	ns		091*		ns	ns		ů,		ns	Ë	S	SI
Nurse		.161***	.147	.157***		ns	ns	ns		106**		ns	ns		5U		ns	Ë	S	S
Social worker		ns		ns		ns	ns	ns		085*		ns	ns		5U		ns	Ē	S	S
Psychiatrist		ns		ns		ns	-11	122**		ns		ns	ns		ů		ns	Ë	S	S
Benefit of diag- nosis	.045		.209	.212***	.038	.195***	.21	.214***	.05	.228***	.22	.220***	.09 - 29	· *** °	27 - .2	.1	08 .329	. ***9	ς.	328**
Service	ns	ns		ns	.015	.123***	.10	**860.	.013	.112*	.10	.092*	ns ns	C	s	O.	10.102	2* .0	<u>о</u> .	073*
Org. readiness	.015	- .121***	.1	107**	.006	074*	SU	ns	ns	ns	ns	ns	.004 ns	Ċ.	07	Ų.	11 110) **E	- 60	.083*
Reference groups for	dumm	y coded va	ariable are as	follows: ge	ender = 1	male, age	= younger, ed	lucational	level =	low, Expe	erience = sho	rt, Service	= non-aca	demic cl	inic Sr = semi	partial co	rrelations			

Table 4 Predictors of EBPAS scale scores from simple (one Predictor) vs. multiple (controlling for others) regression analyses

*** *p* < .001 ** *p* < .01 * *p* < .05

predictor of positive EBP attitudes was holding favourable views of the utility of psychiatric diagnosis. Before discussing the implications of the current findings, we briefly highlight the findings for clinician- and organizational-level variations in EBP attitudes.

Clinicians' attitudes toward EBP adoption

Participants in this study reported favourable attitudes towards EBP overall and on all four EBPAS dimensions; they were ready to adopt an EBP when appealing (Appeal), they were open to new and research-based treatments (Openness), and they perceived relatively little divergence from EBP and their current practice (Divergence). Likewise, they were positive towards, but slightly less inclined to use, mandatory EBPs (Requirement). This pattern of attitudes across domains (subscales) was similar to that reported in a Norwegian study and in the USA norms study [19, 23].

Comparison with norms from the USA

Broadly aligned with the Norwegian study, but in contrast with a Greek study, CAMHS clinicians in this study held more favourable EBP attitudes compared to their counterparts in the USA [19, 23, 31]. The positive EBP attitudes in the Swedish sample, particularly on Openness and Appeal, may have been influenced by their positive attitudes towards the specific innovation being implemented [48, 49]. A companion study with a subsample of these participants indicated a positive view of the guideline's characteristics and a moderate relationship between guideline attributes and EBP adoption attitudes [39, 40]. Regarding lack of differences on the divergence scale, a more detailed analysis suggests that the Swedish and American samples equally valued their own judgment on how to care for their patients compared to researchers and were equally prepared to use structured interventions. However, the Swedish clinicians were a bit more sceptical than their American counterparts about the clinical utility of research-based interventions. This scepticism may stem from a perception that these interventions are not tailored to the Swedish healthcare context. Furthermore, results suggest that the Swedish sample put less emphasis on clinical experience and more emphasis on structured and standardized treatment methods compared to their American counterparts. A possible explanation is their comparatively less experience. Nevertheless, EBP attitudes such as Openness have been linked to EBP adoption, thereby suggesting a good starting point for the implementation effort [17, 36]. However, as Divergence has been linked to non-use and discontinuation of EBPs, addressing concerns about the clinical applicability of EBPs, by adapting them to better fit the Swedish CAMHS context and

Differences in attitudes due to individual and organizational factors

Taken together, our results indicate group differences between professions related to gender, age, experience, and education, and to some extent profession, service type and organizational readiness, aligning with prior studies [14, 19]. Consistent with Aarons et al. (2010), we found that female respondents generally held more favourable attitudes toward EBPs, as demonstrated by significantly higher ratings in the Requirements, Appeal, and EBPAS total scales, whereas more experienced clinicians were less open [19]. However, in our study, results regarding gender expanded to Divergence and Aaron's findings on experience level expanded to include Requirements and Divergence. In our study, age was significantly associated with general attitudes and three out of four specific attitudes but not Requirement and educational level was associated to Divergence. This contrasts with Aarons' study, where age was linked solely to the Requirement dimension and educational level linked to Requirements and Appeal. In the Swedish sample, nurses and the other discipline group scored higher on Requirement and psychiatrists lower on Appeal, while social workers scored higher on the EBPAS total and Openness scales, and the others group discipline group scored lower on Divergence in the U.S.A sample. A possible explanation for age having a greater impact than experience in our study is that participants had comparatively less experience. Additionally, differences in educational systems and professional roles, particularly in education and training in evidence-based methods, might result in Swedish clinicians with higher education being more autonomous and sceptical towards EBPs than their colleagues elsewhere. This could also account for the differences observed between professions. Results regarding discipline from these studies are however in contrast to results from our beforementioned study on guideline implementation, where psychiatrists held a more positive view than the other professions, notably compared to social workers, regarding guideline characteristics and their own ability to adopt the guideline [39]. These findings highlight differences in professionals' broad and specific EBP attitudes across cultures and may be attributed to how participants from different disciplines interpret the concept of EBP or perceive the innovation attributes of a specific EBP such as a guideline, which may stem from cultural differences as well as from differences in the organization of CAMHS and the education of CAMHS clinicians. These findings indicate that implementation theory can gain by paying more attention to differences between educational systems, organizational structures and professional cultures in different national contexts, thereby developing more sensitivity towards the contingent nature of the weights and meaning of different factors influencing implementation processes and outcomes.

While no differences emerged between CAMHS (according to the ICCs), we observed associations between service characteristics and specific attitudes: clinicians in academic settings found EBP more appealing than those in non-academic settings; and organizational readiness was uniquely linked to the Requirements scale.

Our prediction models accounted for relatively small portions of the overall variance in each EBPAS scales. In that context, positive attitudes towards diagnosis were the best predictor across dimensions and models. This finding might reflect that most (if not all) evidencebased treatment protocols / care guidelines in CAMHS are diagnosis based [10]. Given the gaps in existing literature, making comparisons is challenging. EBPs are often criticized for not accommodating the complex and comorbid nature of patients in real-world settings. However, research indicates that children who receive diagnosis-congruent EBTs in community settings show better improvements [51]. This positive effect also extends to patients with comorbid disorders, compared to those not receiving EBT. Therefore, it would be interesting to investigate whether clinicians with positive attitudes toward EBPs see more value in psychiatric diagnosis due to their better treatment outcomes or if the reverse is true.

These findings, if replicated, may have implications for implementation theory. Most importantly, our results indicate that the attitude towards diagnosis plays a more significant role in shaping attitudes towards EBP adoption compared to other individual and organizational factors, although it is unclear what direction this relationship takes or its importance for EBP uptake. Additionally, our findings from previous studies suggest an interconnectedness not only of context factors, as suggested by the EPIS framework, but also between specific innovation characteristics and inner context factors like EBP adoption attitudes [52]. Furthermore, EBP adoption attitudes seem to differ less depending on professional discipline compared to the perception of specific innovation attributes, indicating that innovation attributes are not fixed but dependent on potential users' perceptions, as suggested by Rogers, providing additional evidence for this connection [53]. Regarding implications for implementation projects, our findings suggest that implementation planners cannot rely solely on findings from other countries but need to tailor their approaches to what is being implemented based on the adopters' needs.

Strengths and limitations

This first replication of Aarons study investigating clinician attitudes towards the adoption of EBP benefitted from a large and representative sample of front-line CAMHS clinicians from diverse professions from across Sweden. The robust response rate of 60% exceeded commonly viewed thresholds for e-mailed surveys and our sample size was sufficient to support the statistical analyses. Regarding limitations, we were unable to obtain data about non-respondents to the survey to investigate any potential selection bias, such that attitudes could be overor underestimated. Reflecting the nature of the CAMHS outpatient workforce in Sweden, the professional groups differed as expected in size [54]. Generally, professions with a more positive view outnumbered the more negative ones resulting in a more positive view.

These results may not generalize to all implementation efforts. Participating CAMHS applied to join the implementation program for adopting clinical guidelines on depression in young people. Their staff may be more positive towards EBP compared to clinicians at CAMHS that did not participate. The voluntary participation may also explain the lack of significant differences between CAMHS (according to ICC). However, it is worth noting that a substantial number of publicly owned and operated CAMHS participated, while several of the non-participating CAMHS were in the process of joining.

Our study did not incorporate data from the USA, caution is therefore warranted when interpreting the observed EBP attitude differences between Sweden and the USA. The findings, beyond highlighting potential cultural distinctions, can also partly stem from variations in sample characteristics, data collection methods and the 15-year time span since the establishment of USA norms.

Another limitation is the cross-sectional design, which prevents us from establishing the directionality of the observed effects. For instance, it is possible that clinicians' attitudes toward EBP adoption influence their perceptions of the utility of psychiatric diagnosis, rather than the other way around.

The regression models predicted 10–17% of the total variances, in line with previous studies [13, 14, 19], reflecting the complex mechanism involved in creating attitudes and that additional factors than those studied contribute to a large degree to attitudes towards EBP adoption. One reason for weak results is that our study employed just a single item to assess perceived benefits of diagnosis and only nine items to gauge organizational readiness, which may decrease reliability of findings.

Implications

Our findings suggest a promising start for implementing evidence-based practice within Swedish CAMHS, particularly from the clinicians' perspective. Clinicians generally value and are willing to adopt EBPs, and this positivity is remarkably consistent across professional groups and services. Nevertheless, our results indicate that early EBP educational efforts might be most effective when focused on enhancing the perceived benefit of psychiatric diagnosis. However, the extent of fine-tuning required will become clearer once utilization and satisfaction data with EBP are obtained through longitudinal investigations. Similarly, further research is needed to assess the ability of EBPAS scores to predict the adoption of, fidelity to, and sustainment of EBP compared with measures designed to assess barriers and facilitators to the adoption of evidencebased guidelines and specific EBPs. Finally, additional research is needed (and planned for) to investigate the relation between EBPAS scores and clinical outcome in Swedish CAMHS and other health care settings [55].

Conclusion

In this first, large-scale nationwide and interdisciplinary study outside the USA, CAMHS clinicians in Sweden held generally positive attitudes towards the adoption of evidence-based practice, and somewhat more so compared to USA norms. Positive attitudes towards the utility of psychiatric diagnoses emerged as the strongest predictor of positive attitudes towards EBP. The EPBAS can help identify clinician- and organizational-level factors that are important to EBP implementation efforts, and thus improving service delivery and outcomes in routine clinical care.

Abbreviations

CAMHS	Child and adolescent mental health services
CI	Confidence interval
EBP	Evidence-based Practice
EBPAS	Evidence-based Practice Attitude Scale
EBT	Evidence -Based Treatments
EPIS	Framework Exploration, Preparation, Implementation, Sustainment
	framework
ICC	Intra Class correlation
NBHW	Swedish National Board of Health and Welfare
ORC	Organizational Readiness for Change Scale
StaRl	Standards of Reporting Implementation Studies
STROBE	The Strengthening the Reporting of Observational Studies in
	Epidemiology
USA	United States of America

Supplementary Information

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Supplementary Material 1.

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Authors' contributions

HJ is the principal investigator, responsible for the design of the overall project, including this study. The initial concept of utilizing the EBPAS was proposed by SP, who also obtained the requisite authorization from Aarons to facilitate its translation to Swedish. AS, MB and PG conceptualized the specific research questions and the analytic approach for this manuscript. Analyses were conducted by AS. AS wrote the first draft of the manuscript and provided critical commentary. All authors (AS, RH, MB, PG, HJ, and SP) read and approved the final manuscript.

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Data availability

The dataset supporting the conclusions of this article is available in the Halland Hospital Halmstad repository. The dataset used and/or analysed during current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study received approval from the Regional Ethical Review Board in Umeå, Department of Medical Research (Regionala etikprövningsnämnden i Umeå avdelningen för medicinsk forskning); EPN 2015/186–31 and EPN 2016/502–32. In Sweden, the Regional Ethical Boards were previously affiliated with the faculty of medicine at regional universities until 2004. Between 2004 and 2019, the Regional Ethical Boards operated as independent authorities. However, starting from January 1, 2019, applications for ethical review of research are overseen by the new Swedish Ethical Review Authority.

Informed consent was obtained from all individual participants included in the study. The respondents were informed about the research project and that completion of the web-based survey was accepted as consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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